FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

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JACKRABBIT WASH FLOODPLAIN DELINEATION STUDY

FCD 90-05

TECHNICAL DATA NOTEBOOK HYDRAULICS

BOOK 2 OF 2

Prepared For:

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February, 1991

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SECTION 3: Hydrologic Analysis

SECTION 3: Hydrologic Analysis

3.1 Hydrologic Method Description

Refer to the separate Technical Data Notebook for a more detailed discussion of hydrology. This section presents an overview of the hydrologic analysis.

The watershed was modeled utilizing methodology set forth in Reference 1. The watershed was modeled for the 100-year 6-hour, and 100-year 24-hour, duration storms. Rainfall losses were estimated using the Green & Ampt infiltration equation with an estimate for surface retention loss. Hydrographs were routed through the watershed using normal depth channel routing. Reservoir routing, where water ponds against the Central Arizona Project Canal, was performed using the Modified Puls Method. The watershed was modeled using the U.S. Army Corps of Engineers HEC-1 Computer Program, version 4.0, dated September, 1990, as implemented by Dodson & Associates.

SECTION 3: Hydrologic Analysis

3.2 Parameter Estimation

The study watershed is approximately 441.8 square miles in area. The study area is bounded on the north by the Vulture Mountains, on the east by the Vulture Mountains and the Hassayampa River, on the south by U.S. Interstate 10, and on the west and southwest by 371st Avenue (projected) and the Belmont Mountains. The watershed is divided into two sections by the Central Arizona Project Canal. The major wash on the watershed is known as Jackrabbit Wash. Jackrabbit Wash has several smaller washes which contribute to it. These are known as Deadhorse Wash, Coyote Wash, Powerline Wash and Star Wash. A secondary wash on the watershed which contributes directly to the Hassayampa River is Daggs Wash.

The watershed is rural in nature and essentially consists of desert terrain. The watershed is characterized by steep rugged mountainous terrain along the edges of the watershed and much flatter desert valley in the middle and southerly portion of the watershed. The typical soil type is a sandy loam. This correlates to an SCS Hydrologic Group A soil, therefore the watershed can be characterized as having a low runoff potential.

The criteria for delineating the watershed into sub-basins was to use an average sub-basin size upstream of the Central Arizona Project Canal of 5 square miles and an average sub-basin size downstream of the Central Arizona Project Canal of 3 square miles. In addition to this criteria, the watershed was also broken down to allow for computing peak discharges at major county road crossings and at confluences of major washes.

There are many small sub-basins against U.S. Interstate 10 and 371st Avenue which are less than 1.0 square miles. These sub-basins were not modeled.

Soils parameters were estimated using the Green & Ampt infiltration equation. Soil textures were obtained from references 26 and 27.

The areas of each sub-basin were planimetered using the sub-basin delineations on USGS mapping at a scale of 1:24,000. The area of each major basin was then planimetered on a reduced mosaic of USGS mapping at a scale of 1:120,000.

The landuse characteristics of the watershed were divided into three (3) types: desert and rangeland, hillslopes, and mountain. The delineation between the three different landuse types was done using engineering judgement. The judgement was based on physical observations made on the watershed and examination of slope conditions of USGS quadrangle maps.

The vegetation cover density values were based on observations made during the field reconnaissance. Vegetation density transects were taken at various locations on the watershed, in conjunction with the field cross sections.

A lag time for each sub-basin was evaluated using the following relationship:

$$LAG=C(LL_{ca}/S^{p})^{m}$$

where LAG = basin lag time in hours.

L = length of the longest watercourse in miles

L_{ca} = length along the watercourse to a point opposite the centroid in miles

S = watercourse slope in feet per mile

C = 20Kn (from U.S. Army Corps of Engineers, COE)

m = 0.38 (from COE)

p = 0.5

Kn = estimated mean Manning's "n" values for all channels in the basin.

The original contract scope of work specified use of S-Graphs for watershed areas in excess of 10 square miles and the Clark Unit Hydrograph for watershed areas less than 5 square miles. In the early portion of the study it was determined that the Design Manual procedure for estimating time of concentration for use with the Clark Unit Hydrograph was yielding unrealistic results. In conferences with Flood Control District personnel, it was determined that the S-Graph method may be more appropriate for use on most of the sub-basins on the watershed. An examination of the results

of using S-Graphs on individual sub-basins yielded that it was reasonable to use the S-Graph for the majority of the sub-basins. The only sub-basins for which the method appears to yield unreasonable results were those with watershed areas less than 1 square mile. Since these sub-basins do not play a significant role in determining peak discharges on the watershed, it was decided to use the S-Graph throughout.

The Design Manual lists 2 types of S-Graphs approved for use in Maricopa County. These are the Phoenix Mountain S-Graph and Phoenix Valley S-Graph. The selection of an S-Graph for use on a particular sub-basin was based on land characteristics. If over 50% of the basin was mountain and hillslope, then the Phoenix Mountain S-Graph was selected. If over 50% of the basin area was rangeland, then the Phoenix Valley S-Graph was selected. The S-Graph type selected for each sub-basin is listed in Table S-4. A separate S-Graph was generated for each sub-basin by use of the computer program MCUHP2. This program was written by the Flood Control District and is furnished with the Design Manual. This program creates a set of "UI" card records for direct input to HEC-1.

SECTION 4: Hydraulic Analysis

SECTION 4: Hydraulic Analysis

4.1 Method Description

Water surface elevations for Jackrabbit Wash, Star Wash, and the unnamed tributary of Jackrabbit Wash are computed through the use of the Department of the Army, Corps of Engineers HEC-2 Water Surface Profiles computer program as implemented by Dodson and Associates, Inc. in their 1989 version of ProHEC2. Starting elevations were obtained using normal depth. Elevations used are referenced to the National Geodetic Vertical Datum of 1929.

The Jackrabbit Wash model starts with normal depth about 650 feet downstream of the study limit so that results at the first section within the detailed study limit (7.842) include the effects of backwater.

The Jackrabbit Wash starting slope of 0.006 ft/ft was computed as the average of the channel invert slope from river miles 7.713 to 7.874 (0.0064 ft/ft) and from river miles 7.713 to 8.062 (0.0057).

Natural profile models for Star Wash and the unnamed tributary of Jackrabbit Wash start with normal depth at a section in Jackrabbit Wash downstream of the confluence so that results at the first section within the study stream include backwater effects.

The mouth of Star Wash is within the starting reach for Jackrabbit Wash. The starting slope was therefore selected as 0.006 ft/ft as described above. The Star Wash profile run begins downstream of the confluence at Jackrabbit Wash Section 7.874. Flood peaks of Star and Jackrabbit Washes do not coincide, therefore, the beginning peak discharge in the HEC-2 model is the Star Wash peak. Regulatory flood profiles plotted in the report have been adjusted to reflect backwater from the 100-year flood peak on Jackrabbit Wash.

The mouth of the unnamed tributary of Jackrabbit Wash is at Jackrabbit Wash river mile 10.39. Channel invert elevations at Jackrabbit Wash Sections 10.095 and 10.271 were used to compute a starting slope for Section 10.271 which begins the model.

SECTION 4: Hydraulic Analysis

4.2 Parameter Estimation

Manning's "n" Values

On December 6, 1990, engineers from Burgess & Niple, Inc. and the Flood Control District of Maricopa County made a reconnaissance field trip to select Manning's "n" values for use in the backwater modeling of Jackrabbit Wash from the CAP Canal to Vulture Mine Road; an unnamed tributary of Jackrabbit Wash from its mouth at Jackrabbit Wash River Mile 10.39 to Vulture Mine Road and Star Wash from its mouth at Jackrabbit Wash River Mile 7.97 to the first powerline crossing about 2.1 miles upstream. Manning's "n" values were selected based on visual observations for the channel and overbanks using, as a guide, the preliminary draft (7-3-90.2) of "Manning's Roughness Coefficients for Stream Channels and Floodplains in Maricopa County, Arizona", USGS.

The following photos illustrate selected Manning's "n" values.

In general, channel bottoms are relatively clear of vegetation and were assigned coefficients of 0.03 to 0.035. Channel banks and bars are more heavily vegetated, with coefficients near 0.05 for the immediate side slopes and 0.035 to 0.04 in the overbank areas.

Roughness coefficients have been assigned to subelements of individual cross-sections based upon the field reconnaissance and comparison with aerial photographs. Roughness coefficients are included in the HEC-2 computer model by use of NH cards.

Expansion/Contraction Coefficients

The changes in stream cross sections are relatively small, with no significant obstructions or structures. Coefficients for expansion and contraction losses have therefore been selected as 0.3 and 0.1, respectively.

Photo No. 1 (9007-2)
RM 17.8
Looking downstream from Vulture Mine Road, Jackrabbit Wash,
"n" = .030 for channel.
"n" = .035 for left overbank and
"n" = .040 for right overbank.

Photo No. 2 (9007-5)
RM 16.8
Looking downstream at left overbank of Jackrabbit Wash.
"n" = .040

Photo No. 3 (9007-6)
RM 15.8
Looking downstream, Jackrabbit Wash.
"n" = .030 for channel.

Photo No. 4 (9007-8)
RM 14.8
Looking downstream,
Jackrabbit Wash.
"n" = .030 for channel.

Photo No. 5 (9007-9)
RM 14.8
Looking downstream at
left overbank of
Jackrabbit Wash.
"n" = .035

Photo No. 6 (9007-10)
RM 14.8
Looking downstream at
right overbank of
Jackrabbit Wash.
"n" = .035

Photo No. 7 (9007-14)
RM 12.8
Looking downstream,
Jackrabbit Wash.
"n" = .030 for channel.

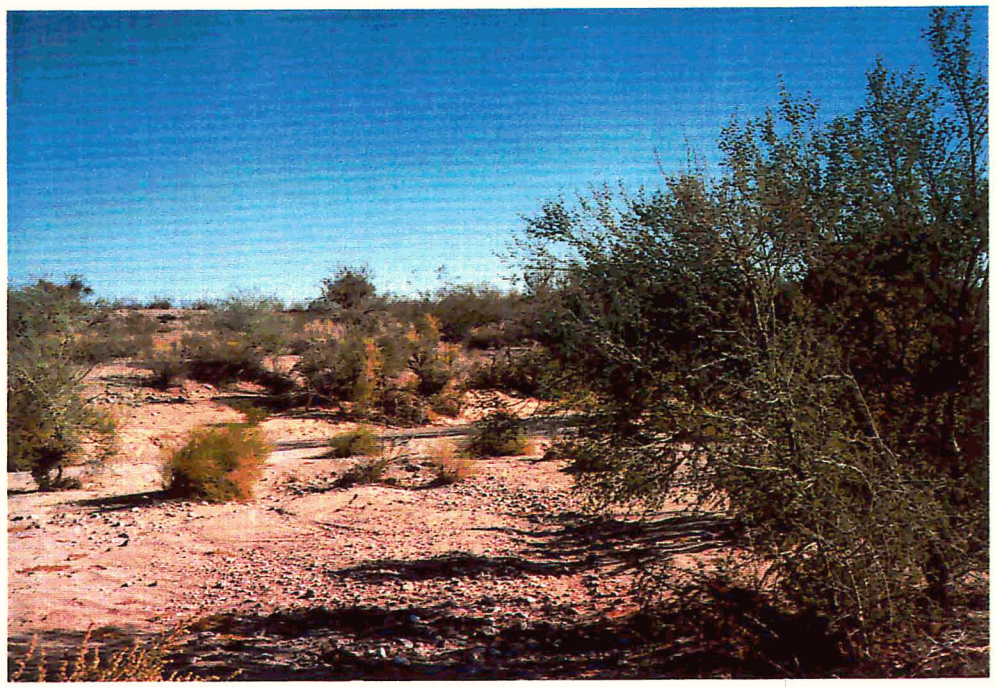

Photo No. 8 (9007-15)
RM 12.8
Looking downstream at
left overbank of Jackrabbit
Wash.
"n" = .035

Photo No. 9 (9007-16)
RM 12.8
Looking downstream at
right overbank of
Jackrabbit Wash.
"n" = .035

Photo No. 10 (9007-19)
RM 10.9
Looking downstream,
Jackrabbit Wash.
"n" = 0.30 for channel.

Photo No. 11 (9007-20)
RM 10.9
Looking downstream at
left overbank of Jackrabbit
Wash.
"n" = .035

Photo No. 12 (9007-21)
RM 10.9
Looking downstream at
right overbank of
Jackrabbit Wash.
"n" = .035

Photo No. 13 (9008-2)
RM 8.9
Looking downstream,
Jackrabbit Wash.
"n" = .030 for channel.

Photo No. 14 (9008-3)
RM 8.9
Looking downstream at
left overbank of Jackrabbit
Wash.
"n" = .035 for channel.

Photo No. 15 (9008-4)
RM 8.9
Looking downstream at
right overbank of
Jackrabbit Wash.
"n" = .035

Photo No. 16 (9008-5)
RM 7.9
Looking upstream from Granite Reef Aqueduct, Jackrabbit Wash.
"n" = .035 for channel.

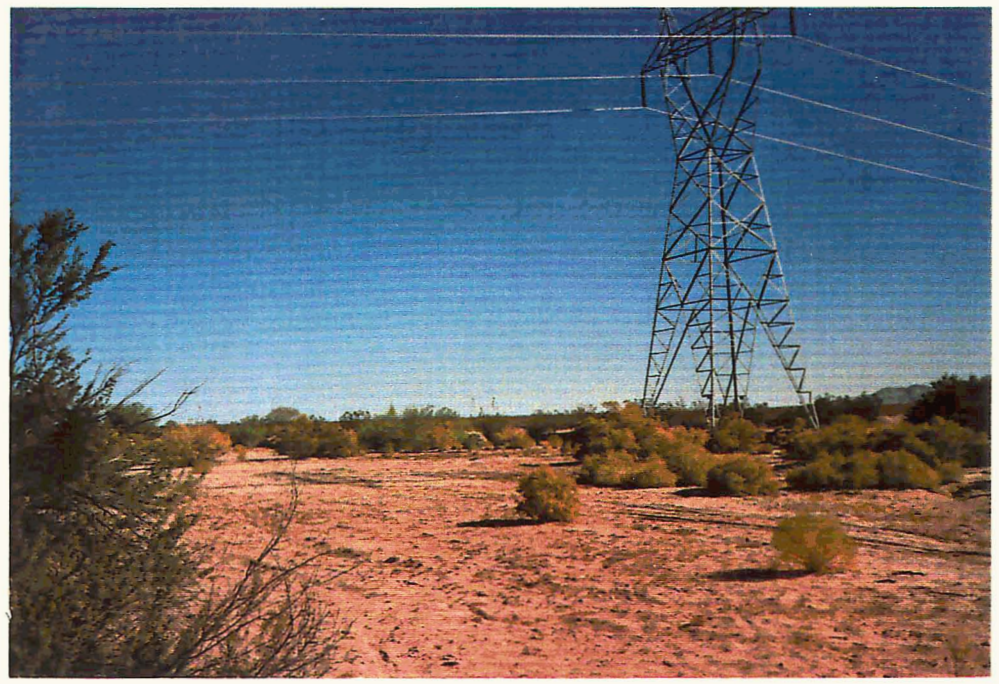

Photo No. 17 (9008-15)
RM 2.1
Looking upstream, Star Wash.
"n" = .035 for channel.

Photo No. 18 (9008-13)
RM 2.1
Looking downstream, Star Wash.
"n" = .035 for channel.
"n" = .040 for left and right overbanks.

Photo No. 19 (9008-9)
RM 1.0
Looking downstream, Star Wash.
"n" = .035 for channel.

Photo No. 20 (9008-10)
RM 1.0
Looking downstream at left overbank of Star Wash.
"n" = .040

Photo No. 21 (9008-11)
RM 1.0
Looking downstream at right overbank of Star Wash.
"n" = .040

Photo No. 22 (9009-10)
RM 6.4
Looking downstream,
Unnamed Wash.
"n" = .030 for channel.

Photo No. 23 (9009-11)
RM 6.4
Looking downstream at
left overbank of Unnamed
Wash.
"n" = .035

Photo No. 24 (9009-12)
RM 6.4
Looking downstream at
right overbank of
Unnamed Wash.
"n" = .035

Photo No. 25 (9009-9)
RM 5.4
Looking downstream,
Unnamed Wash.
"n" = .030 for channel.

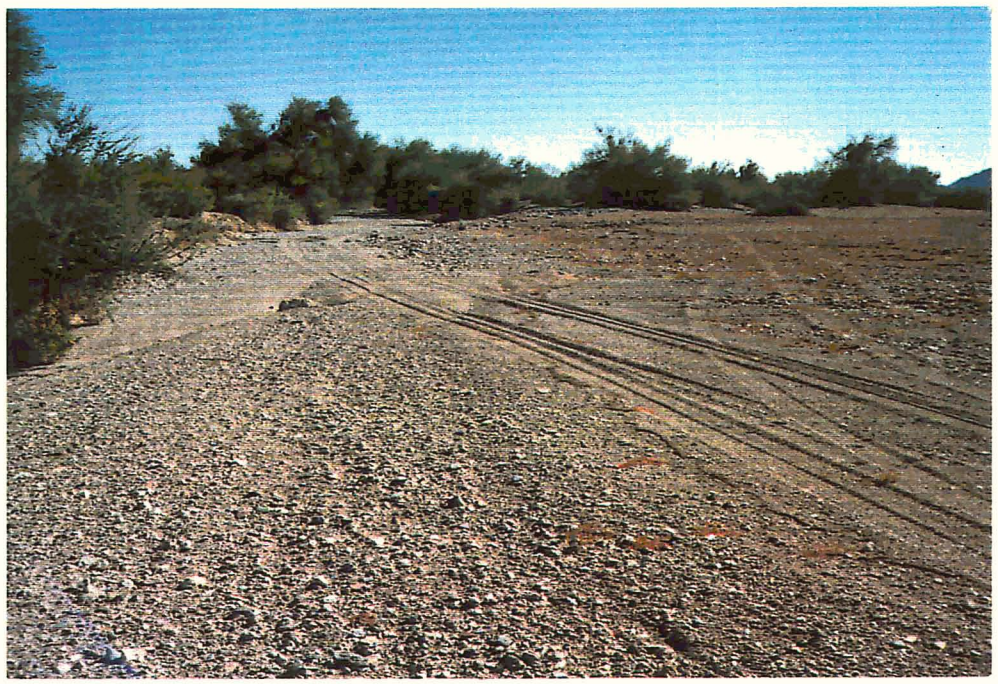

Photo No. 26 (9009-5)
RM 3.7
Looking downstream,
Unnamed Wash.
"n" = .030 for channel.

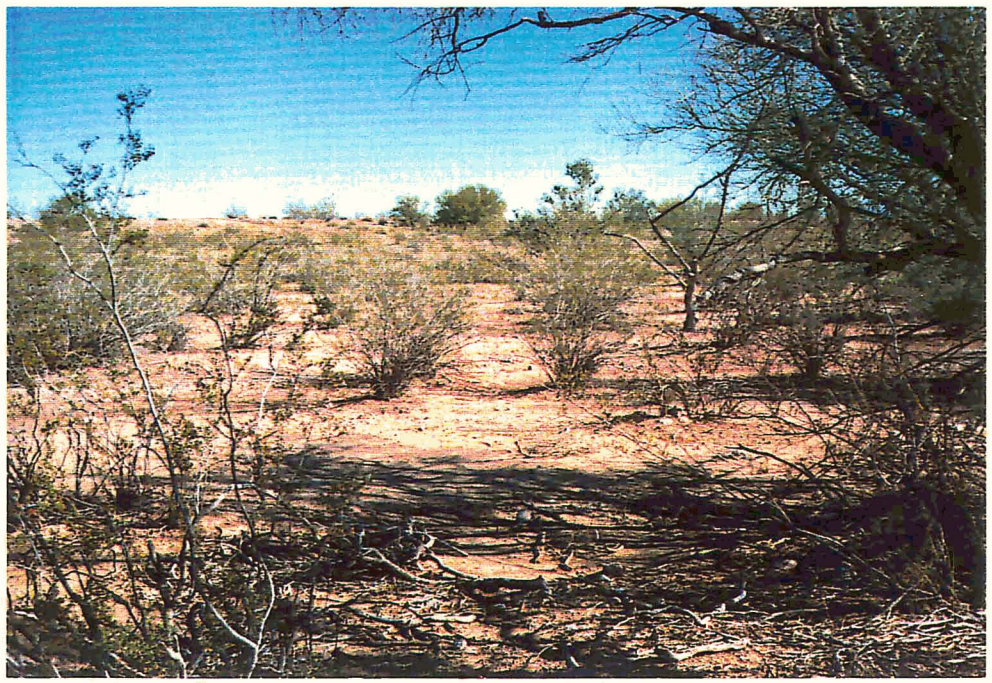

Photo No. 27 (9009-6)
RM 3.7
Looking downstream at
left overbank of Unnamed
Wash.
"n" = .035

Photo No. 28 (9009-7)
RM 3.7
Looking downstream at right overbank of Unnamed Wash.
"n" = .035

Photo No. 29 (9009-3)
RM 3.0
Looking downstream at left overbank of Unnamed Wash.
"n" = .040

Photo No. 30 (9008-25)
RM 2.0
Looking upstream, Unnamed Wash. of
"n" = .030 for channel.

Photo No. 31 (9008-23)
RM 2.0
Looking downstream,
Unnamed Wash.
"n" = .030 for channel.

Photo No. 32 (9008-24)
RM 2.0
Looking downstream at
left overbank of Unnamed
Wash.
"n" = .050

Photo No. 33 (9008-21)
RM 1.0
Looking downstream at
left overbank of Unnamed
Wash.
"n" = .035

Photo No. 34 (9008-22)
RM 1.0
Looking downstream at
right overbank of
Unnamed Wash.
"n" = .040

Photo No. 35 (9008-18)
RM 0.5
Looking downstream,
Unnamed Wash.
"n" = .035

Photo No. 36 (9008-16)
RM 0.1
Looking downstream,
Unnamed Wash.
"n" = .030

Photo No. 37 (9008-17)
RM 0.1
Looking downstream at
typical overbank of
Unnamed Wash.
"n" = .035

N
Project Limit
RM 2.1
RM 8.0
RM 7.9
Project Limit
RM 2.8
RM 2.3
RM 1.6
RM 1.0
RM 0.7
RM 0.5
RM 0.0
"n" = .035
"n" = .030
"n" = .035
"n" = .050
"n" = .030
"n" = .035
"n" = .035
"n" = .030
"n" = .035
"n" = .035
"n" = .030
"n" = .035
"n" = .035
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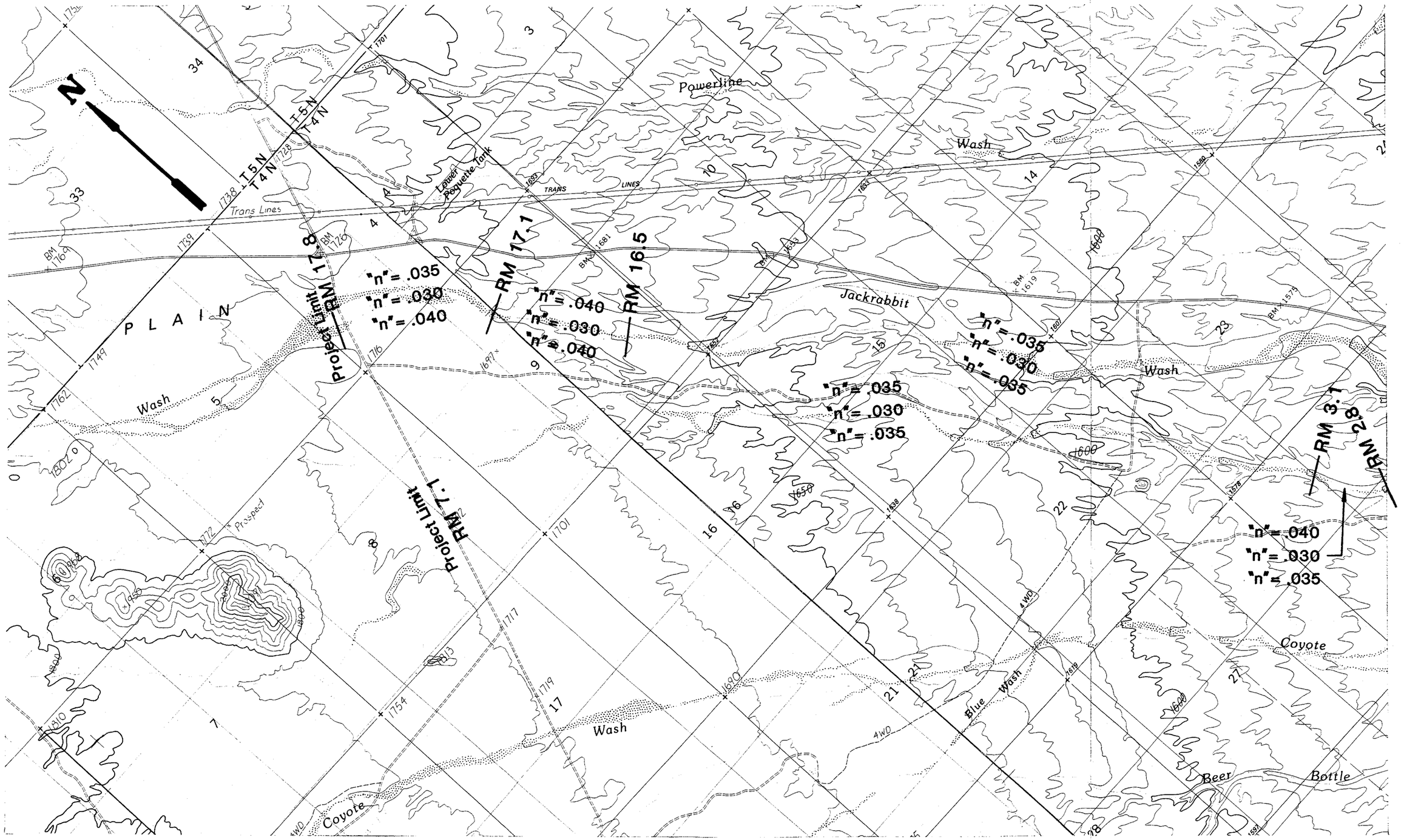
"n" = .035
"n" = .040
"n" = .035
"n" = .040
"n" = .035
"n" = .030
"n" = .035
Jackrabbit
Wash
Jackrabbit
Wash
Wash
Coyote
Wash
Mitchell Tank
Powerline Tank
TRANS
LINES
Stor
Well
Stor
Well
Wash
Stor
Flumes
LEVEE
RESTRICTED
GRANITE
REEF
AQUEDUCT
RESTRICTED
H A S S A Y A M P A
R5W
R6W
R5W
R6W
4 WD
4 WD


N
T 5 N
T 4 N
Trans Lines
Powerline
Wash
Lower Poquette Tank
PLAIN
Jackrabbit
Wash
Wash
Wash
Coyote
Blue Wash
Beer
Bottle
Coyote
Prospect
Project Limit
RM 17.8
RM 17.1
RM 16.5
RM 3.1
RM 2.8
"n" = .035
"n" = .030
"n" = .040
"n" = .040
"n" = .030
"n" = .040
"n" = .035
"n" = .030
"n" = .035
"n" = .035
"n" = .030
"n" = .035
"n" = .040
"n" = .030
"n" = .035

SECTION 4: Hydraulic Analysis

4.3 Cross Section Description

Following completion of reproducible topographic mapping, stream thalwegs were sketched on work prints. Cross section locations spaced at about 1,000 feet were selected. Criteria for selection included:

* Represent the local stream reach
* Orient perpendicular to the predicted 100-year floodplain
* Avoid inclusion of non-effective areas such as tributary washes
* Include the entire predicted 100-year floodplain
* Check the accuracy of topographic mapping and digitized cross sections at the five locations surveyed in the field.

At confluences and other areas where it was anticipated that flow may not be fully two dimensional, "broken back" cross sections where selected to reflect the predicted flow pattern.

Cross section labeling represents each section's distance upstream of the mouth, measured in miles along the thalweg. USGS 7-1/2 minute topographic mapping was used to measure the Jackrabbit Wash thalweg distance from the mouth at the Hassayampa River to the centerline of the CAP Canal.

The basis of river mile stationing is river mile 7.842 where the Jackrabbit Wash thalweg crosses the CAP Canal centerline.

Digitized cross sections at the locations selected as described above were provided by Aerial Mapping Co., Inc. Sections were processed by Burgess & Niple to develop section plots at 1"=10'V and 1"=200'H scales. For each cross section, station 10,000 represents the intersection with the thalweg as delineated by Burgess & Niple on the topographic mapping.

Cross section plots were reviewed in conjunction with aerial photographs and topographic mapping to determine if the sections were representative of the reach. Adjustments were made to remove non-effective areas, bank stations were selected, and Manning's "n" values were assigned.

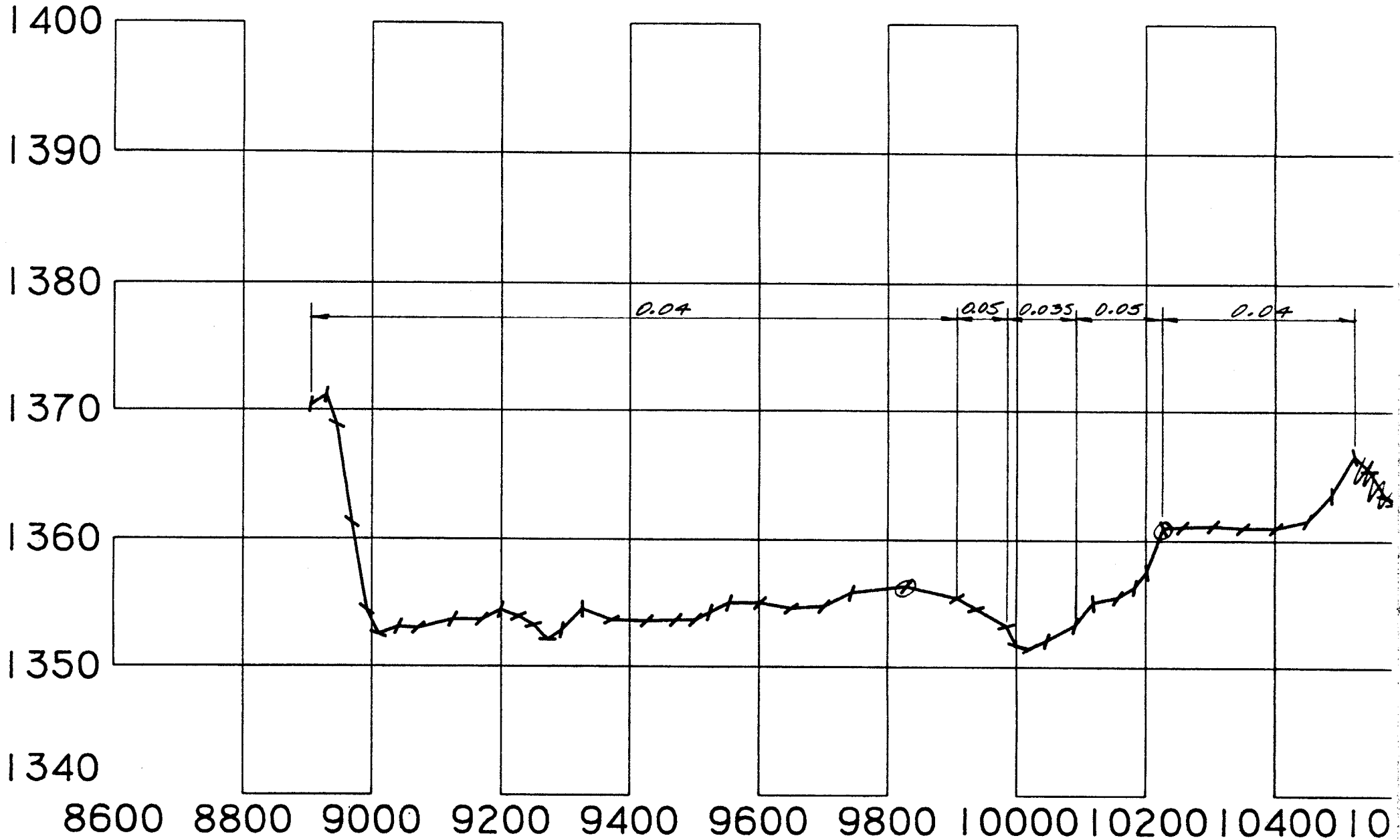
Predicted overbank flow lines were sketched on the work maps, and flow lengths were scaled along these lines and the thalweg.

Results of the initial HEC-2 run were reviewed to determine if sections were representative of the reach. Further adjustments were made to remove non-effective flow areas.

Following are copies of work prints of cross sections showing bank stations, ground adjustments, and Manning's "n" values.

7.713

8600.0000 1405.0000 -480.0000 480.0000

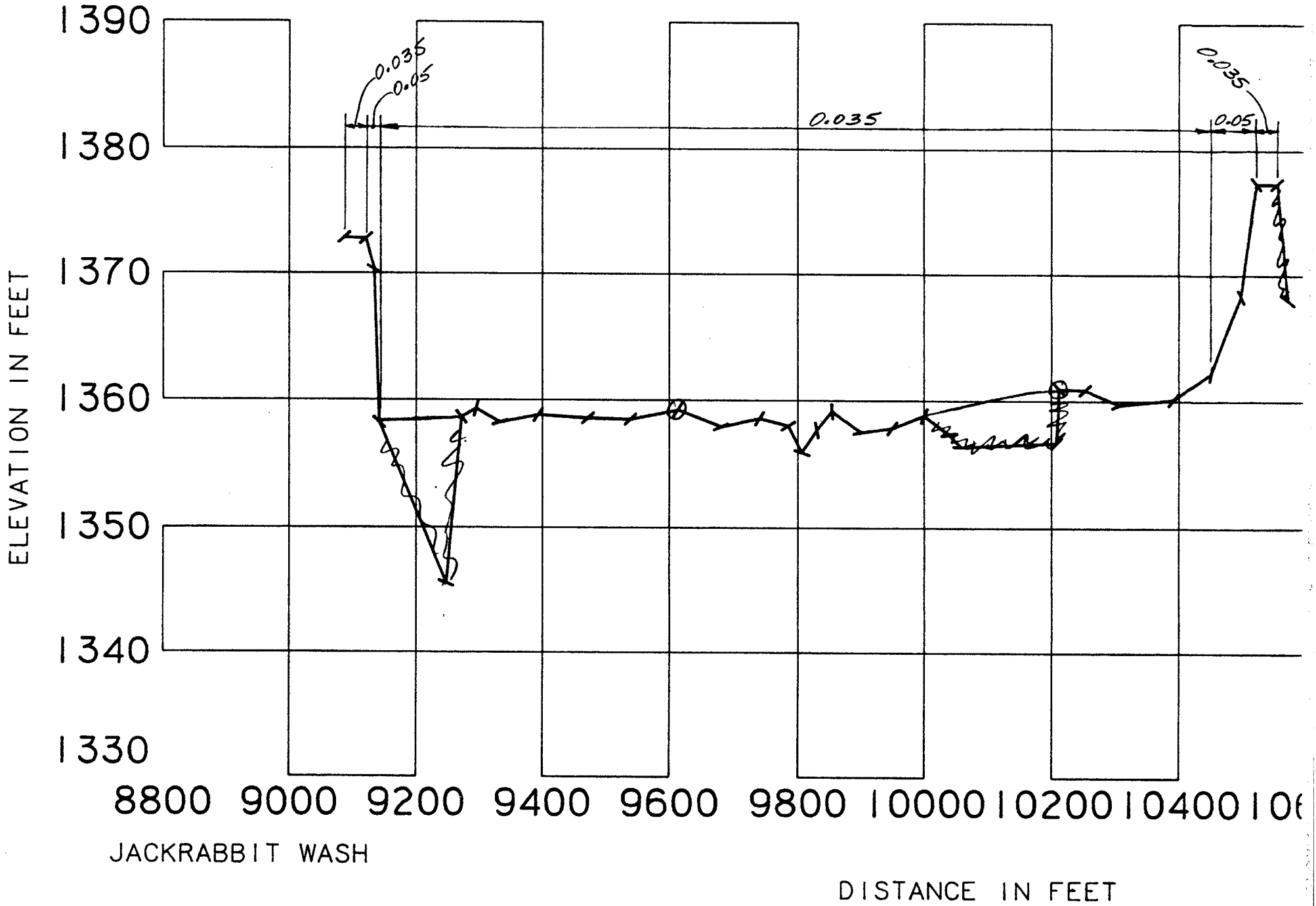


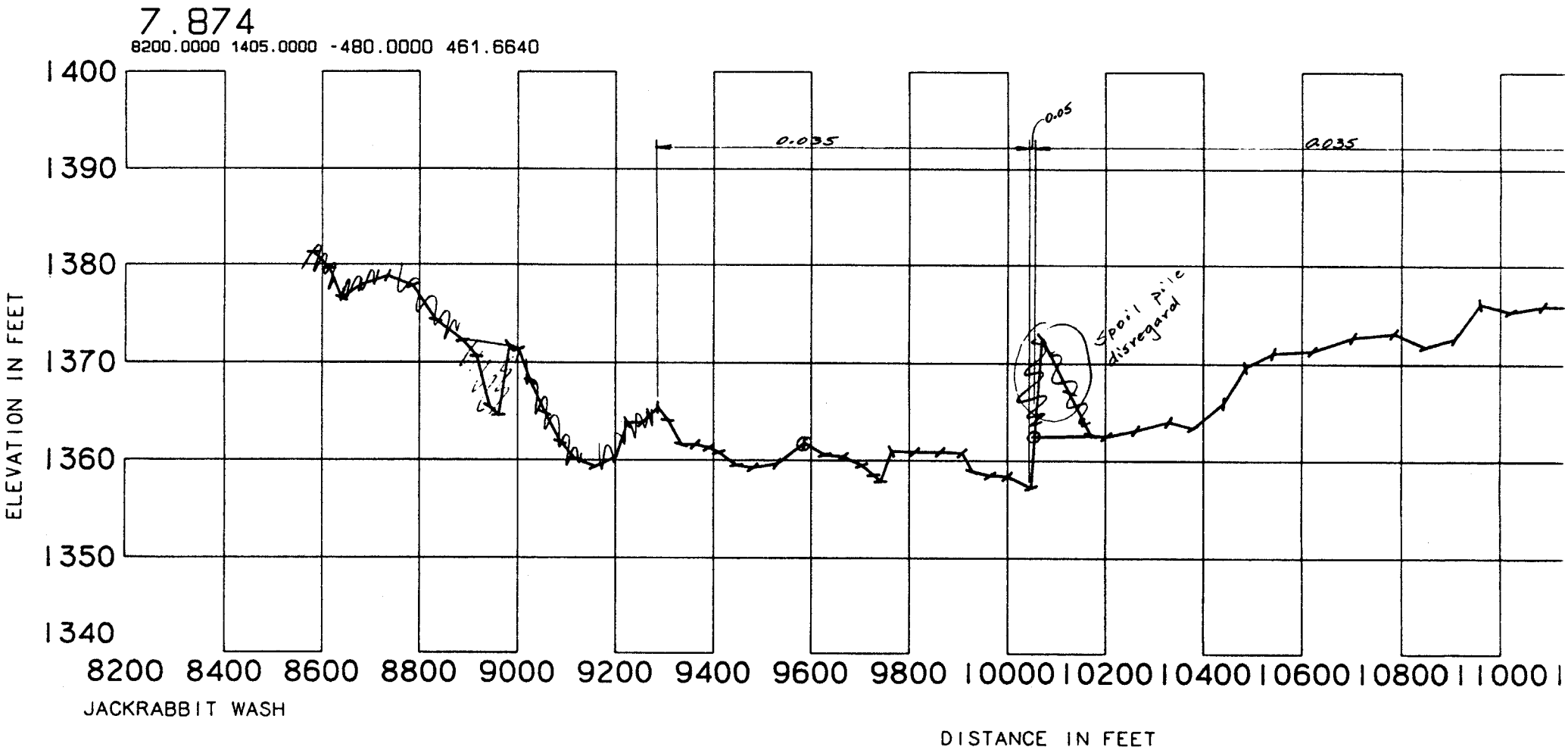
JACKRABBIT WASH

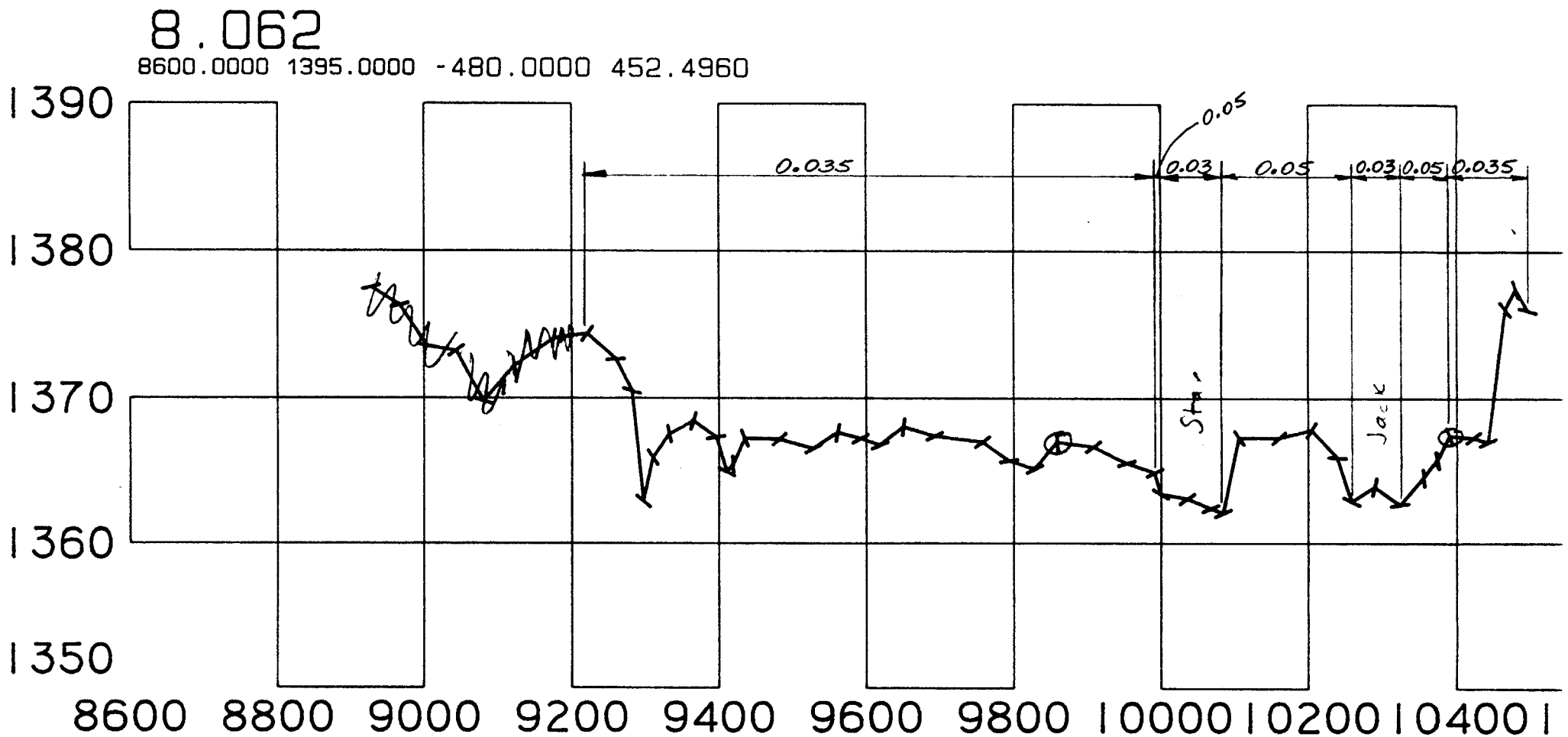
DISTANCE IN FEET

7.842

8800.0000 1395.0000 -480.0000 470.8320



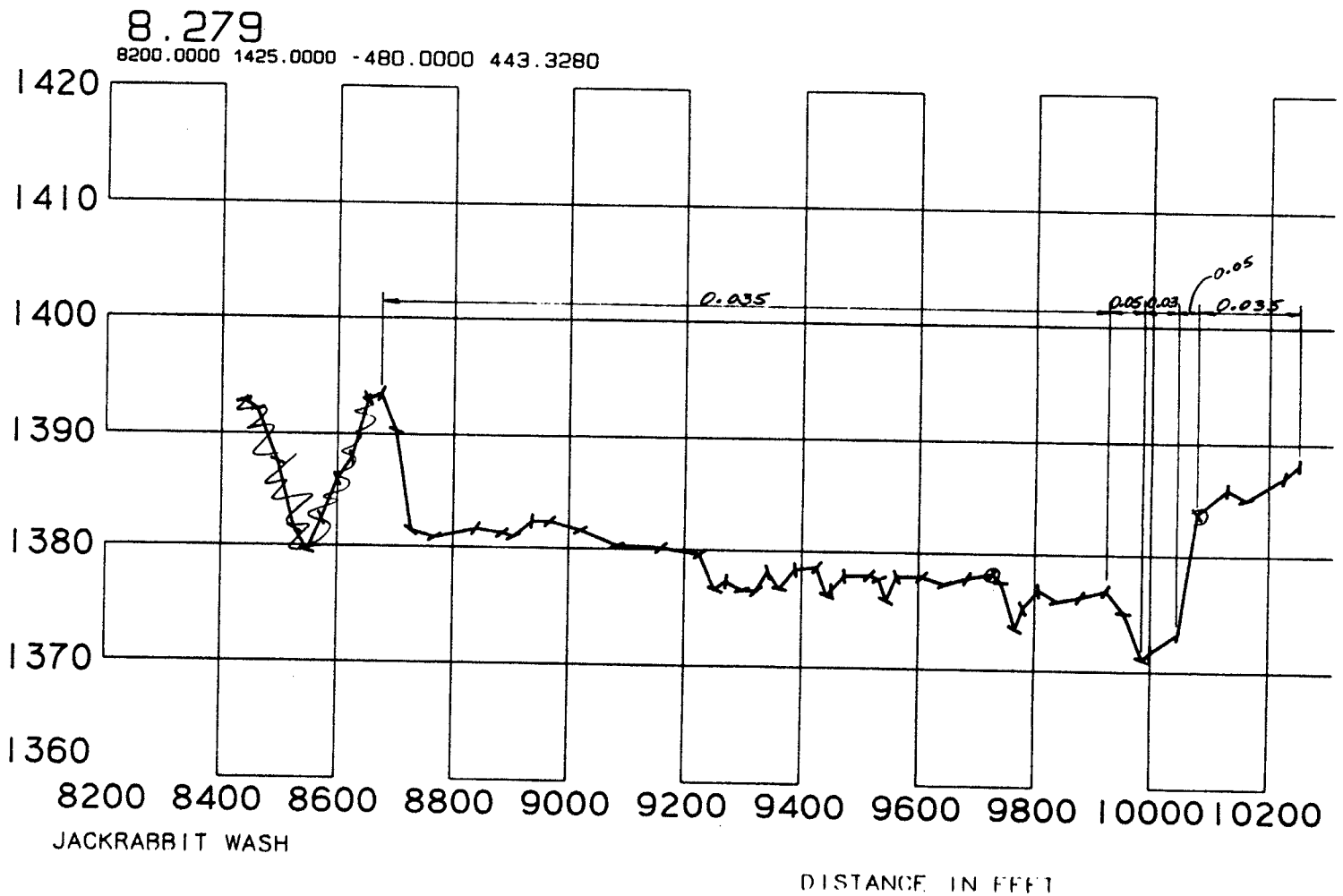

7.874
8200.0000 1405.0000 -480.0000 461.6640
1400
1390
1380
1370
1360
1350
1340
ELEVATION IN FEET
8200 8400 8600 8800 9000 9200 9400 9600 9800 10000 10200 10400 10600 10800 11000
JACKRABBIT WASH
DISTANCE IN FEET
0.035
0.05
0.035
Spoil Pile disregard

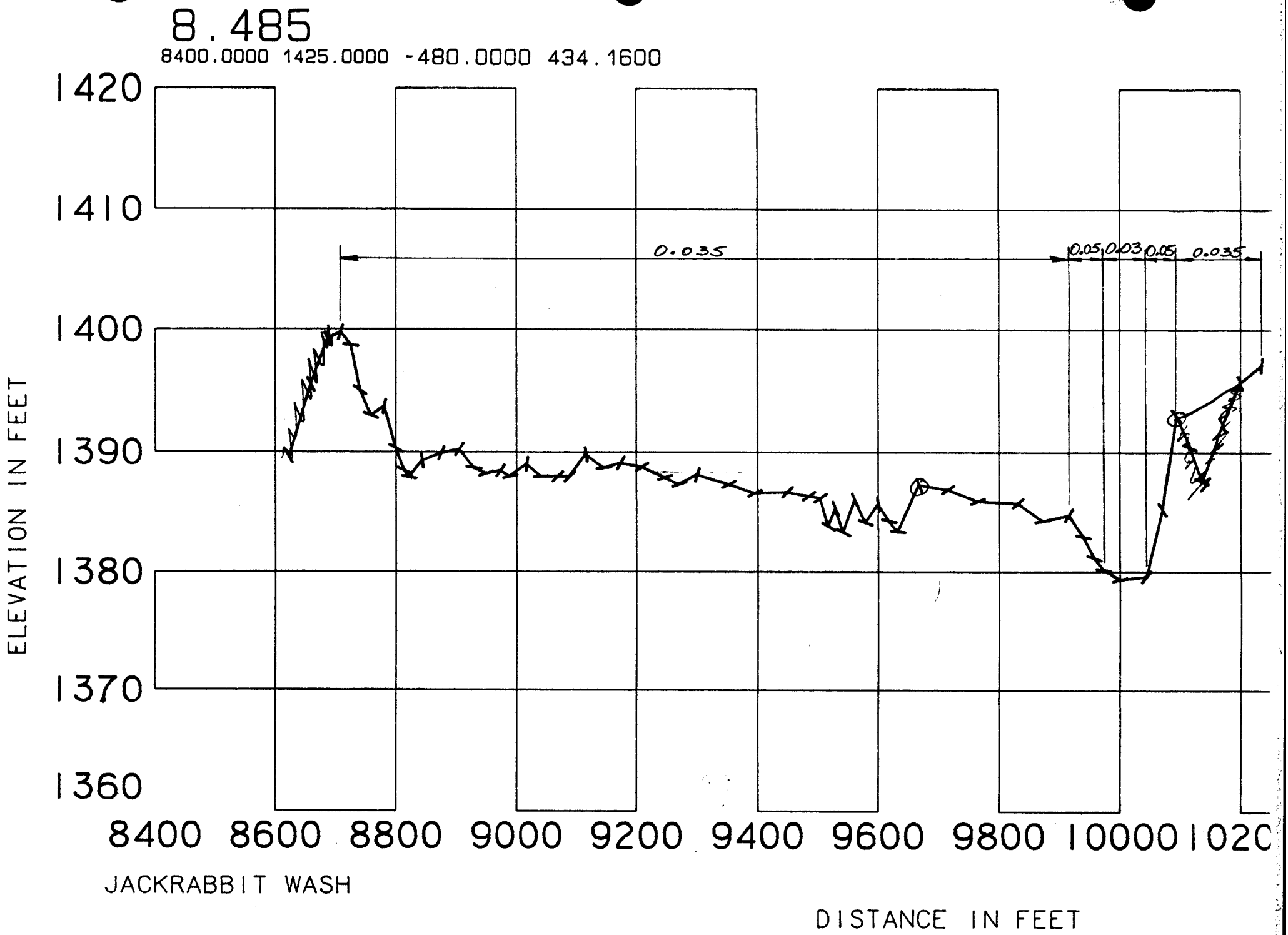


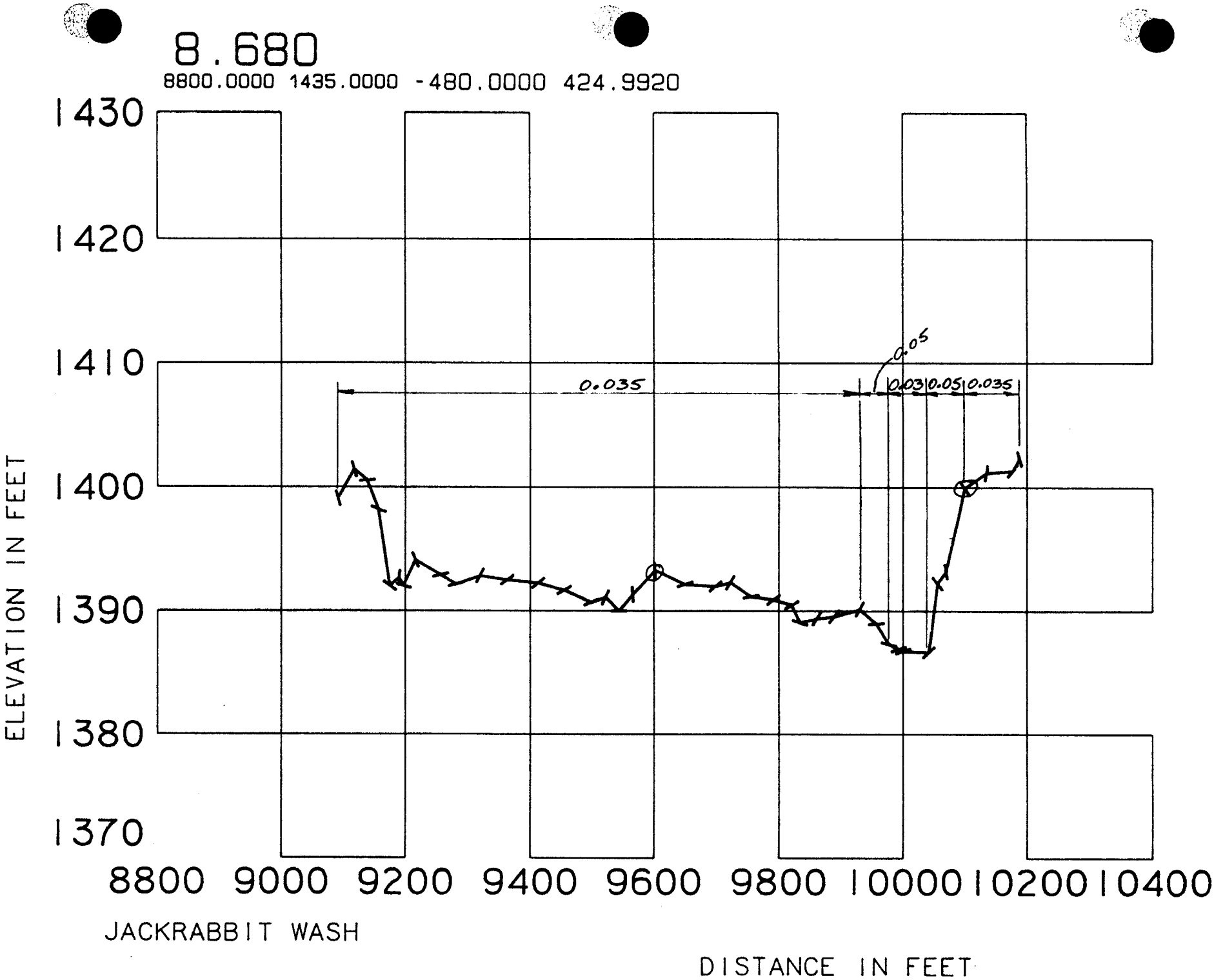
JACKRABBIT WASH

STAR & WASH

DISTANCE IN FEET

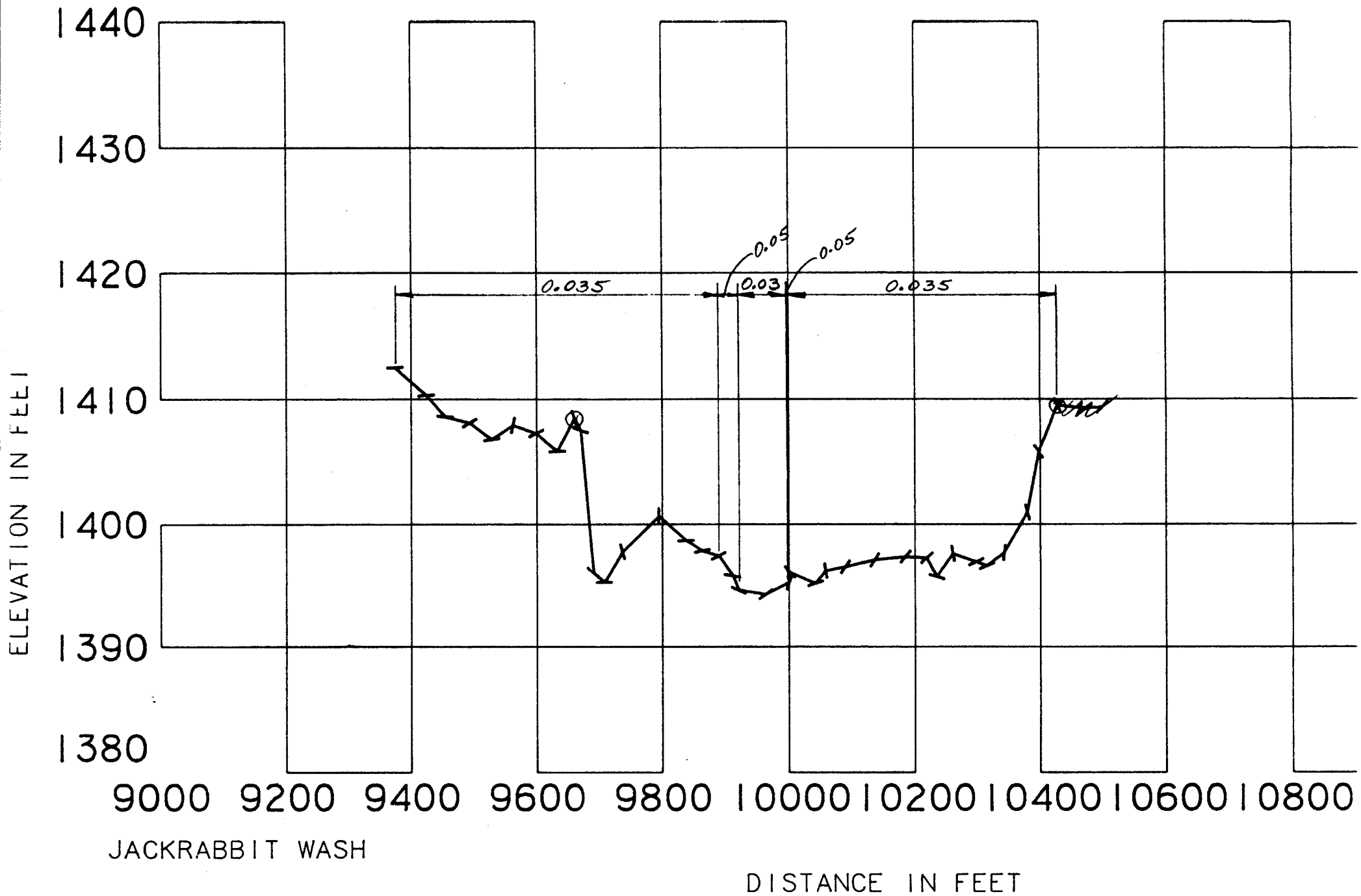

8.279
8200.0000 1425.0000 -480.0000 443.3280
1420
1410
1400
1390
1380
1370
1360
0.035
0.05
0.05 0.03
0.035
8200 8400 8600 8800 9000 9200 9400 9600 9800 10000 10200
JACKRABBIT WASH
DISTANCE IN FEET


8.485
8400.0000 1425.0000 -480.0000 434.1600
1420
1410
1400
1390
1380
1370
1360
ELEVATION IN FEET
0.035
0.05
0.03
0.05
0.035
8400
8600
8800
9000
9200
9400
9600
9800
10000
1020
JACKRABBIT WASH
DISTANCE IN FEET


8.680
8800.0000 1435.0000 -480.0000 424.9920
1430
1420
1410
1400
1390
1380
1370
ELEVATION IN FEET
0.035
0.05
0.03
0.05
0.035
8800
9000
9200
9400
9600
9800
10000
10200
10400
JACKRABBIT WASH
DISTANCE IN FEET

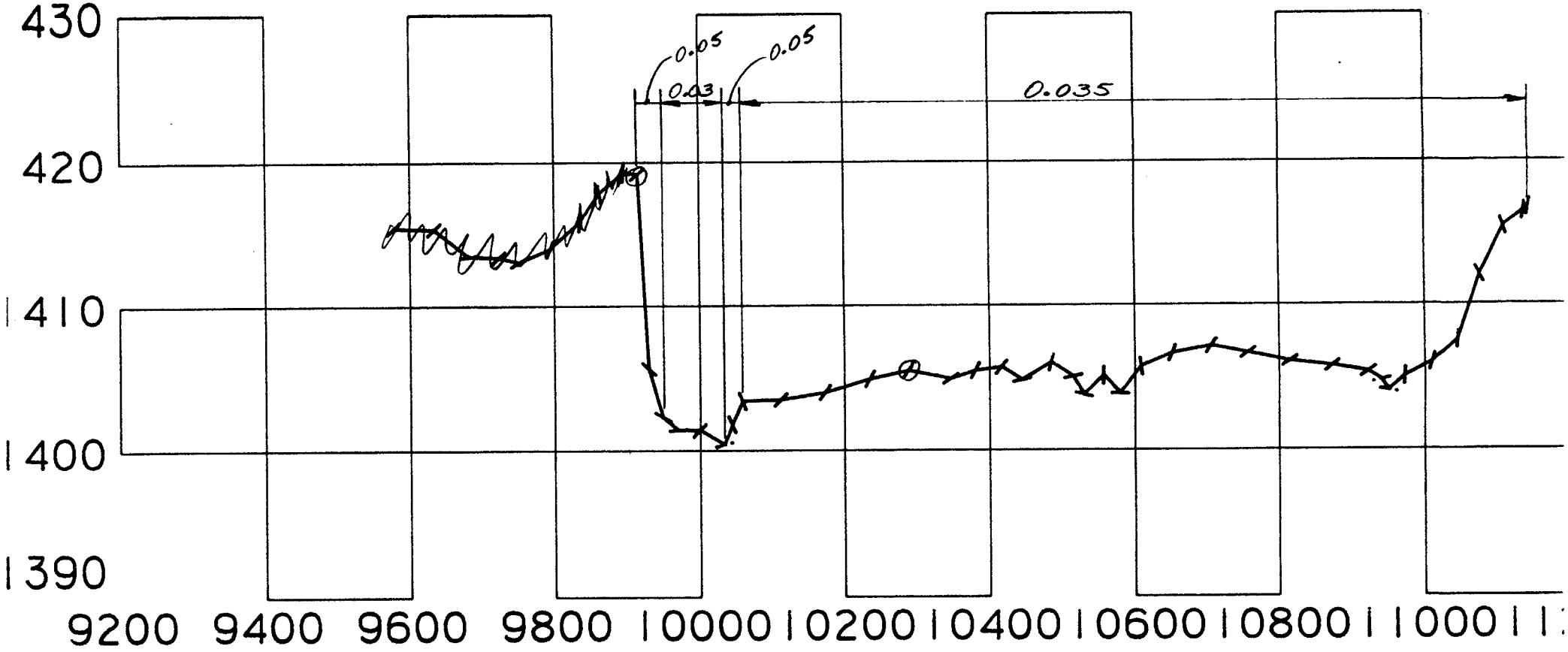
8.870

9000.0000 1445.0000 -461.0500 480.0000



9.060

9200.0000 1435.0000 -461.0500 470.8320

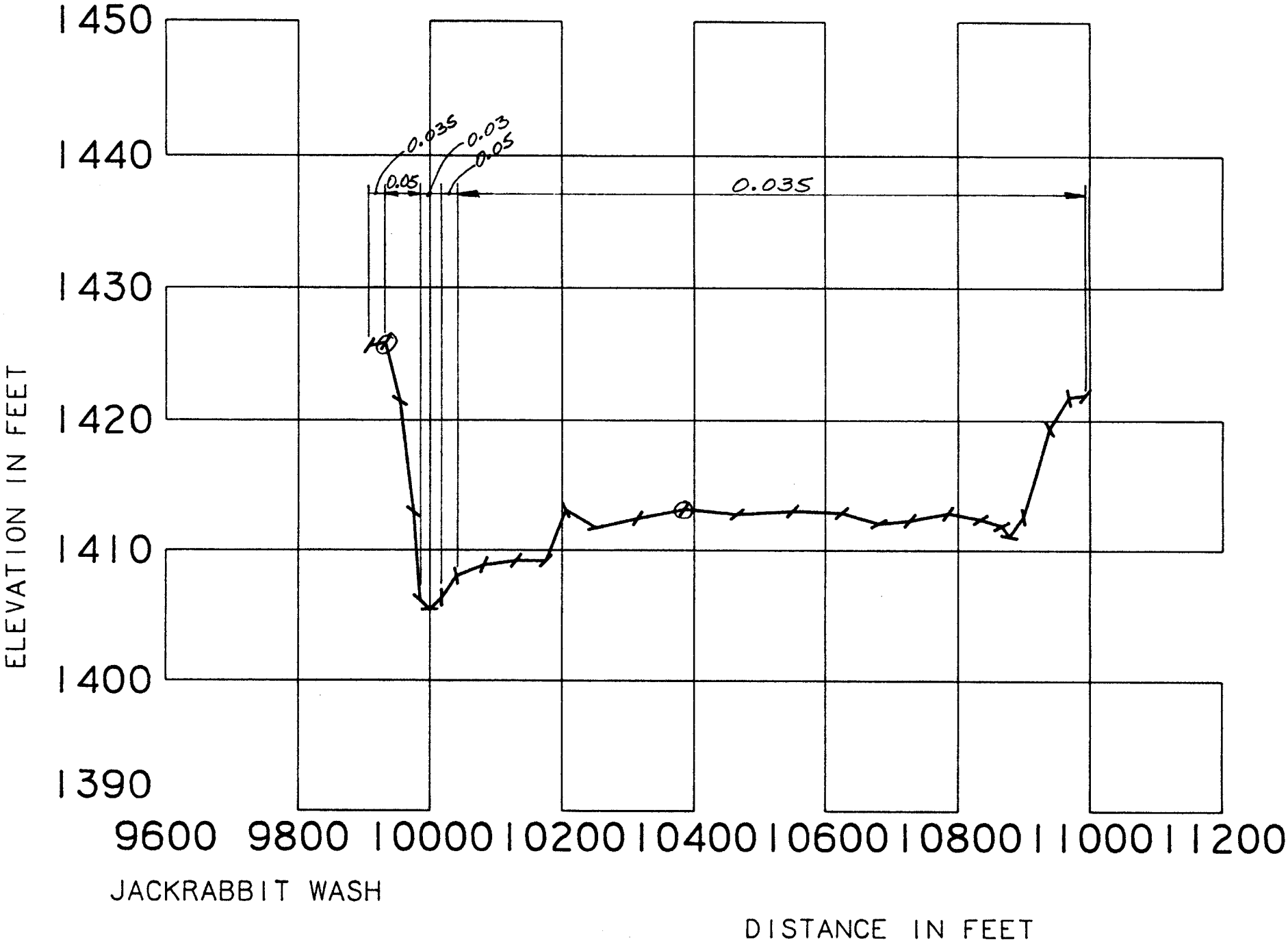


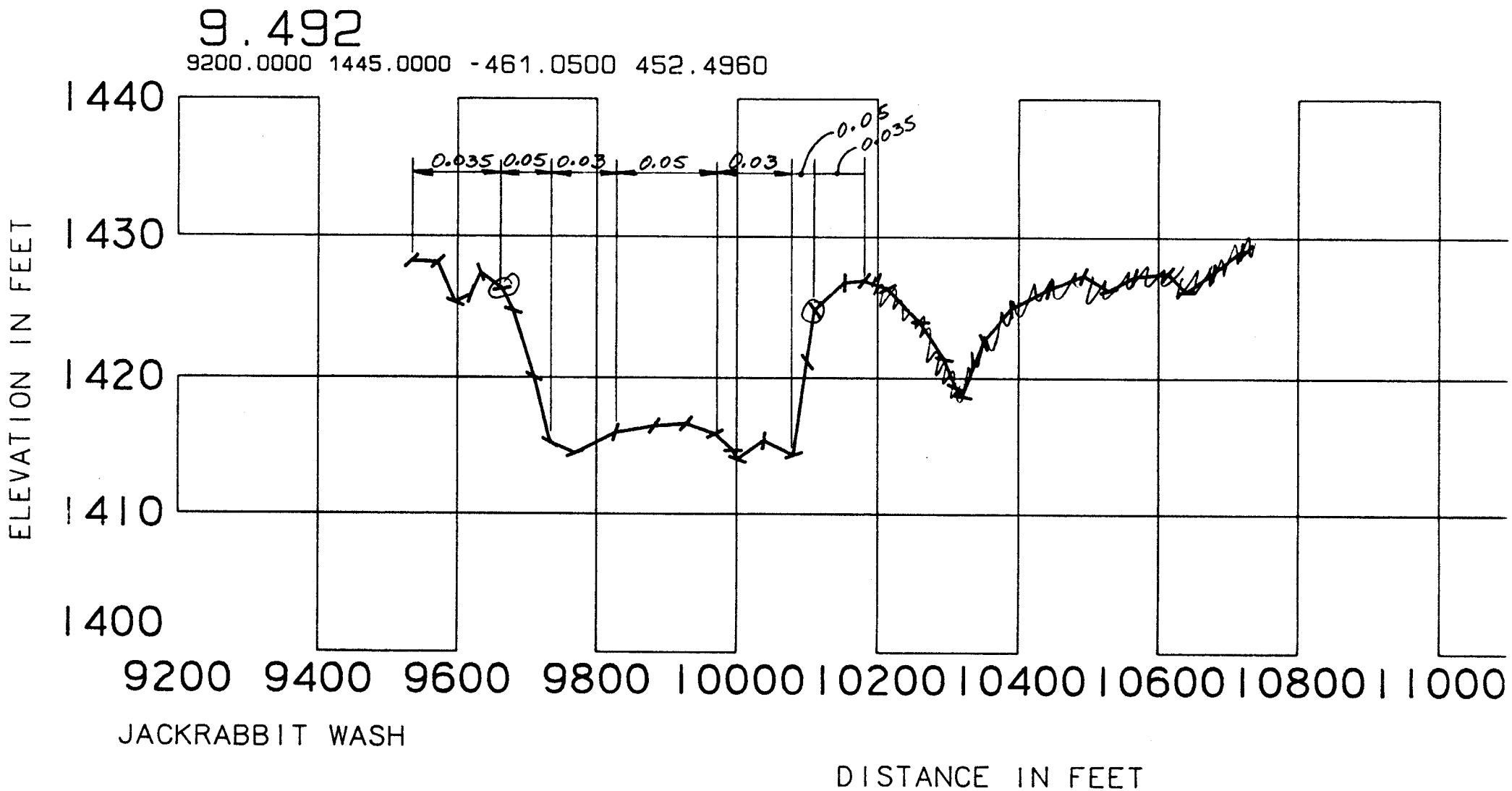
JACKRABBIT WASH

DISTANCE IN FEET

9.310

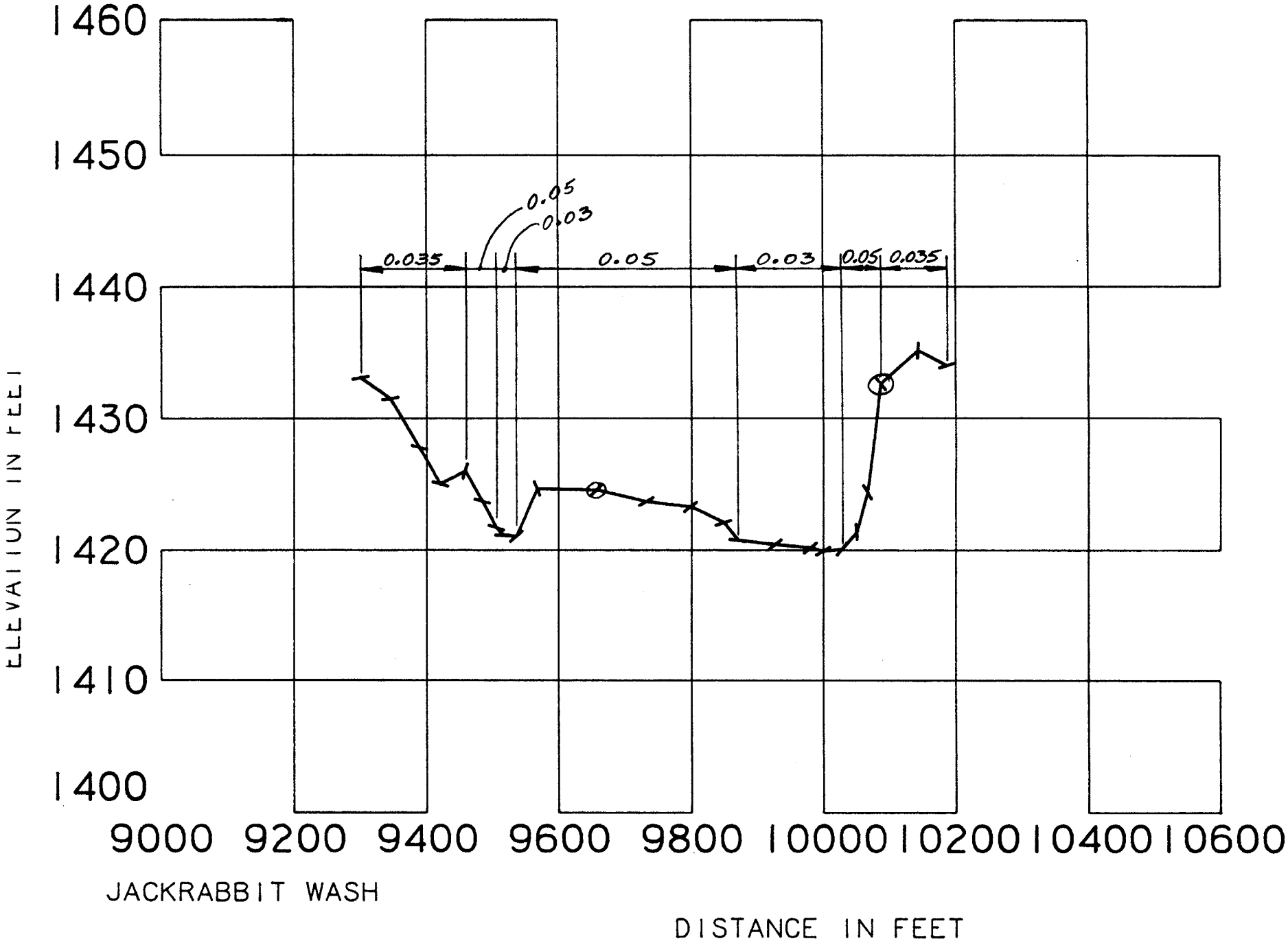
9600.0000 1455.0000 -461.0500 461.6640

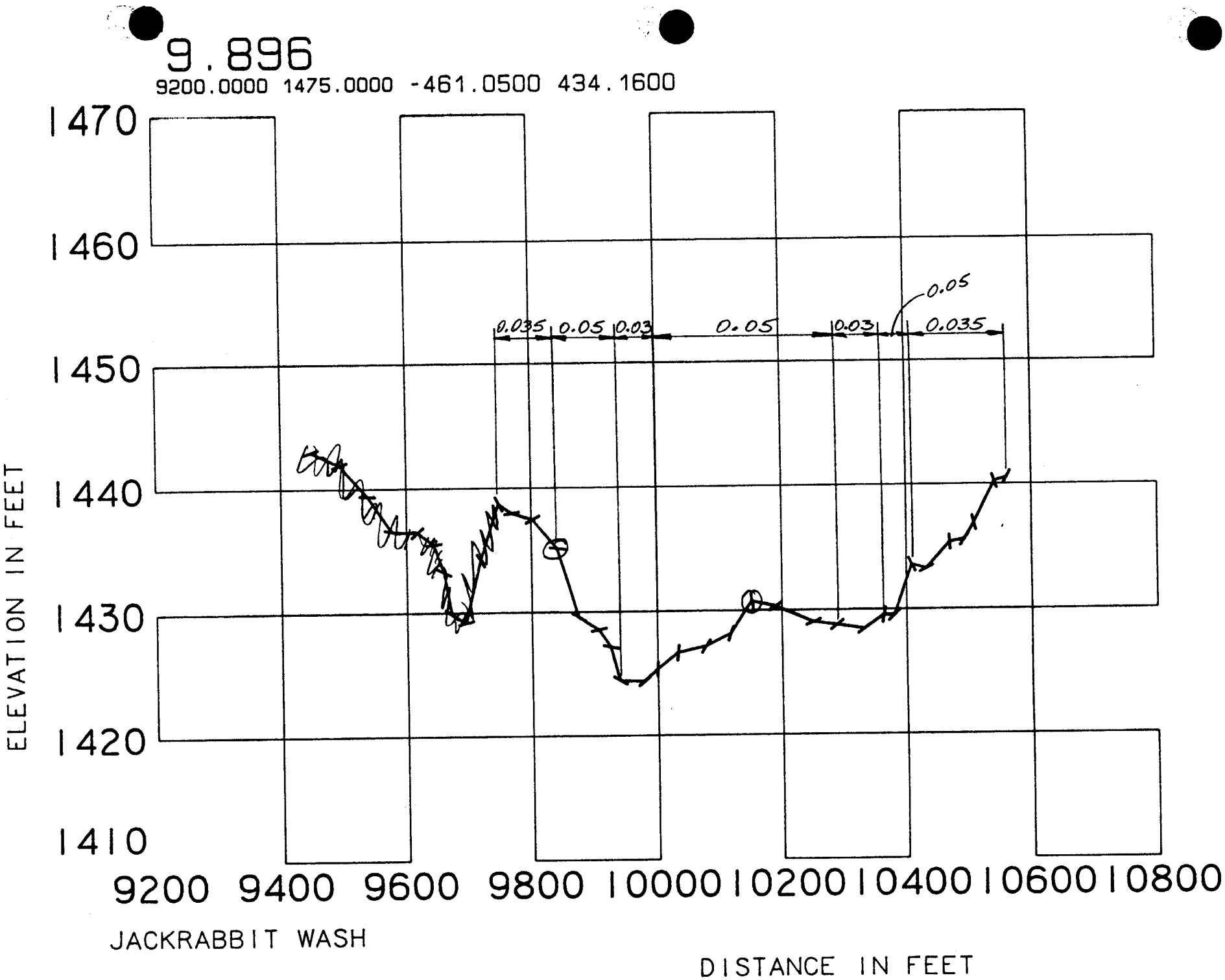



9.492
9200.0000 1445.0000 -461.0500 452.4960
1440
1430
1420
1410
1400
ELEVATION IN FEET
0.035
0.05
0.03
0.05
0.03
0.05
0.035
9200
9400
9600
9800
10000
10200
10400
10600
10800
11000
JACKRABBIT WASH
DISTANCE IN FEET

9.702

9000.0000 1465.0000 -461.0500 443.3280

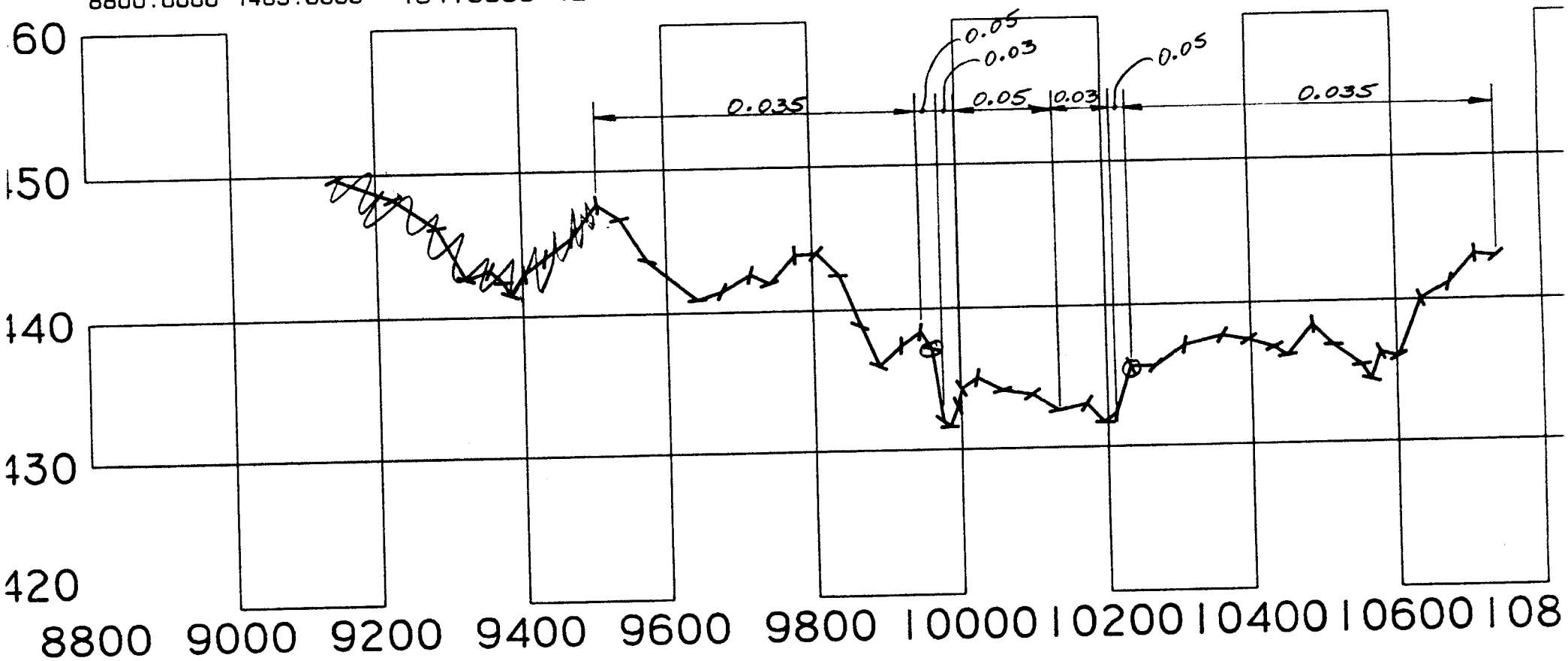



9.896
9200.0000 1475.0000 -461.0500 434.1600
1470
1460
1450
1440
1430
1420
1410
ELEVATION IN FEET
0.035
0.05
0.03
0.05
0.03
0.05
0.035
9200
9400
9600
9800
10000
10200
10400
10600
10800
JACKRABBIT WASH
DISTANCE IN FEET

10.095

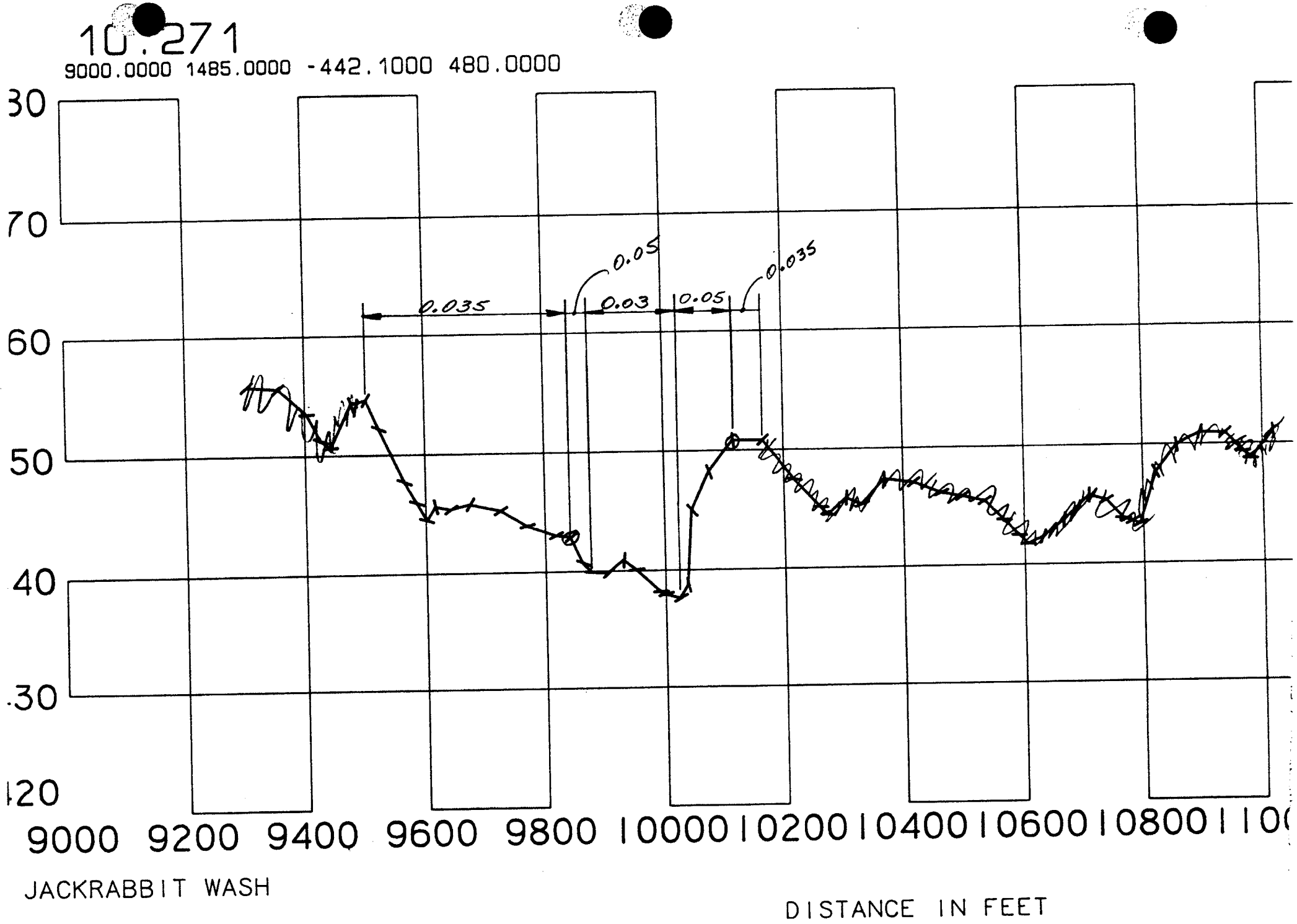
~~9.995~~

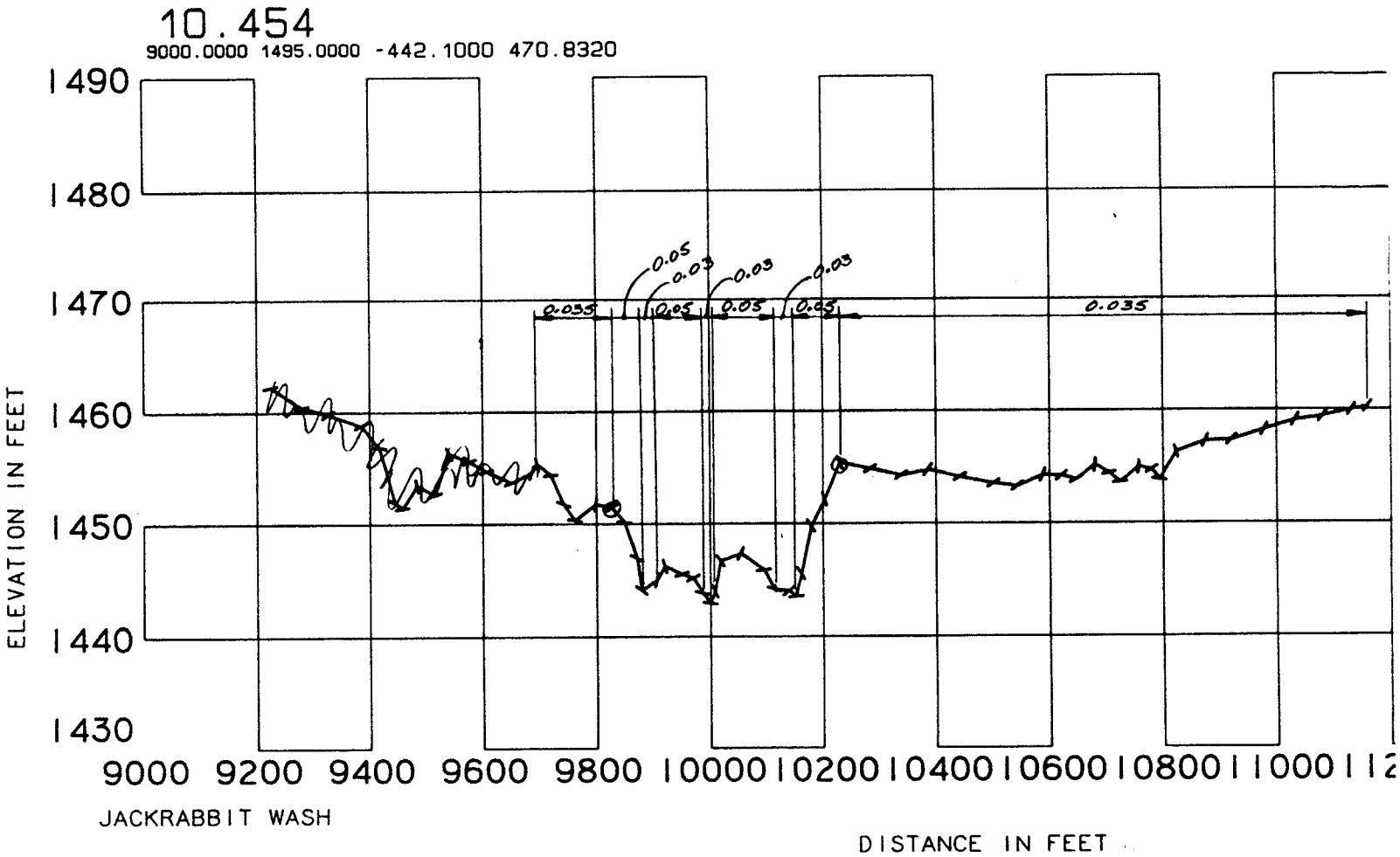
8800.0000 1465.0000 -461.0500 424.9920

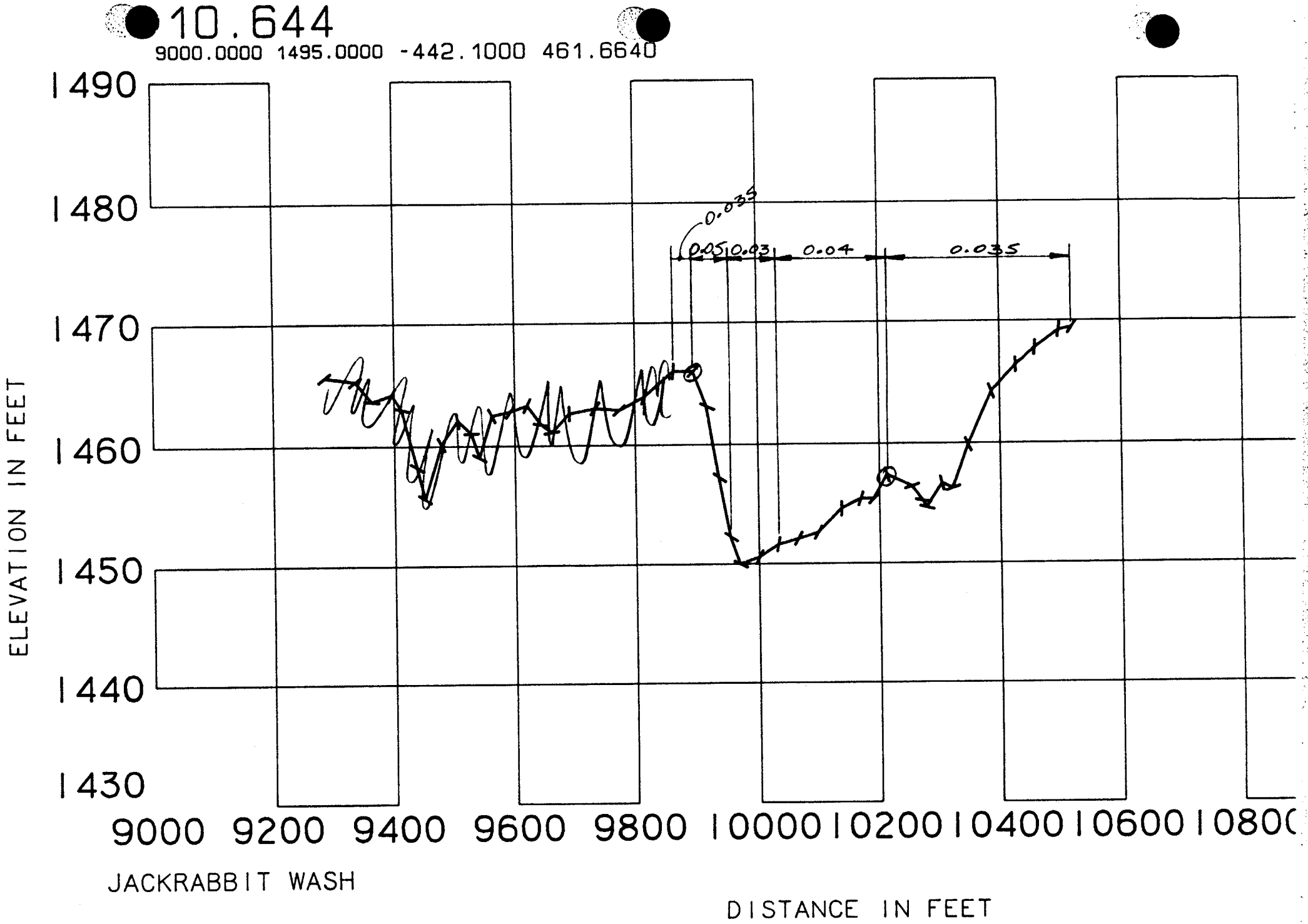


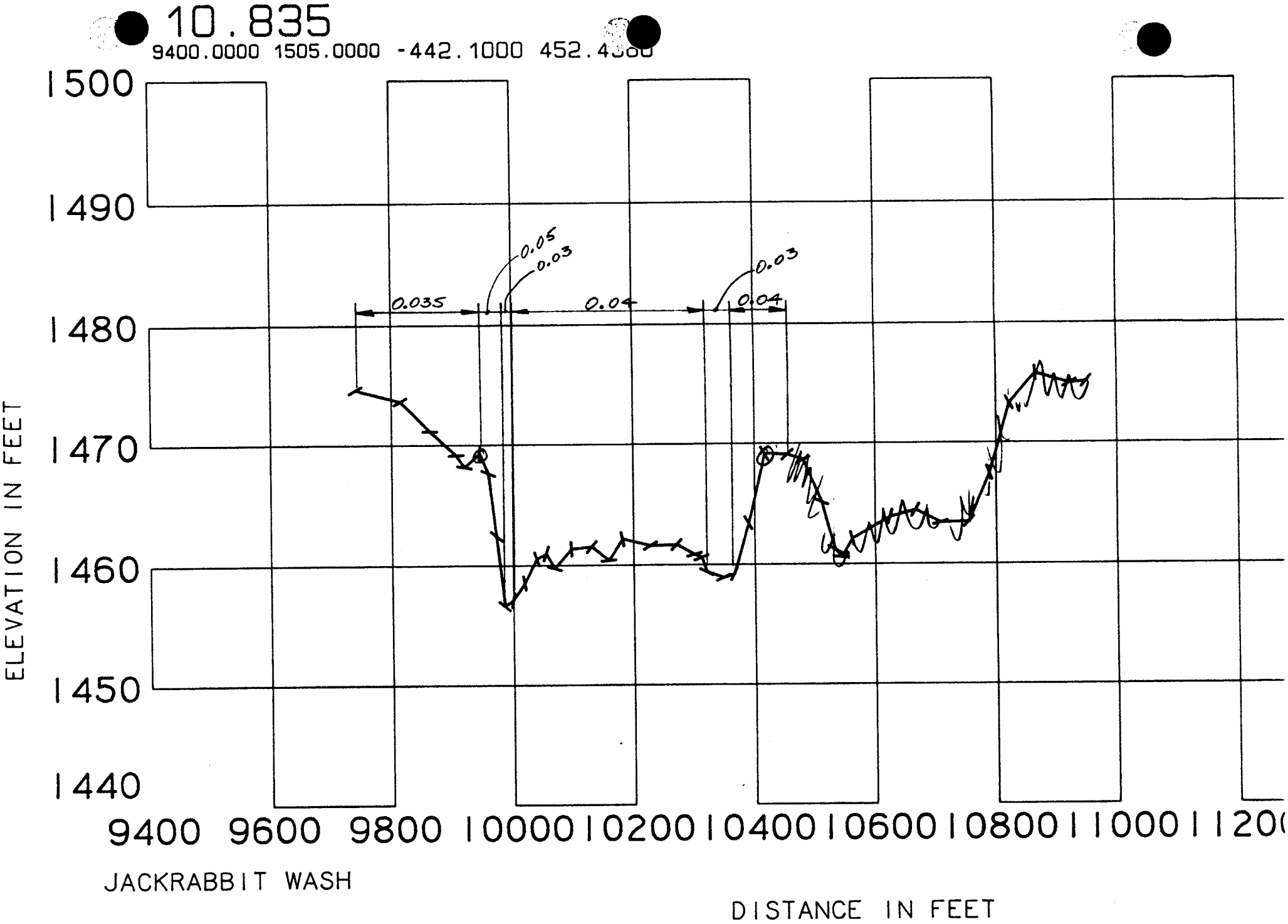
JACKRABBIT WASH

DISTANCE IN FEET


10.271
9000.0000 1485.0000 -442.1000 480.0000
30
70
60
50
40
.30
120
0.035
0.05
0.03
0.05
0.035
9000 9200 9400 9600 9800 10000 10200 10400 10600 10800 110
JACKRABBIT WASH
DISTANCE IN FEET

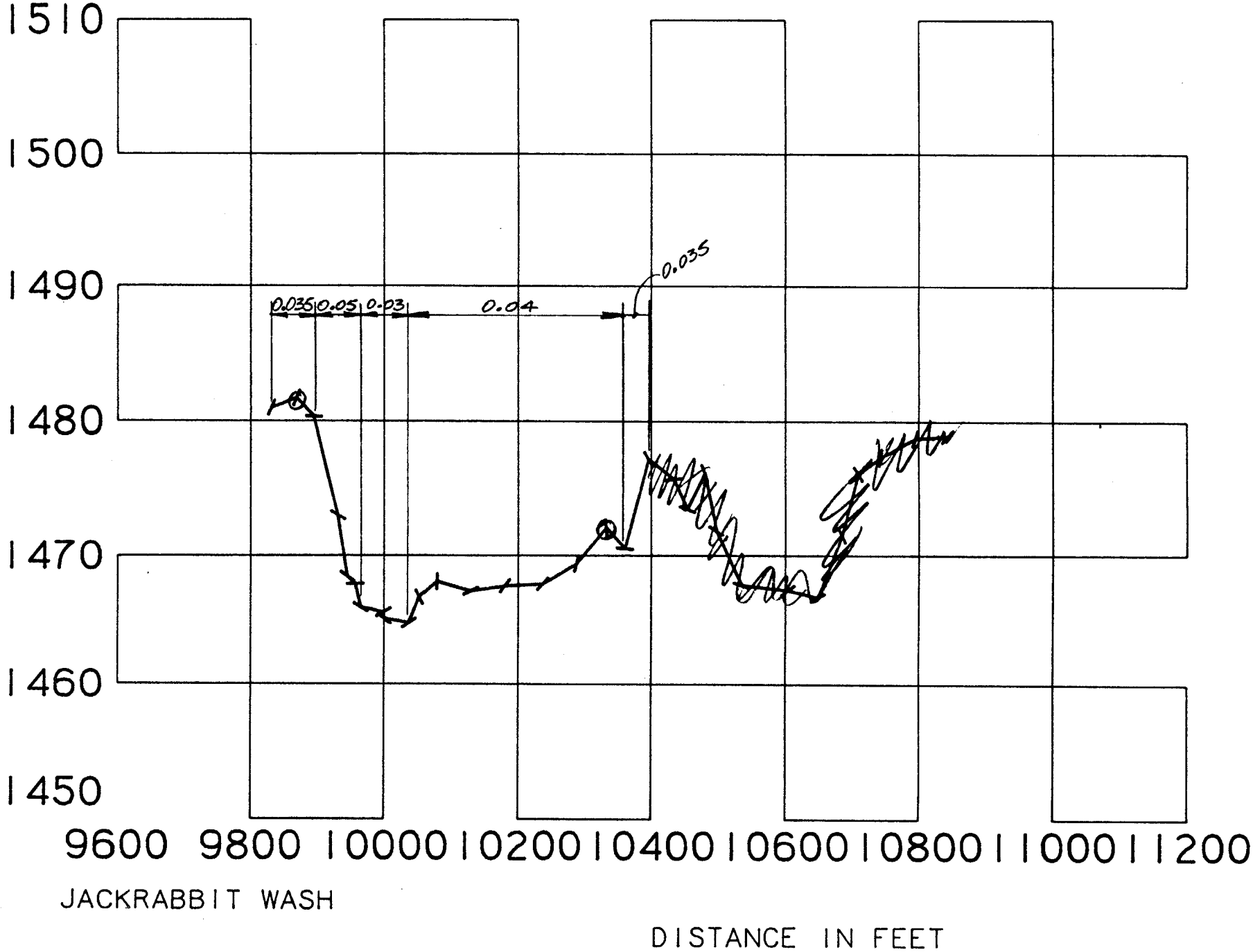

10.454
9000.0000 1495.0000 -442.1000 470.8320
1490
1480
1470
1460
1450
1440
1430
ELEVATION IN FEET
9000 9200 9400 9600 9800 10000 10200 10400 10600 10800 11000 112
JACKRABBIT WASH
DISTANCE IN FEET
0.05
0.03
0.03
0.03
0.035
0.05
0.05
0.05
0.035

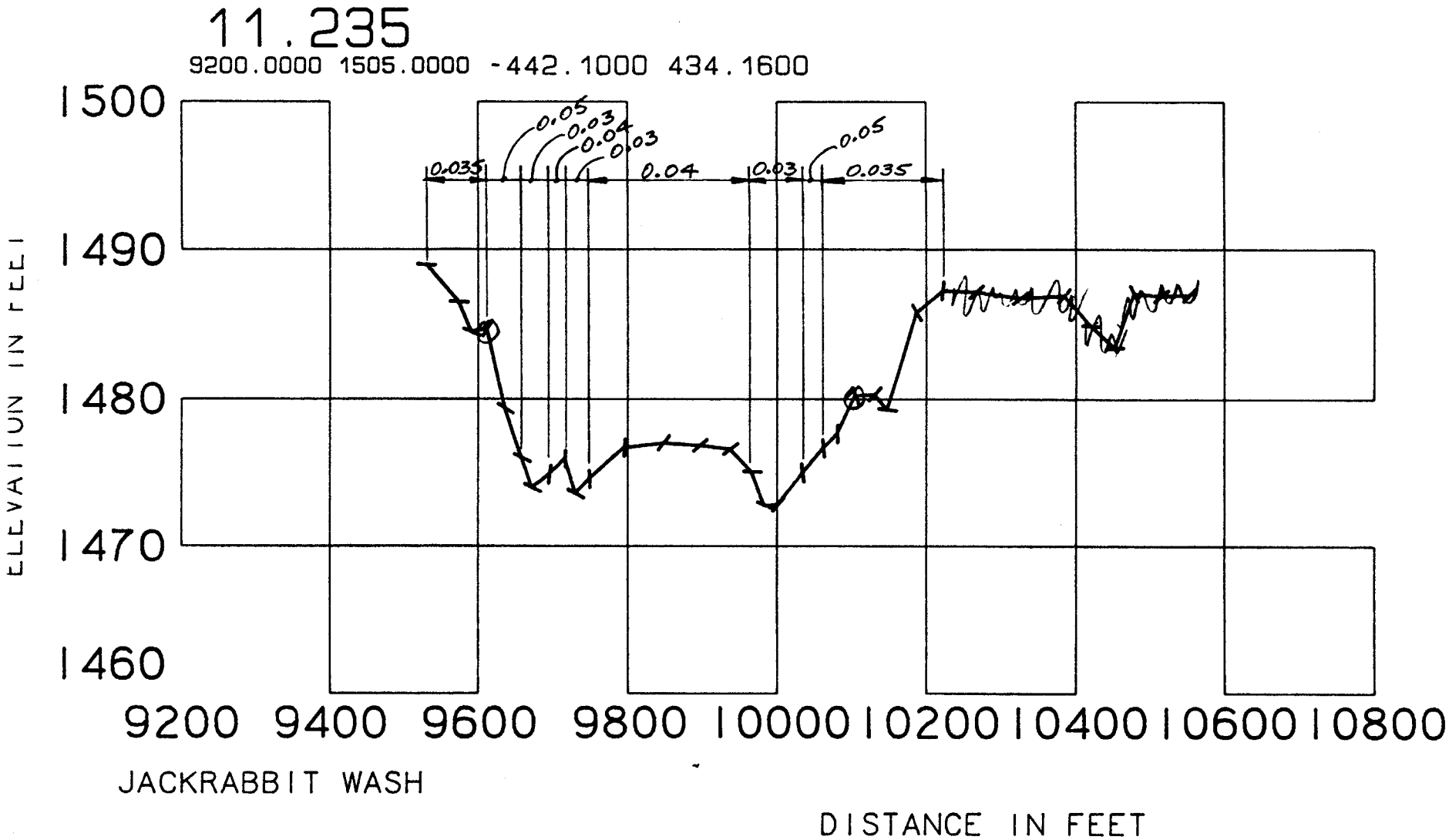

10.644
9000.0000 1495.0000 -442.1000 461.6640
1490
1480
1470
1460
1450
1440
1430
ELEVATION IN FEET
9000 9200 9400 9600 9800 10000 10200 10400 10600 10800
JACKRABBIT WASH
DISTANCE IN FEET
0.035
0.05
0.03
0.04
0.035

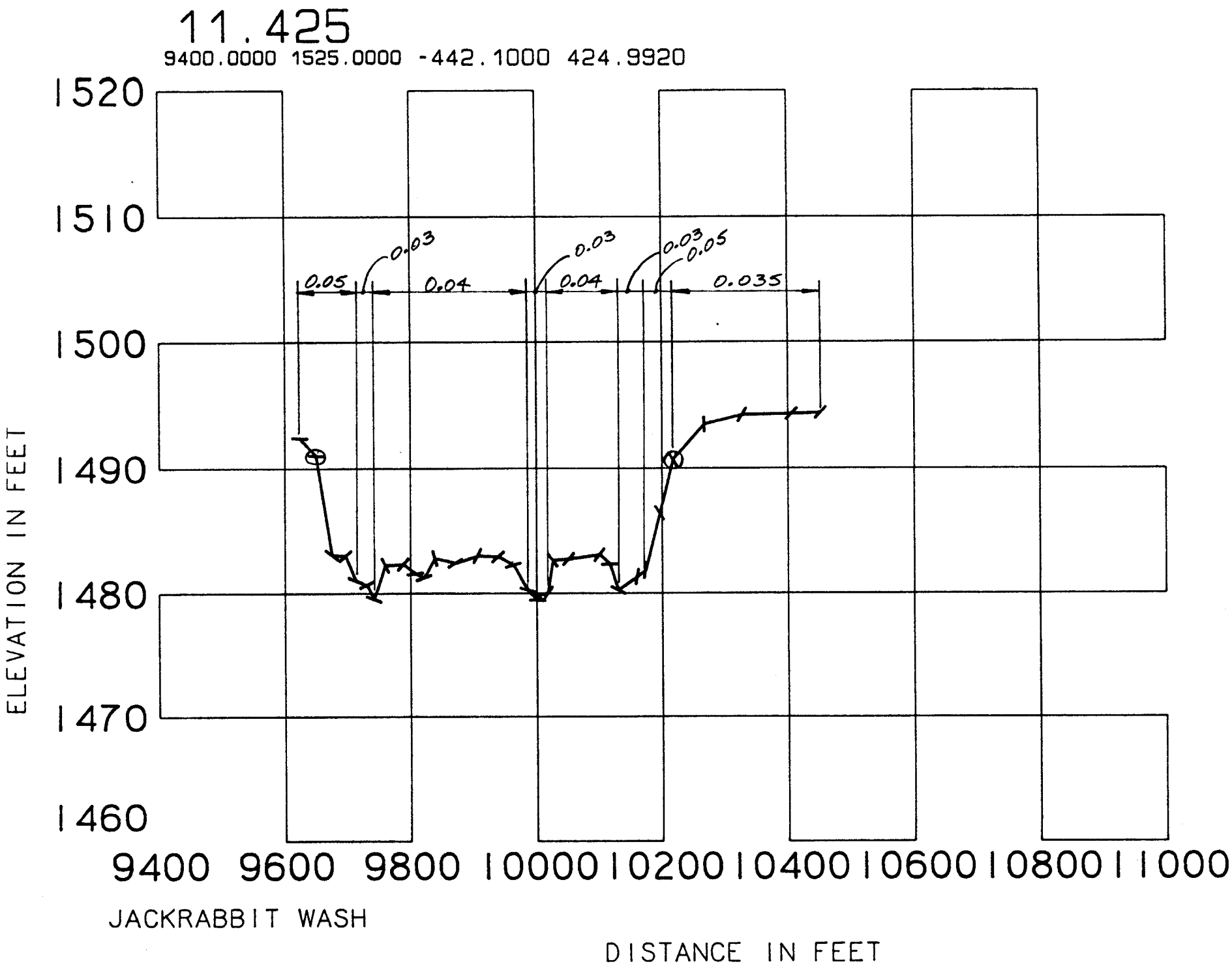

10.835
9400.0000 1505.0000 -442.1000 452.4380
1500
1490
1480
1470
1460
1450
1440
ELEVATION IN FEET
0.05
0.03
0.03
0.035
0.04
0.04
9400 9600 9800 10000 10200 10400 10600 10800 11000 1120
JACKRABBIT WASH
DISTANCE IN FEET

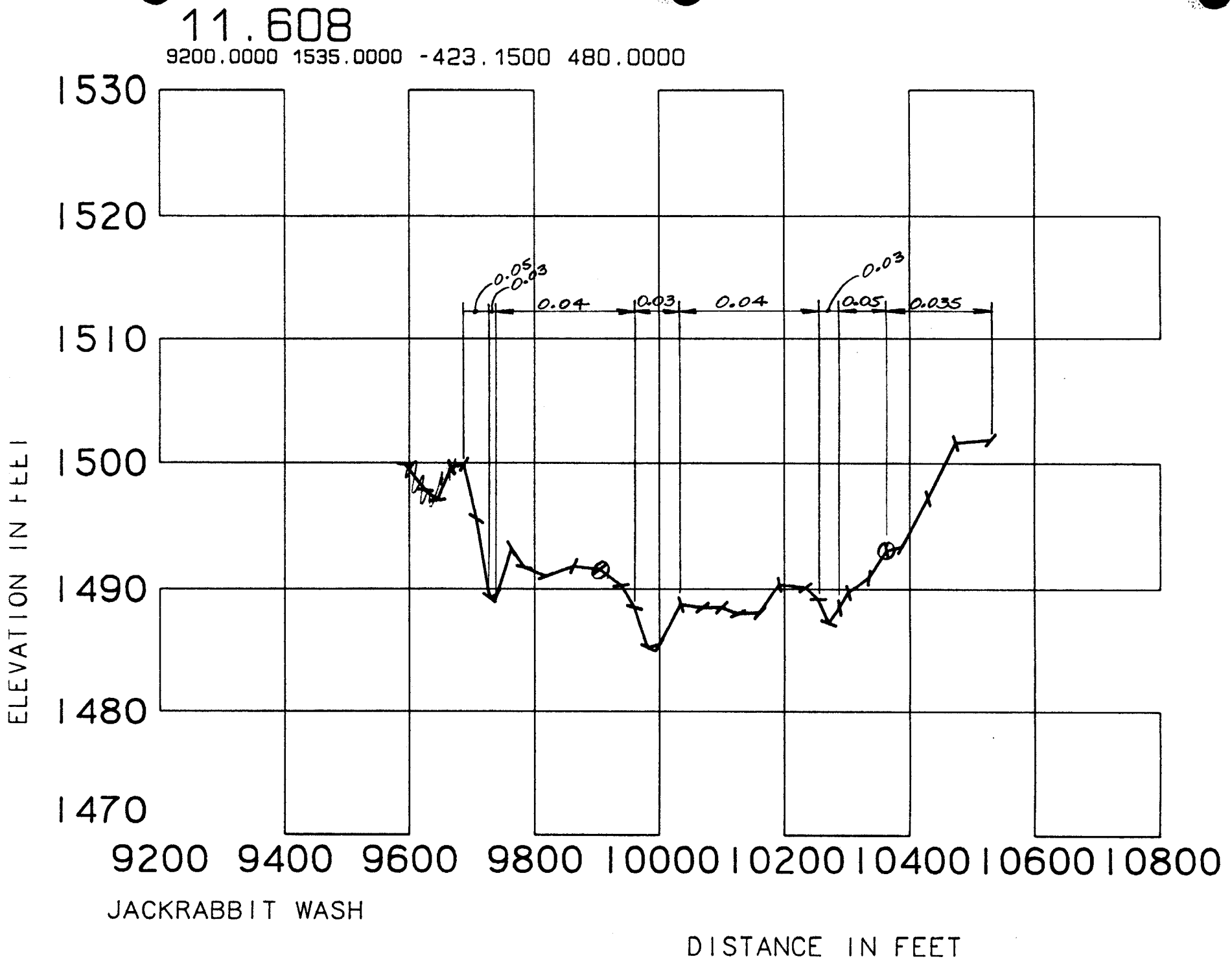
11.028

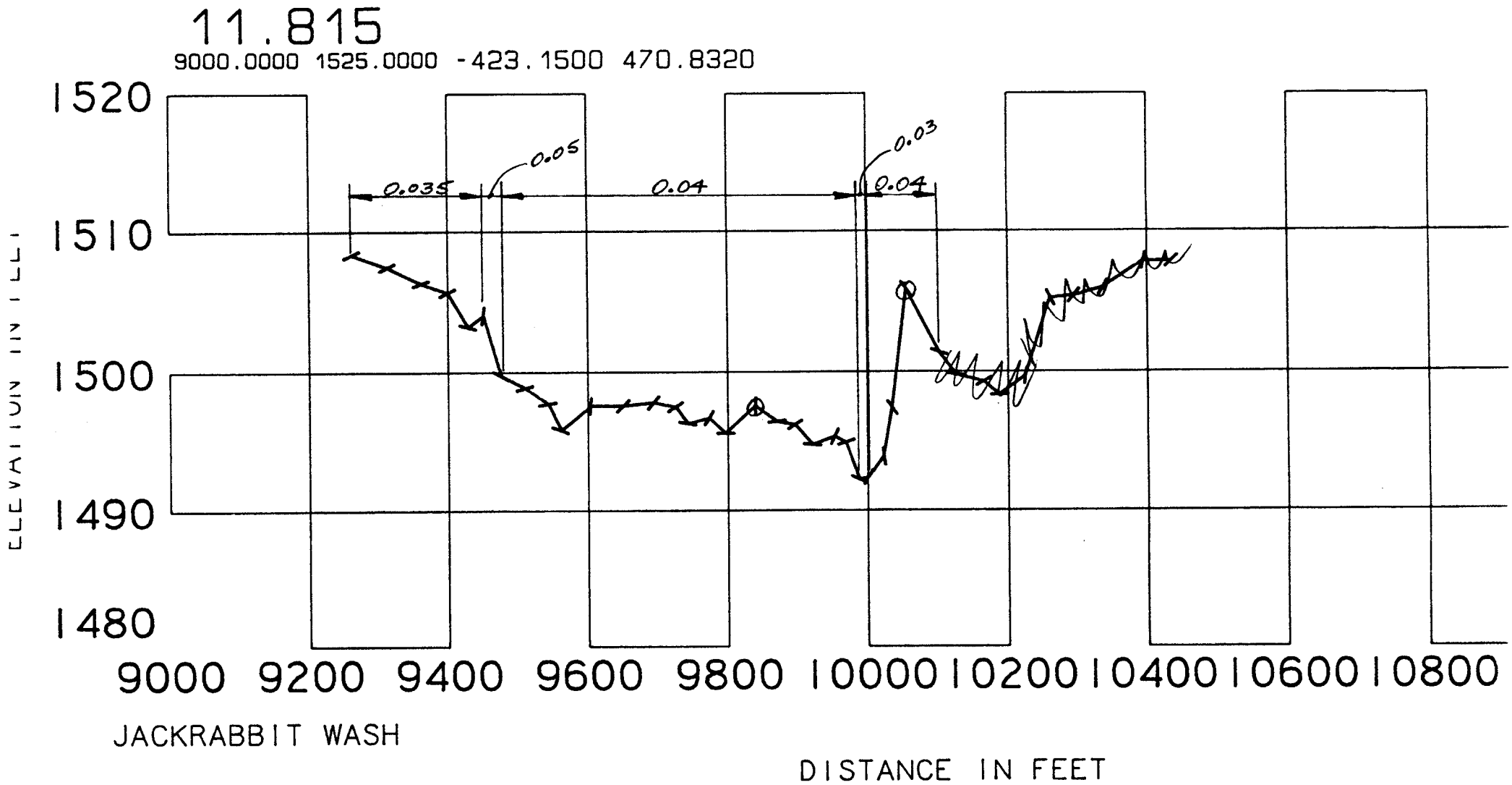
9600.0000 1515.0000 -442.1000 443.3280

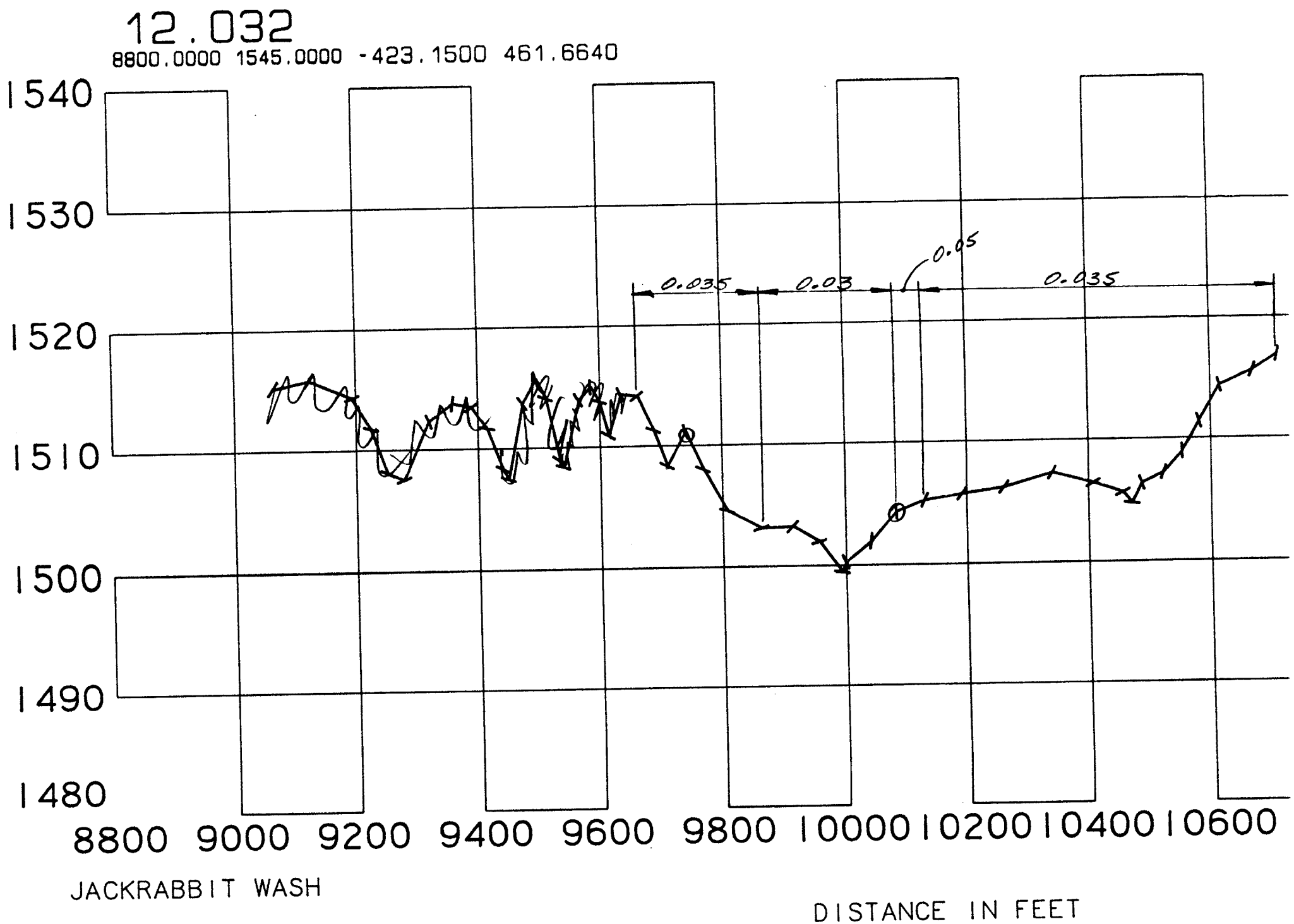


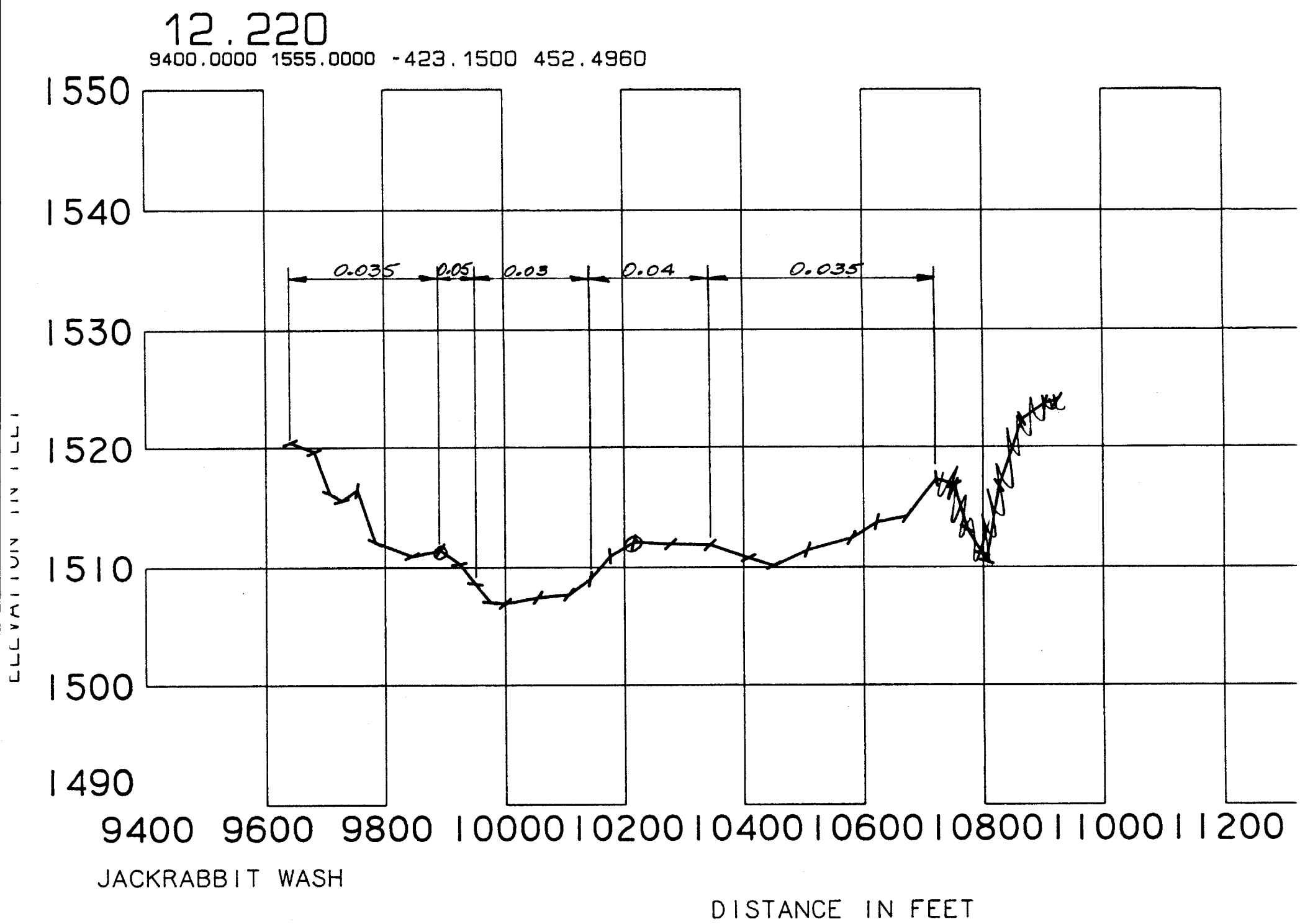

11.235
9200.0000 1505.0000 -442.1000 434.1600
1500
1490
1480
1470
1460
ELEVATION IN FEET
0.035
0.05
0.03
0.04
0.03
0.04
0.03
0.05
0.035
9200 9400 9600 9800 10000 10200 10400 10600 10800
JACKRABBIT WASH
DISTANCE IN FEET

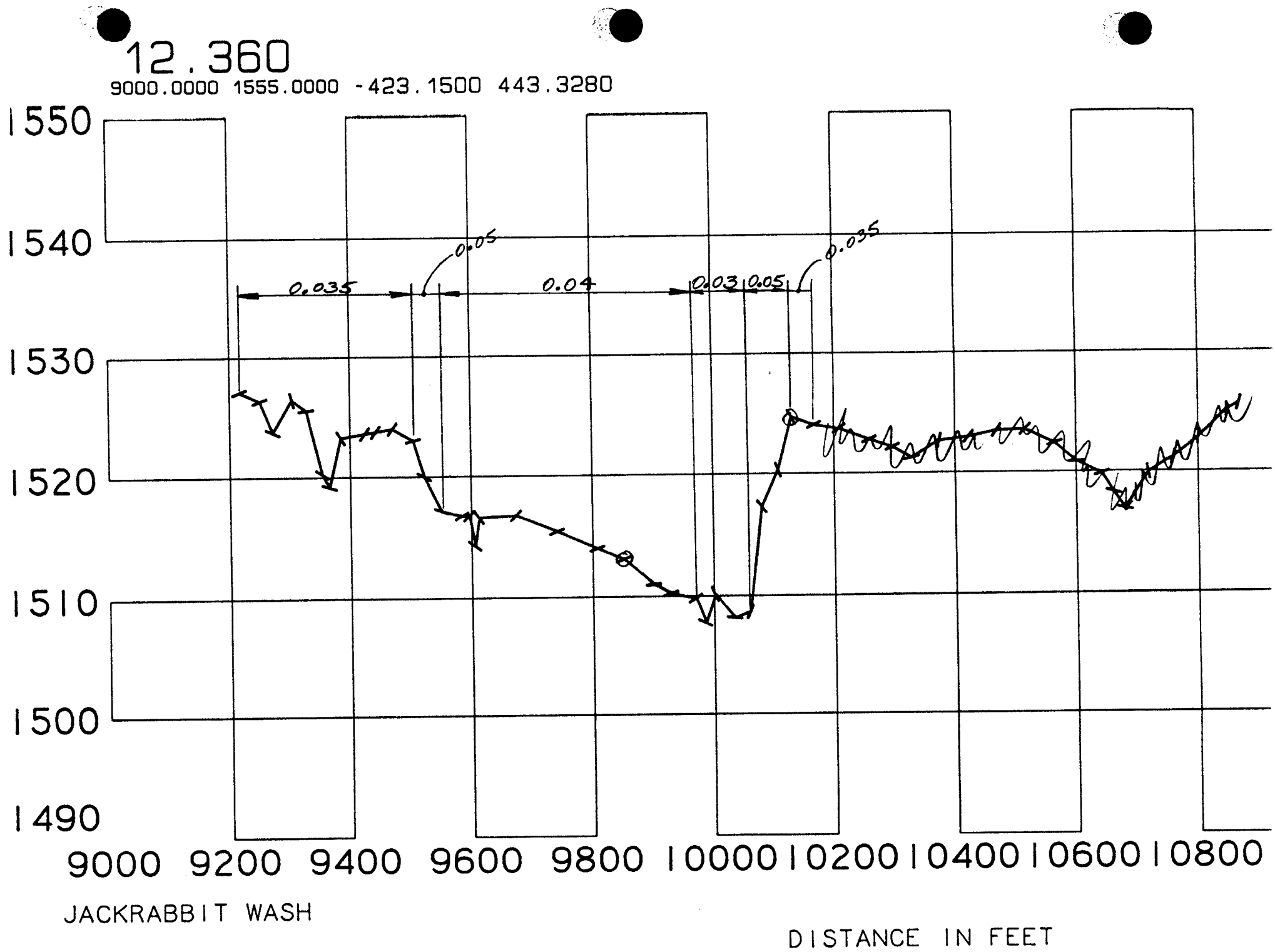

11.425
9400.0000 1525.0000 -442.1000 424.9920
1520
1510
1500
1490
1480
1470
1460
ELEVATION IN FEET
0.05
0.03
0.04
0.03
0.04
0.03
0.05
0.035
9400 9600 9800 10000 10200 10400 10600 10800 11000
JACKRABBIT WASH
DISTANCE IN FEET

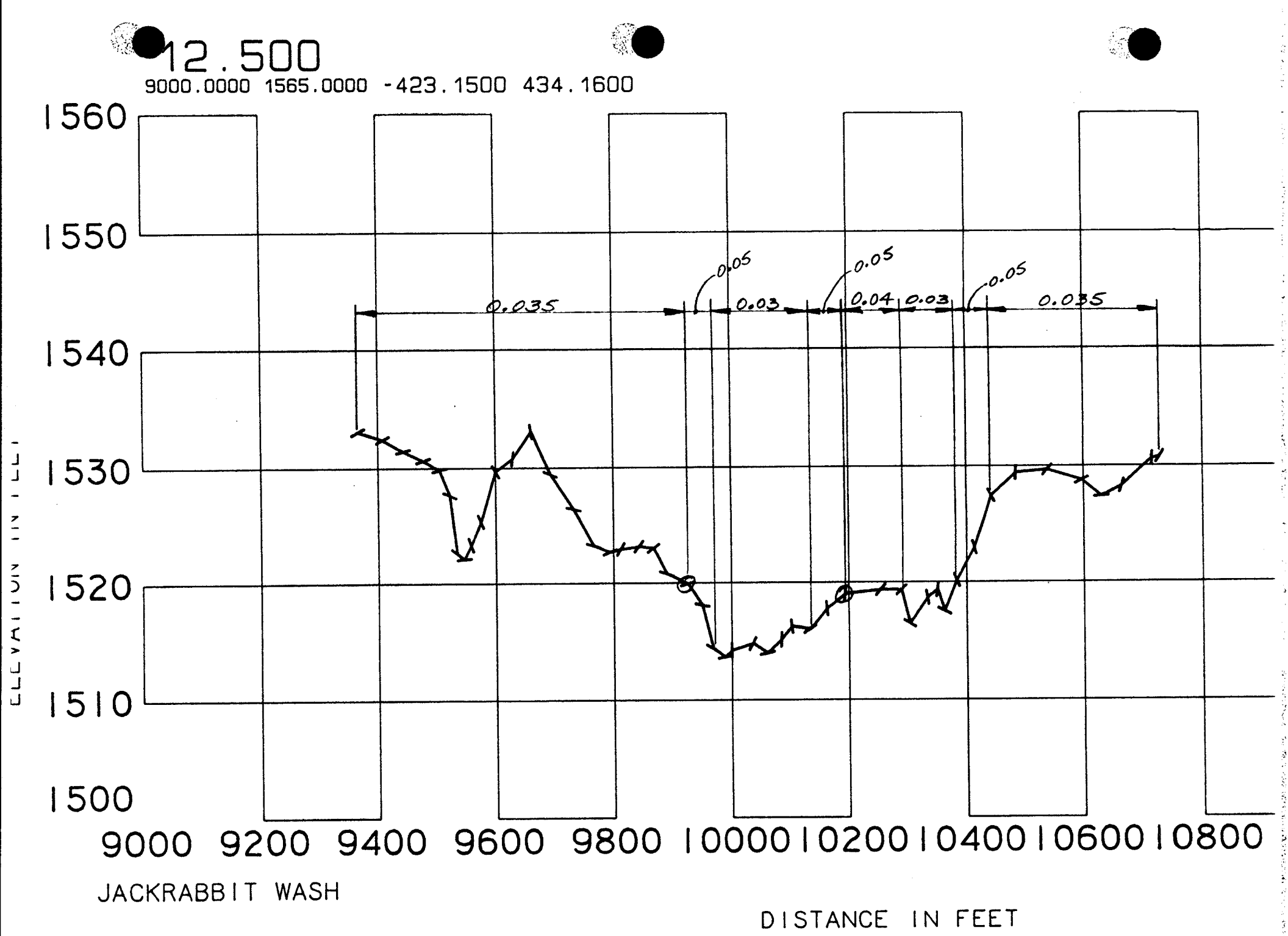

11.608
9200.0000 1535.0000 -423.1500 480.0000
1530
1520
1510
1500
1490
1480
1470
ELEVATION IN FEET
0.05
0.03
0.04
0.03
0.04
0.03
0.05
0.035
9200 9400 9600 9800 10000 10200 10400 10600 10800
JACKRABBIT WASH
DISTANCE IN FEET


11.815
9000.0000 1525.0000 -423.1500 470.8320
1520
1510
1500
1490
1480
ELEVATION IN FEET
0.035
0.05
0.04
0.03
0.04
9000 9200 9400 9600 9800 10000 10200 10400 10600 10800
JACKRABBIT WASH
DISTANCE IN FEET


12.032
8800.0000 1545.0000 -423.1500 461.6640
1540
1530
1520
1510
1500
1490
1480
0.035
0.03
0.05
0.035
8800 9000 9200 9400 9600 9800 10000 10200 10400 10600
JACKRABBIT WASH
DISTANCE IN FEET


12.220
9400.0000 1555.0000 -423.1500 452.4960
1550
1540
1530
1520
1510
1500
1490
0.035
0.05
0.03
0.04
0.035
9400 9600 9800 10000 10200 10400 10600 10800 11000 11200
JACKRABBIT WASH
DISTANCE IN FEET


12.360
9000.0000 1555.0000 -423.1500 443.3280
1550
1540
1530
1520
1510
1500
1490
0.035
0.05
0.04
0.03
0.05
0.035
9000 9200 9400 9600 9800 10000 10200 10400 10600 10800
JACKRABBIT WASH
DISTANCE IN FEET


12.500
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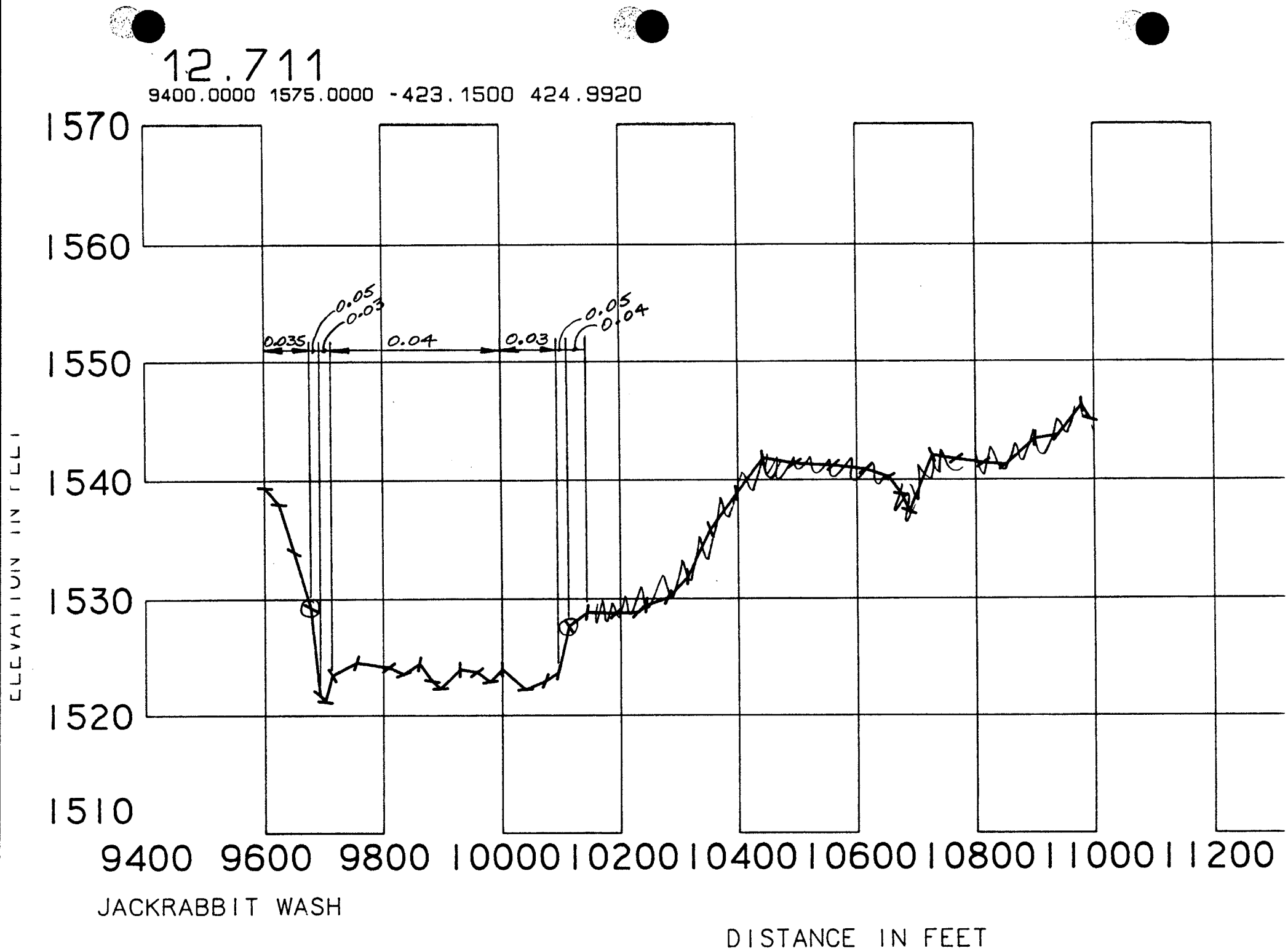
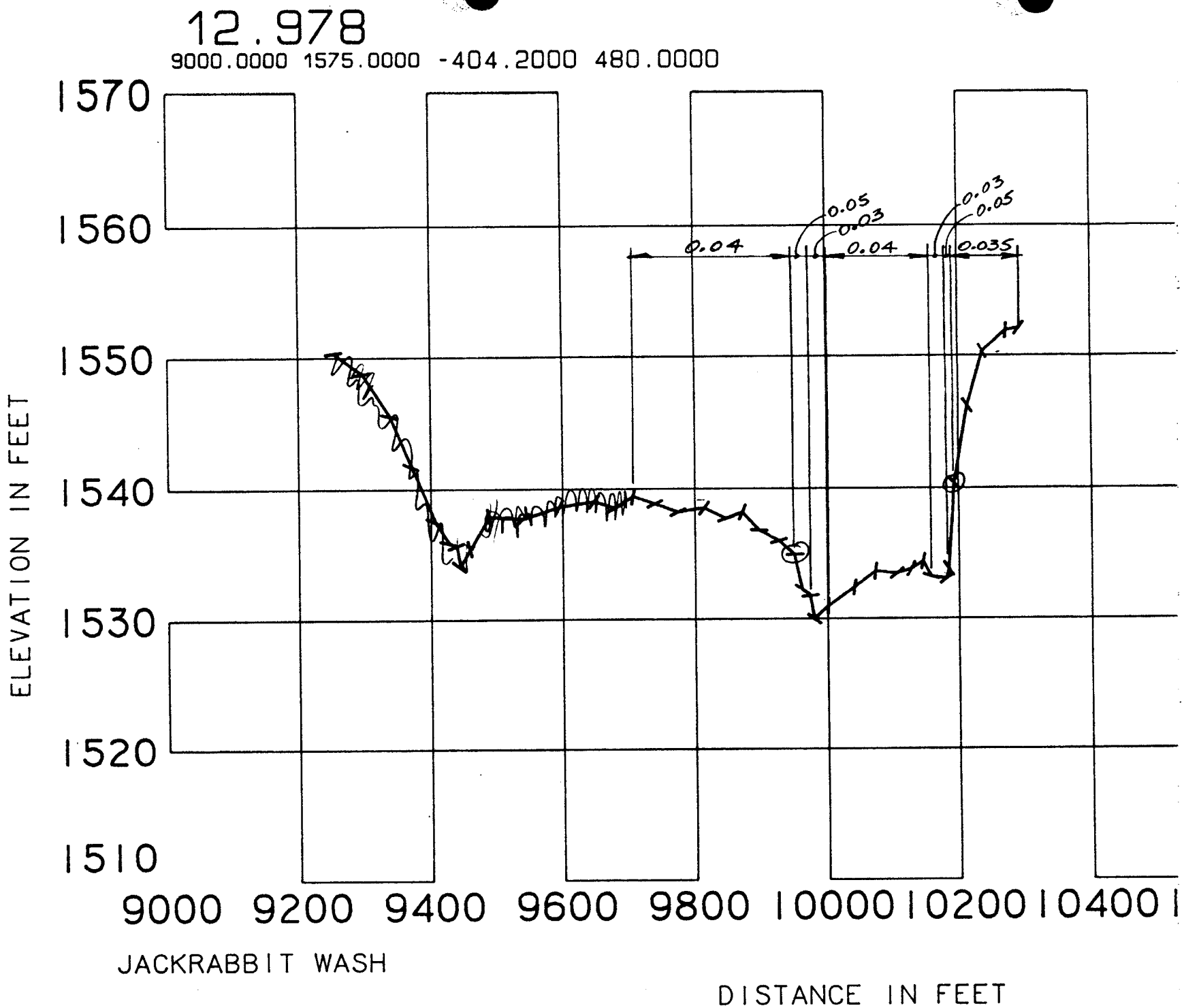
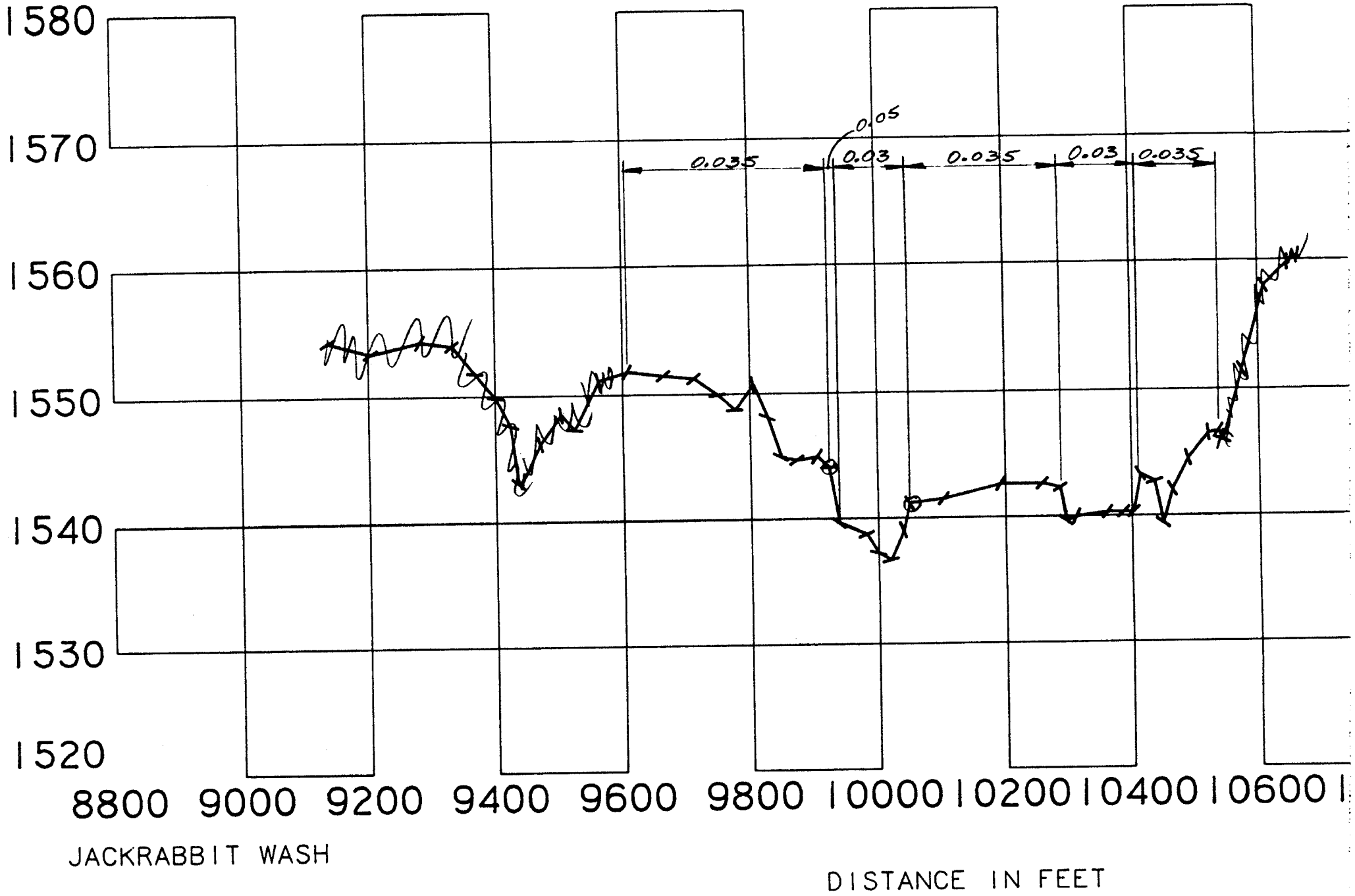
1560
1550
1540
1530
1520
1510
1500
0.035
0.05
0.03
0.05
0.04
0.03
0.05
0.035
9000 9200 9400 9600 9800 10000 10200 10400 10600 10800
JACKRABBIT WASH
DISTANCE IN FEET


12.711
9400.0000 1575.0000 -423.1500 424.9920
1570
1560
1550
1540
1530
1520
1510
ELEVATION IN FEET
0.035
0.05
0.03
0.04
0.03
0.05
0.04
9400 9600 9800 10000 10200 10400 10600 10800 11000 11200
JACKRABBIT WASH
DISTANCE IN FEET


12.978
9000.0000 1575.0000 -404.2000 480.0000
1570
1560
1550
1540
1530
1520
1510
ELEVATION IN FEET
9000 9200 9400 9600 9800 10000 10200 10400
JACKRABBIT WASH
DISTANCE IN FEET
0.04
0.05
0.03
0.04
0.03
0.05
0.035

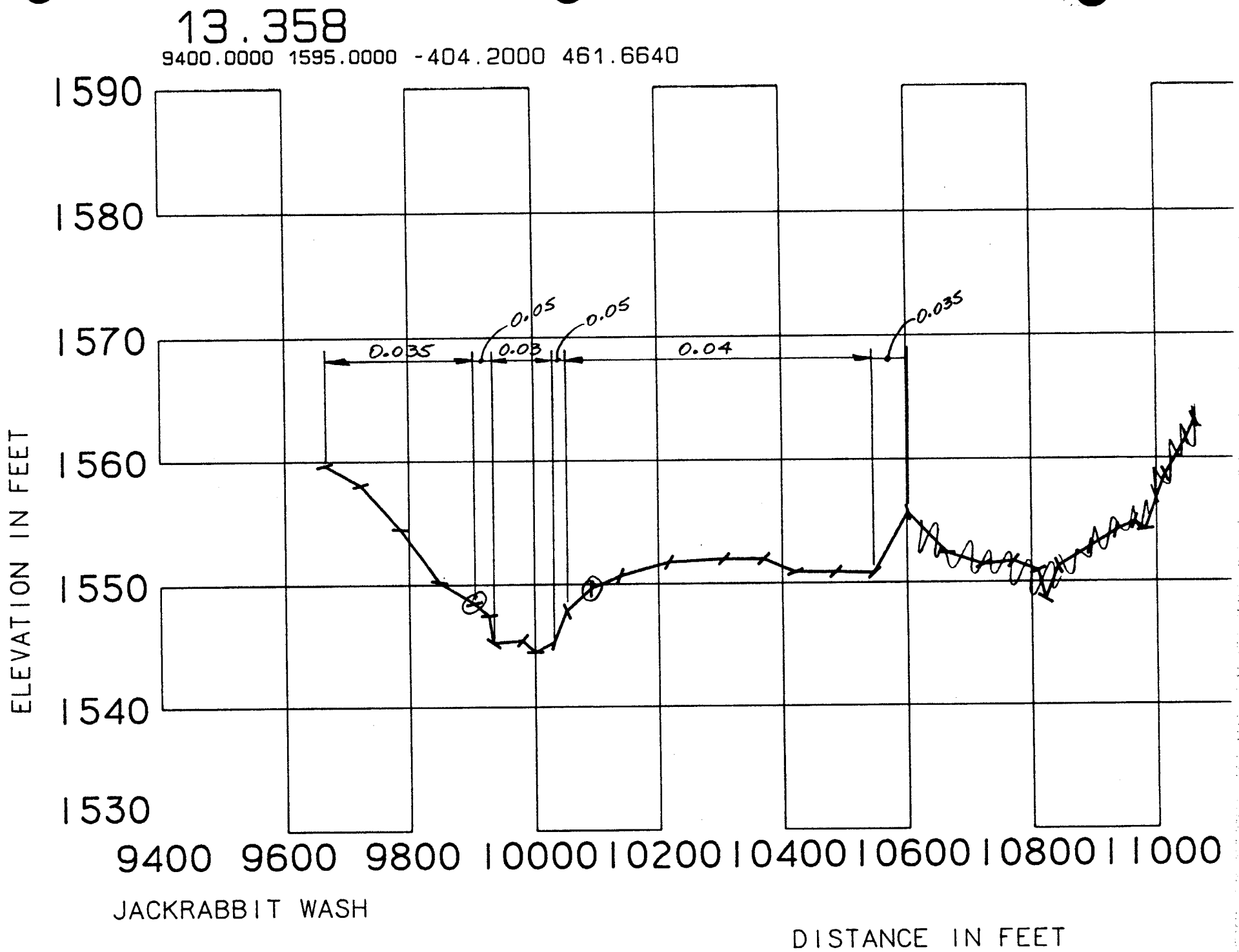
13.164

8800.0000 1585.0000 -404.2000 470.8320



JACKRABBIT WASH

DISTANCE IN FEET


13.358
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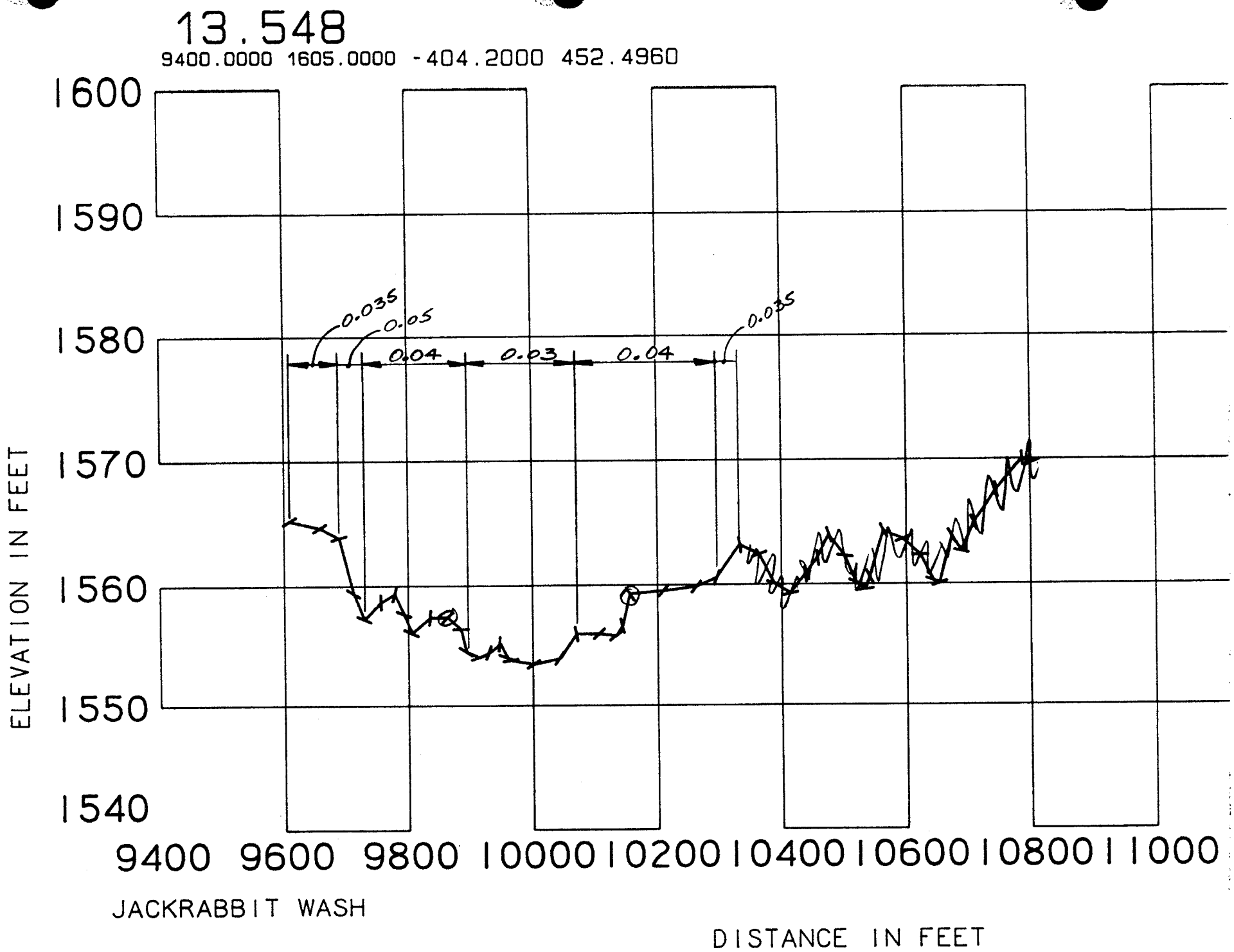
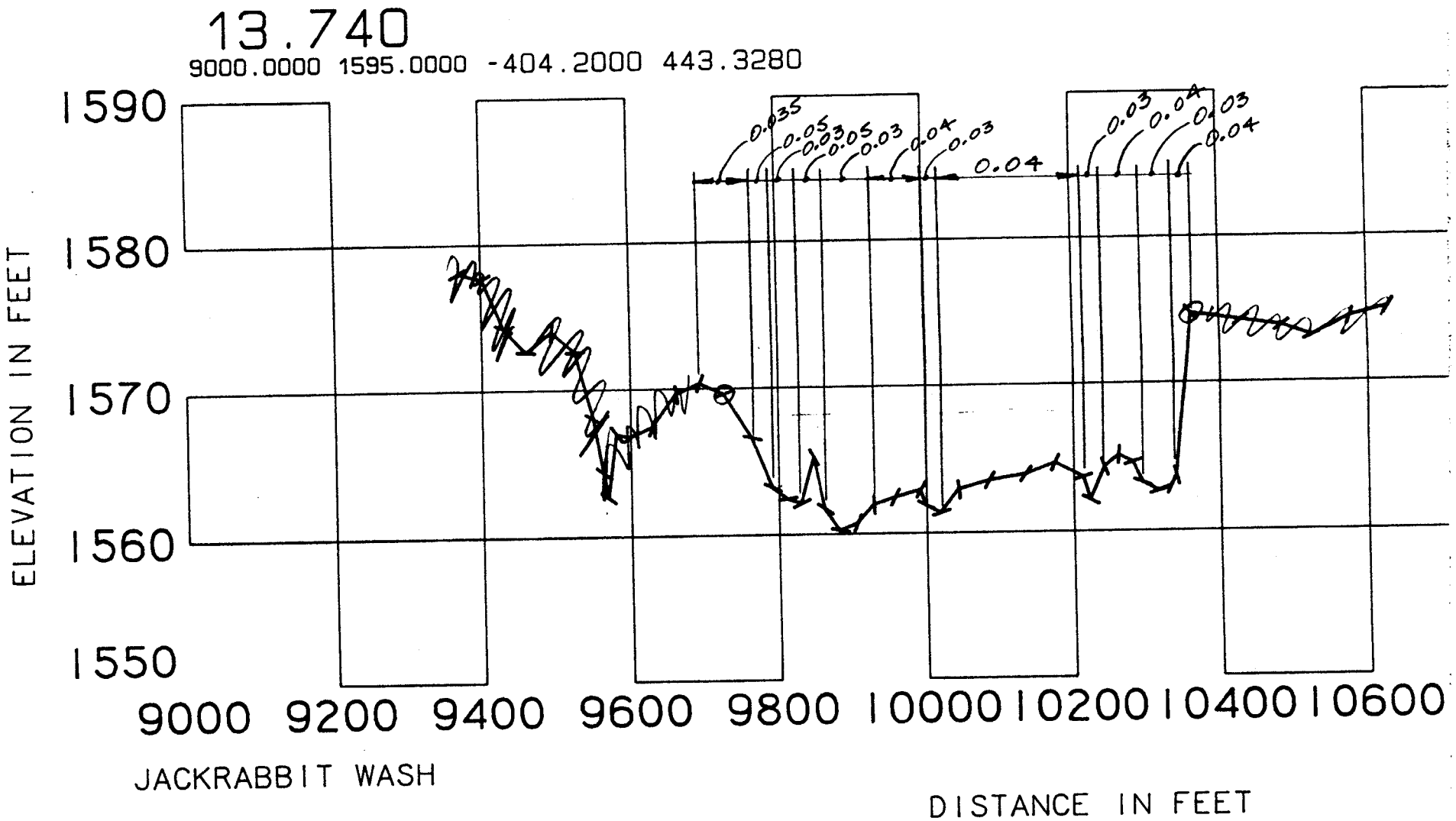
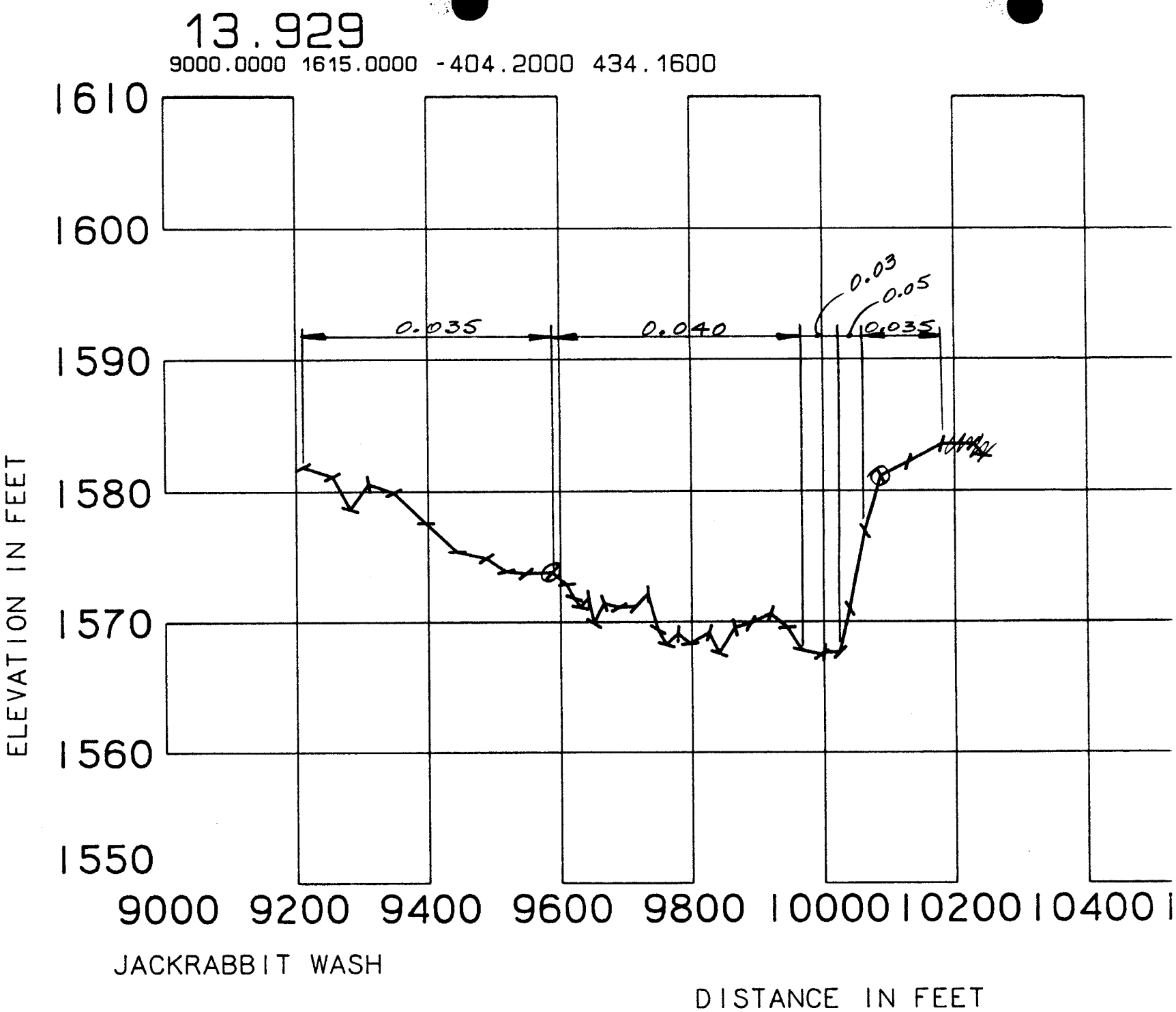
1590
1580
1570
1560
1550
1540
1530
ELEVATION IN FEET
0.035
0.05
0.03
0.05
0.04
0.035
9400 9600 9800 10000 10200 10400 10600 10800 11000
JACKRABBIT WASH
DISTANCE IN FEET


13.548
9400.0000 1605.0000 -404.2000 452.4960
1600
1590
1580
1570
1560
1550
1540
ELEVATION IN FEET
0.035
0.05
0.04
0.03
0.04
0.035
9400 9600 9800 10000 10200 10400 10600 10800 11000
JACKRABBIT WASH
DISTANCE IN FEET


13.740
9000.0000 1595.0000 -404.2000 443.3280
1590
1580
1570
1560
1550
ELEVATION IN FEET
9000 9200 9400 9600 9800 10000 10200 10400 10600
JACKRABBIT WASH
DISTANCE IN FEET
0.035
0.05
0.03
0.05
0.03
0.04
0.03
0.04
0.03
0.04
0.03
0.04


13.929
9000.0000 1615.0000 -404.2000 434.1600
1610
1600
1590
1580
1570
1560
1550
ELEVATION IN FEET
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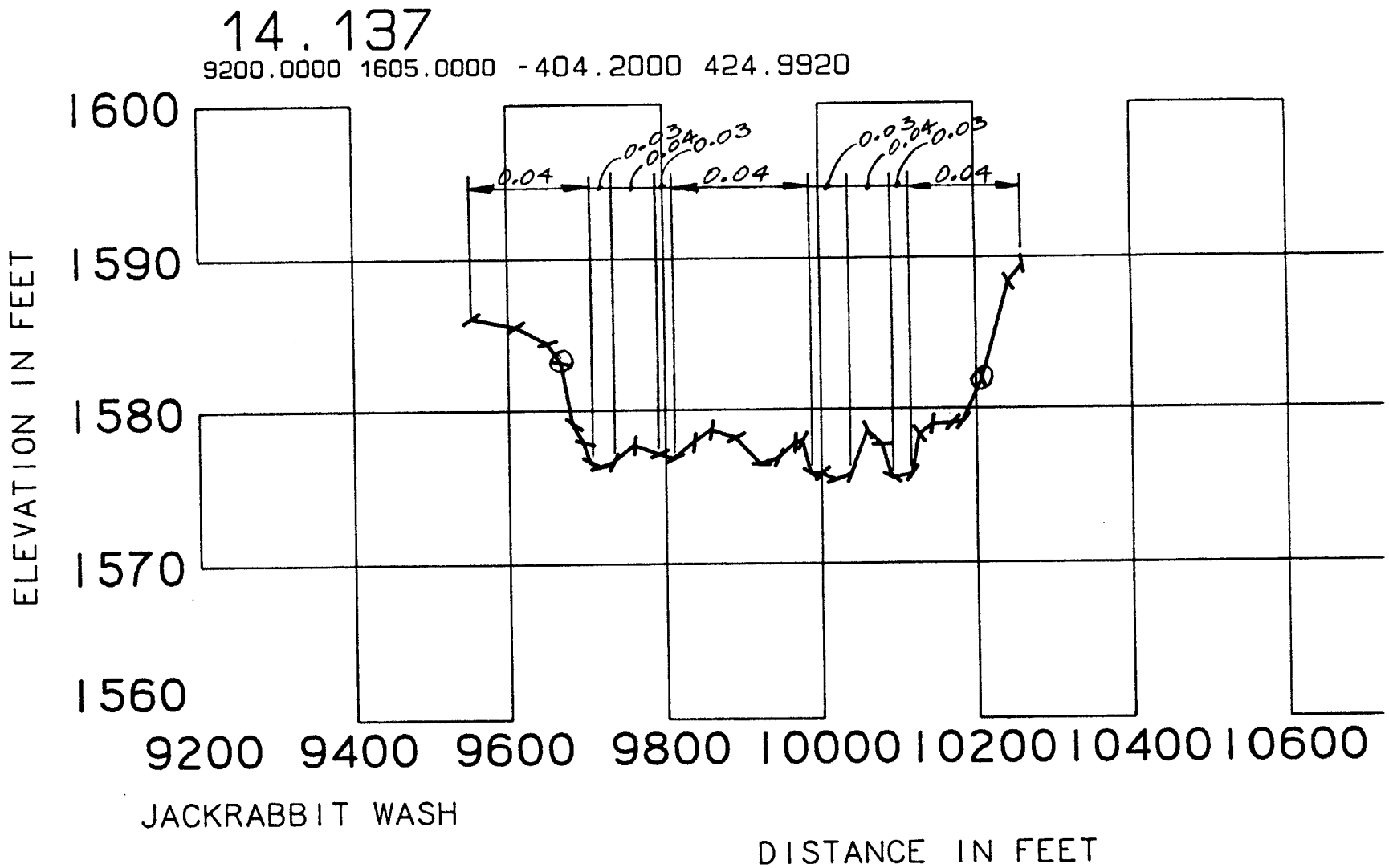
0.040
0.03
0.05
0.035
9000 9200 9400 9600 9800 10000 10200 10400
JACKRABBIT WASH
DISTANCE IN FEET


14.137
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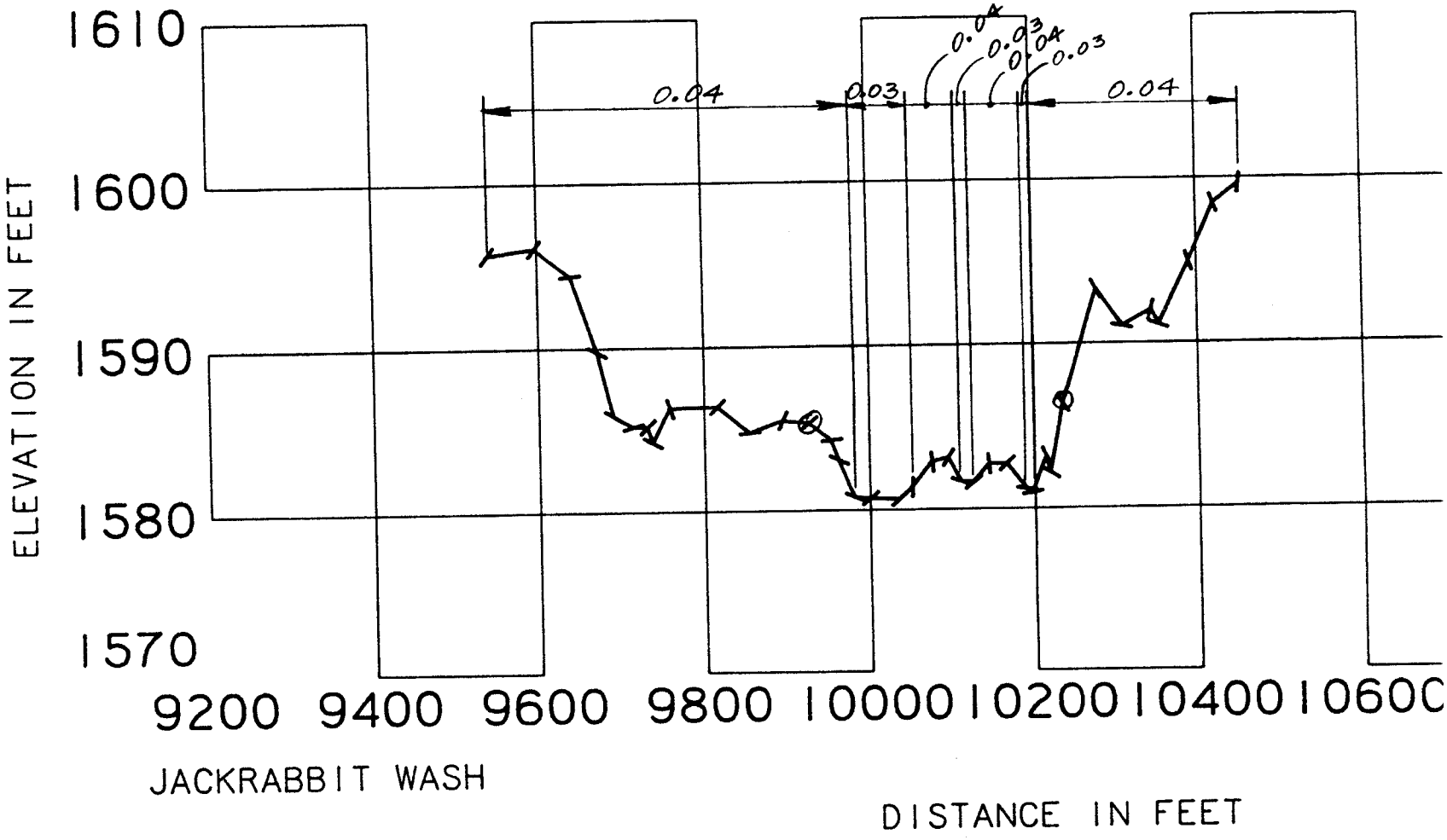
1600
1590
1580
1570
1560
ELEVATION IN FEET
0.04
0.03
0.04
0.03
0.04
0.03
0.04
0.03
0.04
9200 9400 9600 9800 10000 10200 10400 10600
JACKRABBIT WASH
DISTANCE IN FEET

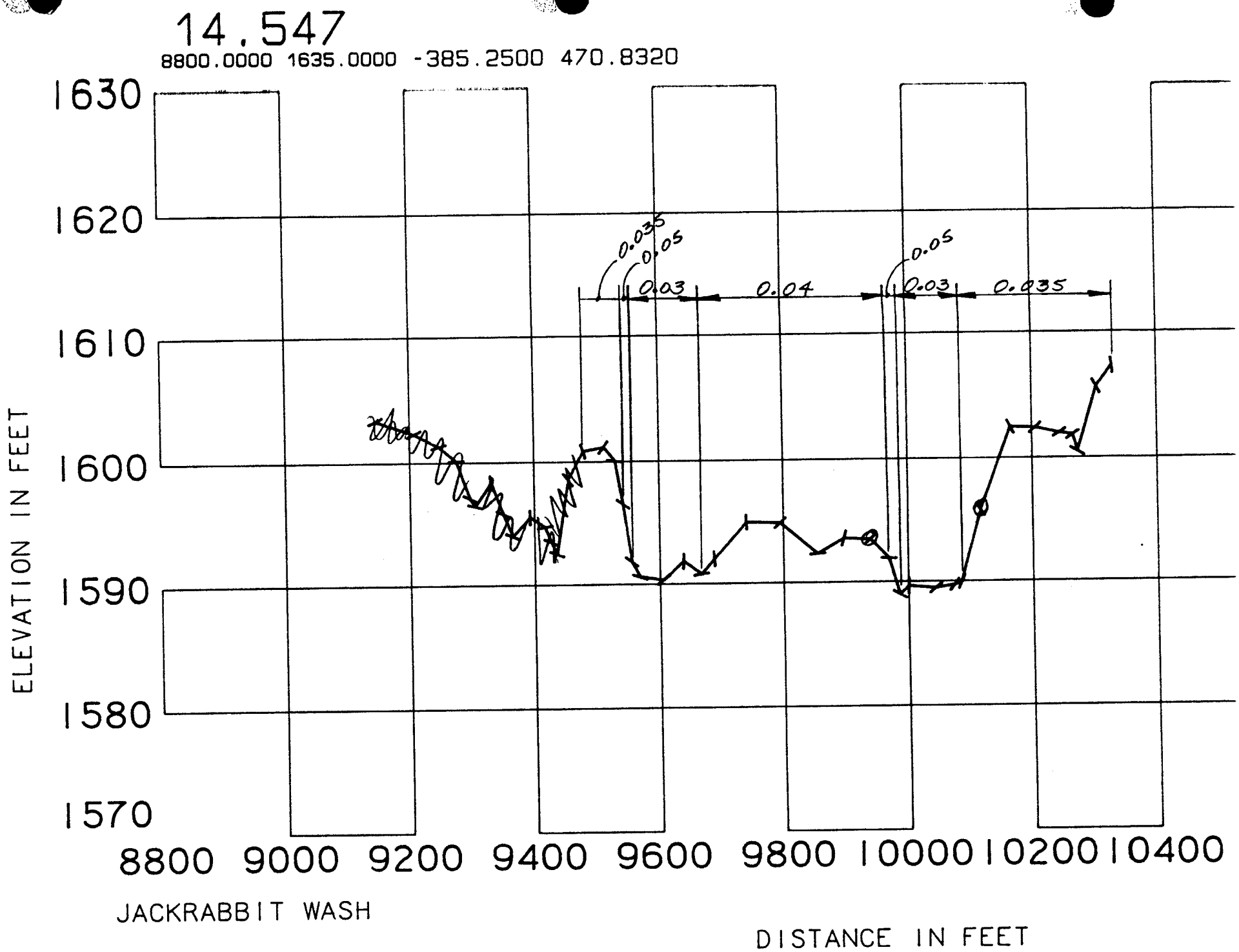
323

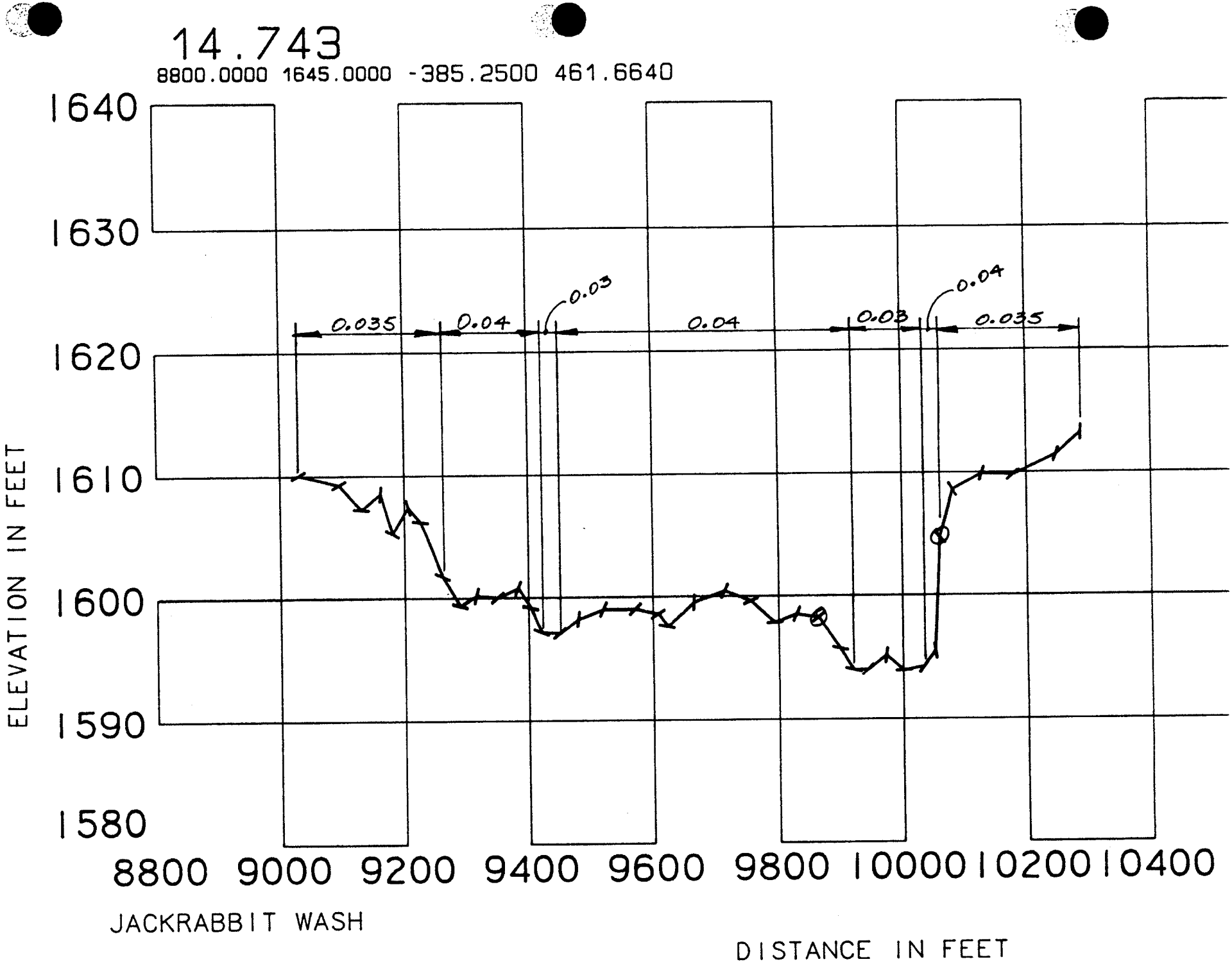
14. [redacted]

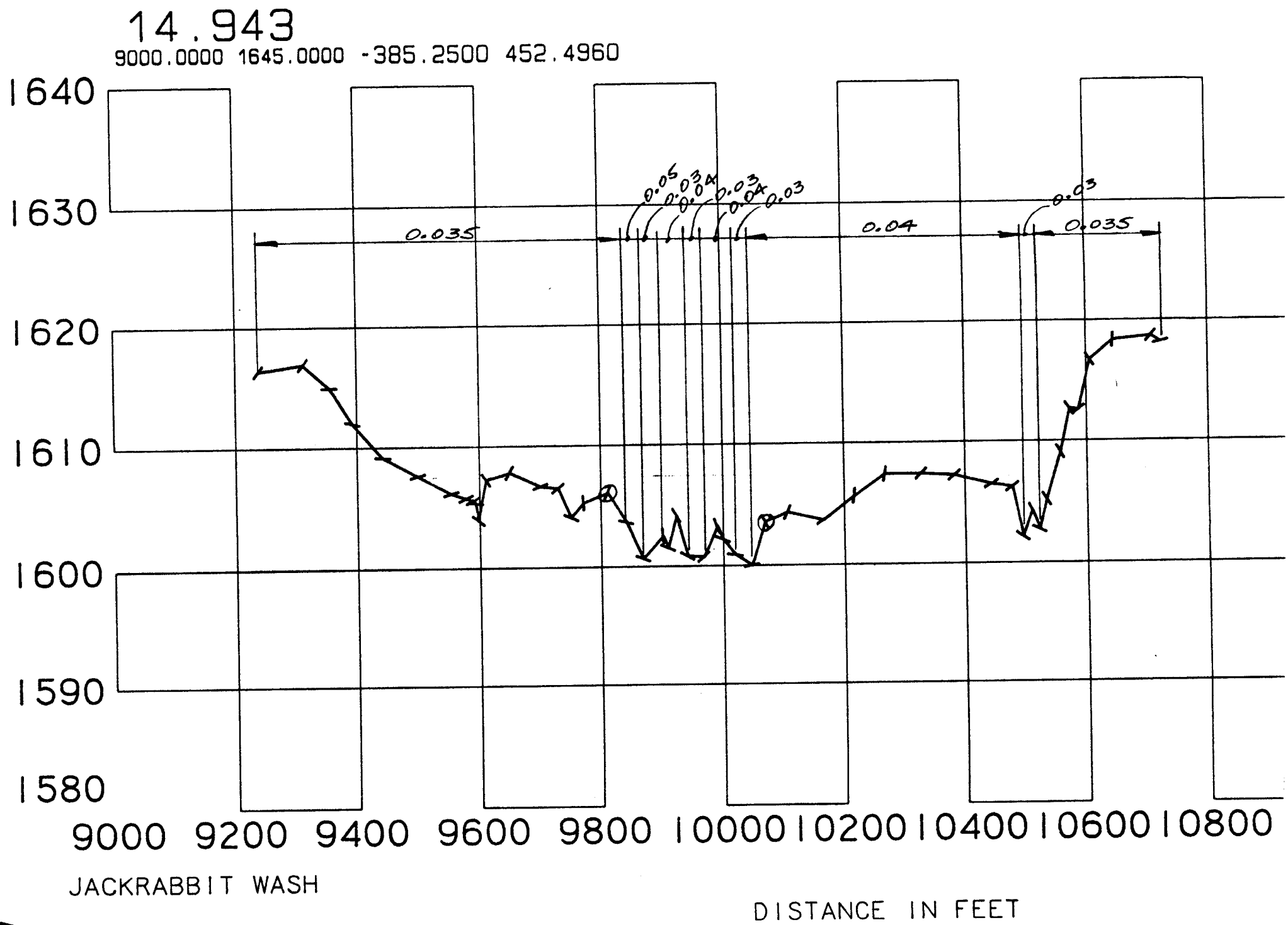
9200.0000 1615.0000 -385.2500 480.0000

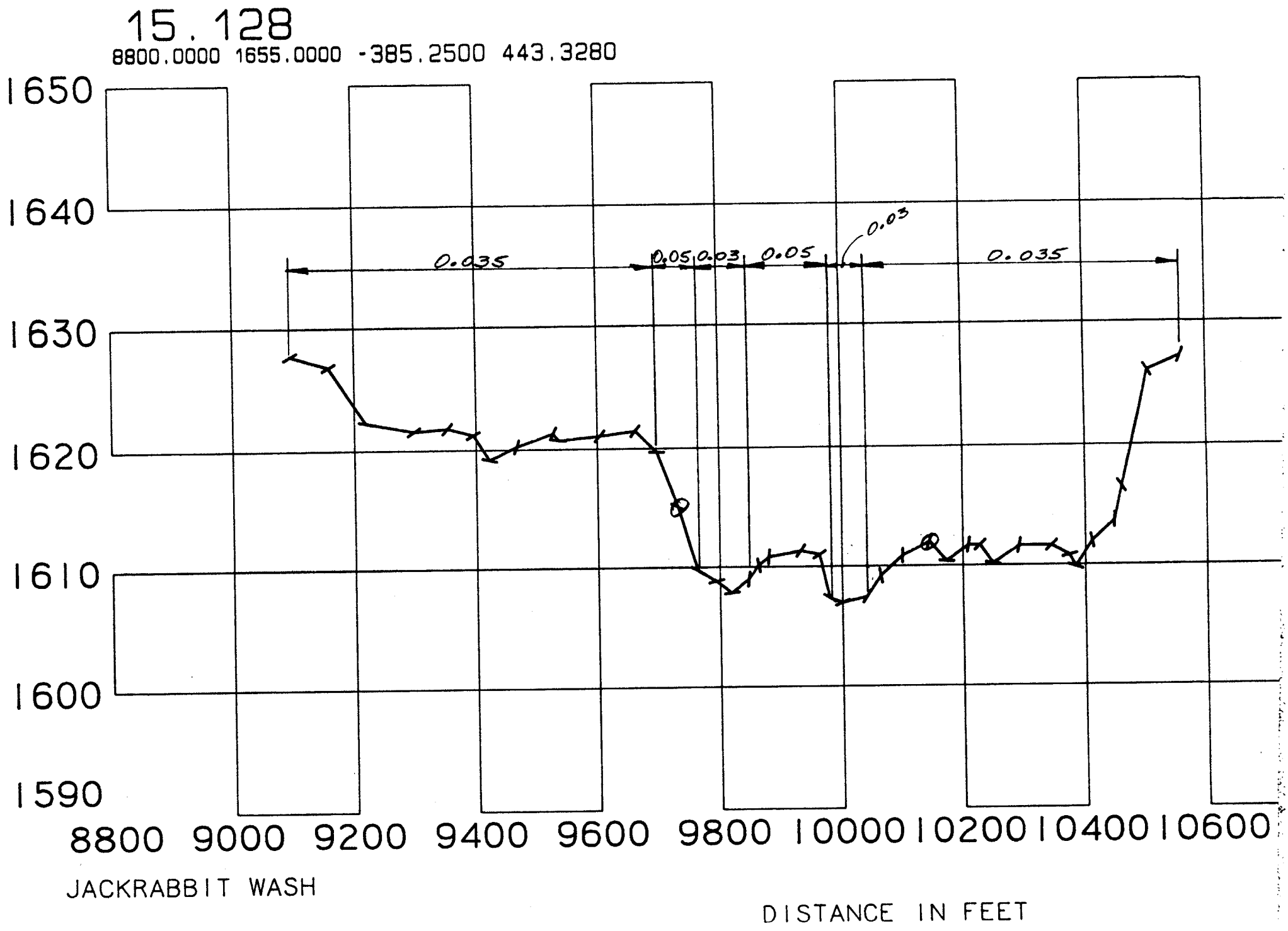


.11A


14.547
8800.0000 1635.0000 -385.2500 470.8320
1630
1620
1610
1600
1590
1580
1570
ELEVATION IN FEET
8800 9000 9200 9400 9600 9800 10000 10200 10400
JACKRABBIT WASH
DISTANCE IN FEET
0.035
0.05
0.03
0.04
0.05
0.03
0.035

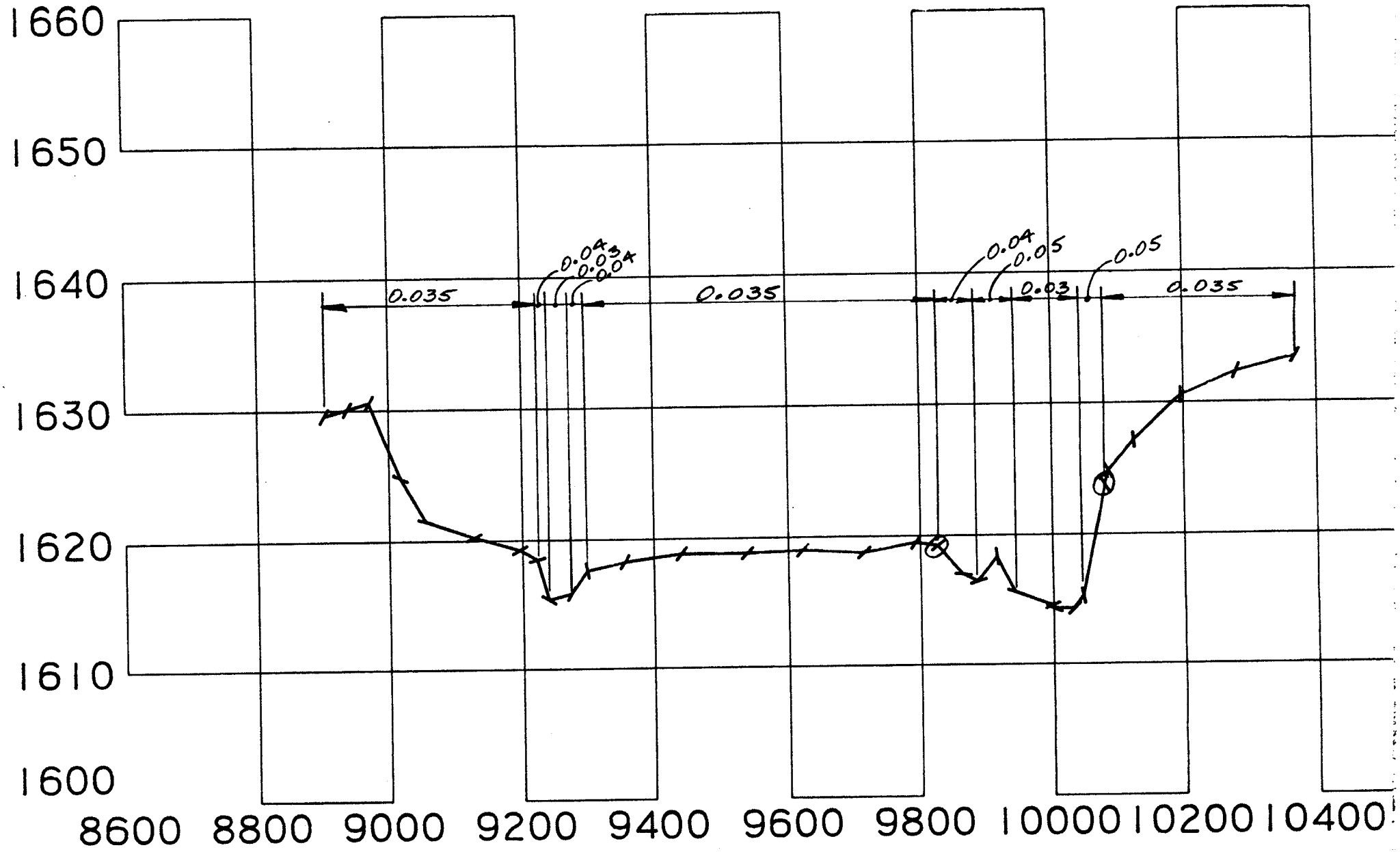

14.743
8800.0000 1645.0000 -385.2500 461.6640
1640
1630
1620
1610
1600
1590
1580
ELEVATION IN FEET
0.035
0.04
0.03
0.04
0.03
0.04
0.035
8800 9000 9200 9400 9600 9800 10000 10200 10400
JACKRABBIT WASH
DISTANCE IN FEET


14.943
9000.0000 1645.0000 -385.2500 452.4960
1640
1630
1620
1610
1600
1590
1580
9000 9200 9400 9600 9800 10000 10200 10400 10600 10800
0.035
0.05
0.03
0.04
0.03
0.04
0.03
0.04
0.03
0.035
JACKRABBIT WASH
DISTANCE IN FEET


15.128
8800.0000 1655.0000 -385.2500 443.3280
1650
1640
1630
1620
1610
1600
1590
0.035
0.05
0.03
0.05
0.03
0.035
8800 9000 9200 9400 9600 9800 10000 10200 10400 10600
JACKRABBIT WASH
DISTANCE IN FEET

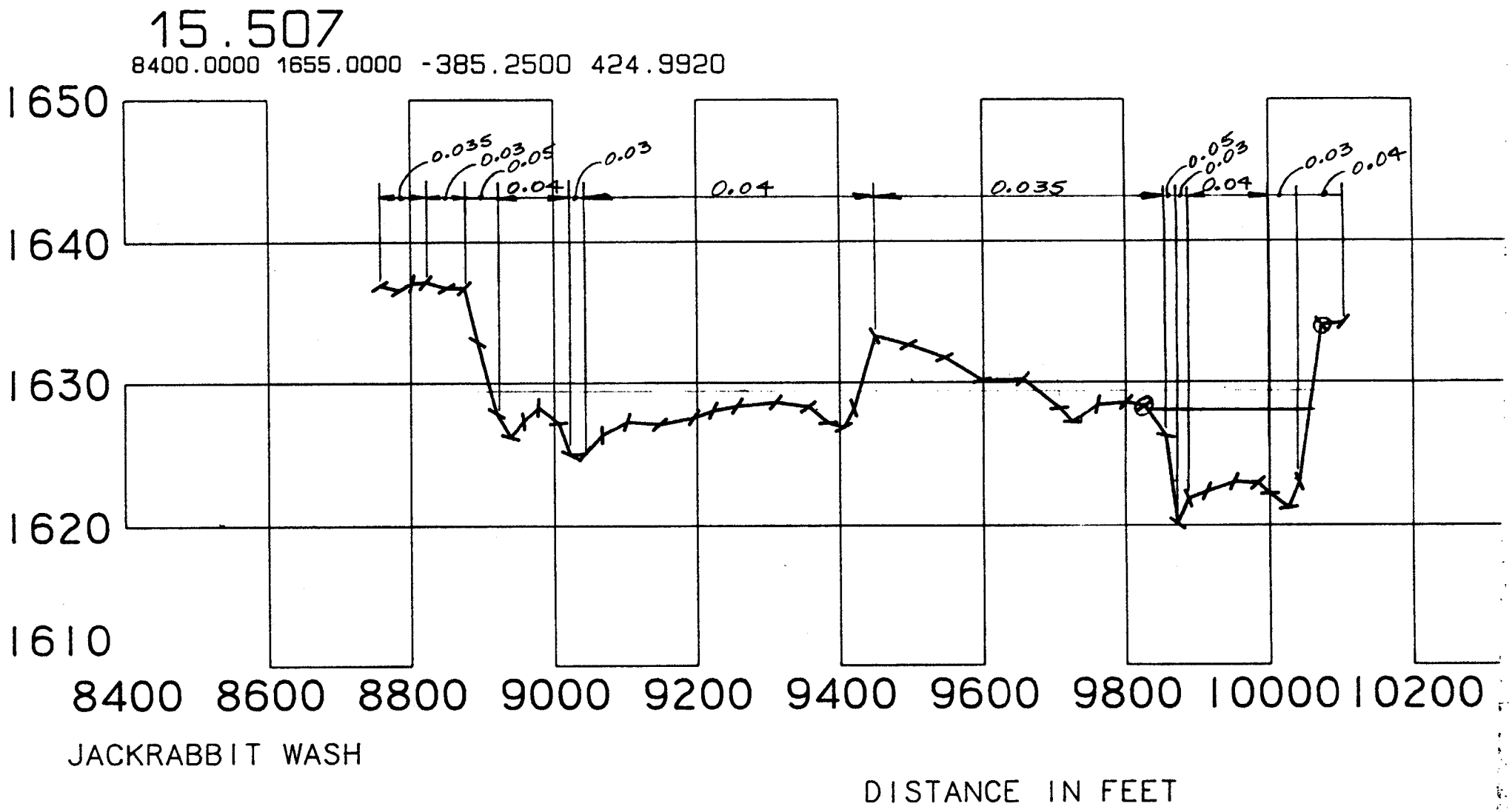
15.304

8600.0000 1665.0000 -385.2500 434.1600



JACKRABBIT WASH

DISTANCE IN FEET


15.507
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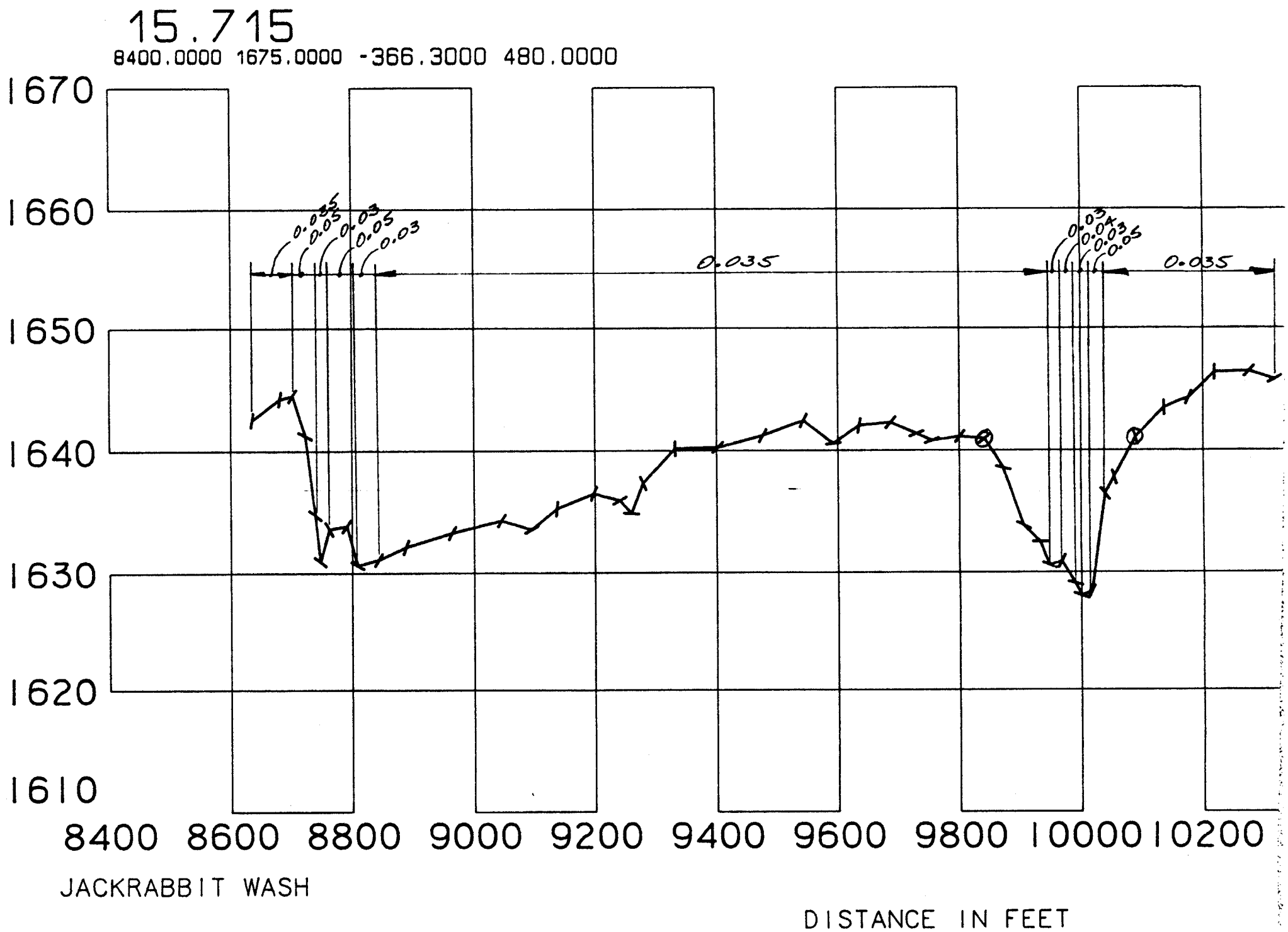
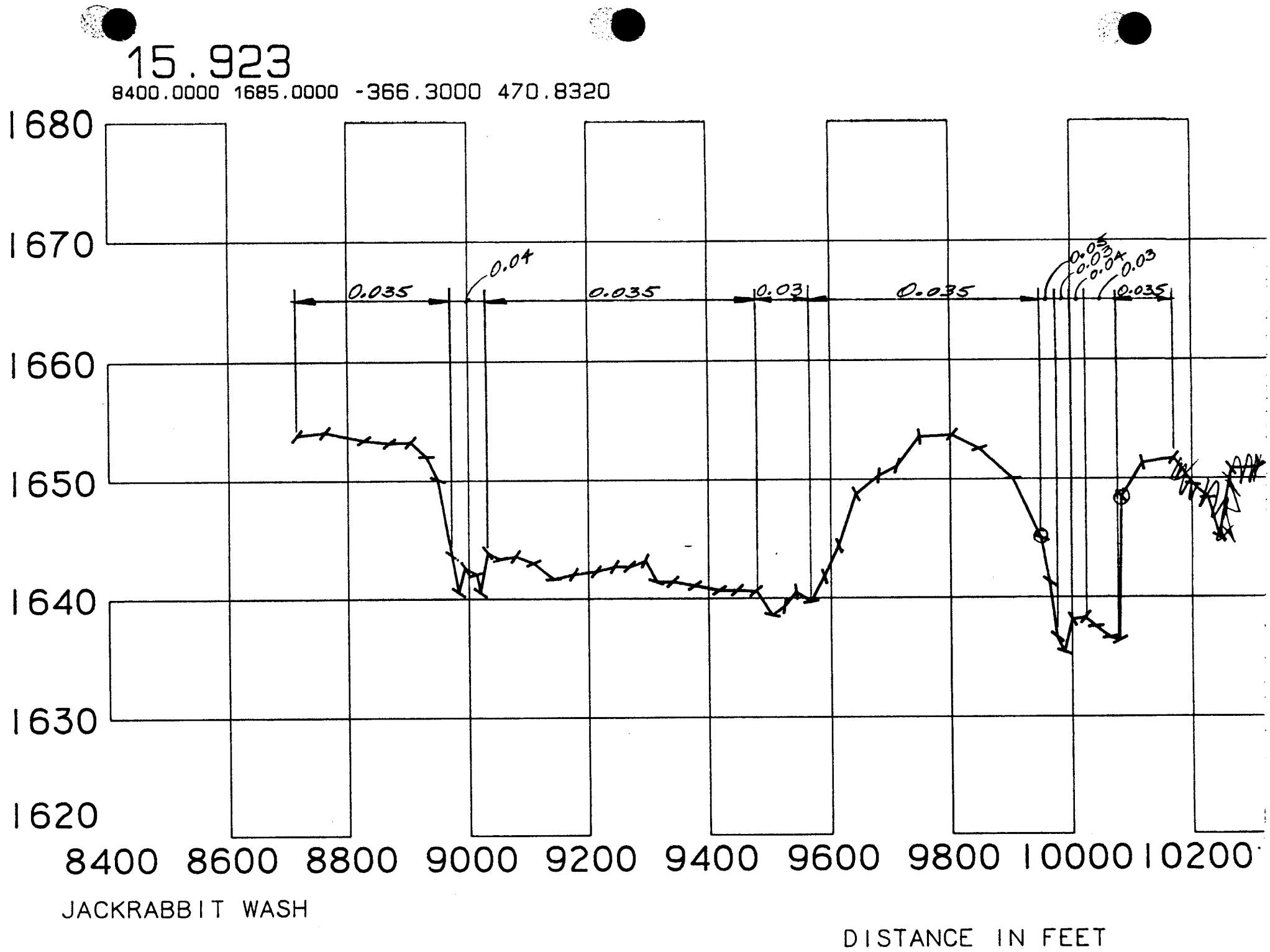
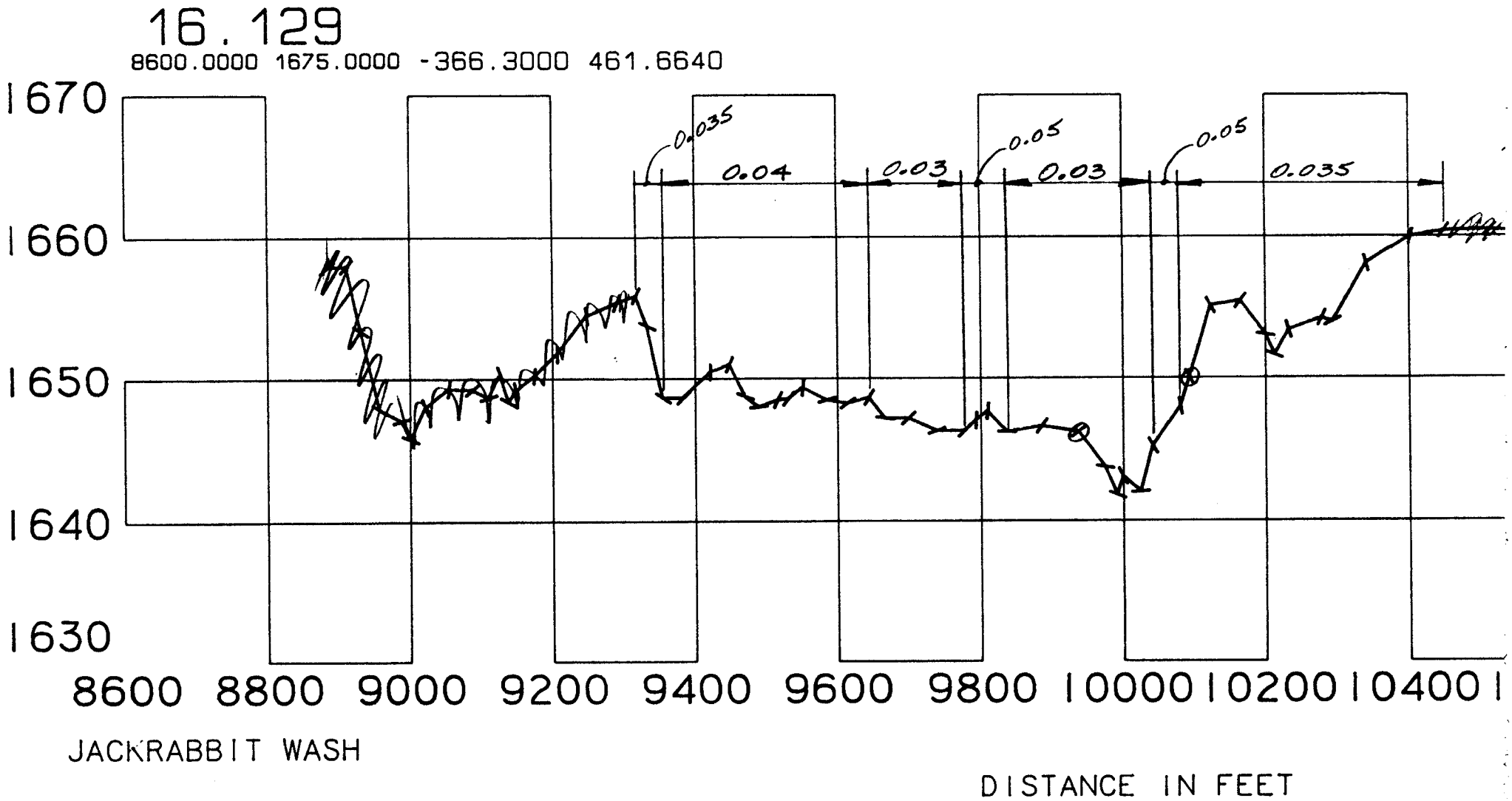
1650
1640
1630
1620
1610
0.035
0.03
0.05
0.04
0.03
0.04
0.035
0.05
0.03
0.04
0.03
0.04
8400 8600 8800 9000 9200 9400 9600 9800 10000 10200
JACKRABBIT WASH
DISTANCE IN FEET

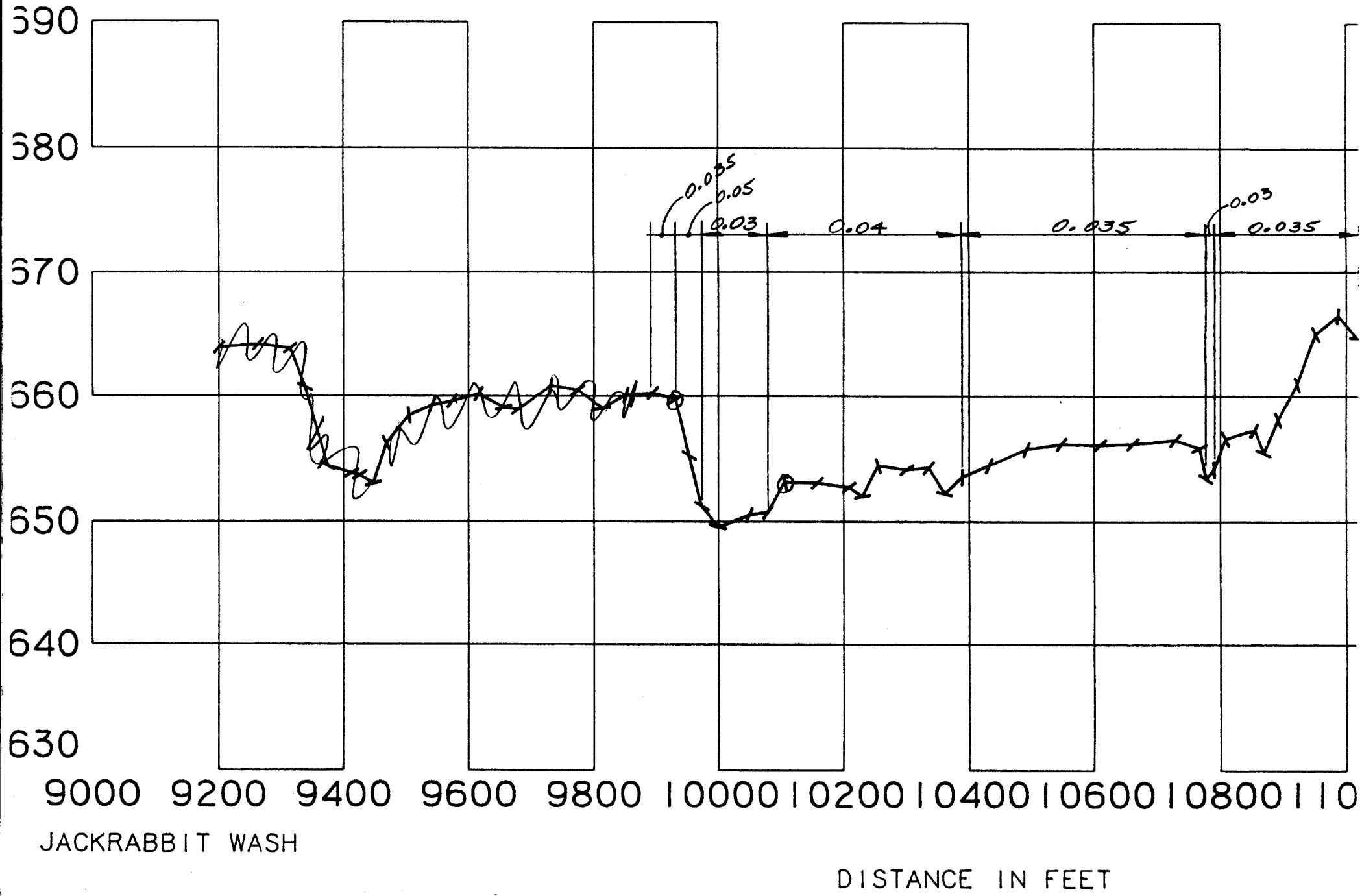

15.715
8400.0000 1675.0000 -366.3000 480.0000
1670
1660
1650
1640
1630
1620
1610
0.035
0.05
0.03
0.05
0.03
0.035
0.03
0.04
0.03
0.05
0.035
8400 8600 8800 9000 9200 9400 9600 9800 10000 10200
JACKRABBIT WASH
DISTANCE IN FEET

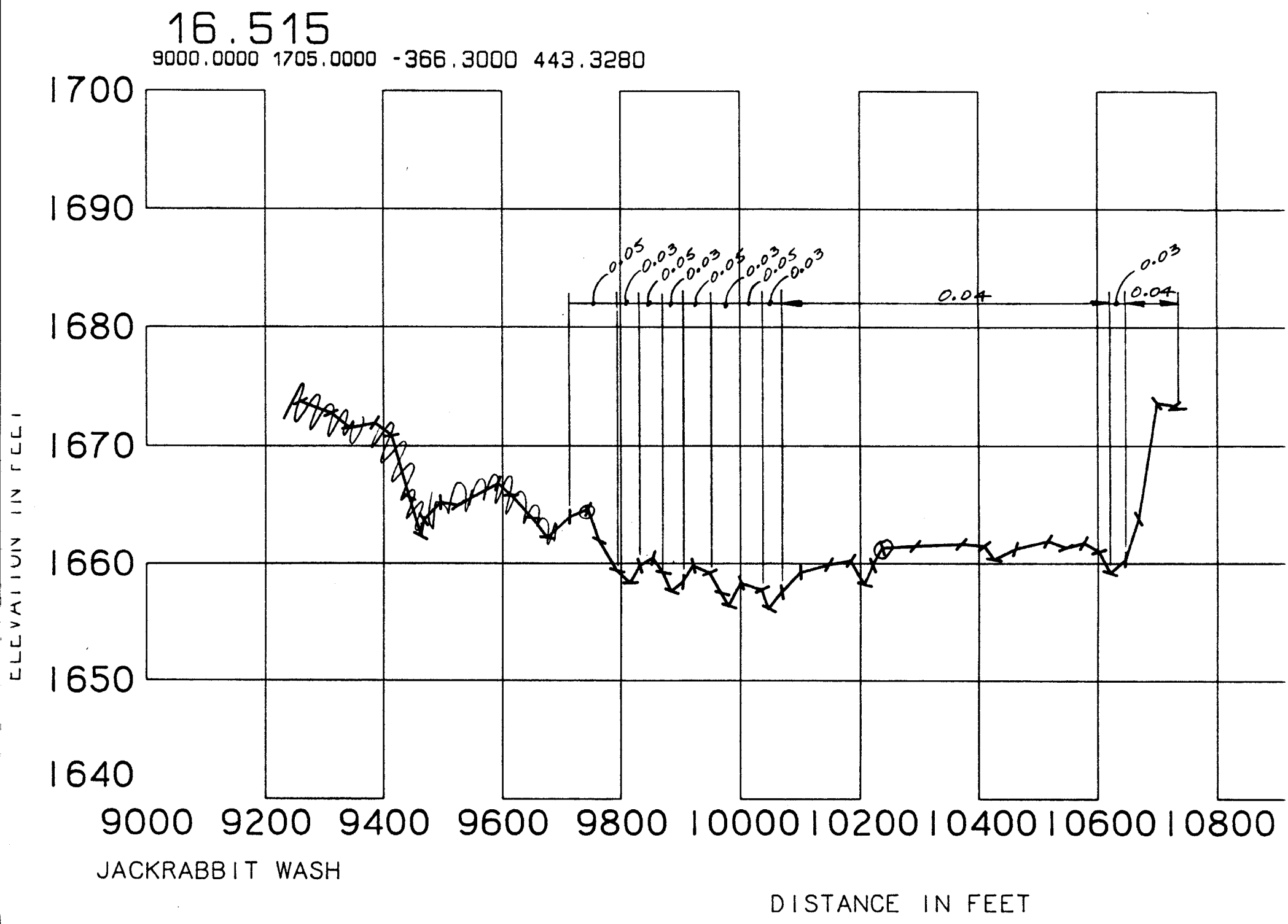

15.923
8400.0000 1685.0000 -366.3000 470.8320
1680
1670
1660
1650
1640
1630
1620
0.035
0.04
0.035
0.03
0.035
0.05
0.03
0.04
0.03
0.035
8400 8600 8800 9000 9200 9400 9600 9800 10000 10200
JACKRABBIT WASH
DISTANCE IN FEET

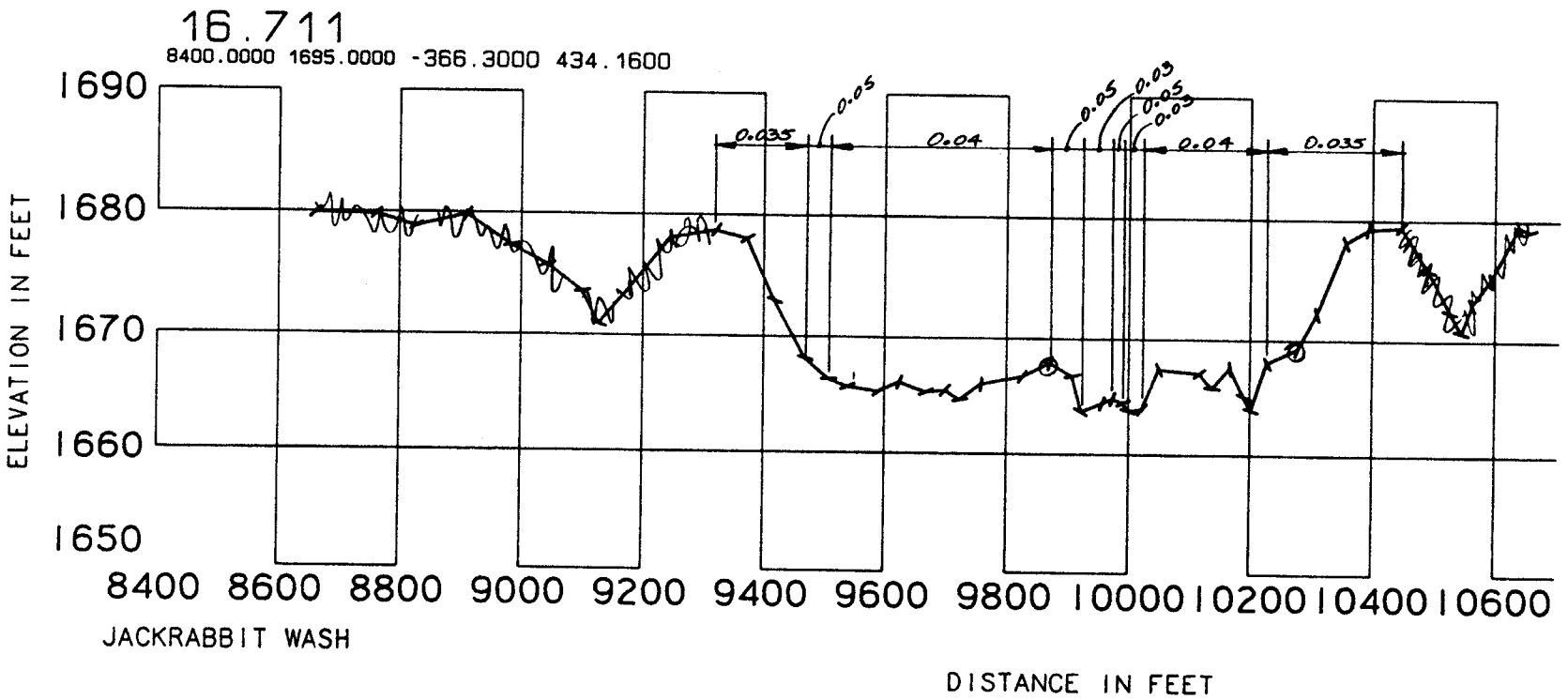

16.129
8600.0000 1675.0000 -366.3000 461.6640
1670
1660
1650
1640
1630
0.035
0.04
0.03
0.05
0.03
0.05
0.035
8600 8800 9000 9200 9400 9600 9800 10000 10200 10400
JACKRABBIT WASH
DISTANCE IN FEET

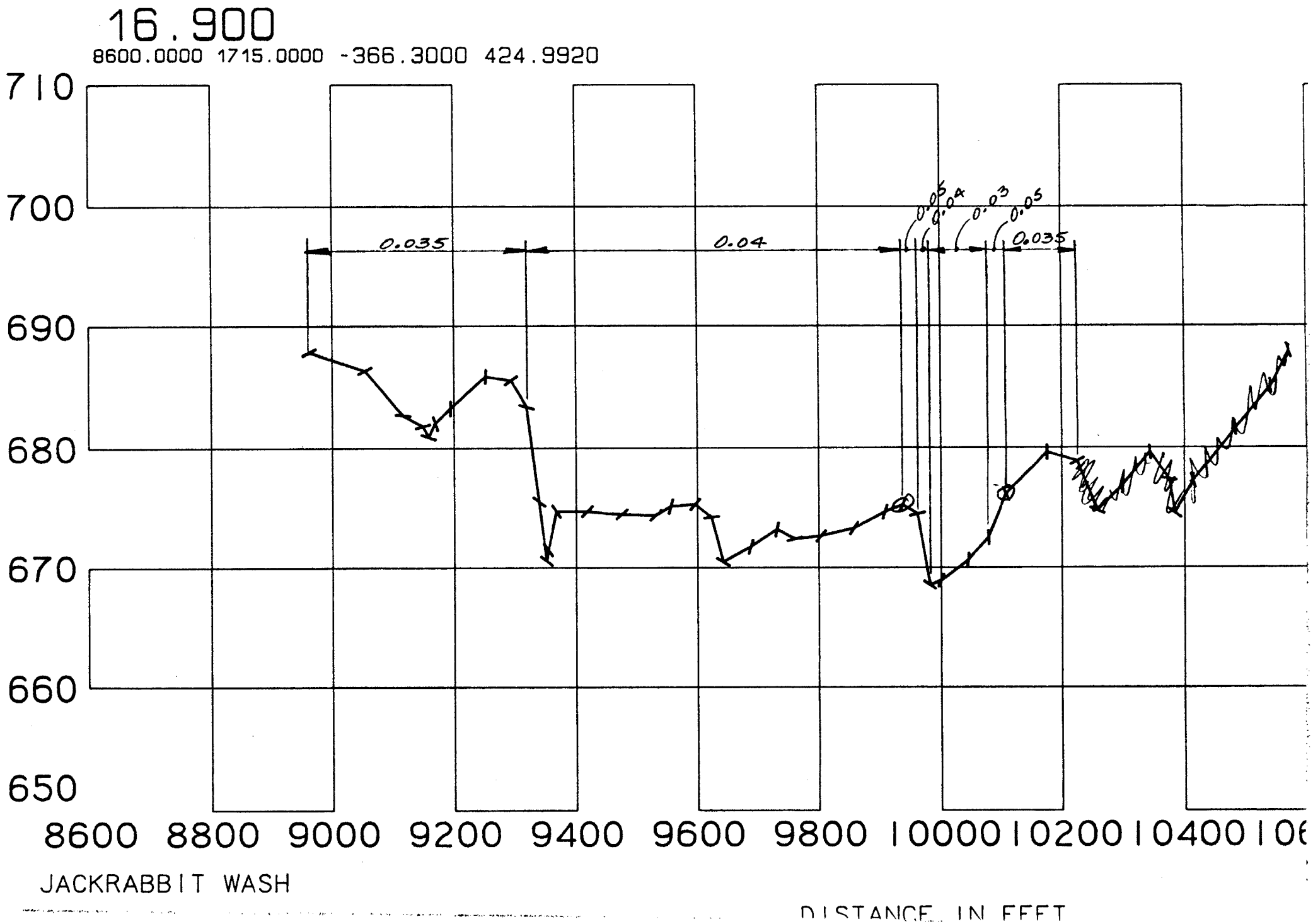
16.315

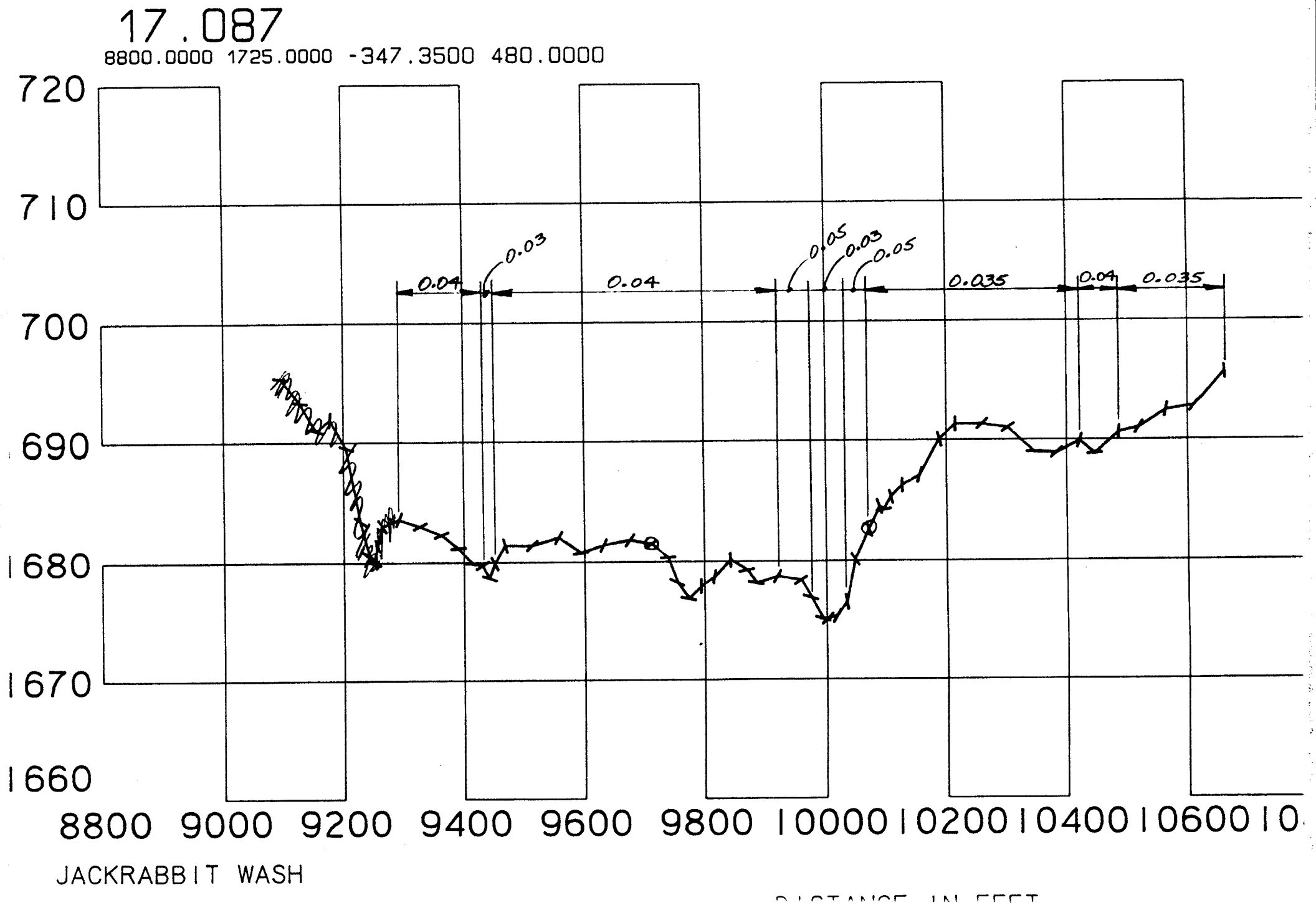
9000.0000 1695.0000 -366.3000 452.4960

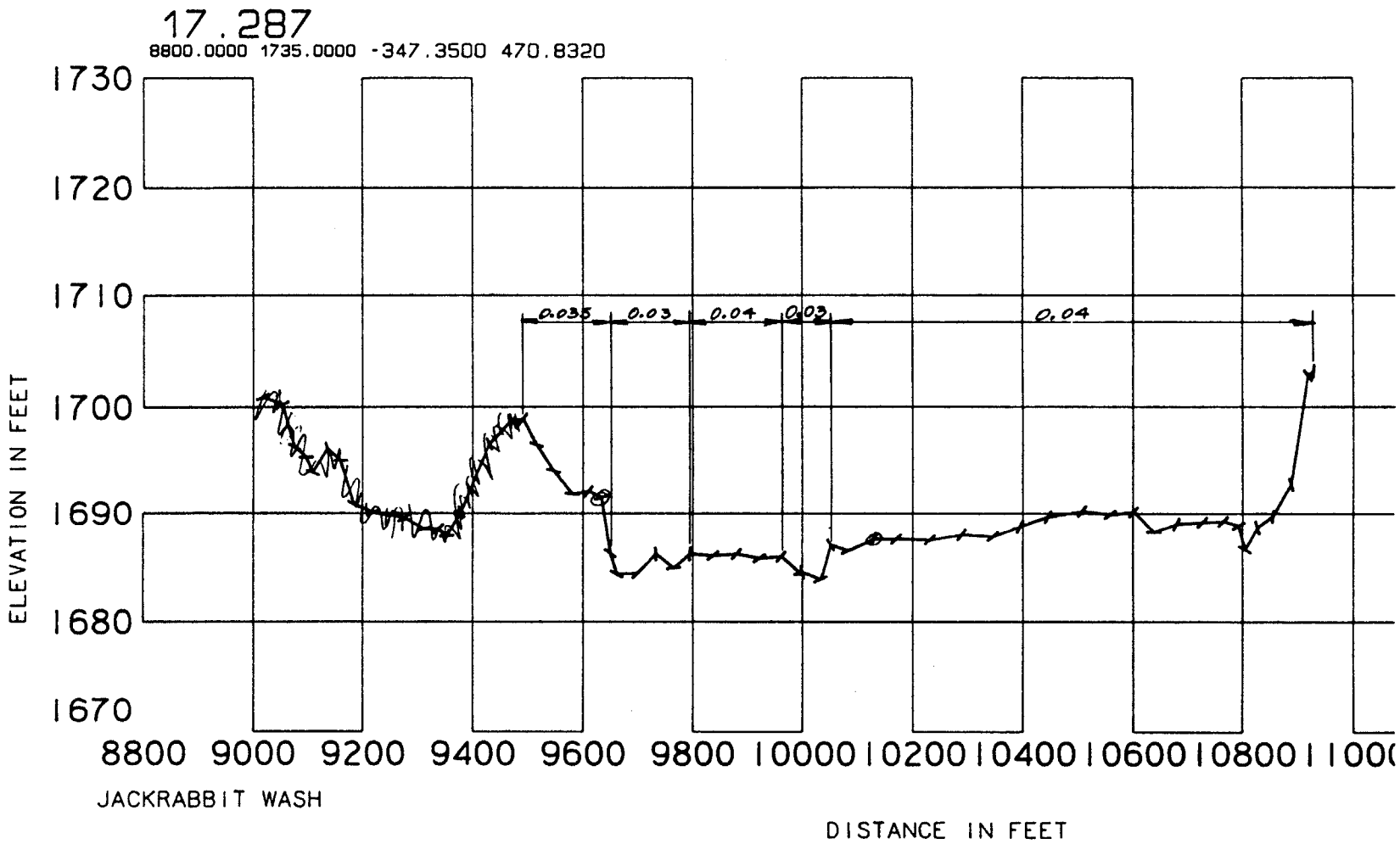


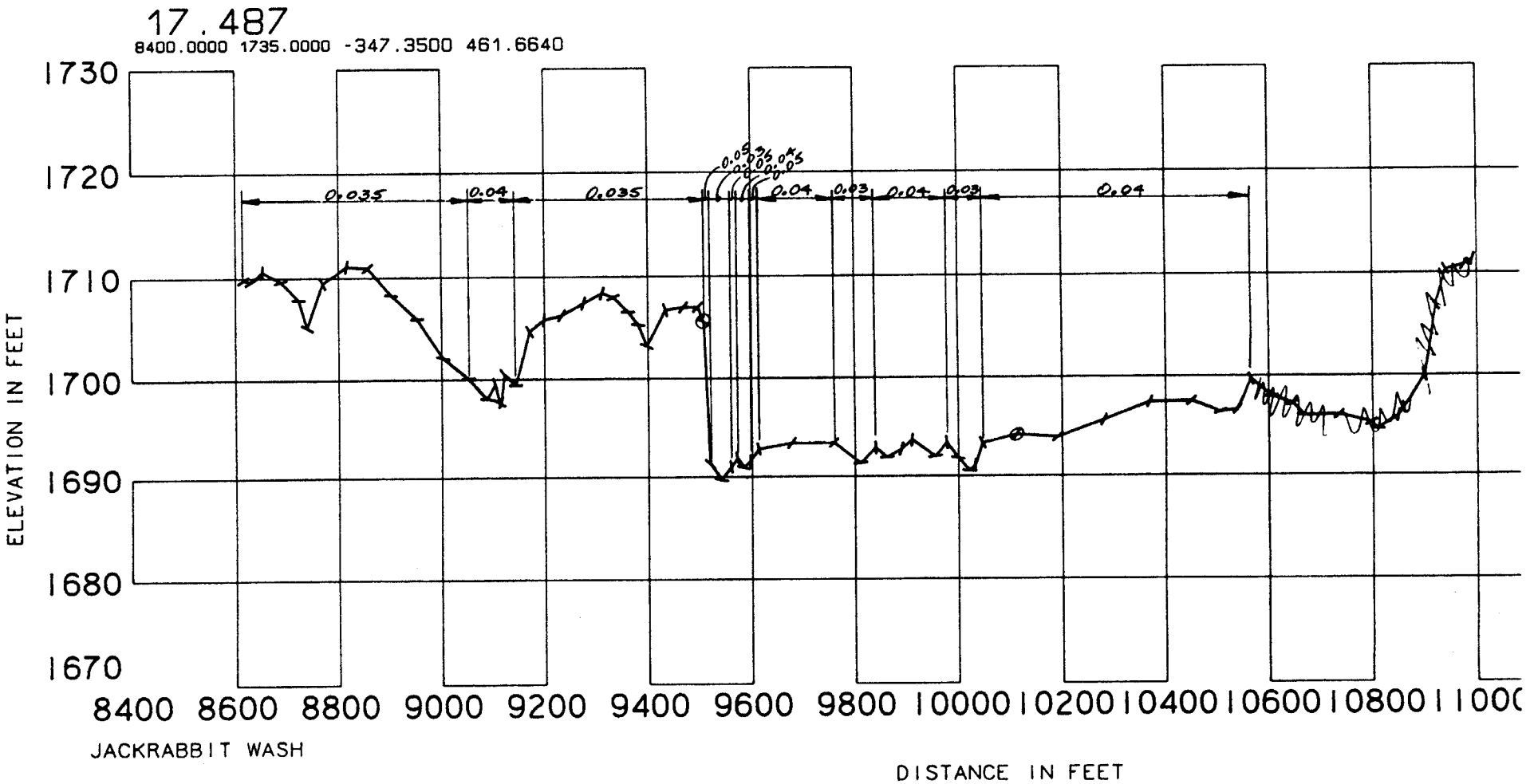

16.515
9000.0000 1705.0000 -366.3000 443.3280
1700
1690
1680
1670
1660
1650
1640
ELEVATION IN FEET
0.05
0.03
0.05
0.03
0.05
0.03
0.05
0.03
0.04
0.03
0.04
9000 9200 9400 9600 9800 10000 10200 10400 10600 10800
JACKRABBIT WASH
DISTANCE IN FEET

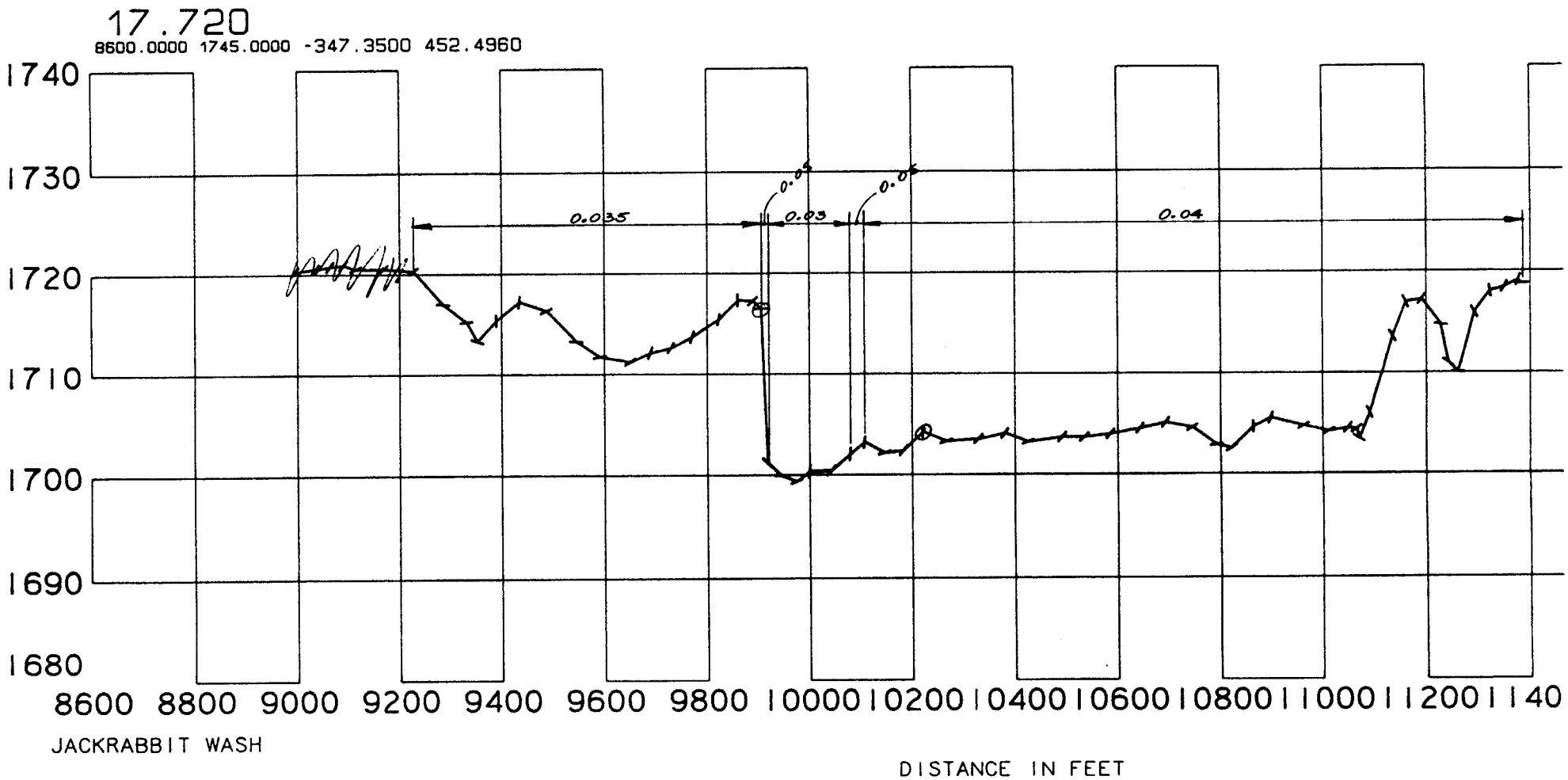

16.711
8400.0000 1695.0000 -366.3000 434.1600
1690
1680
1670
1660
1650
ELEVATION IN FEET
8400 8600 8800 9000 9200 9400 9600 9800 10000 10200 10400 10600
JACKRABBIT WASH
DISTANCE IN FEET
0.035
0.05
0.04
0.05
0.03
0.05
0.03
0.04
0.035

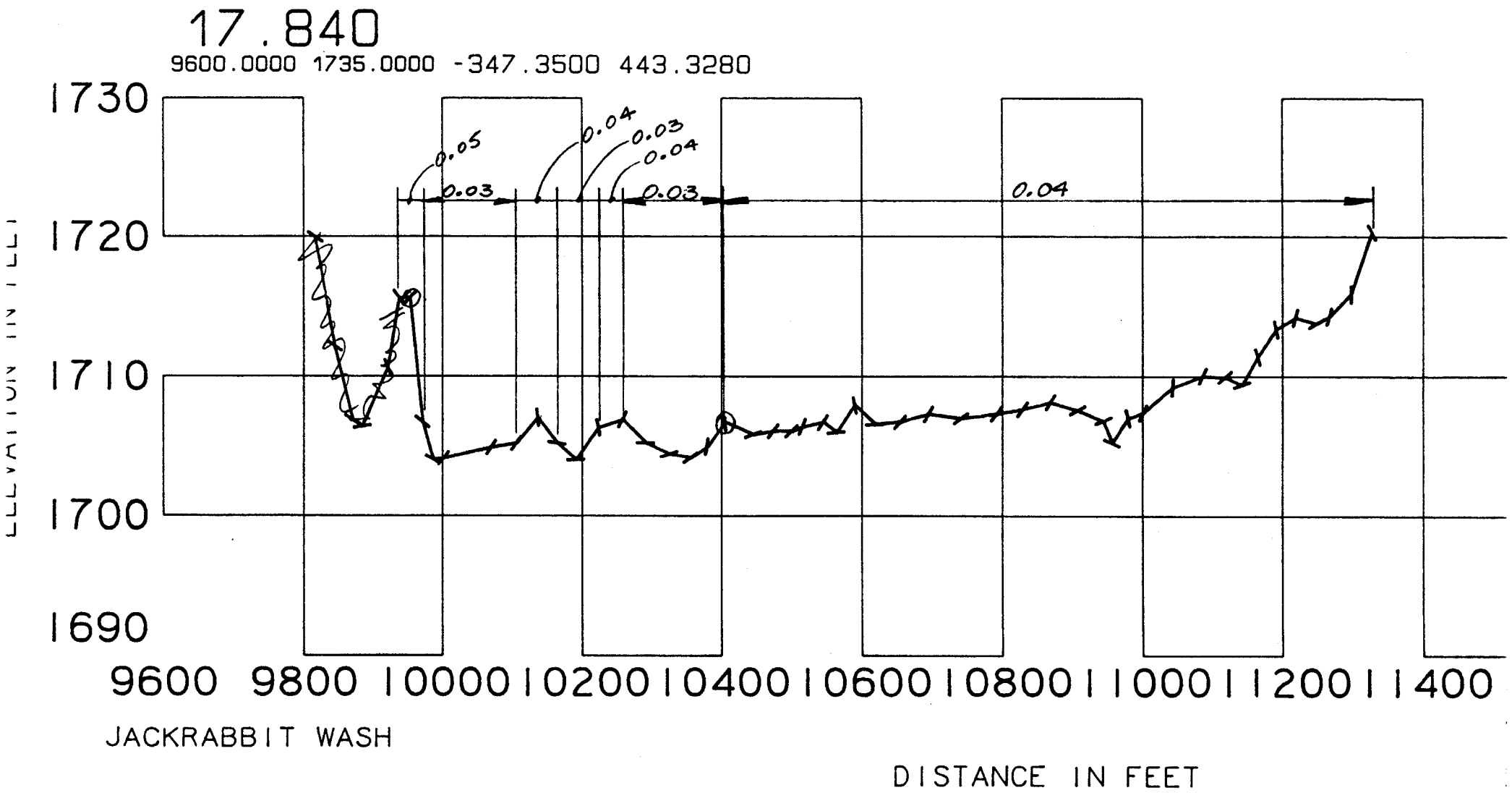

16.900
8600.0000 1715.0000 -366.3000 424.9920
710
700
690
680
670
660
650
0.035
0.04
0.05
0.04
0.03
0.05
0.035
8600 8800 9000 9200 9400 9600 9800 10000 10200 10400 106
JACKRABBIT WASH
DISTANCE IN FEET

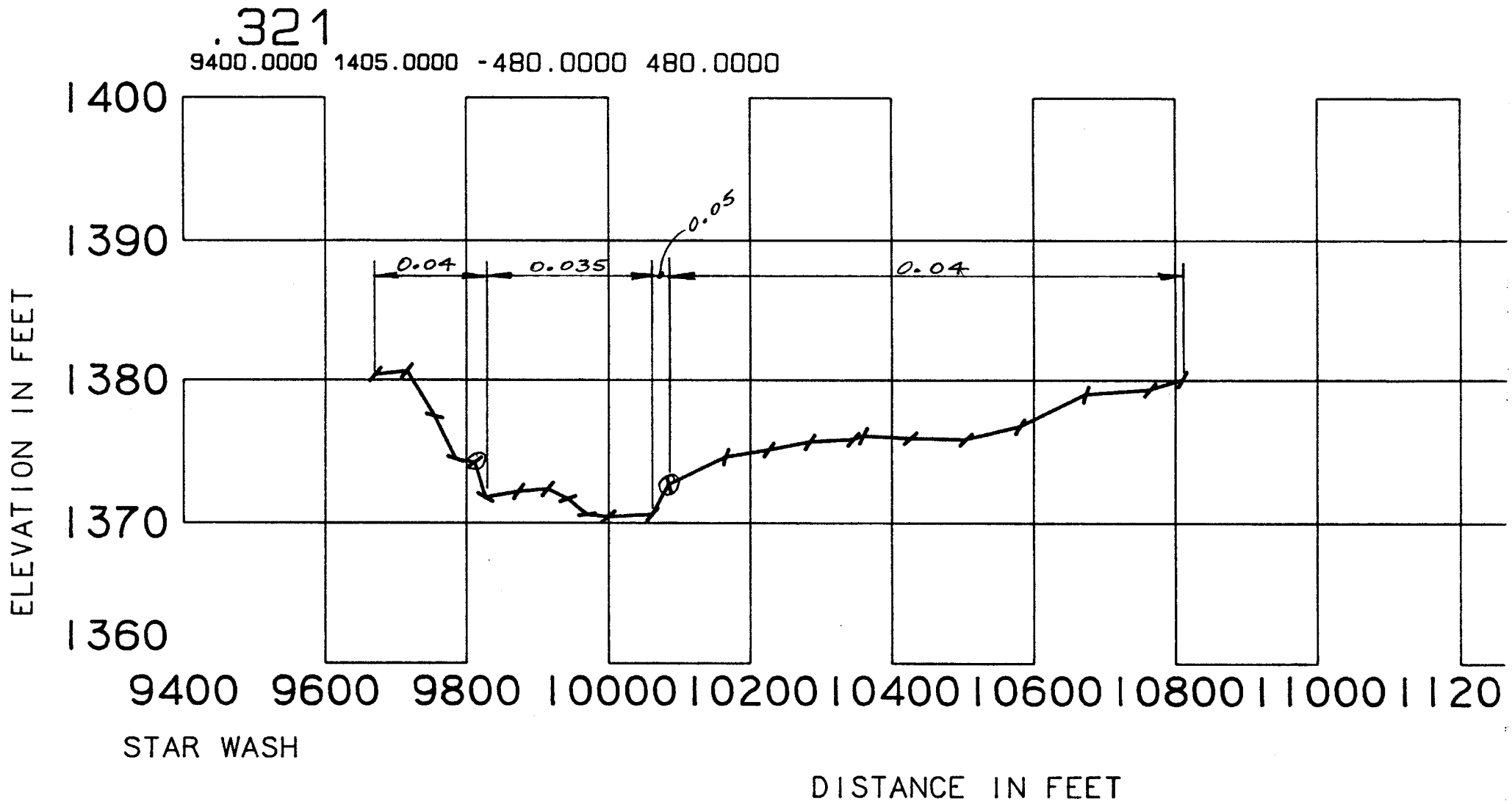

17.087
8800.0000 1725.0000 -347.3500 480.0000
720
710
700
690
680
670
660
0.04
0.03
0.04
0.05
0.03
0.05
0.035
0.04
0.035
8800 9000 9200 9400 9600 9800 10000 10200 10400 10600 10
JACKRABBIT WASH

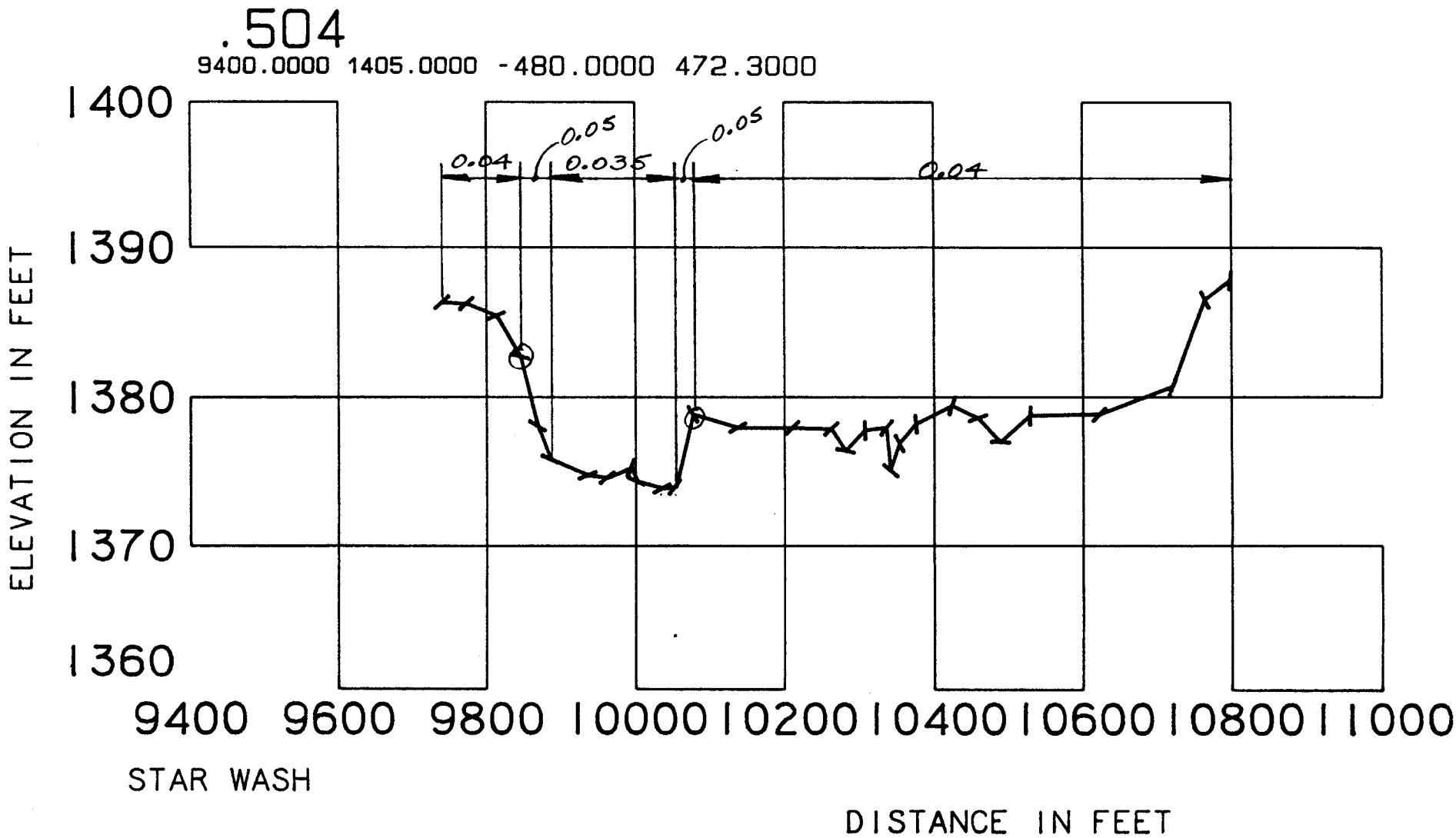

17.287
8800.0000 1735.0000 -347.3500 470.8320
1730
1720
1710
1700
1690
1680
1670
ELEVATION IN FEET
0.035
0.03
0.04
0.03
0.04
8800 9000 9200 9400 9600 9800 10000 10200 10400 10600 10800 1100
JACKRABBIT WASH
DISTANCE IN FEET

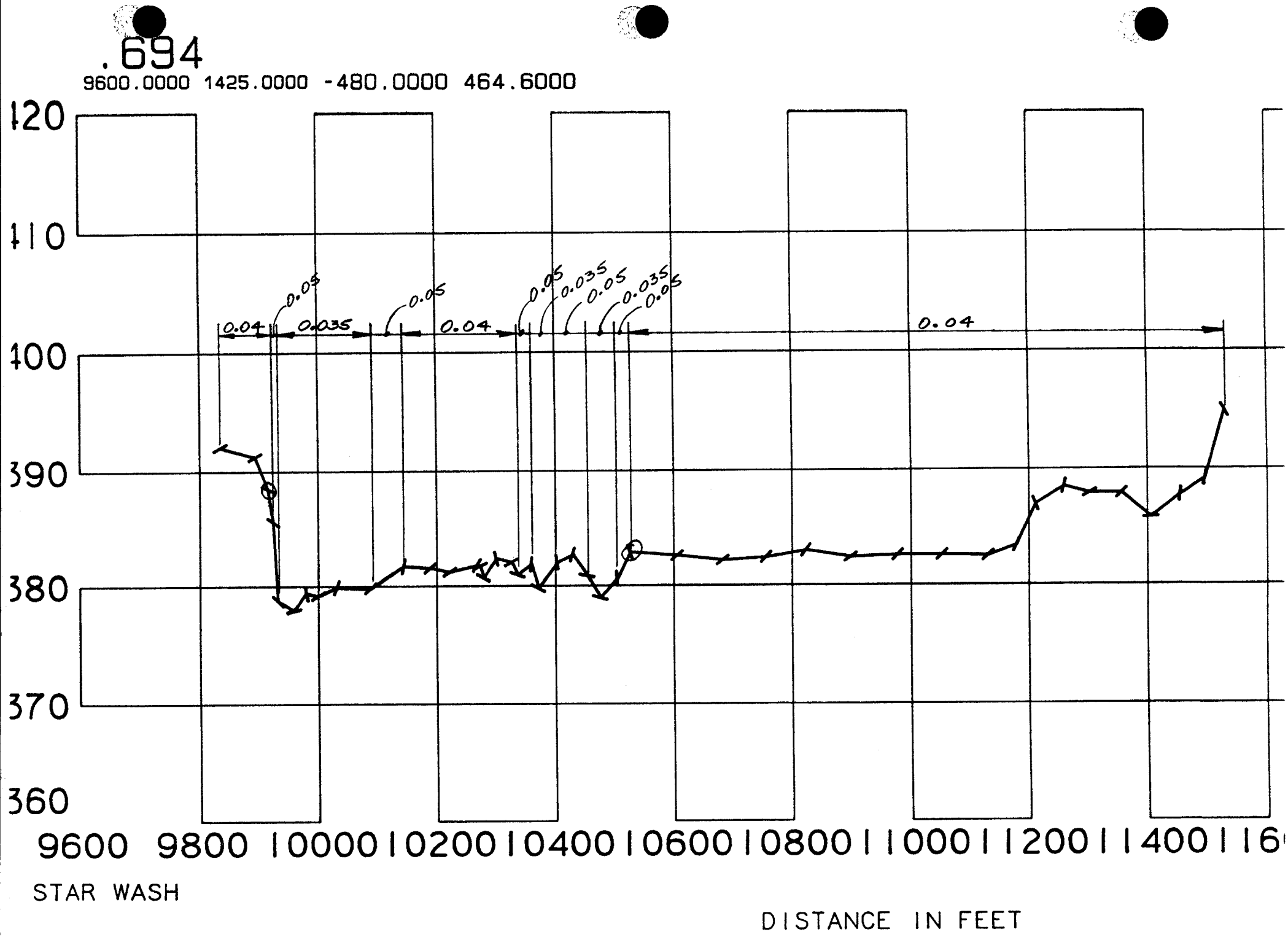

17.487
8400.0000 1735.0000 -347.3500 461.6640
1730
1720
1710
1700
1690
1680
1670
ELEVATION IN FEET
0.035
0.04
0.035
0.04
0.03
0.04
0.03
0.04
8400 8600 8800 9000 9200 9400 9600 9800 10000 10200 10400 10600 10800 11000
JACKRABBIT WASH
DISTANCE IN FEET

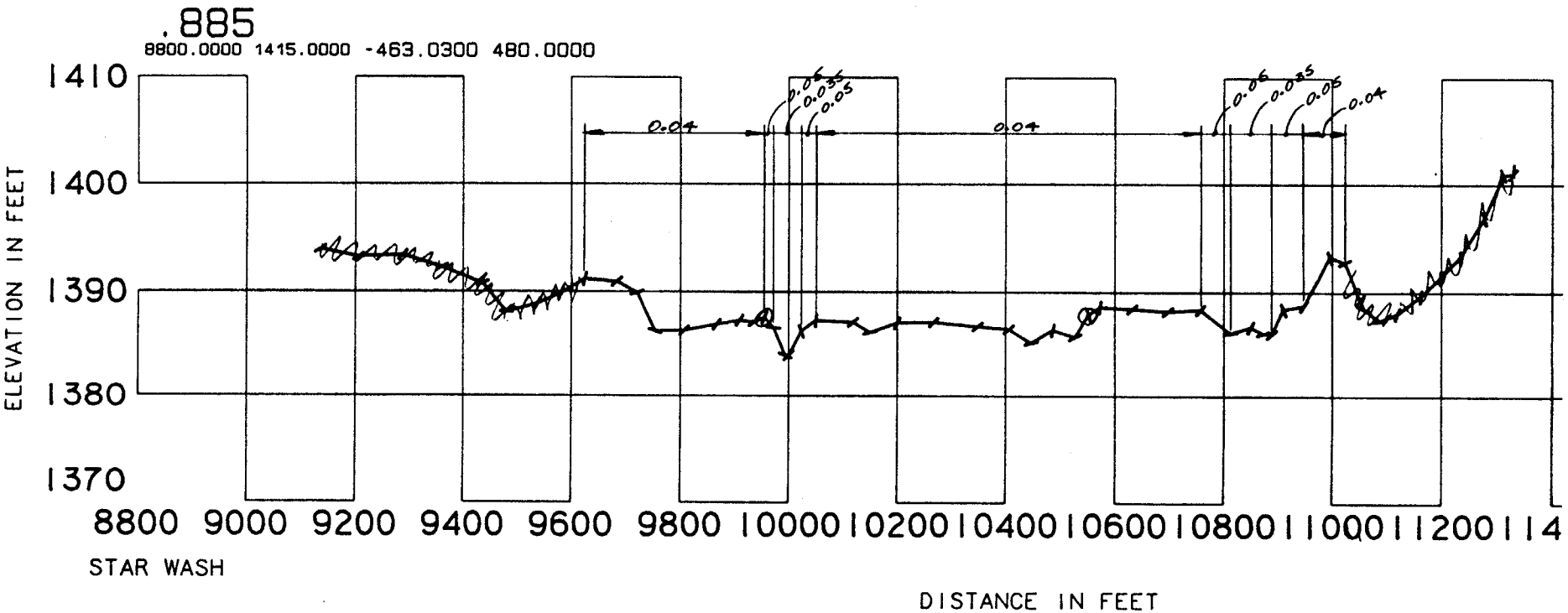

17.720
8600.0000 1745.0000 -347.3500 452.4960
1740
1730
1720
1710
1700
1690
1680
0.035
0.03
0.04
8600 8800 9000 9200 9400 9600 9800 10000 10200 10400 10600 10800 11000 11200 1140
JACKRABBIT WASH
DISTANCE IN FEET

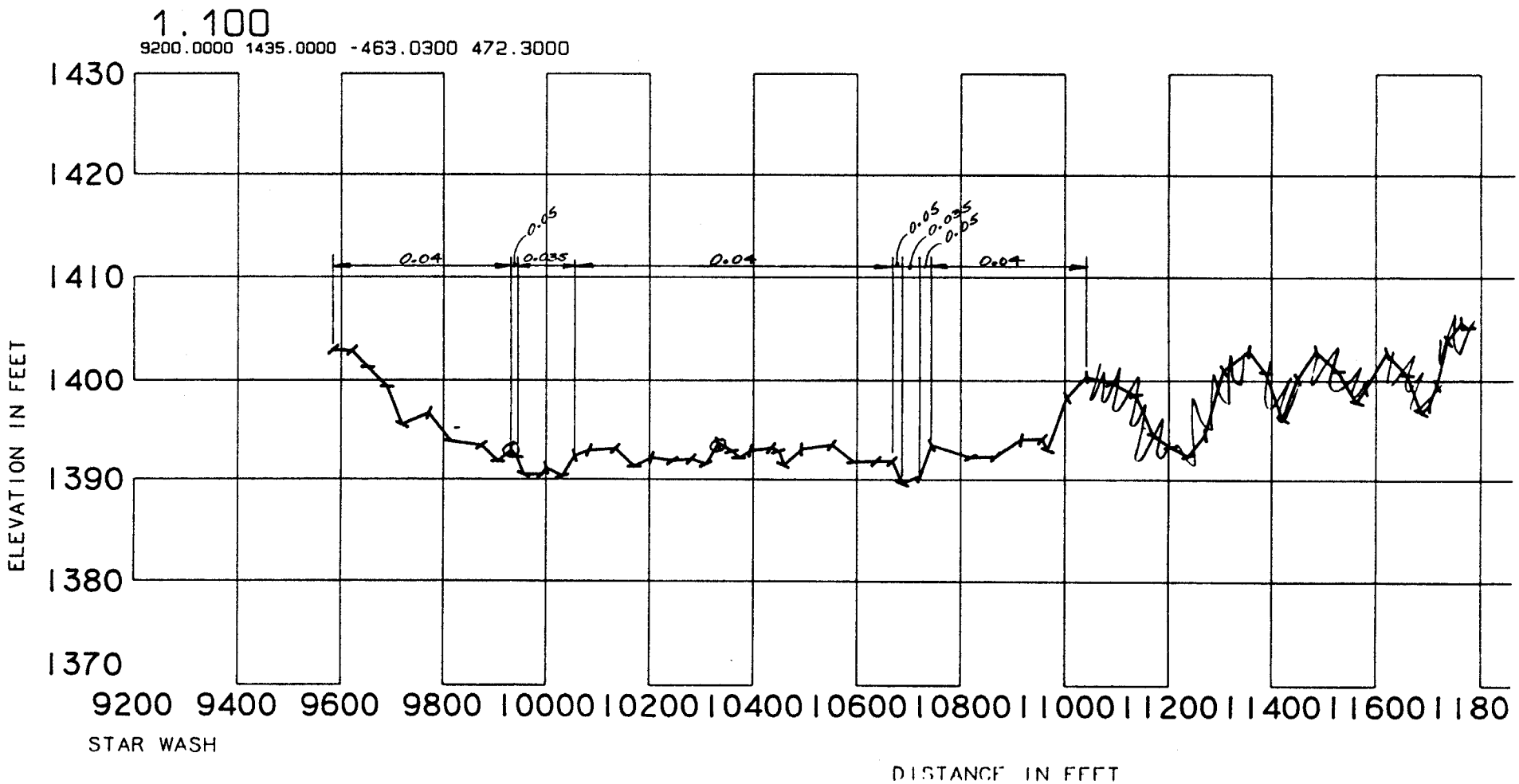

17.840
9600.0000 1735.0000 -347.3500 443.3280
1730
1720
1710
1700
1690
0.05
0.03
0.04
0.03
0.04
0.03
0.04
9600 9800 10000 10200 10400 10600 10800 11000 11200 11400
JACKRABBIT WASH
DISTANCE IN FEET

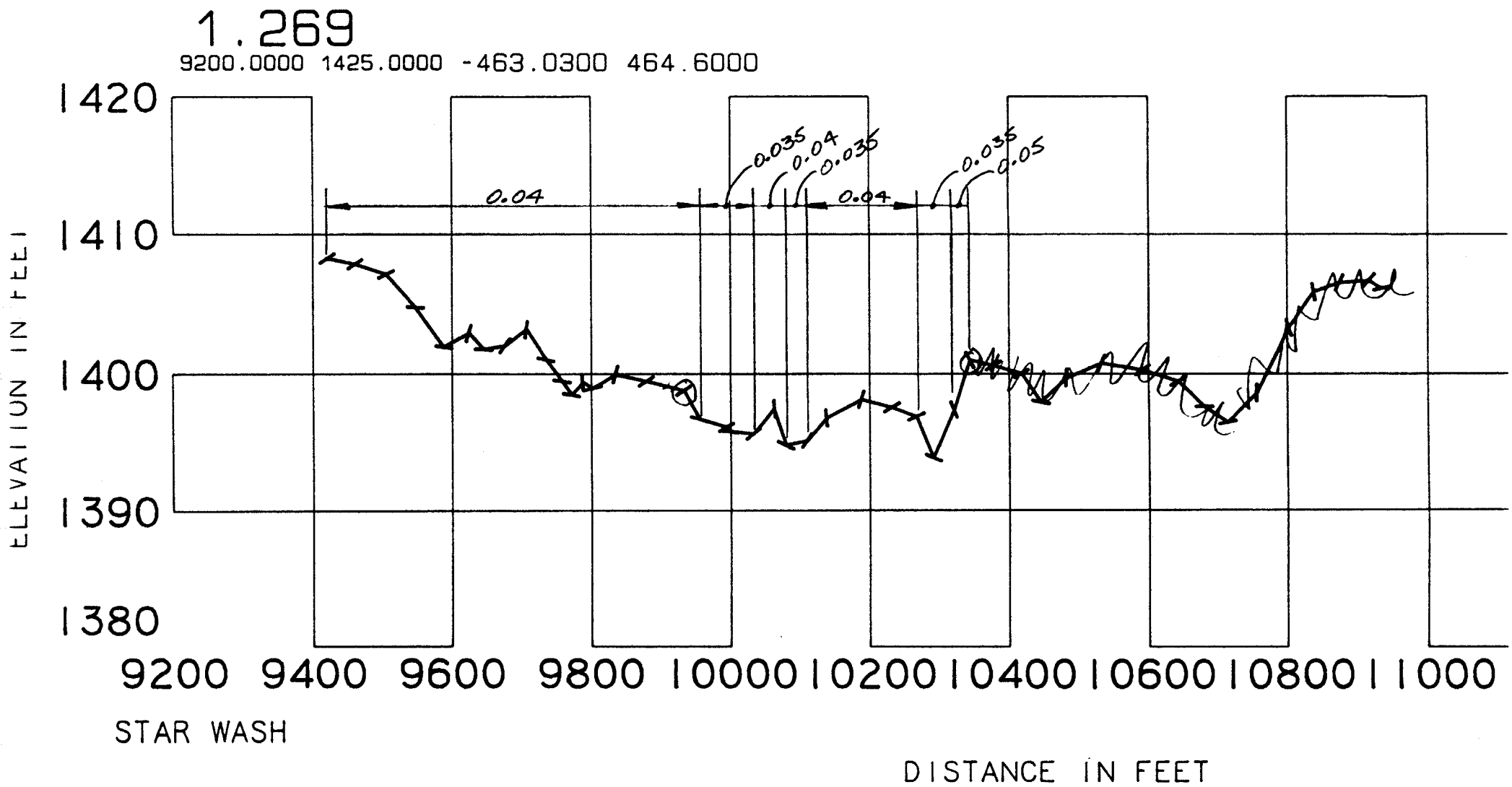

.321
9400.0000 1405.0000 -480.0000 480.0000
1400
1390
1380
1370
1360
ELEVATION IN FEET
0.04
0.035
0.05
0.04
9400 9600 9800 10000 10200 10400 10600 10800 11000 1120
STAR WASH
DISTANCE IN FEET


.504
9400.0000 1405.0000 -480.0000 472.3000
1400
1390
1380
1370
1360
ELEVATION IN FEET
0.04
0.05
0.035
0.05
0.04
9400 9600 9800 10000 10200 10400 10600 10800 11000
STAR WASH
DISTANCE IN FEET


.694
9600.0000 1425.0000 -480.0000 464.6000
420
410
400
390
380
370
360
0.04
0.05
0.035
0.05
0.04
0.05
0.035
0.05
0.035
0.05
0.04
9600 9800 10000 10200 10400 10600 10800 11000 11200 11400 116
STAR WASH
DISTANCE IN FEET

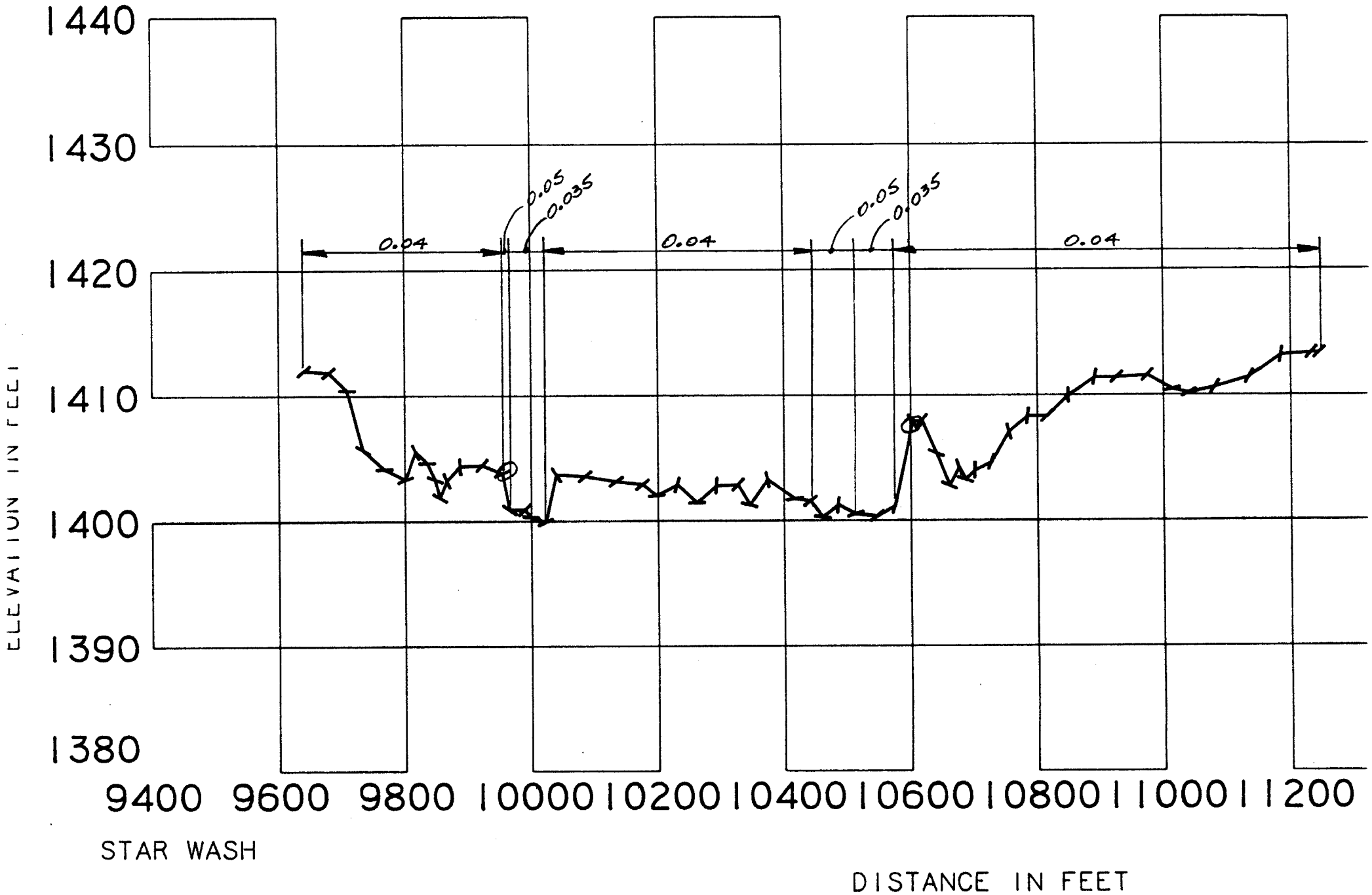

.885
8800.0000 1415.0000 -463.0300 480.0000
1410
1400
1390
1380
1370
ELEVATION IN FEET
8800 9000 9200 9400 9600 9800 10000 10200 10400 10600 10800 11000 11200 114
STAR WASH
DISTANCE IN FEET
0.04
0.04
0.06
0.035
0.05
0.06
0.035
0.05
0.04

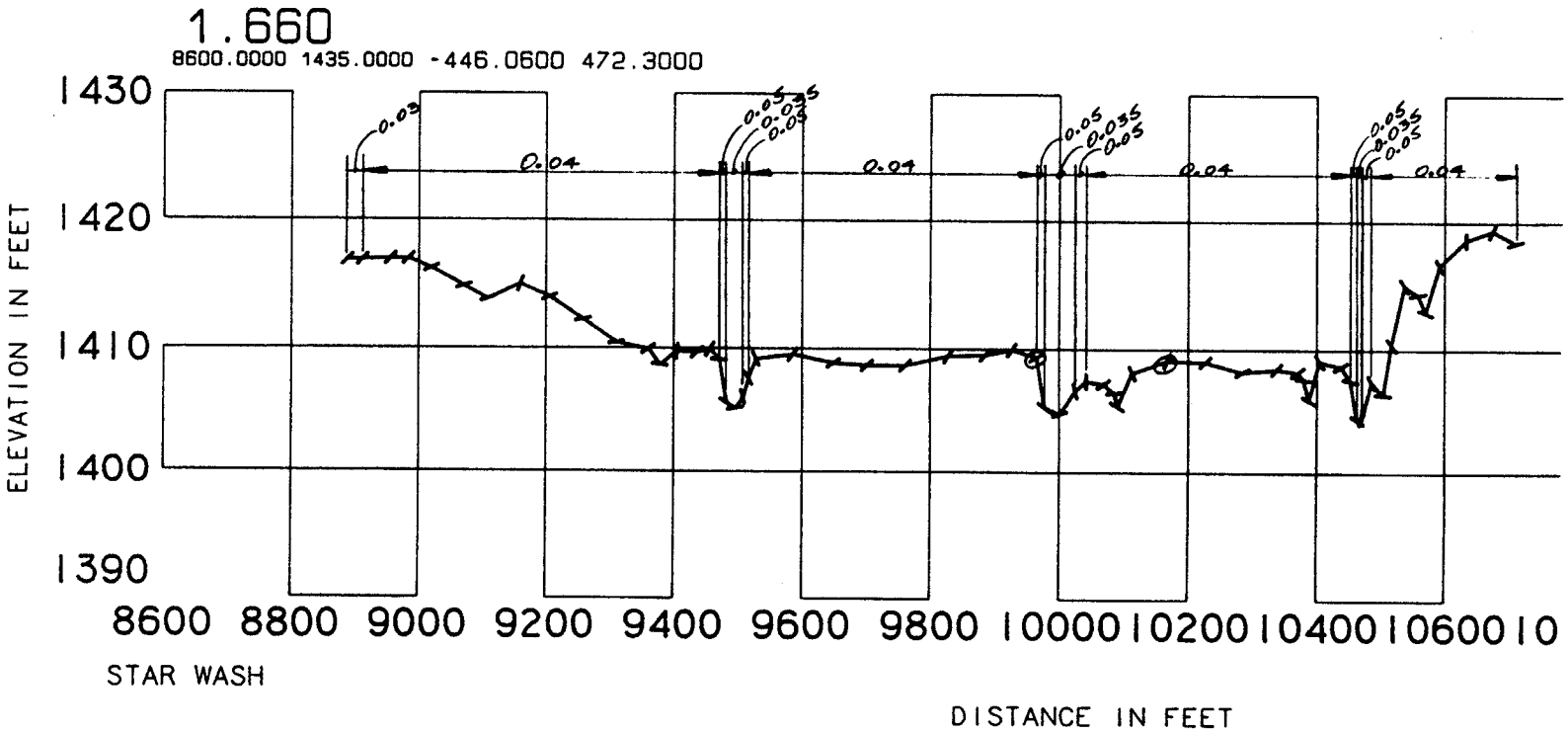

1.100
9200.0000 1435.0000 -463.0300 472.3000
1430
1420
1410
1400
1390
1380
1370
ELEVATION IN FEET
0.04
0.05
0.035
0.04
0.05
0.035
0.05
0.04
9200 9400 9600 9800 10000 10200 10400 10600 10800 11000 11200 11400 11600 1180
STAR WASH
DISTANCE IN FEET


1.269
9200.0000 1425.0000 -463.0300 464.6000
1420
1410
1400
1390
1380
ELEVATION IN FEET
0.04
0.035
0.04
0.035
0.04
0.035
0.05
9200 9400 9600 9800 10000 10200 10400 10600 10800 11000
STAR WASH
DISTANCE IN FEET

1.464

9400.0000 1445.0000 -446.0600 480.0000




1.660
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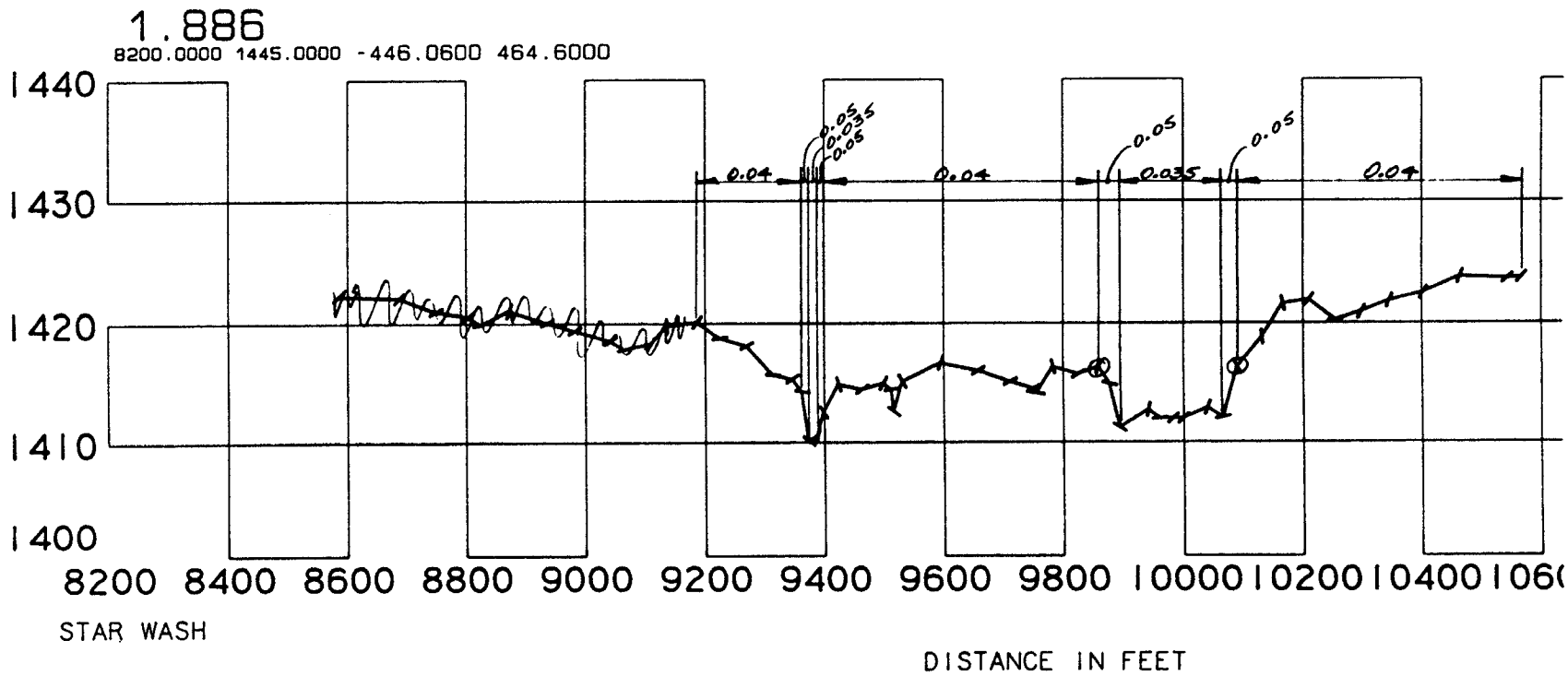
1430
1420
1410
1400
1390
ELEVATION IN FEET
0.03
0.04
0.05
0.035
8600 8800 9000 9200 9400 9600 9800 10000 10200 10400 10600 10
STAR WASH
DISTANCE IN FEET


1.886
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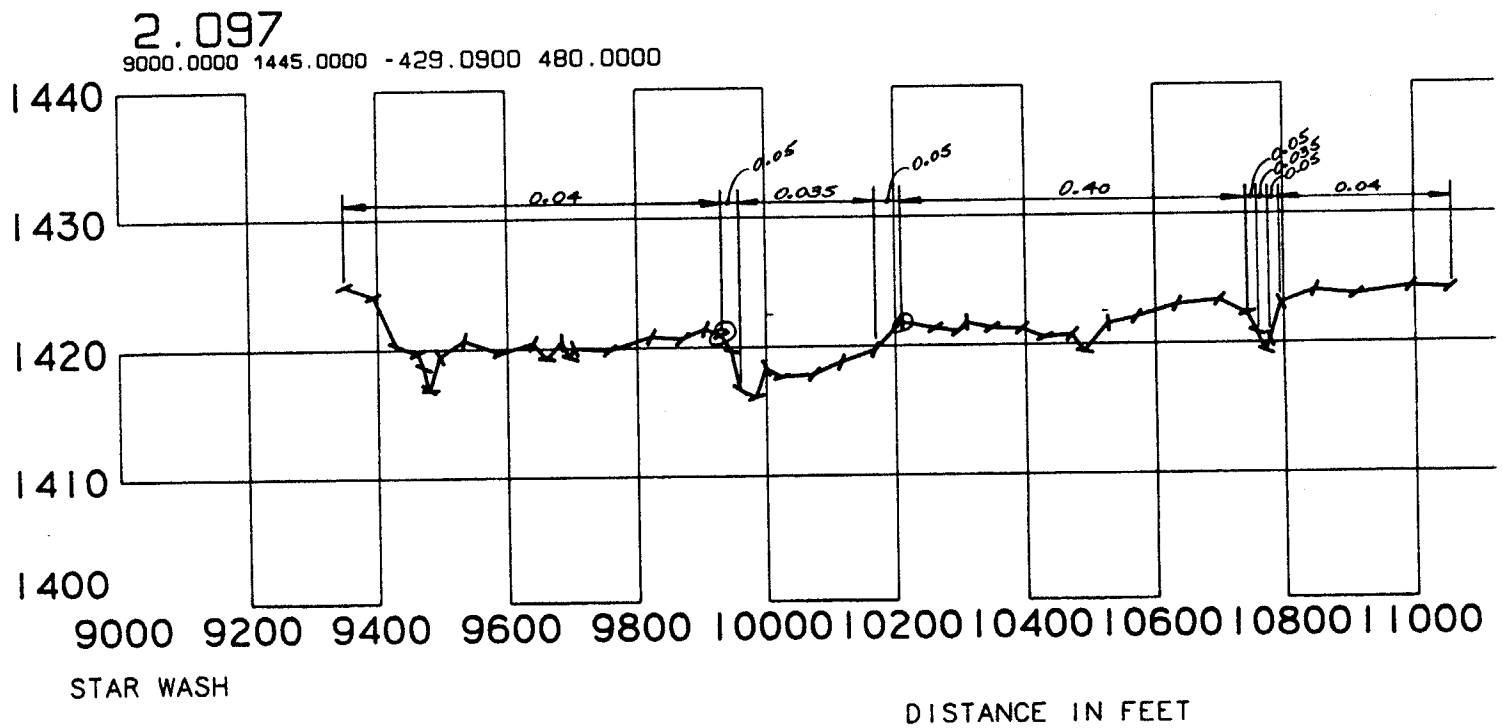
1440
1430
1420
1410
1400
0.04
0.05
0.035
0.05
0.04
0.05
0.035
0.05
0.04
8200 8400 8600 8800 9000 9200 9400 9600 9800 10000 10200 10400 1060
STAR WASH
DISTANCE IN FEET


2.097
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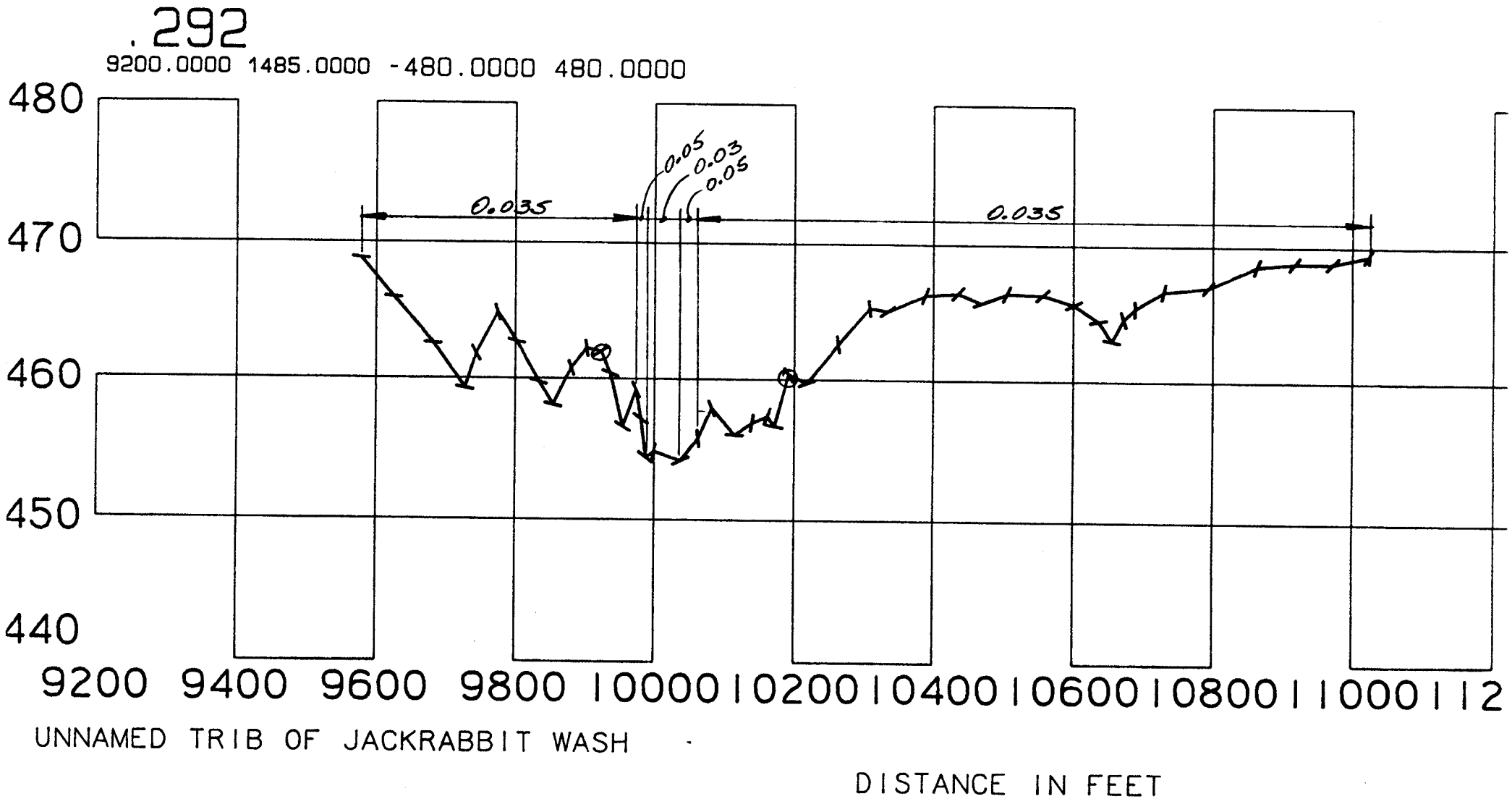
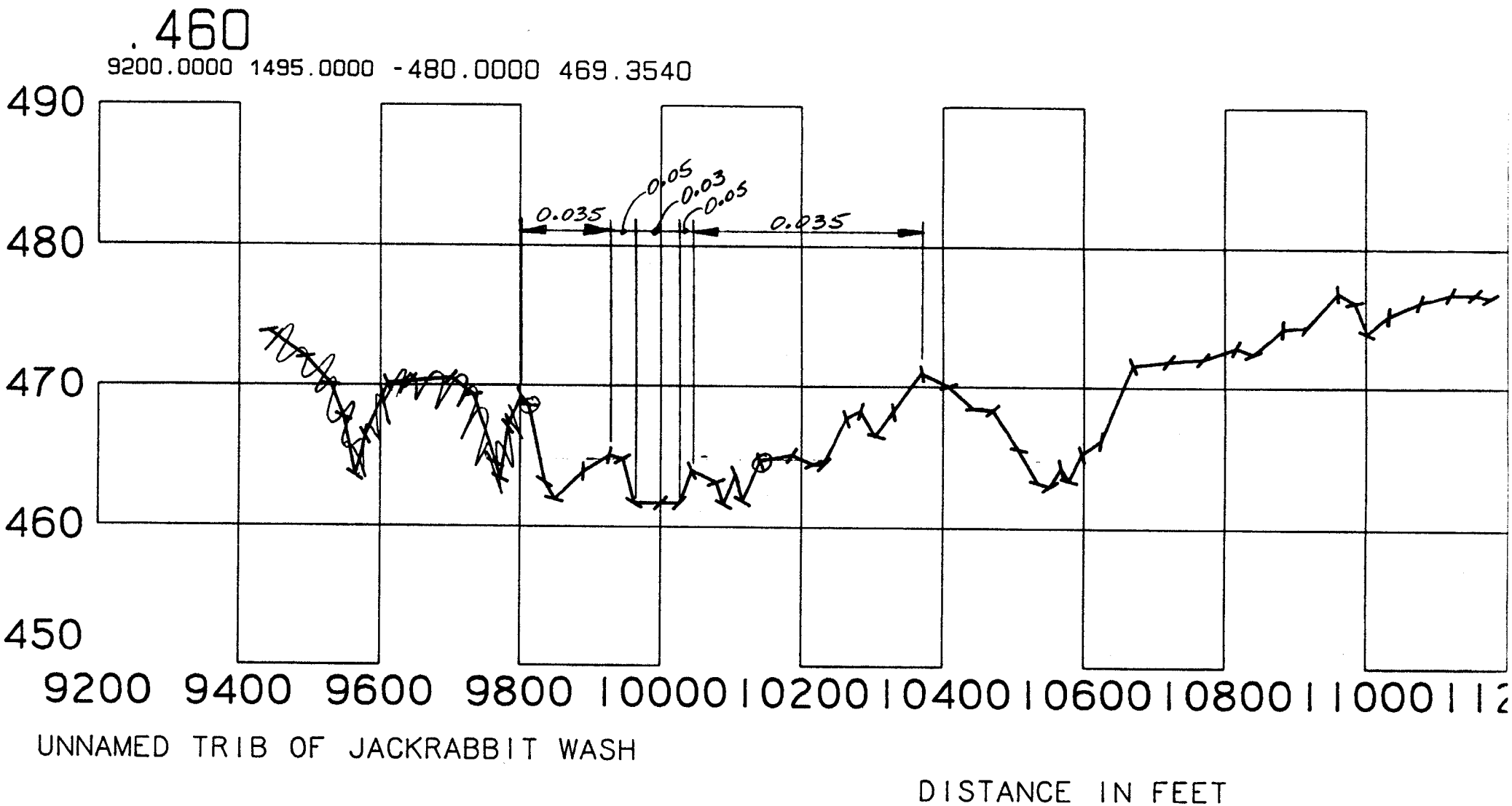
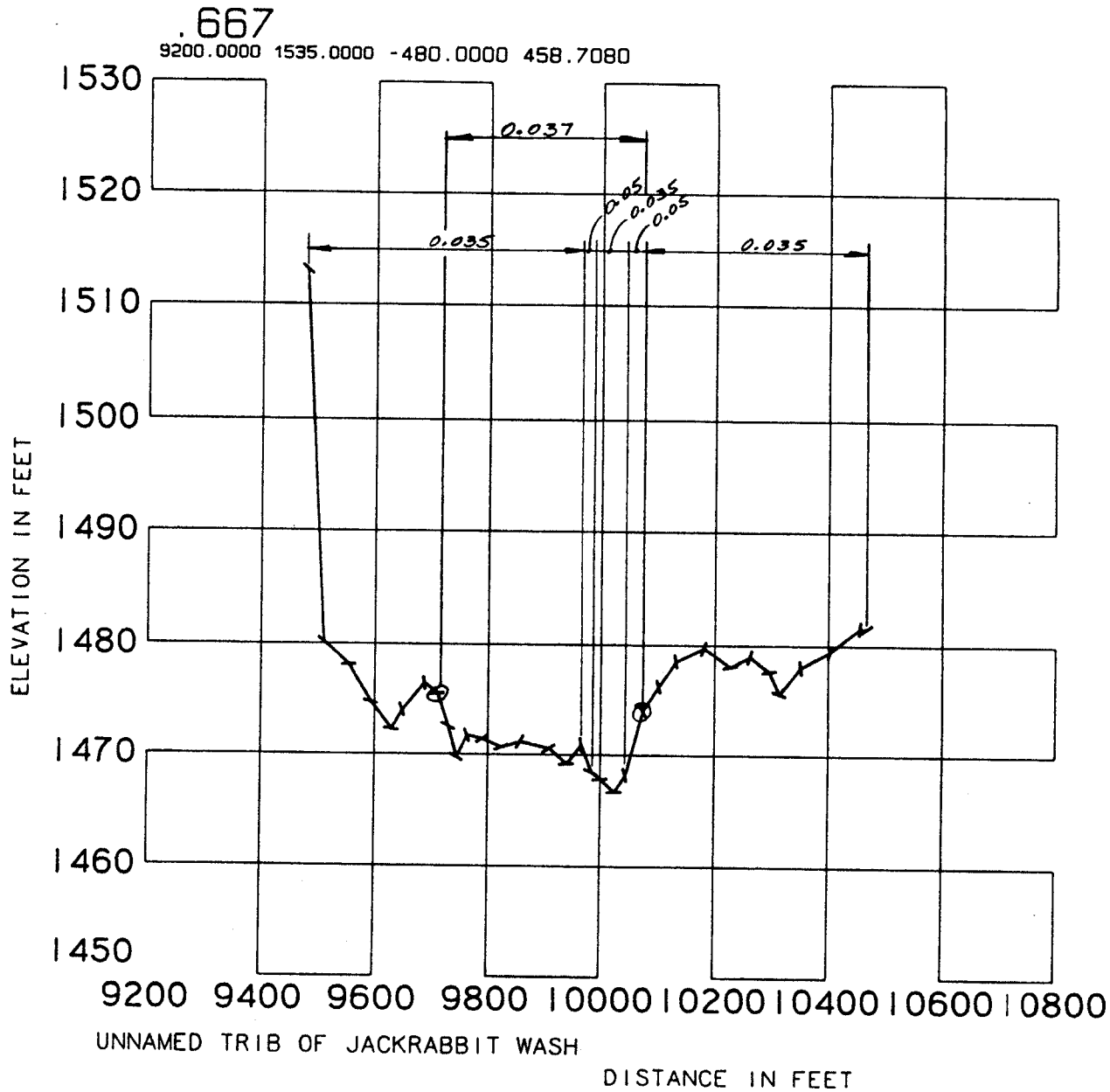
1440
1430
1420
1410
1400
0.04
0.05
0.035
0.05
0.40
0.05
0.035
0.05
0.04
9000 9200 9400 9600 9800 10000 10200 10400 10600 10800 11000
STAR WASH
DISTANCE IN FEET


.292
9200.0000 1485.0000 -480.0000 480.0000
480
470
460
450
440
0.035
0.05
0.03
0.05
0.035
9200 9400 9600 9800 10000 10200 10400 10600 10800 11000 112
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET


.460
9200.0000 1495.0000 -480.0000 469.3540
490
480
470
460
450
0.035
0.05
0.03
0.05
0.035
9200 9400 9600 9800 10000 10200 10400 10600 10800 11000 11
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET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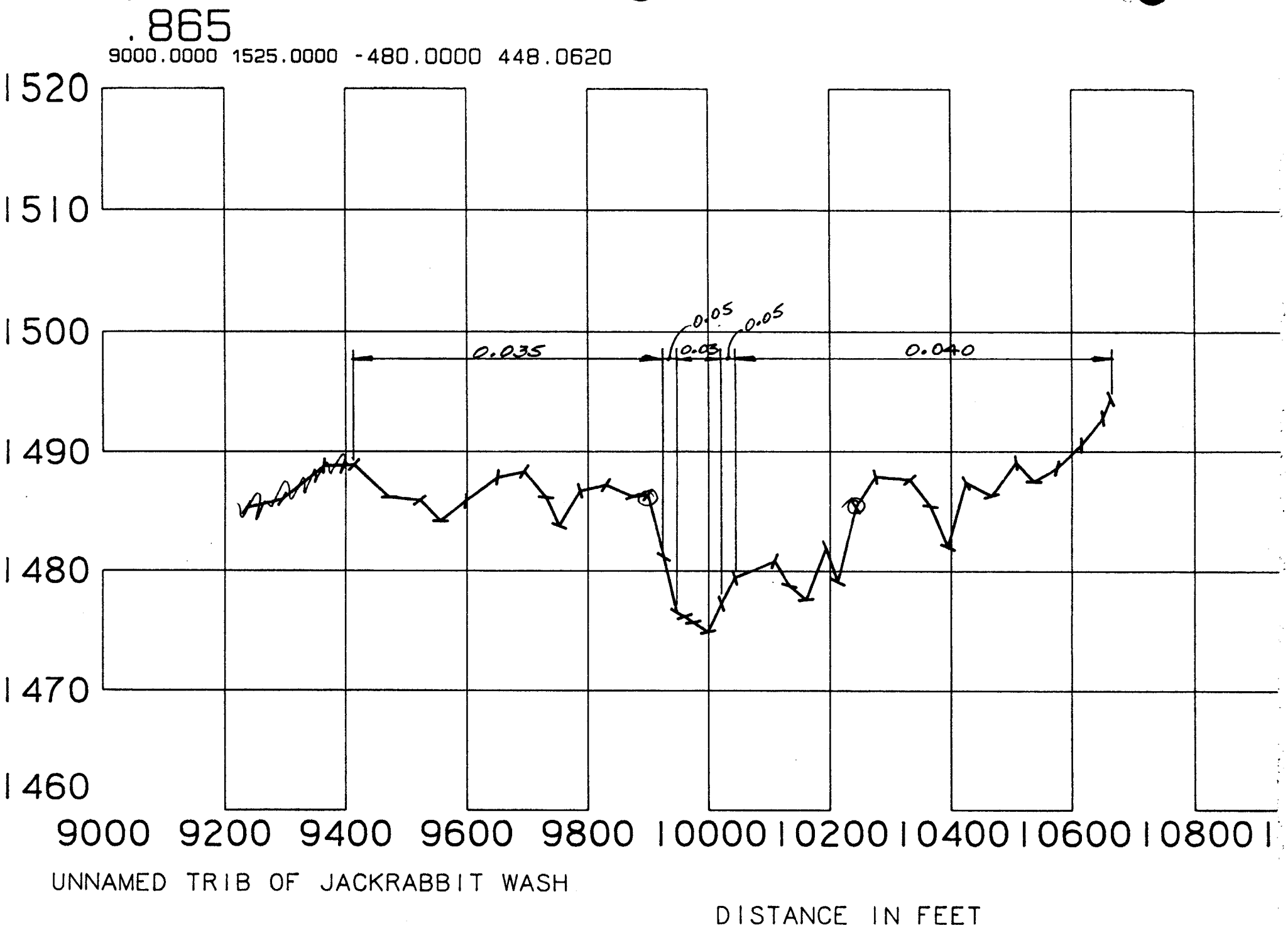
0.037
0.035
0.05
0.035
0.05
0.035
1530
1520
1510
1500
1490
1480
1470
1460
1450
ELEVATION IN FEET
9200 9400 9600 9800 10000 10200 10400 10600 10800
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET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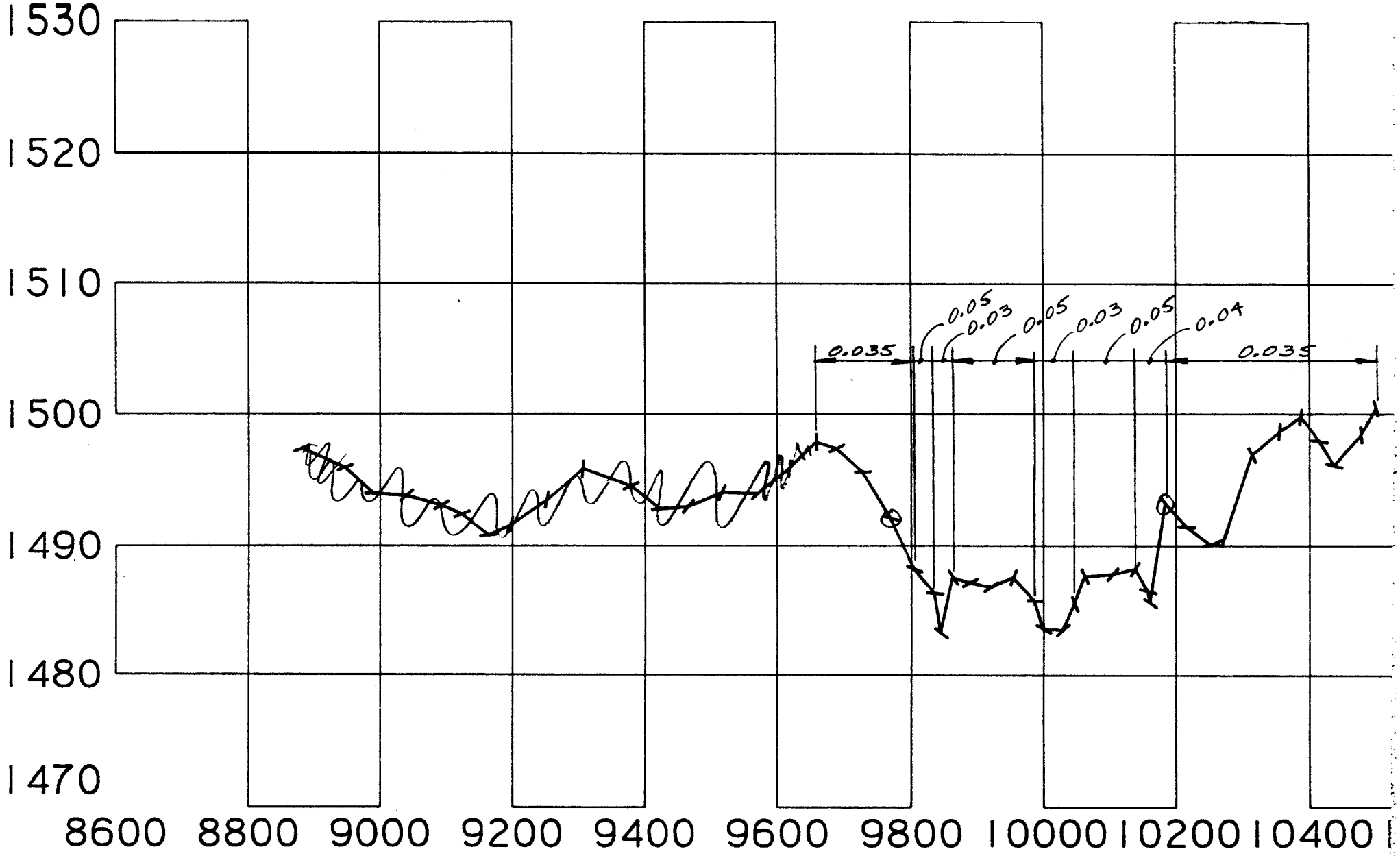
1520
1510
1500
1490
1480
1470
1460
0.035
0.05
0.05
0.05
0.040
9000 9200 9400 9600 9800 10000 10200 10400 10600 10800
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET

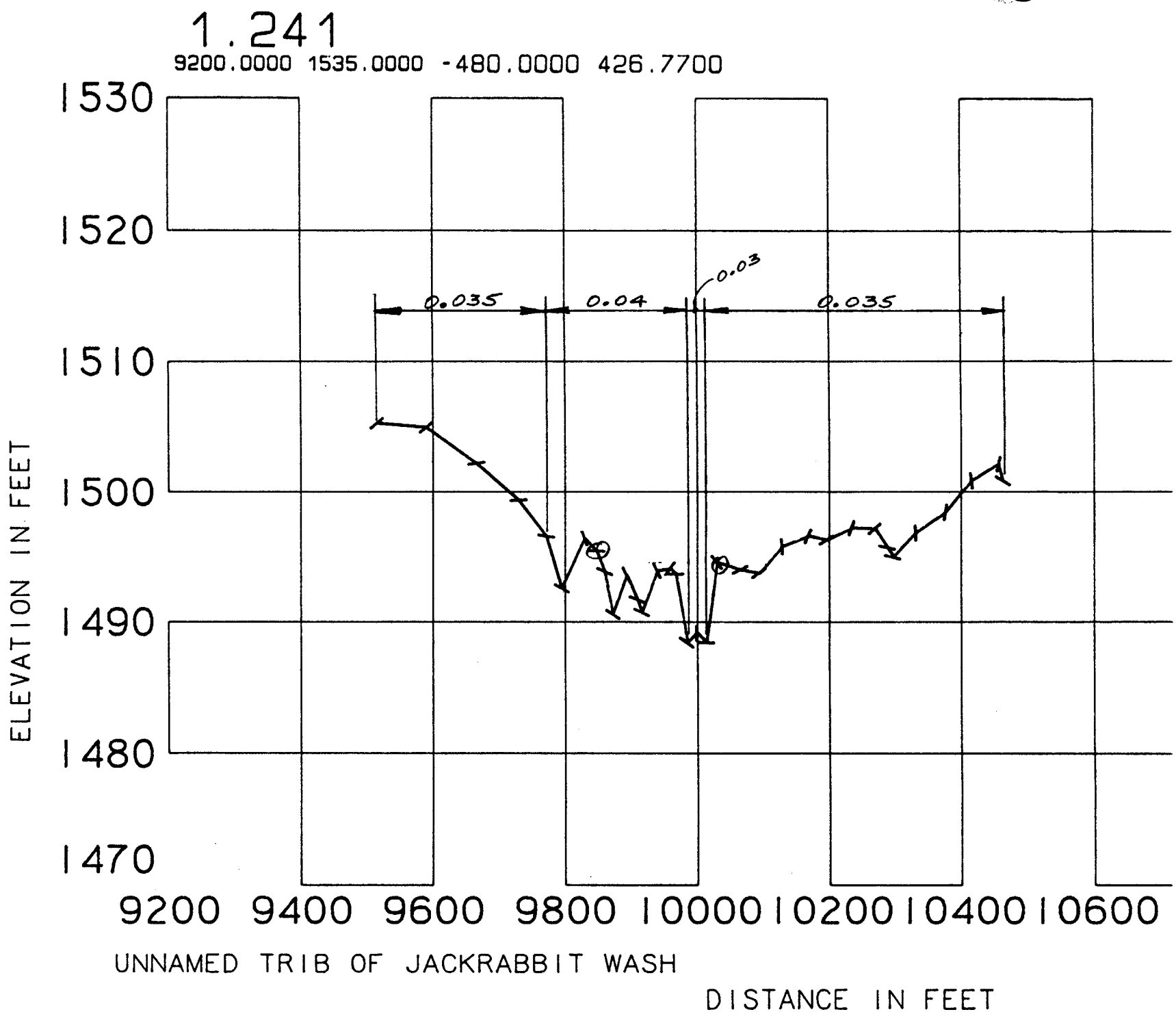
1.064

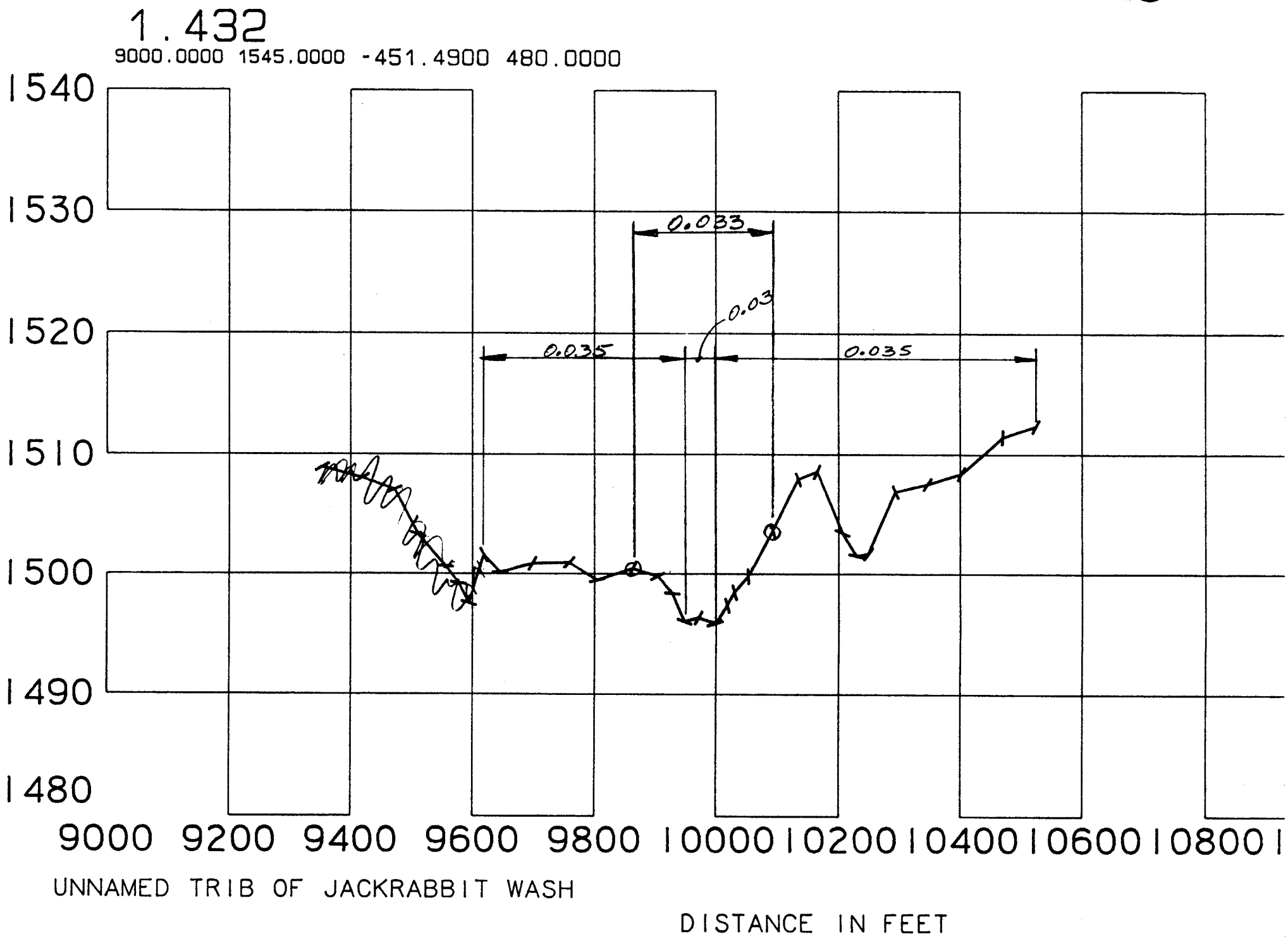
8600.0000 1535.0000 -480.0000 437.4160



UNNAMED TRIB OF JACKRABBIT WASH

DISTANCE IN FEET


1.241
9200.0000 1535.0000 -480.0000 426.7700
1530
1520
1510
1500
1490
1480
1470
ELEVATION IN FEET
0.035
0.04
0.03
0.035
9200 9400 9600 9800 10000 10200 10400 10600
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET


1.432
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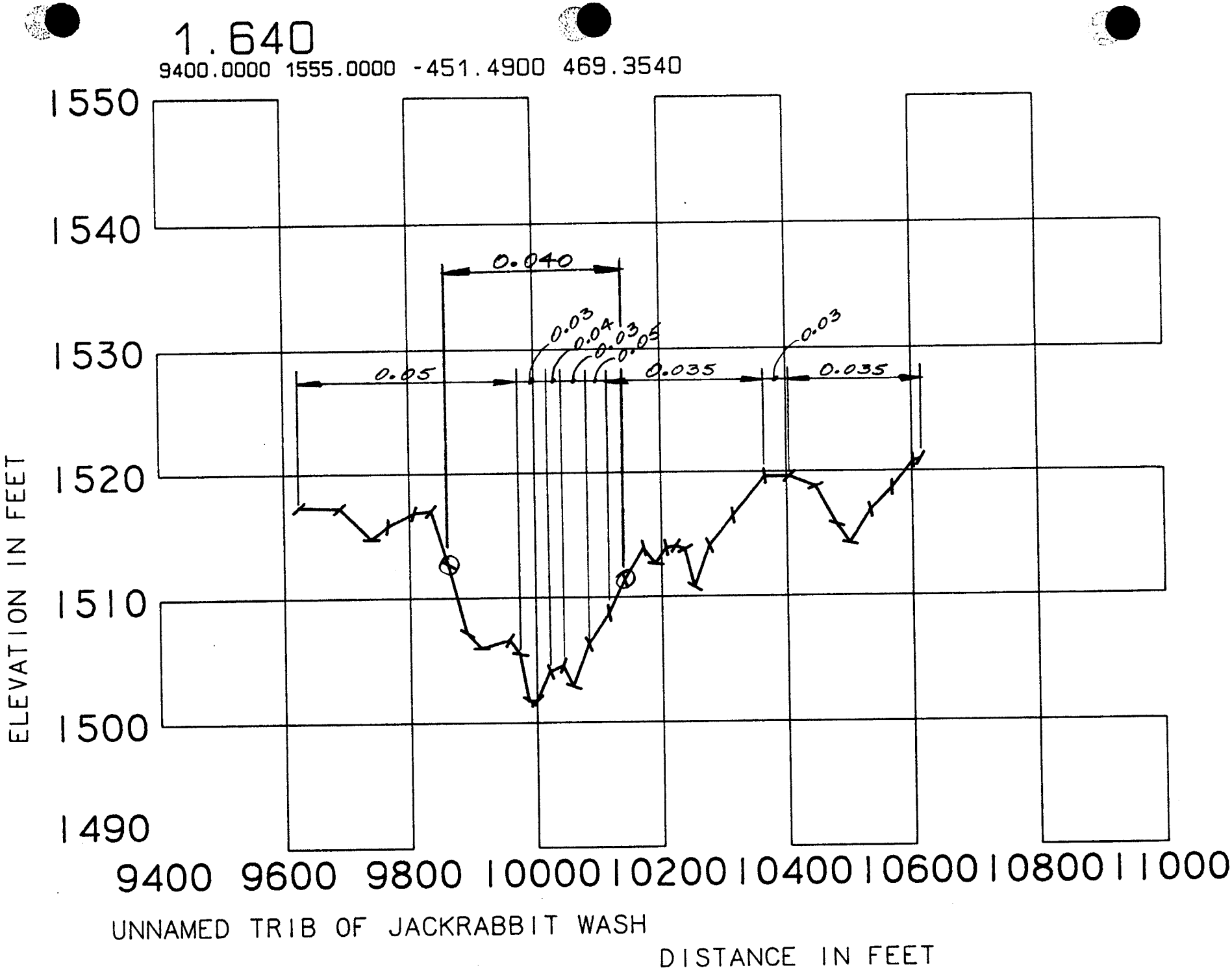
1540
1530
1520
1510
1500
1490
1480
0.033
0.03
0.035
0.035
9000 9200 9400 9600 9800 10000 10200 10400 10600 10800
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET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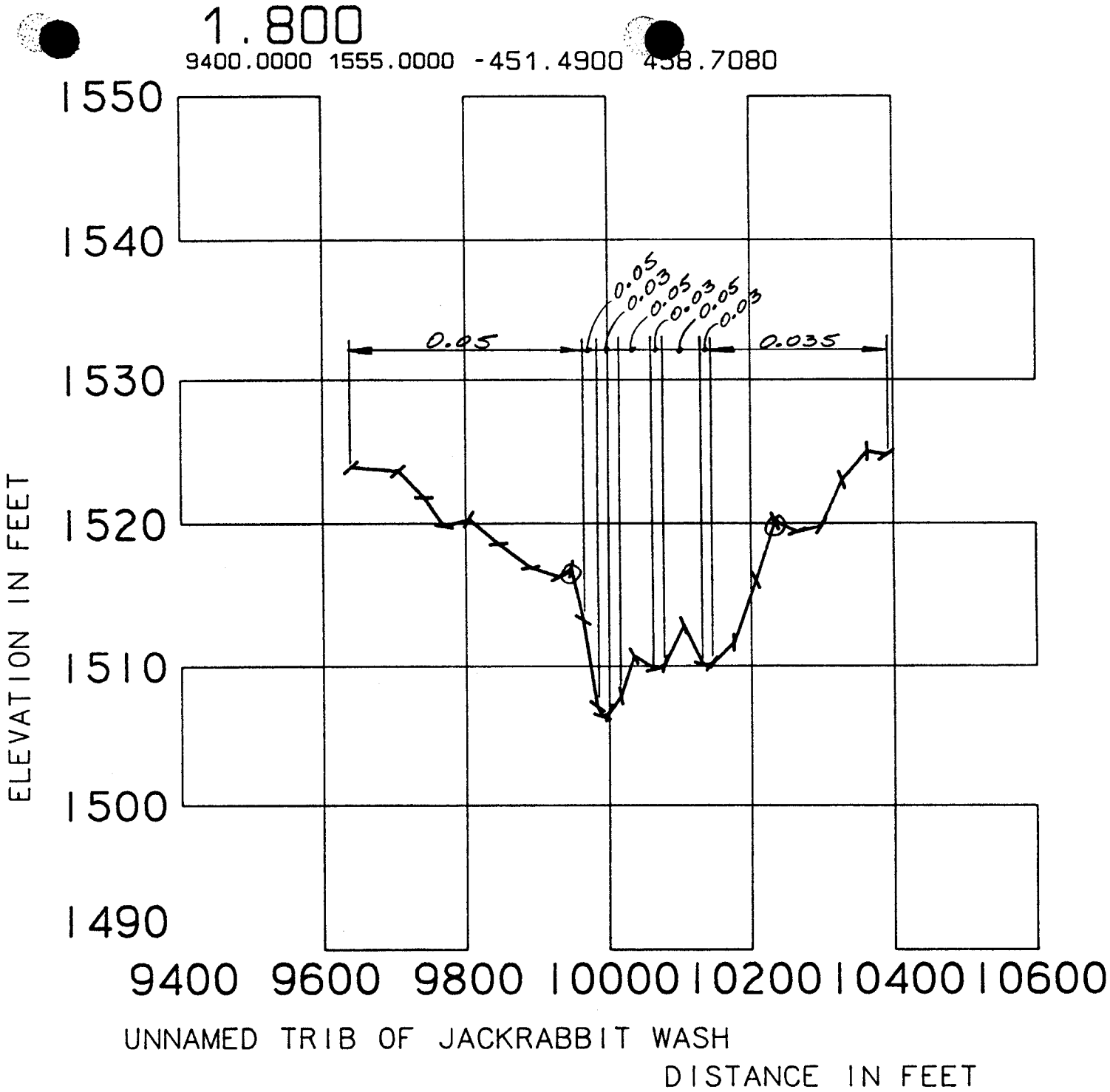
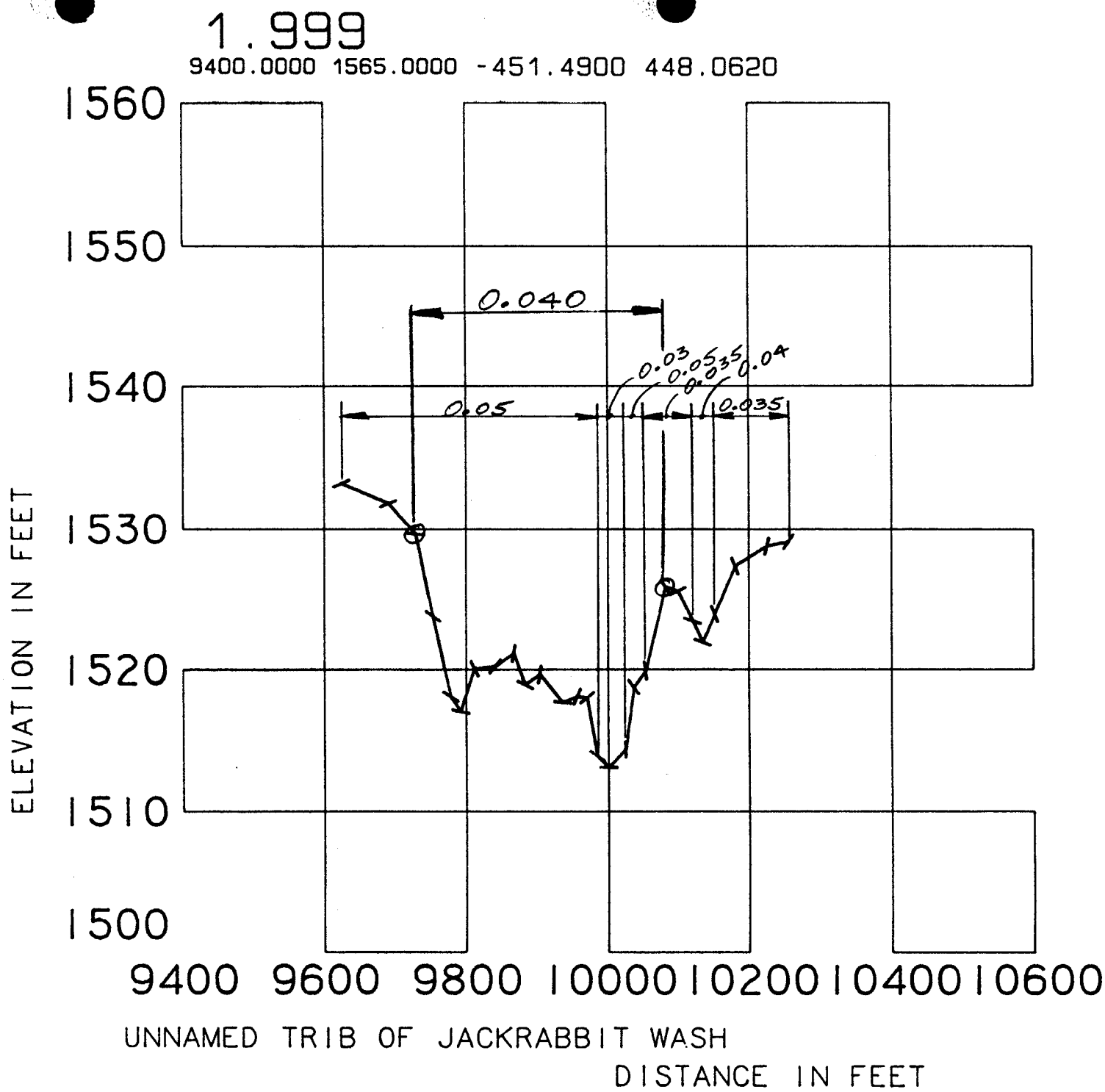
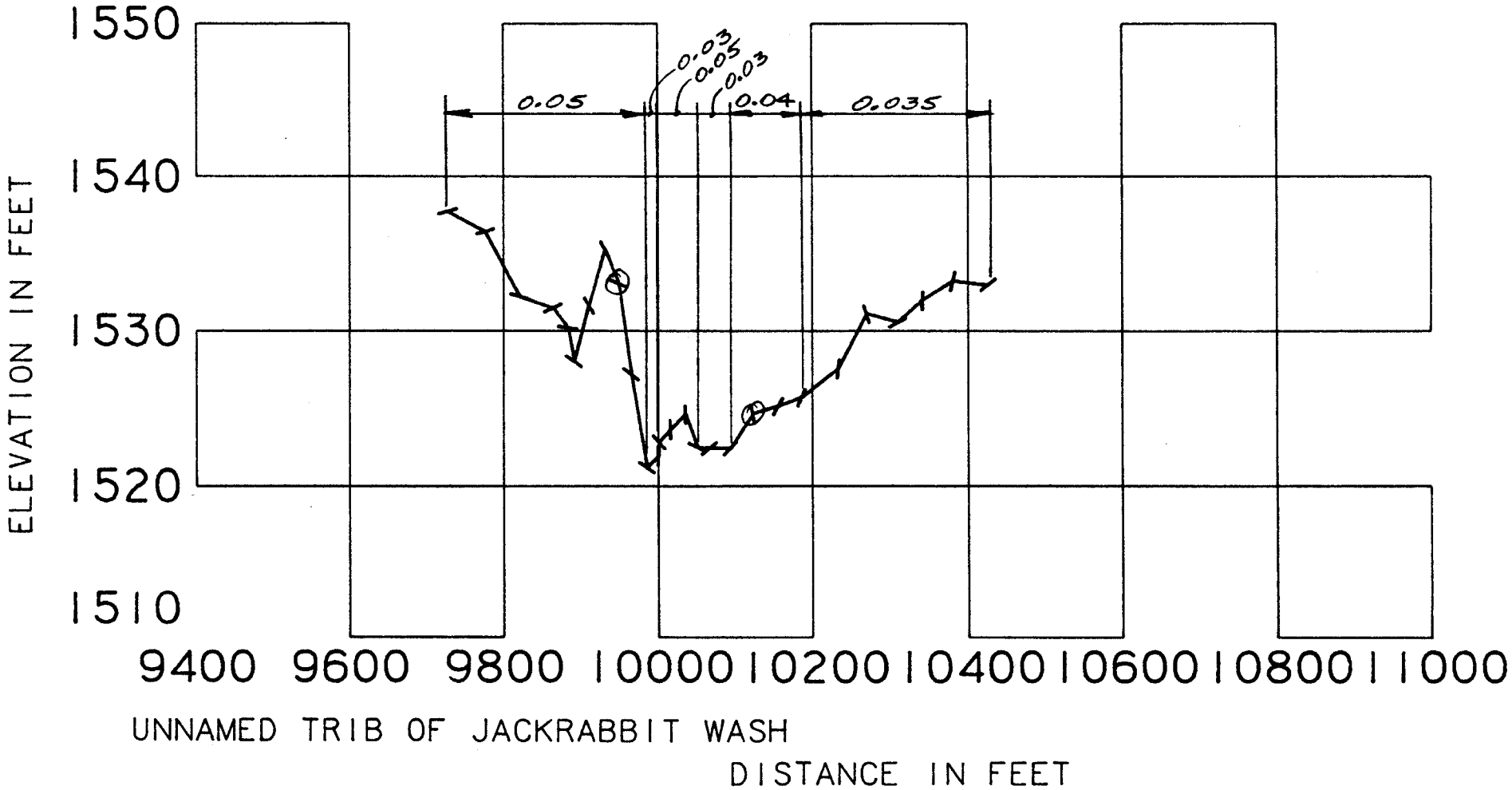
1550
1540
1530
1520
1510
1500
1490
ELEVATION IN FEET
0.040
0.05
0.03
0.04
0.03
0.05
0.035
0.03
0.035
9400 9600 9800 10000 10200 10400 10600 10800 11000
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET

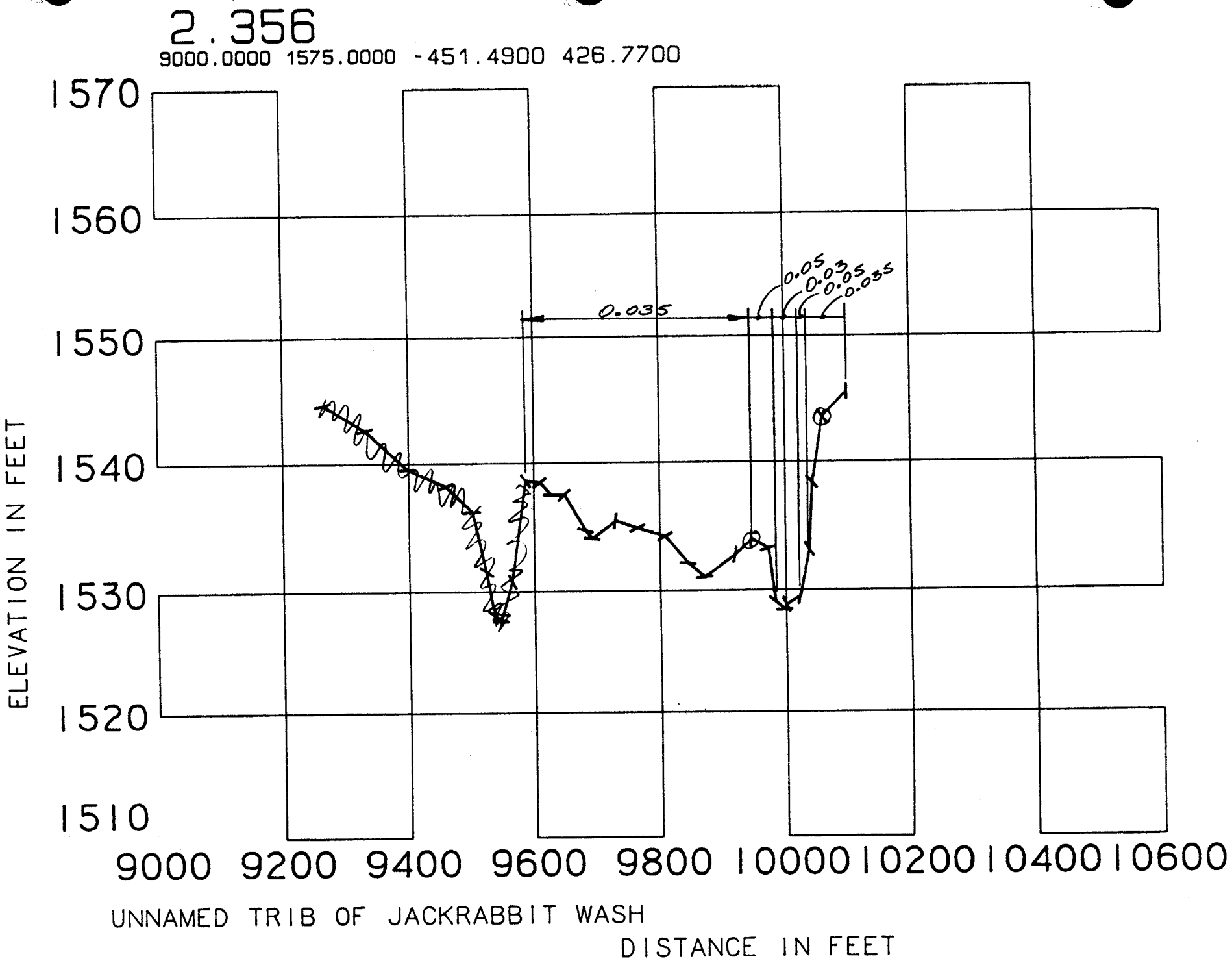

1.800
9400.0000 1555.0000 -451.4900 458.7080
1550
1540
1530
1520
1510
1500
1490
ELEVATION IN FEET
0.05
0.03
0.05
0.03
0.05
0.03
0.05
0.035
9400 9600 9800 10000 10200 10400 10600
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET

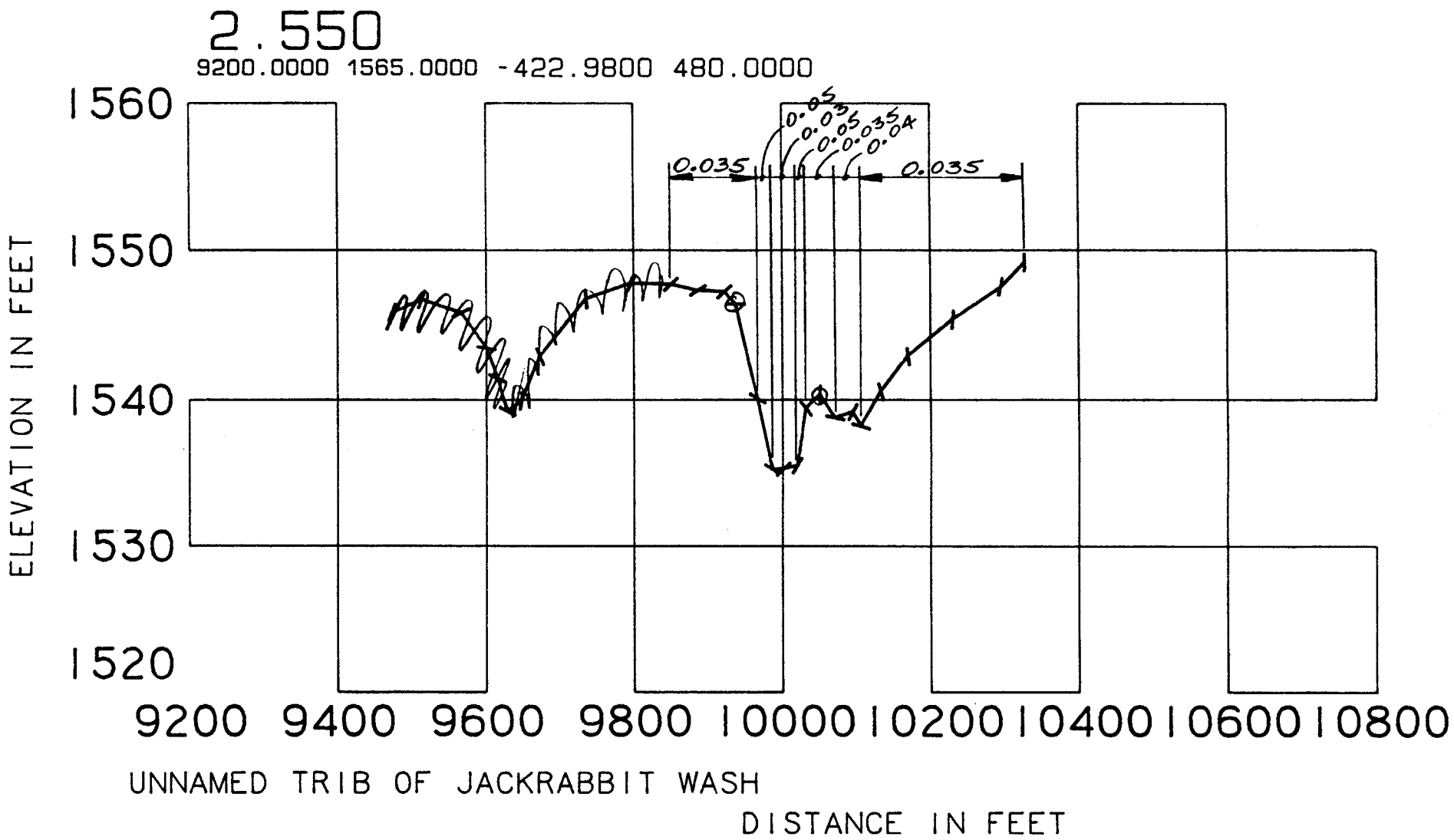

1.999
9400.0000 1565.0000 -451.4900 448.0620
1560
1550
1540
1530
1520
1510
1500
ELEVATION IN FEET
0.040
0.05
0.03
0.0535
0.035
0.04
0.035
9400 9600 9800 10000 10200 10400 10600
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET

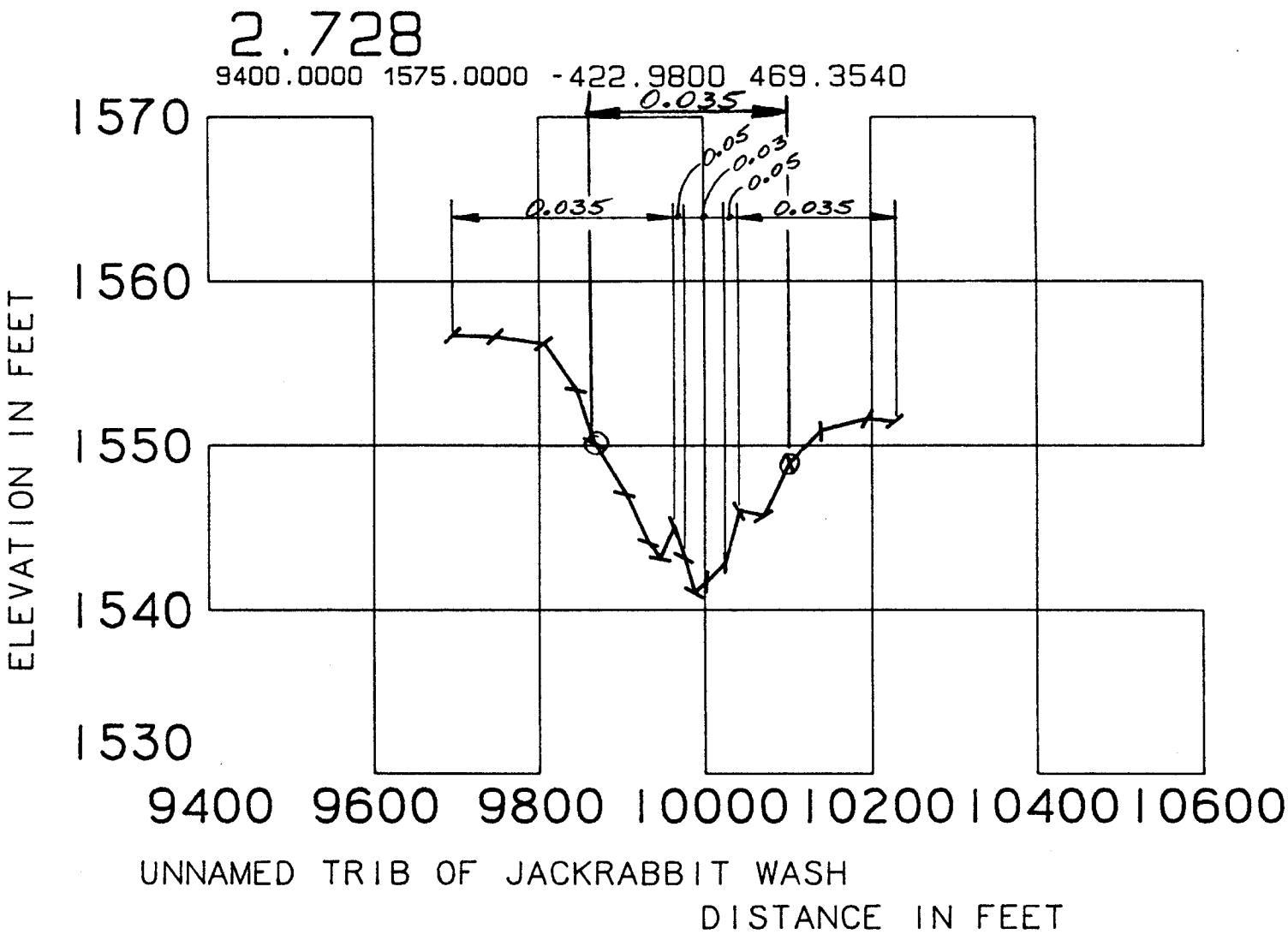
2.182

9400.0000 1555.0000 -451.4900 437.4160




2.356
9000.0000 1575.0000 -451.4900 426.7700
1570
1560
1550
1540
1530
1520
1510
ELEVATION IN FEET
0.035
0.05
0.03
0.05
0.035
9000 9200 9400 9600 9800 10000 10200 10400 10600
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET


2.550
9200.0000 1565.0000 -422.9800 480.0000
1560
1550
1540
1530
1520
ELEVATION IN FEET
0.035
0.05
0.05
0.05
0.035
0.04
0.035
9200 9400 9600 9800 10000 10200 10400 10600 10800
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET


2.728
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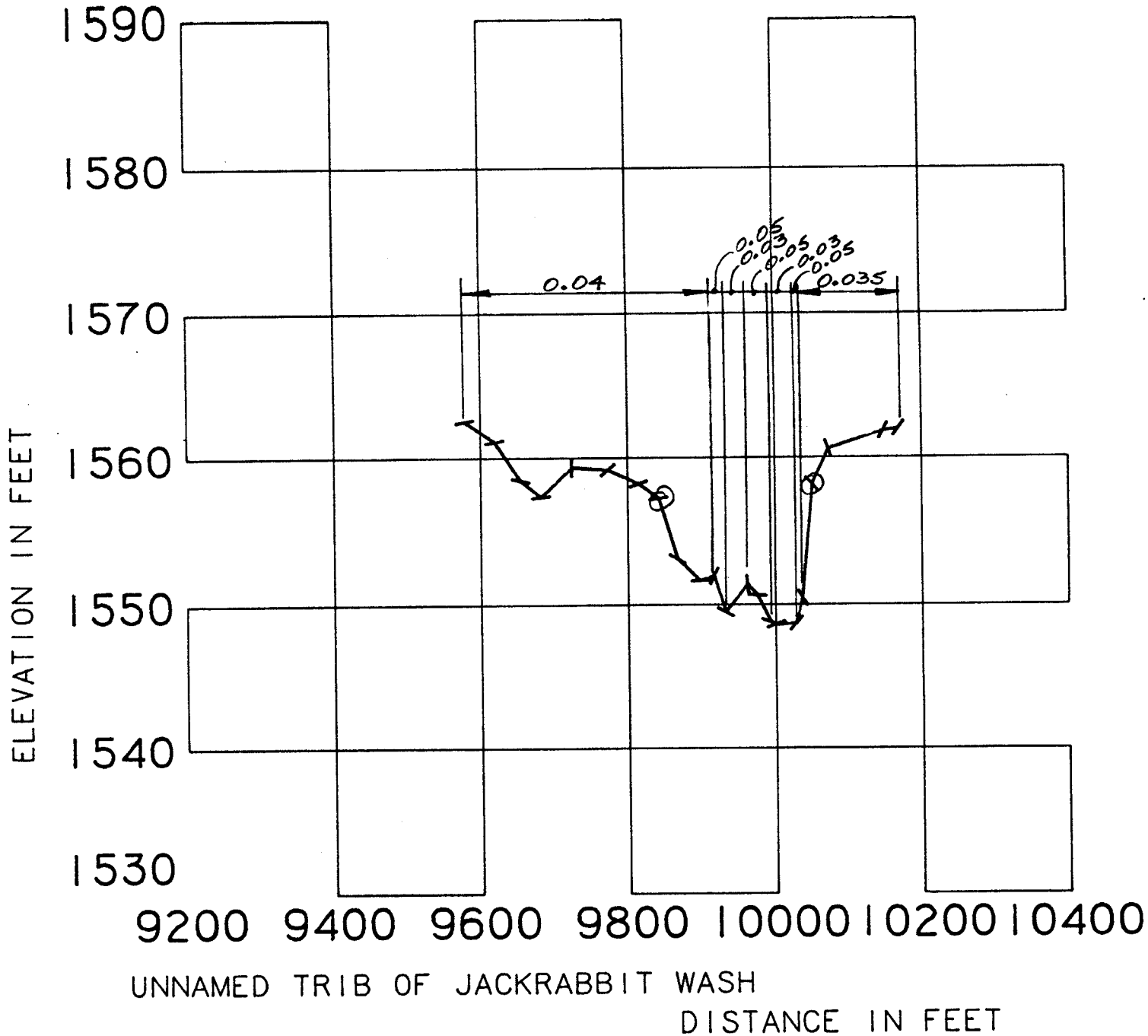
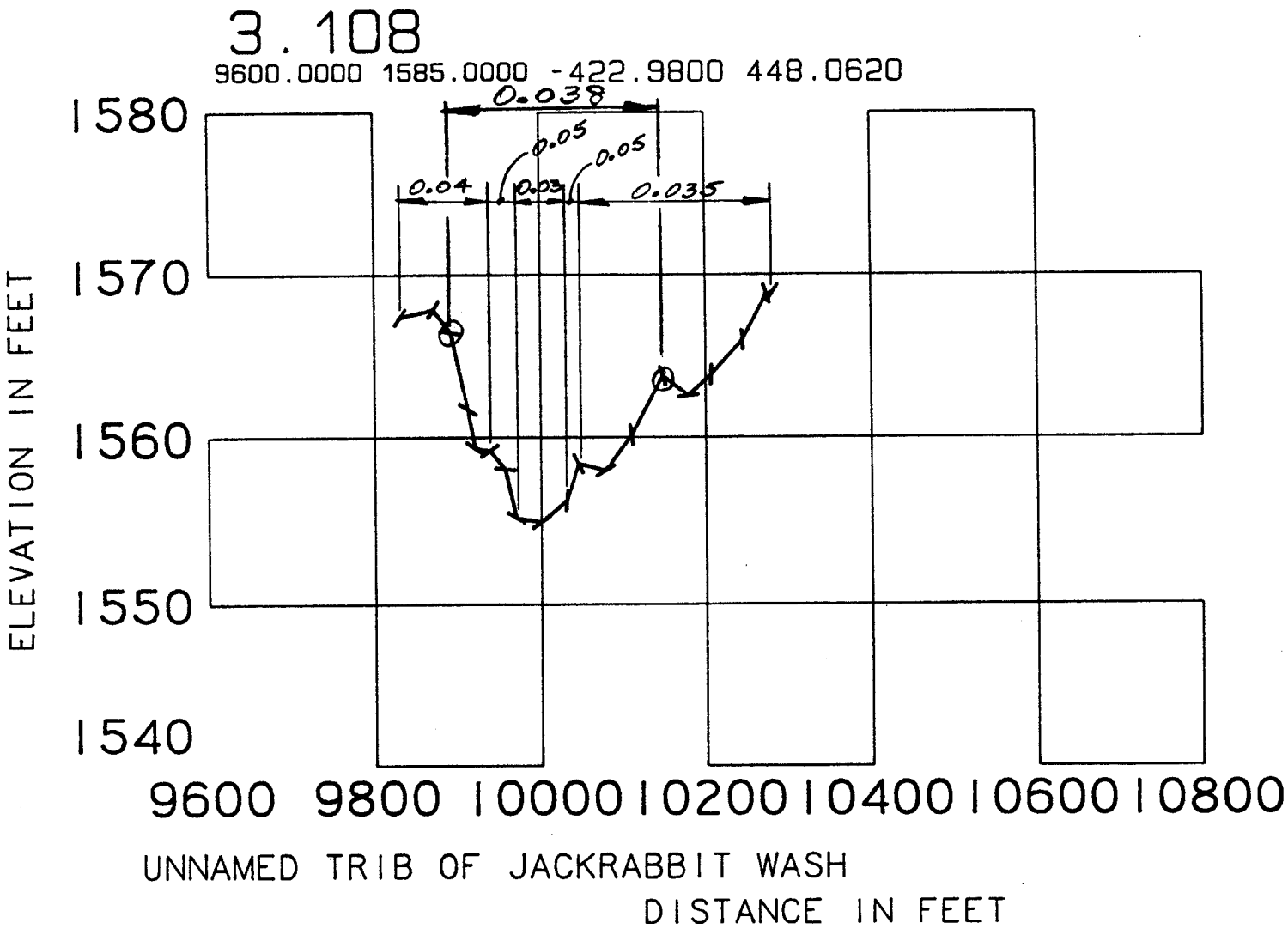
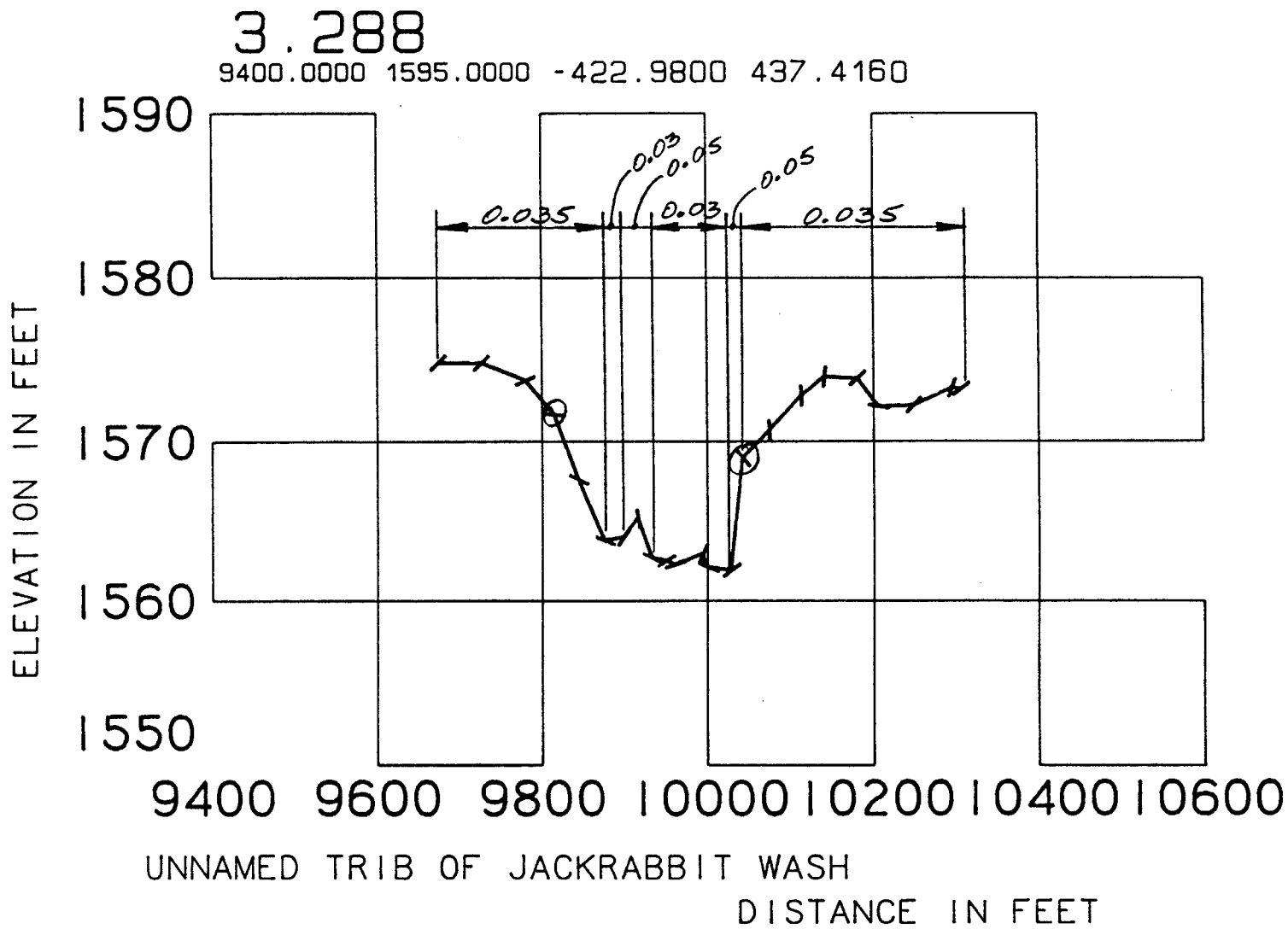
0.035
0.05
0.03
0.05
0.035
0.035
1570
1560
1550
1540
1530
ELEVATION IN FEET
9400 9600 9800 10000 10200 10400 10600
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET

2.916

9200.0000 1595.0000 -422.9800 458.7080

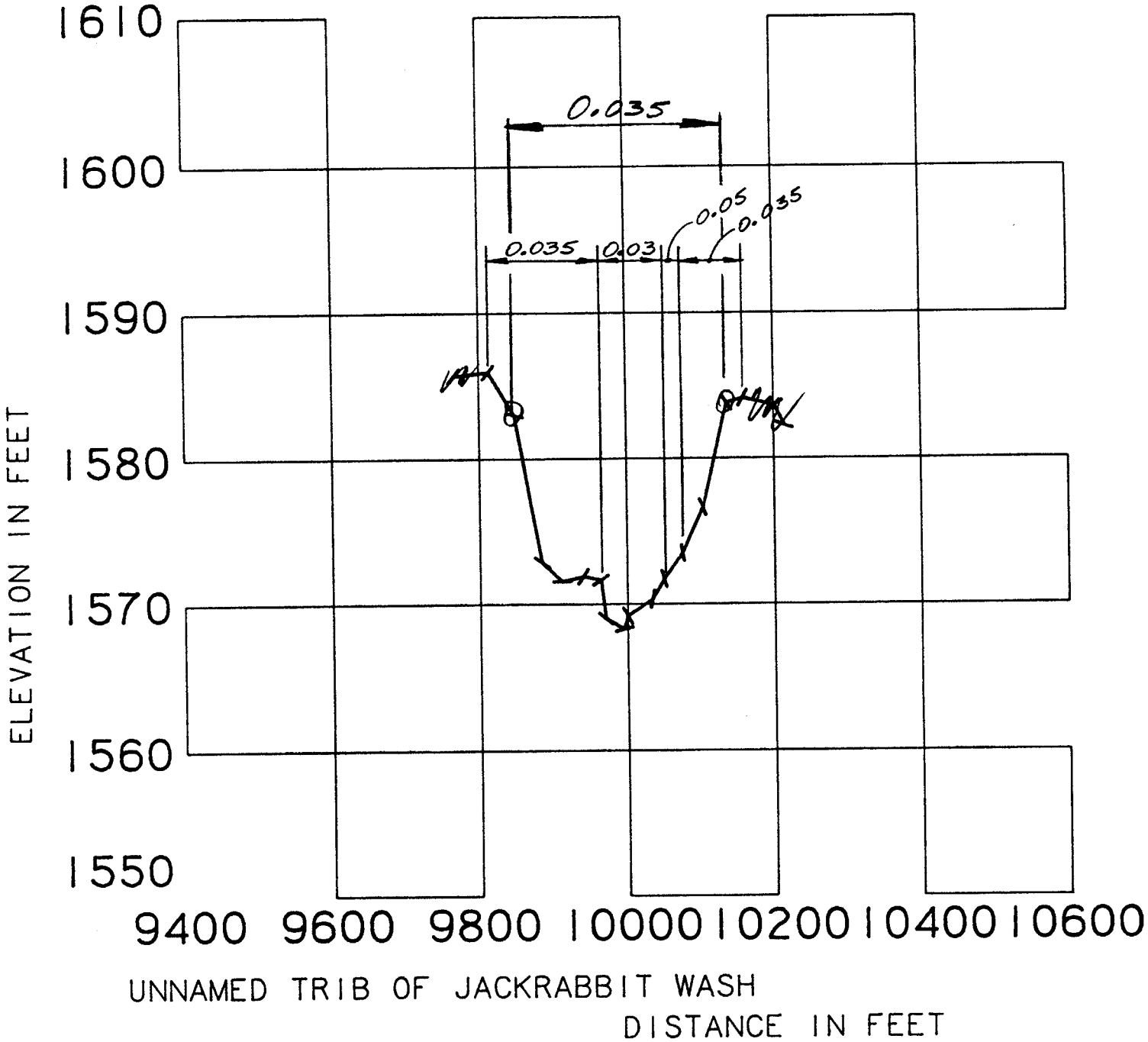



3.108
9600.0000 1585.0000 -422.9800 448.0620
0.038
0.05
0.05
0.04
0.03
0.035
1580
1570
1560
1550
1540
ELEVATION IN FEET
9600 9800 10000 10200 10400 10600 10800
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET


3.288
9400.0000 1595.0000 -422.9800 437.4160
1590
1580
1570
1560
1550
ELEVATION IN FEET
0.035
0.03
0.05
0.05
0.03
0.035
9400 9600 9800 10000 10200 10400 10600
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET

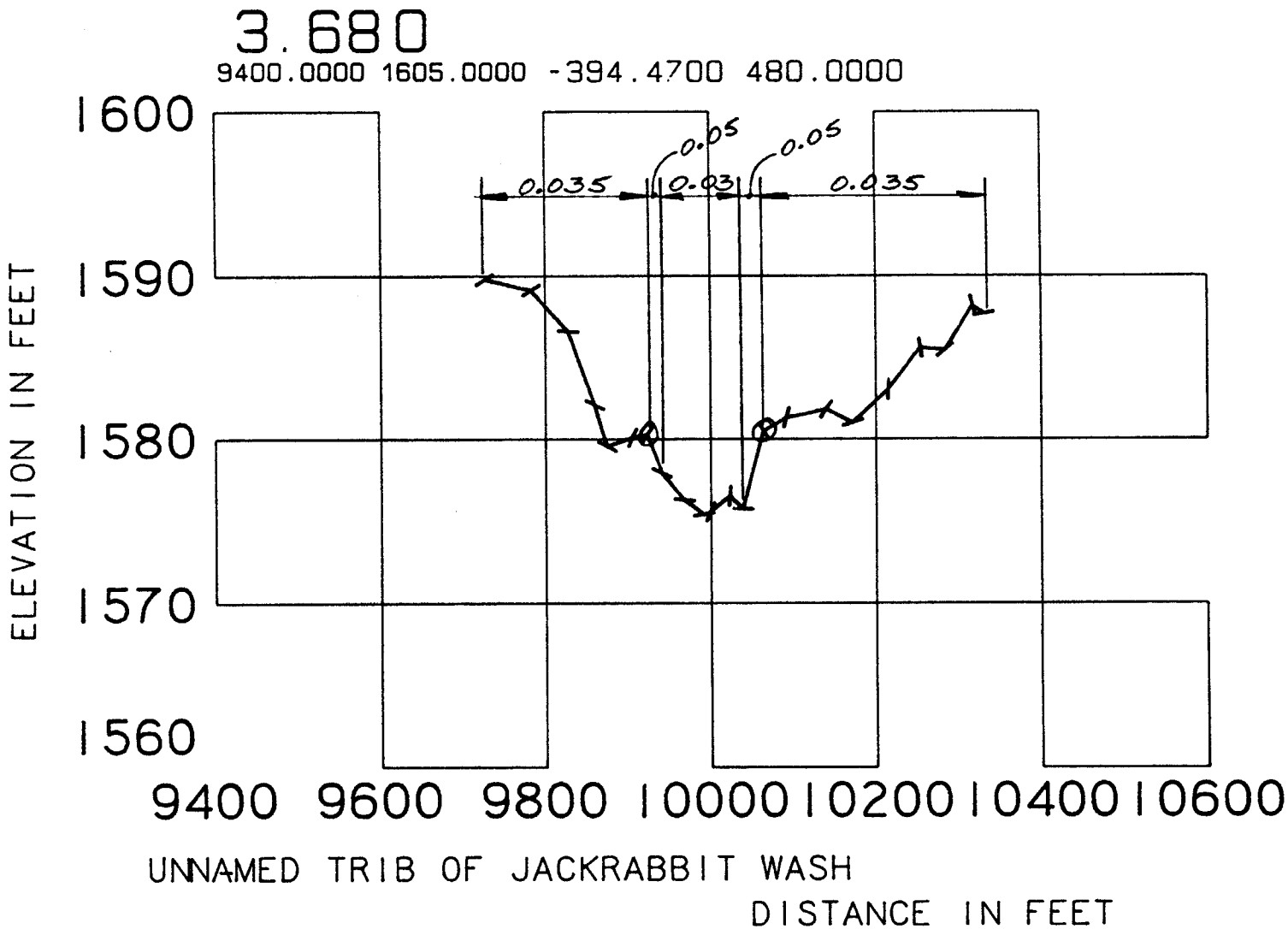
3.513

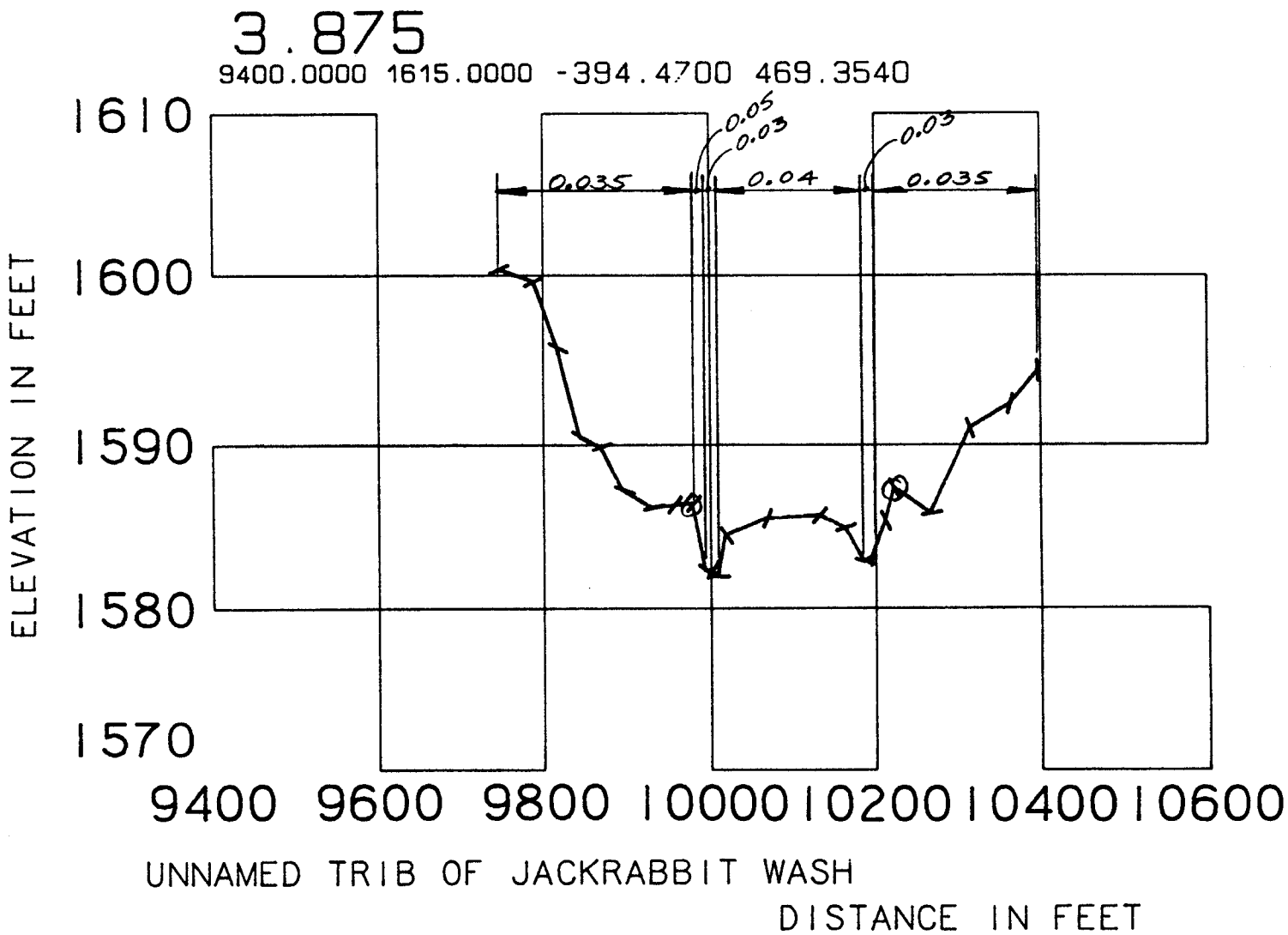
9400.0000 1615.0000 -422.9800 426.7900

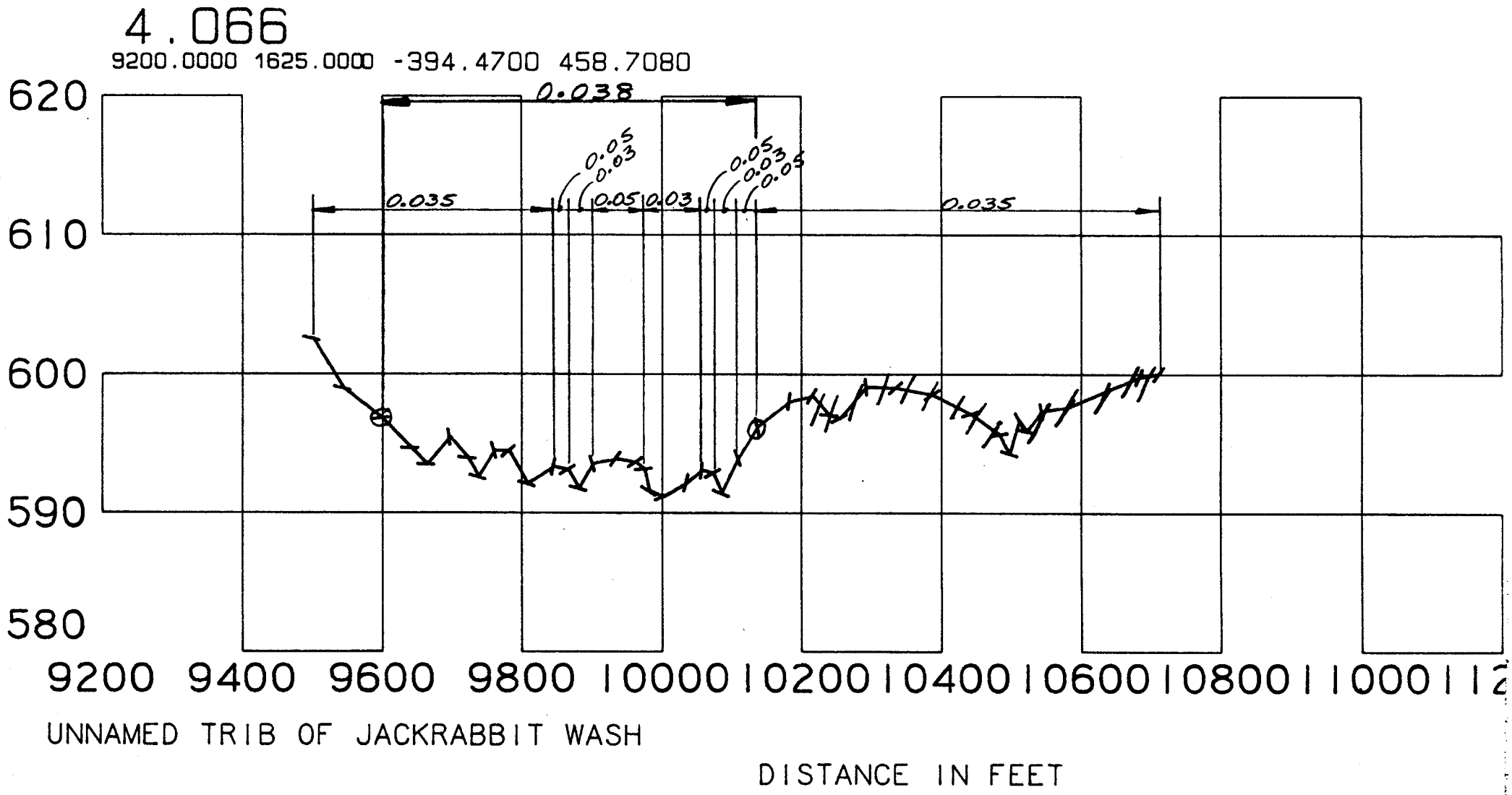


UNNAMED TRIB OF JACKRABBIT WASH

DISTANCE IN FEET

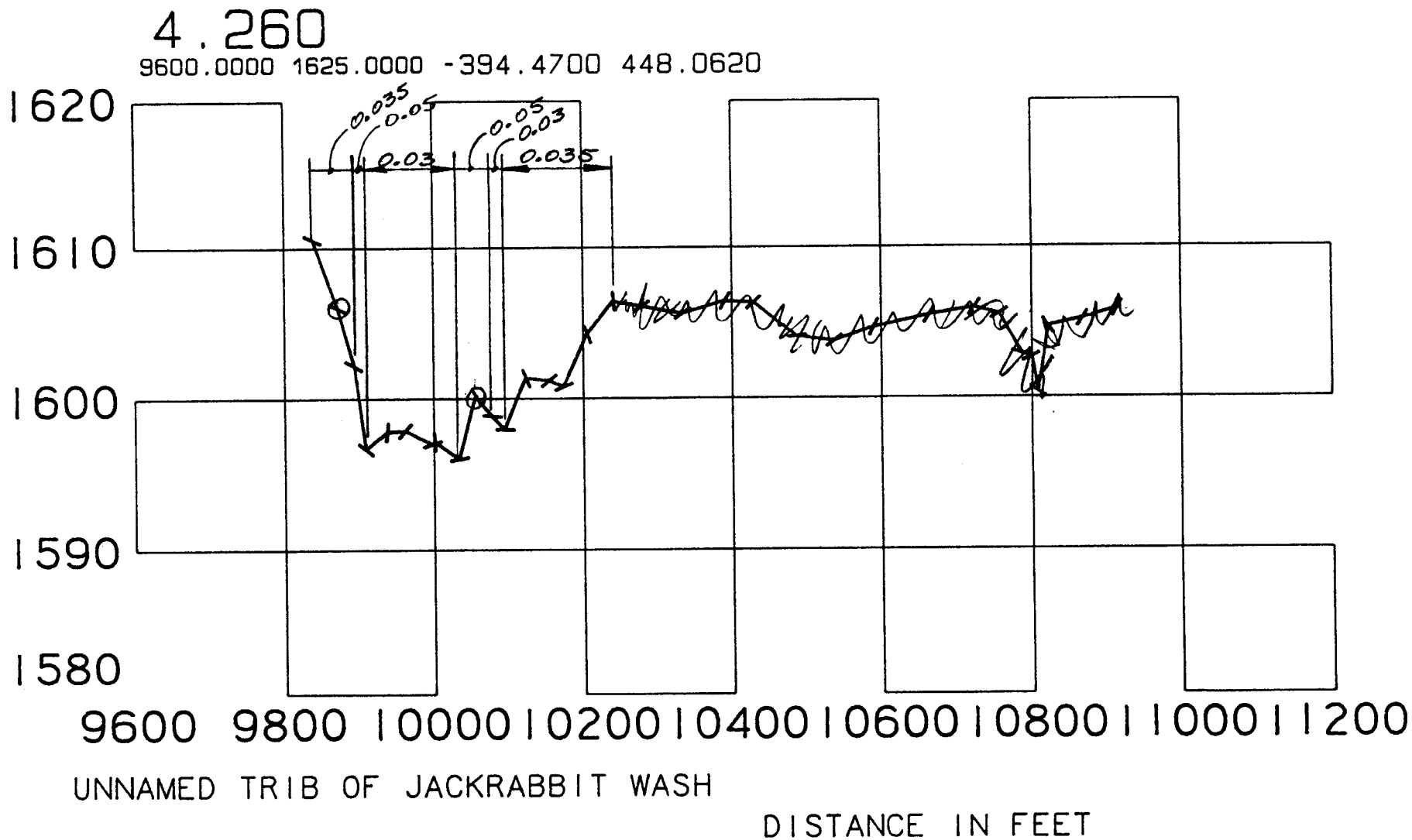

3.680
9400.0000 1605.0000 -394.4700 480.0000
1600
1590
1580
1570
1560
ELEVATION IN FEET
0.035
0.05
0.03
0.05
0.035
9400 9600 9800 10000 10200 10400 10600
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET


3.875
9400.0000 1615.0000 -394.4700 469.3540
1610
1600
1590
1580
1570
ELEVATION IN FEET
0.05
0.03
0.03
0.035
0.04
0.035
9400 9600 9800 10000 10200 10400 10600
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET



UNNAMED TRIB OF JACKRABBIT WASH

DISTANCE IN FEET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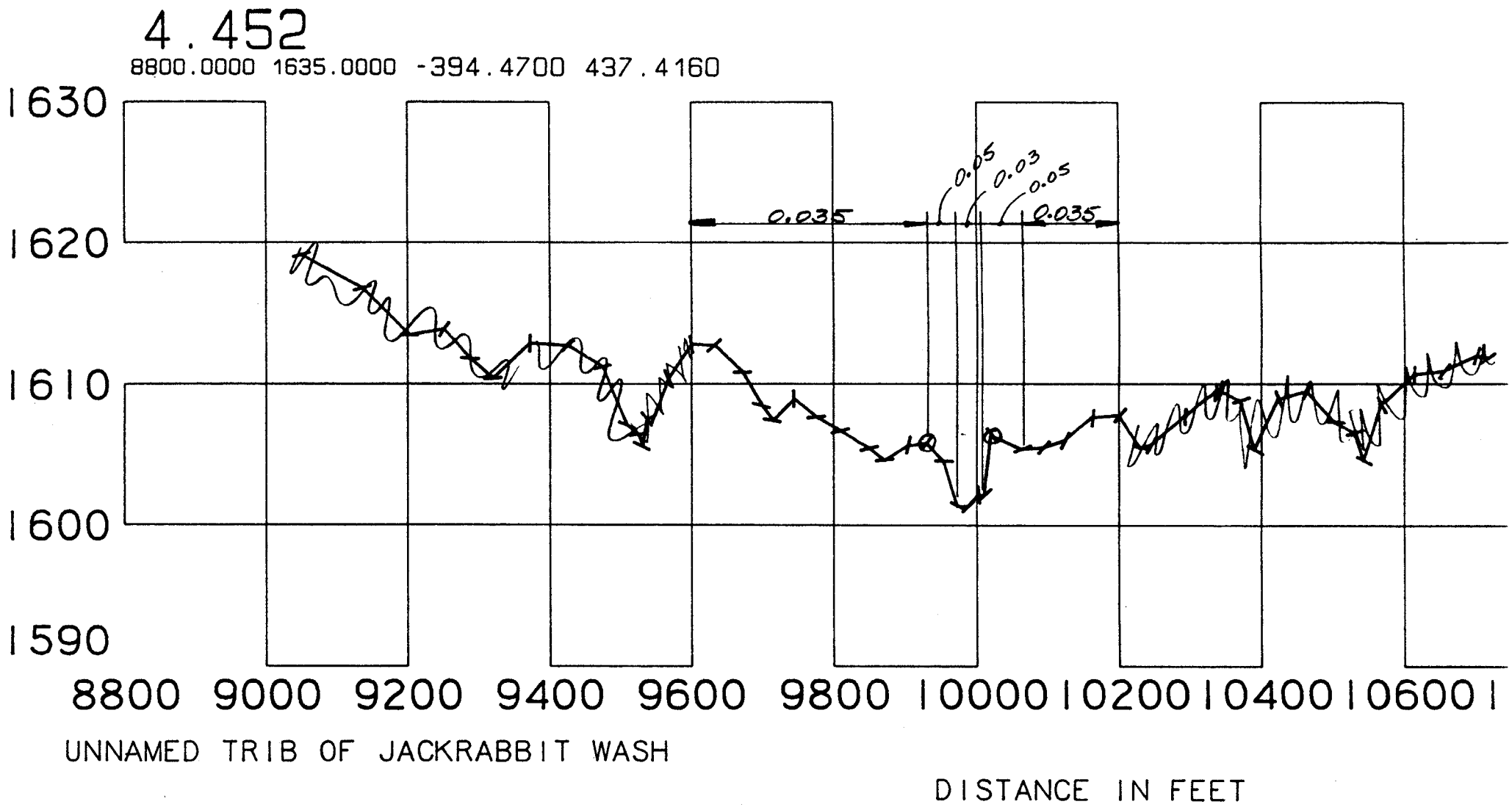
1610
1600
1590
1580
0.035
0.05
0.03
0.05
0.03
0.035
9600 9800 10000 10200 10400 10600 10800 11000 11200
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET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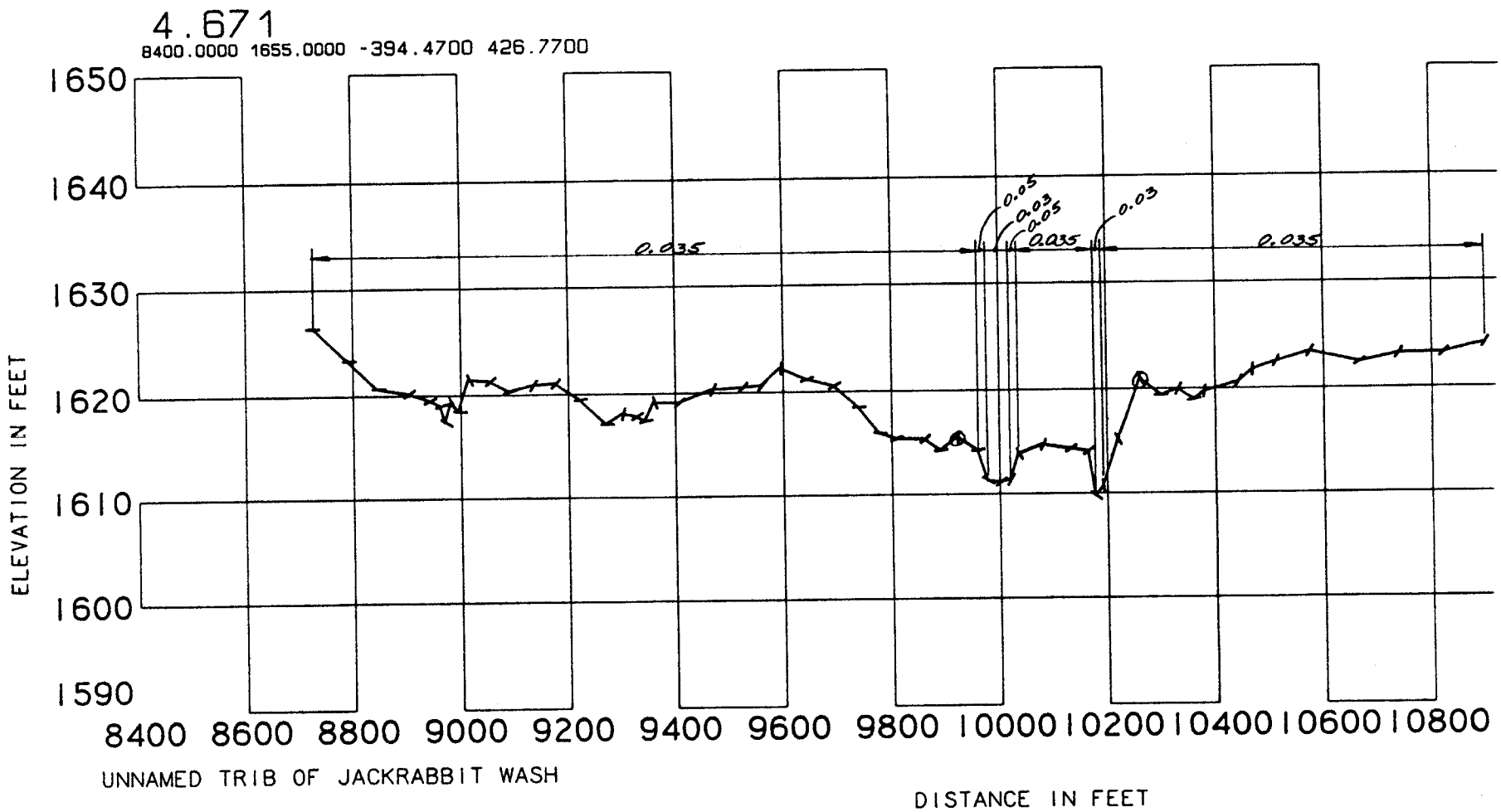
8800.0000 1635.0000 -394.4700 437.4160
1630
1620
1610
1600
1590
0.035
0.05
0.03
0.05
0.035
8800 9000 9200 9400 9600 9800 10000 10200 10400 10600
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET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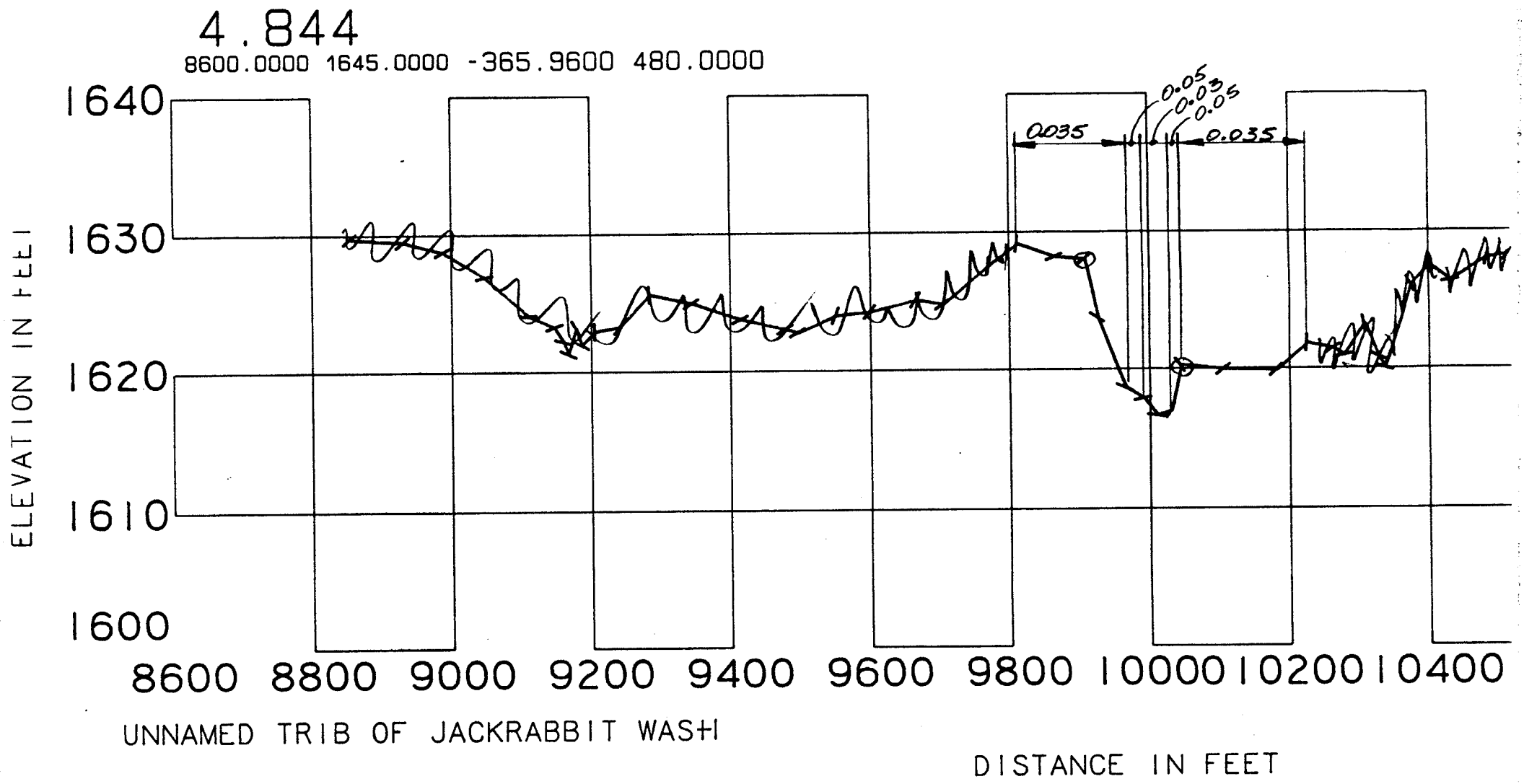
8400.0000 1655.0000 -394.4700 426.7700
1650
1640
1630
1620
1610
1600
1590
ELEVATION IN FEET
0.035
0.05
0.03
0.05
0.035
0.03
0.035
8400 8600 8800 9000 9200 9400 9600 9800 10000 10200 10400 10600 10800
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET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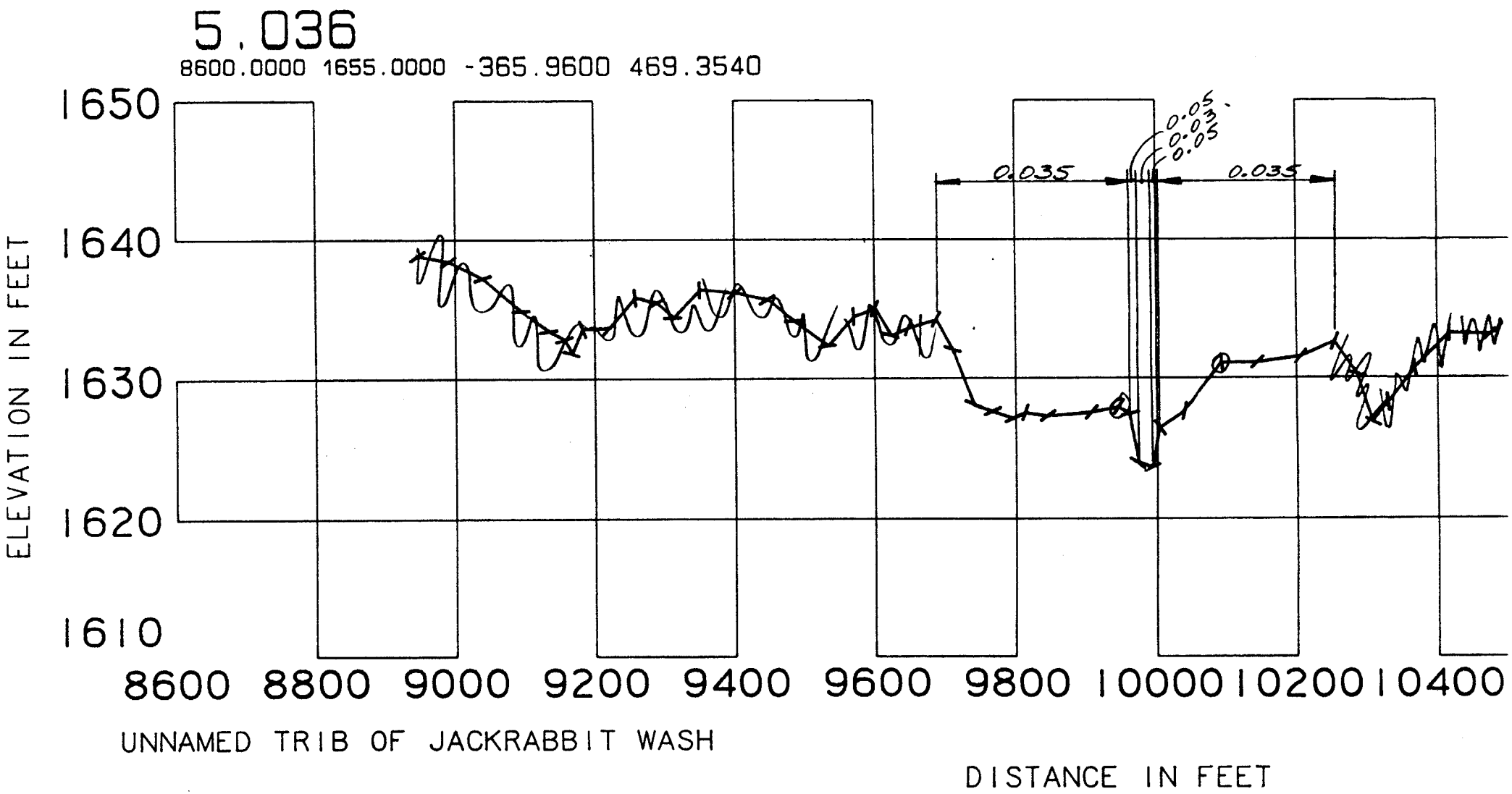
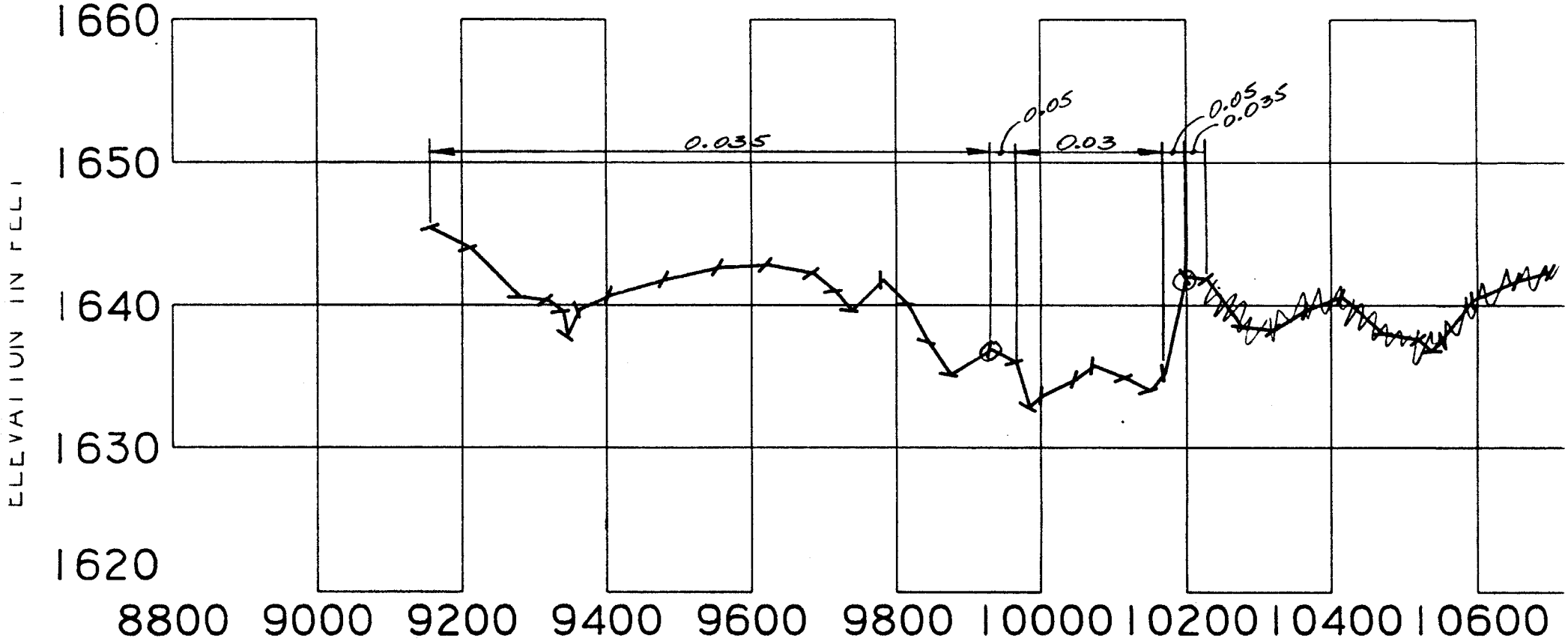
8600.0000 1645.0000 -365.9600 480.0000
1640
1630
1620
1610
1600
ELEVATION IN FEET
8600 8800 9000 9200 9400 9600 9800 10000 10200 10400
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET
0.035
0.05
0.03
0.05
0.035


5.036
8600.0000 1655.0000 -365.9600 469.3540
1650
1640
1630
1620
1610
ELEVATION IN FEET
0.035
0.035
0.05
0.03
0.05
8600 8800 9000 9200 9400 9600 9800 10000 10200 10400
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET

5.228

8800.0000 1665.0000 -365.9600 458.7080

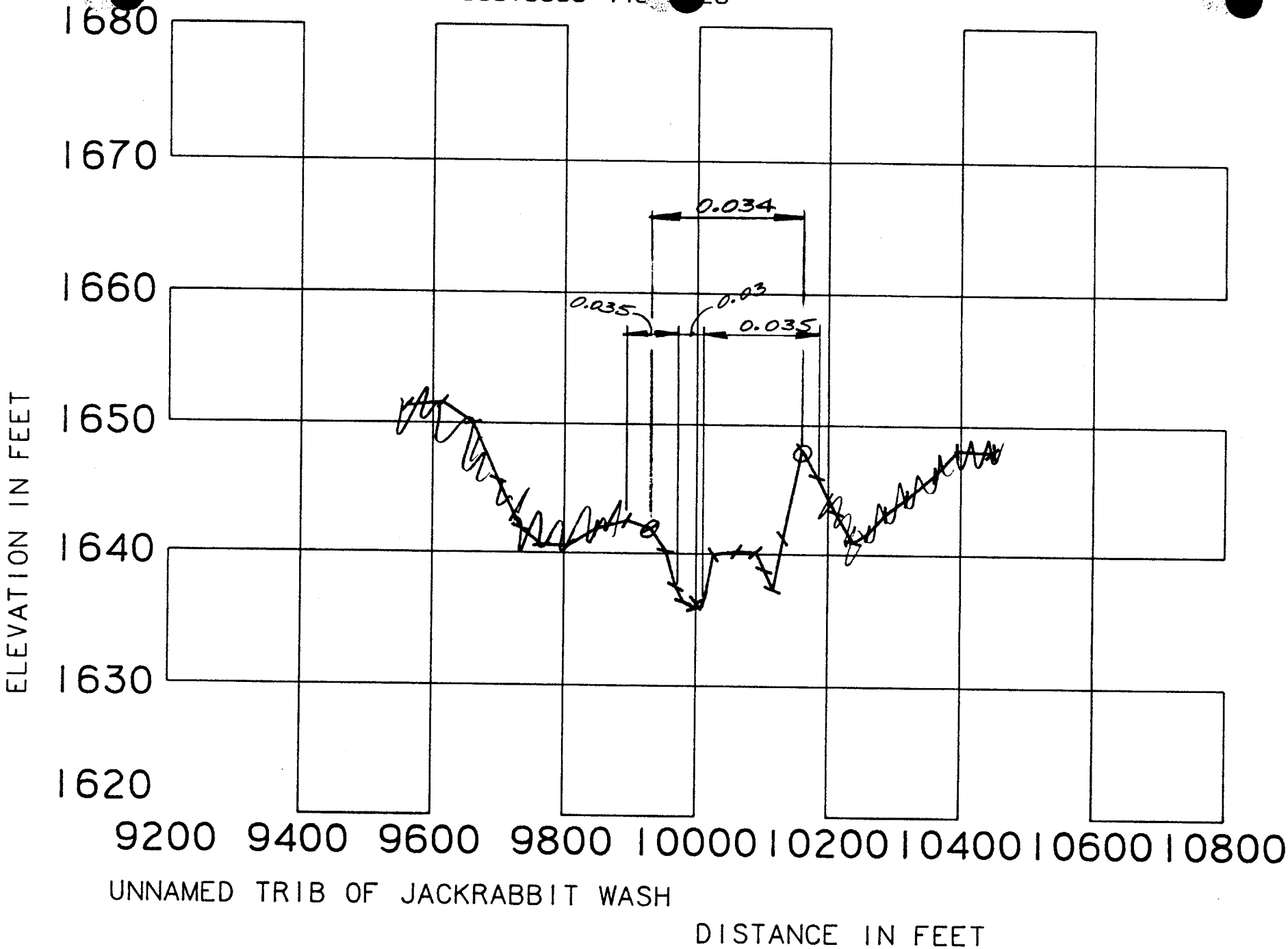


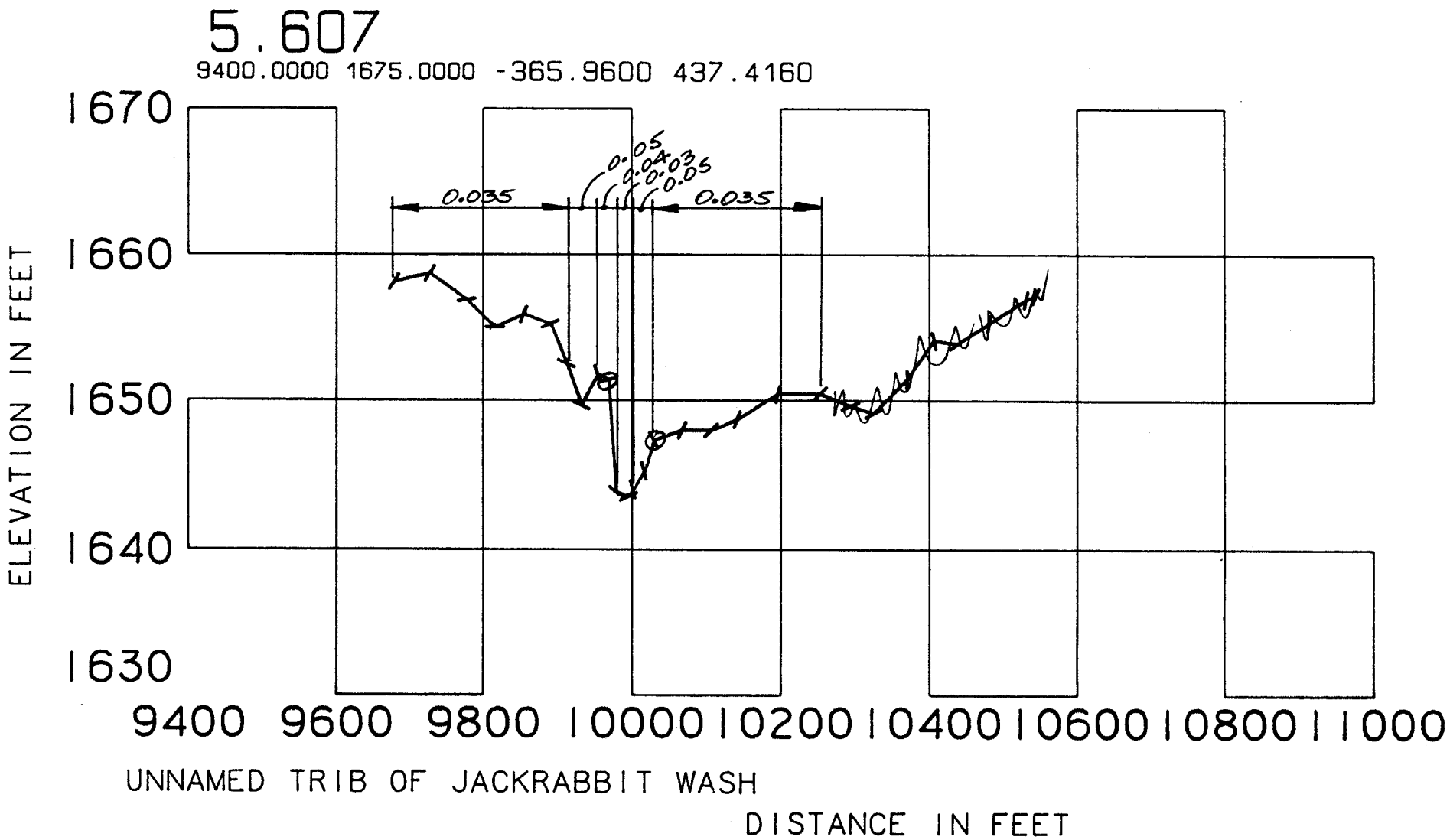
UNNAMED TRIB OF JACKRABBIT WASH

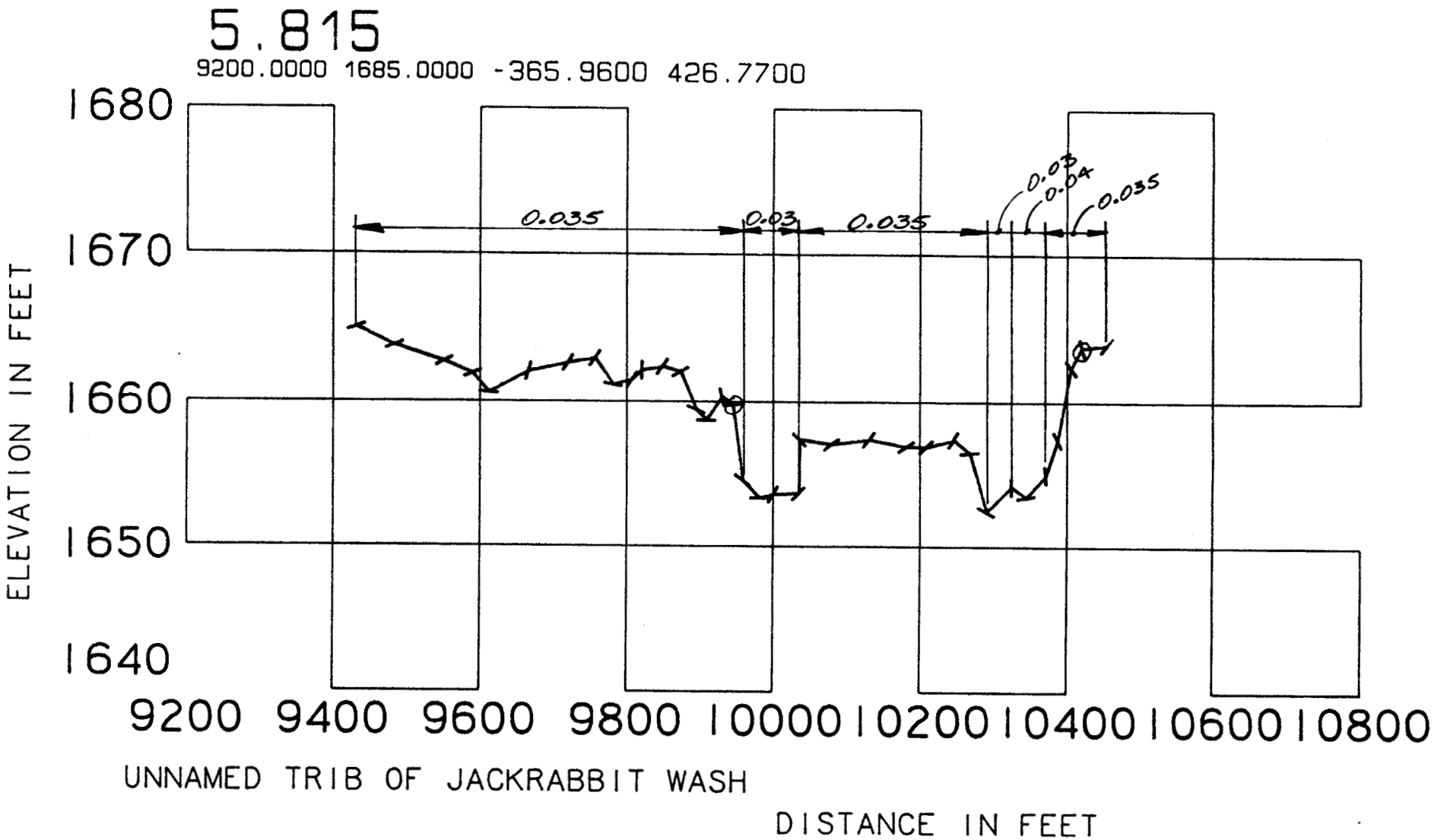
DISTANCE IN FEET

5.415

9200.0000 1685.0000 -365.9600 44E 20

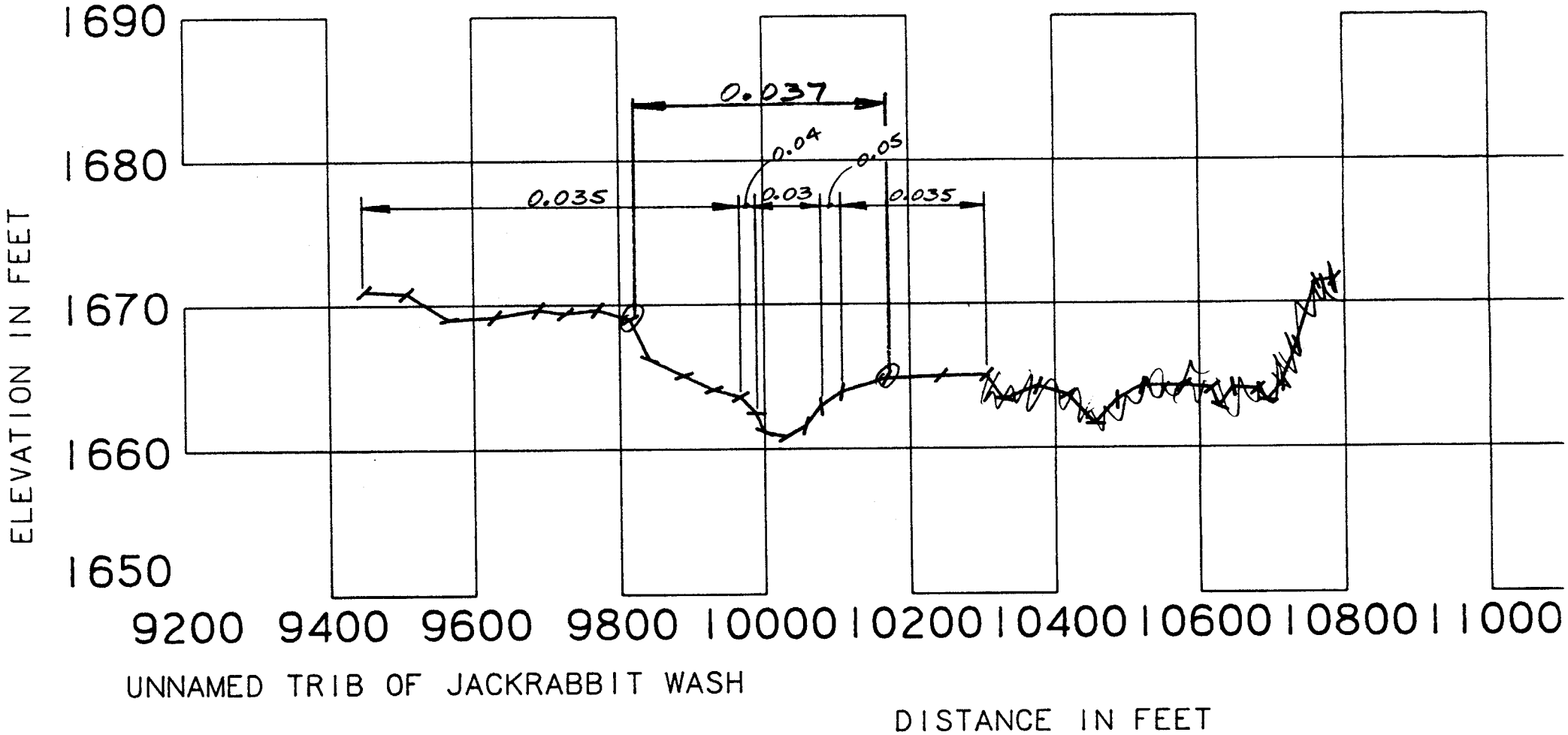



5.607
9400.0000 1675.0000 -365.9600 437.4160
1670
1660
1650
1640
1630
ELEVATION IN FEET
0.035
0.05
0.04
0.03
0.05
0.035
9400 9600 9800 10000 10200 10400 10600 10800 11000
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET

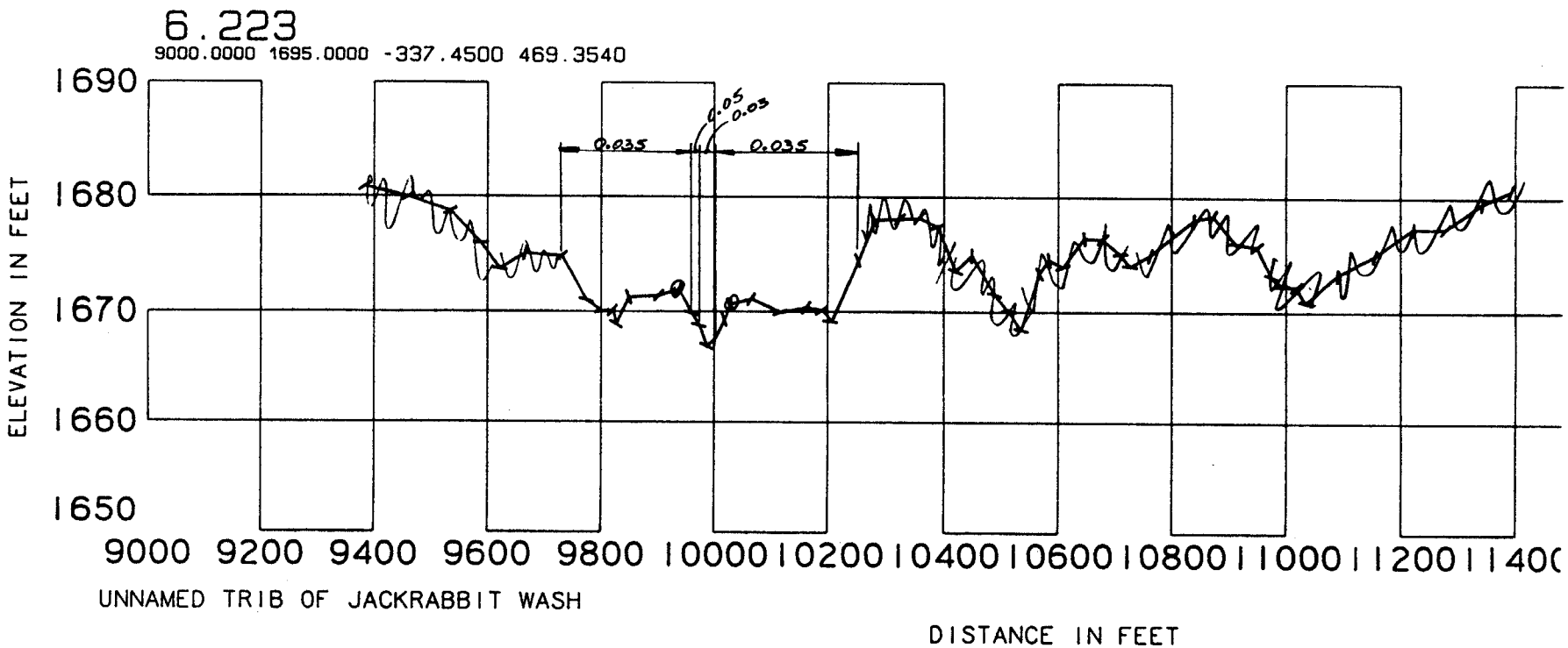

5.815
9200.0000 1685.0000 -365.9600 426.7700
1680
1670
1660
1650
1640
ELEVATION IN FEET
0.035
0.03
0.035
0.03
0.04
0.035
9200 9400 9600 9800 10000 10200 10400 10600 10800
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET

6.022

9200.0000 1695.0000 -337.4500 480.0000



UNNAMED TRIB OF JACKRABBIT WASH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1690
1680
1670
1660
1650
ELEVATION IN FEET
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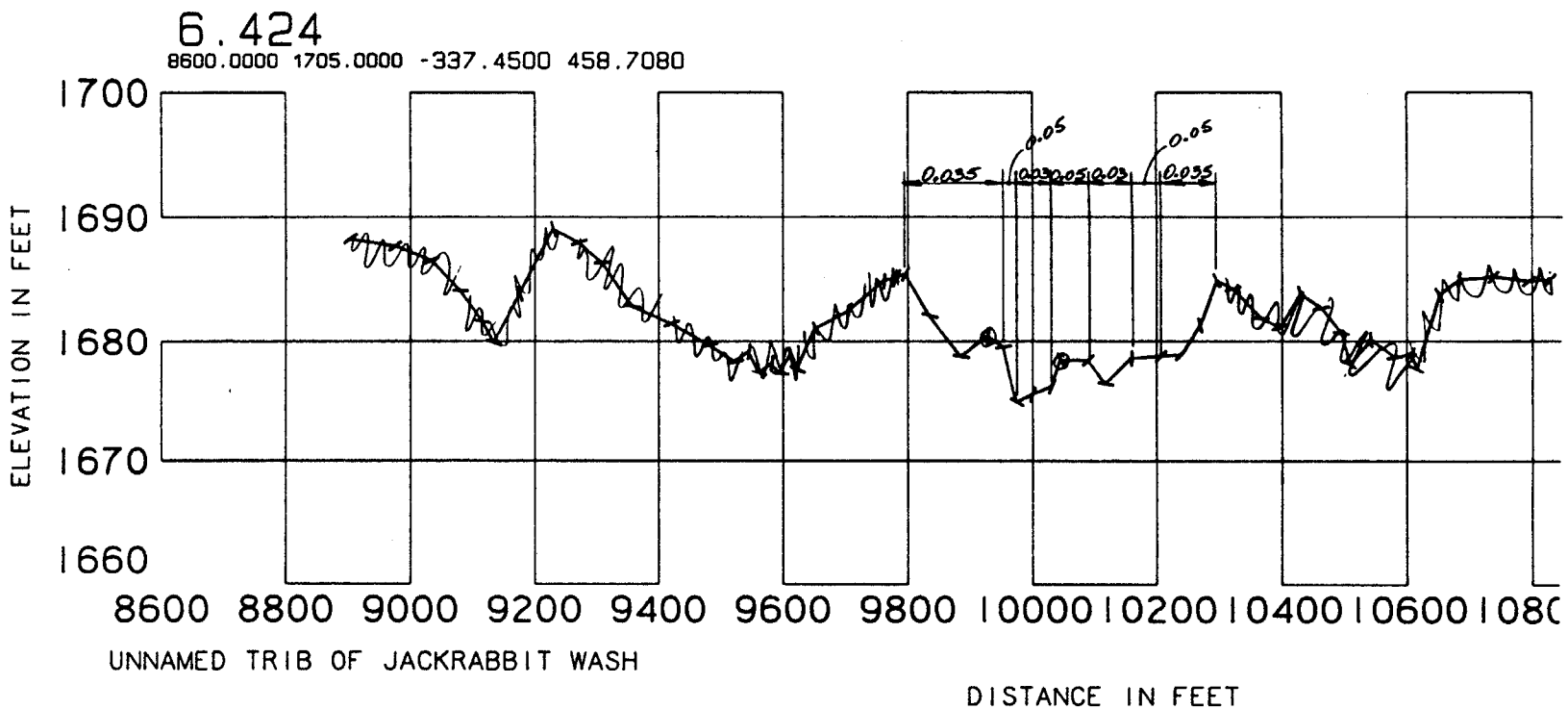
0.05
0.03
0.035
9000 9200 9400 9600 9800 10000 10200 10400 10600 10800 11000 11200 1140(
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET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1700
1690
1680
1670
1660
ELEVATION IN FEET
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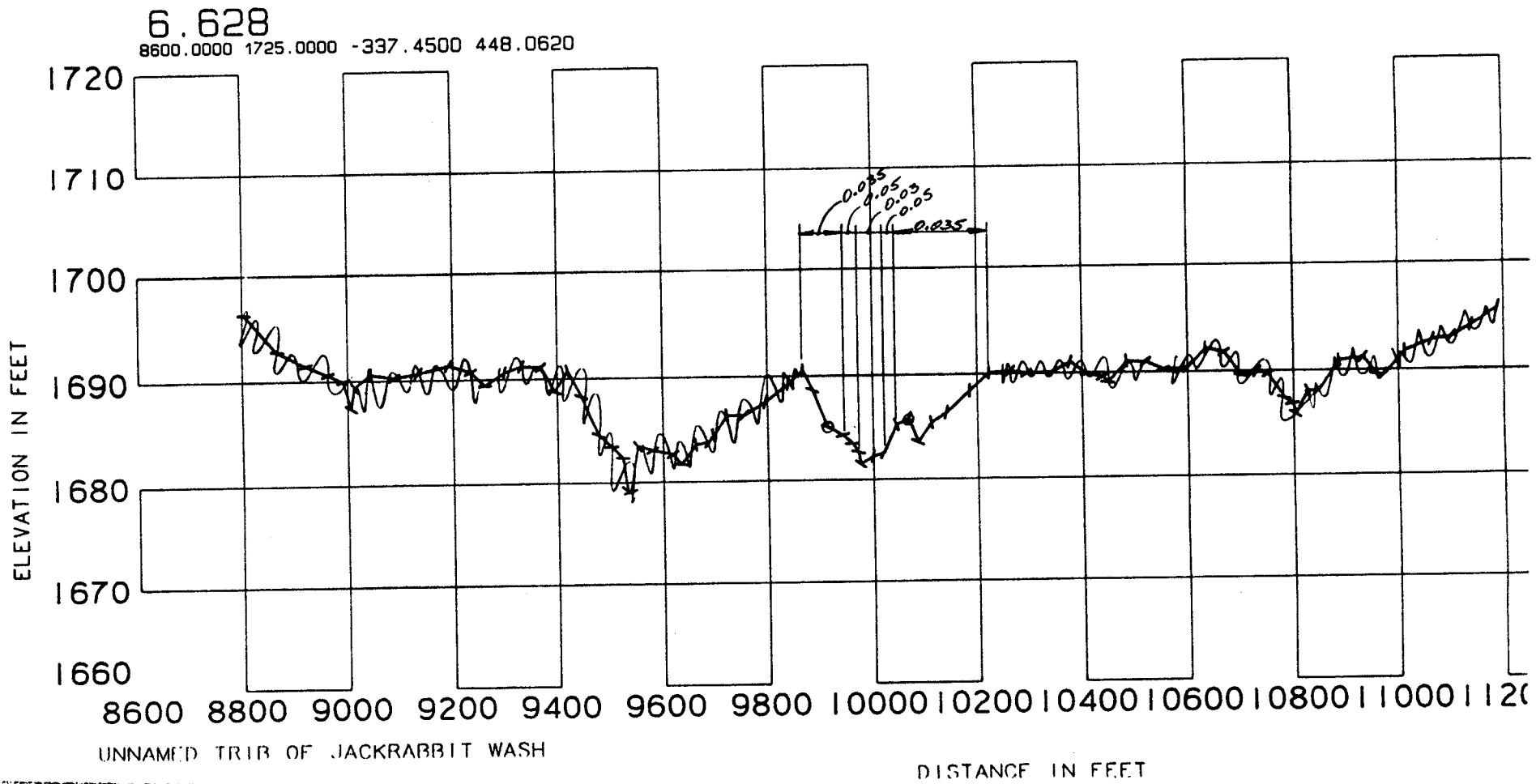
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET
0.035
0.05
0.05
0.035


6.628
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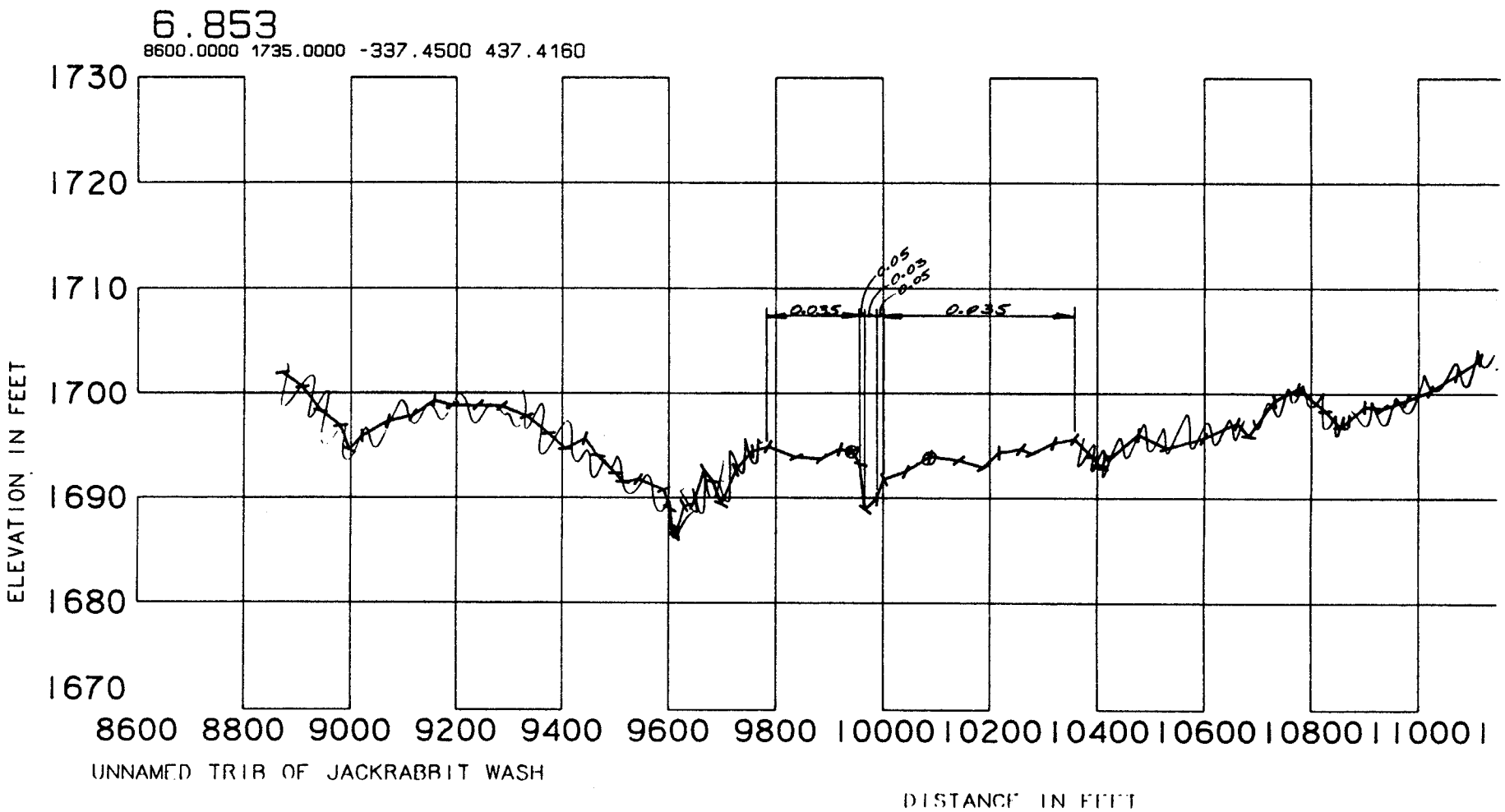
1720
1710
1700
1690
1680
1670
1660
ELEVATION IN FEET
0.035
0.05
0.03
0.05
0.035
8600 8800 9000 9200 9400 9600 9800 10000 10200 10400 10600 10800 11000 112
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET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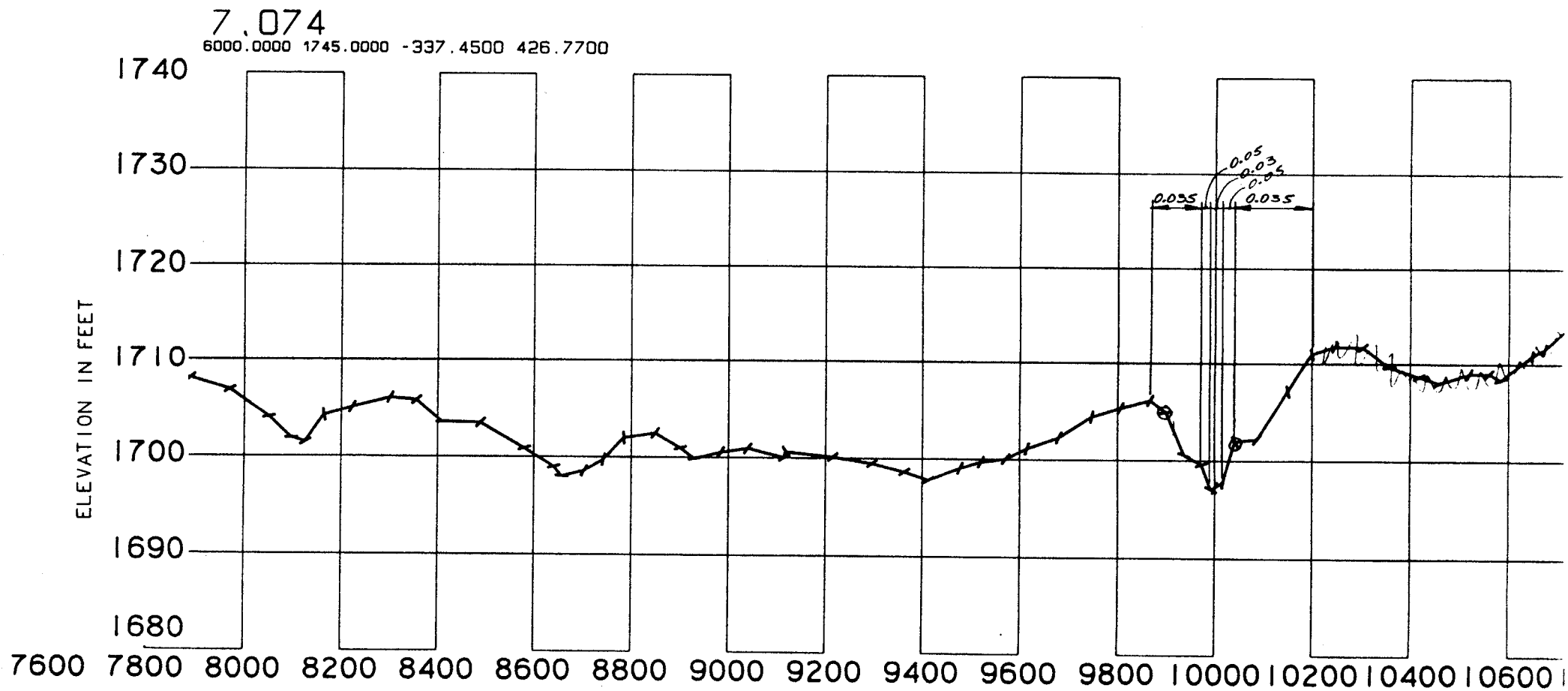
1730
1720
1710
1700
1690
1680
1670
ELEVATION IN FEET
8600 8800 9000 9200 9400 9600 9800 10000 10200 10400 10600 10800 11000
UNNAMED TRIB OF JACKRABBIT WASH
DISTANCE IN FEET
0.05
0.03
0.05
0.035
0.035


7.074
6000.0000 1745.0000 -337.4500 426.7700
ELEVATION IN FEET
1740
1730
1720
1710
1700
1690
1680
7600 7800 8000 8200 8400 8600 8800 9000 9200 9400 9600 9800 10000 10200 10400 10600
0.035
0.05
0.03
0.05
0.035

SECTION 4: Hydraulic Analysis

4.5 Special Problems/Solutions

Problem No. 1

Cross section 7.874 was obtained by both field and aerial methods to aid in quality control. The location of this section was not sufficiently representative to be included in the hydraulic model for Jackrabbit Wash and was therefore deleted. It is, however, used to provide initial backwater for Star Wash.

Problem No. 2

At Sections 15.507, 15.715, and 15.923, flow splits around an island between the narrow, deeper channel and the wide, shallow, left overbank. HEC-2 results were reviewed to determine if flow distribution at each section was appropriate.

Once flow divides around the island, it does not recombine until after it has passed the island. Discharges conveyed on the left and right sides of the island should therefore be equal at each section. The distribution was initially found to be:

Section	Left	Right
15.507	40%$^{\pm}$	60%$^{\pm}$
15.715	65%$^{\pm}$	35%$^{\pm}$
15.923	60%$^{\pm}$	40%$^{\pm}$

Potential solutions to this classic flow distribution problem include:

* Manually develop rating curves at each section for both channels and compute separate profiles. Base conditions are that elevations upstream and downstream of the island are equal in both channels.

* Adjust the cross section geometry to yield the same flow distribution, within reasonable tolerance, at each section. Based on results at Sections 15.715 and 15.923, it is known that the channel will carry between 36-43 percent of the flow for the natural profile.

Adjustment of the channel geometry at Section 15.507 to yield a comparable distribution would produce an accurate elevation for the left channel and a conservative elevation for the right channel.

The selected solution was to adjust the channel geometry at Section 15.507 by raising the invert to allow computation of a floodway for the reach. Tolerance in the distribution of flow is now ± 5 percent.

SECTION 4: Hydraulic Analysis

4.6 Floodway Modeling

Following completion of natural 100-year profile models for Jackrabbit Wash, Star Wash, and the unnamed tributary of Jackrabbit Wash, floodway models were developed.

The floodway model for Jackrabbit Wash was begun at Section 7.713 about 650 feet downstream of the study limit. The run was started with a 1.0 foot surcharge at Section 7.713, with the computer generating a floodway using Method 6 (equal conveyance loss, target compared to energy grade). The initial computed floodway was plotted on work maps and reviewed. Adjustments were made and encroachment stations set by Method 1 based on the following criteria:

* Encroachment at Section 7.713 set equal to the computer generated value
* No encroachment at Section 7.842 (CAP Canal)
* Top widths to be more uniform
* Achieve goal of 1.0 foot surcharge with no point exceeding 1.0 foot
* Avoid excessive velocities
* Encroach only left overbank areas at Sections 15.507, 15.715, and 15.923 (Island)

The floodway models for Star Wash and the unnamed tributary of Jackrabbit Wash were developed subsequent to the Jackrabbit Wash floodway model. The models were begun upstream of the confluence (Section 0.321 for Star Wash and Section 0.060 for the unnamed tributary) with starting elevations obtained from the natural profile models. Per FEMA guidelines, backwater from Jackrabbit Wash was not considered because flood peaks do not coincide. The floodway was initially computed using Method 6 and a 1.0 foot initial surcharge. Criteria to develop final encroachments by Method 1 were:

* Encroachments at Section 0.321 (Star Wash) and Section 0.060 (unnamed tributary) set equal to the computer generated value
* Top widths to be more uniform
* Achieve goal of 1.0 foot surcharge with no point exceeding 1.0 foot
* Avoid excessive velocities

SECTION 4: Hydraulic Analysis

4.7 Final Results

<u>Color Code</u>

Jackrabbit Wash	**White**
Star Wash Natural Profile	**Yellow**
Star Wash Floodway	**White**
Unnamed Tributary Natural Profile	**Yellow**
Unnamed Tributary Floodway	**White**

```
****************************************************
*  WATER SURFACE PROFILES                          *
*  DEVELOPED BY THE COE                            *
*  VERSION OF SEPTEMBER 1988                       *
*  ERROR: 01,02,03                                 *
*  RUN DATE     2/14/91    TIME   14:55: 8         *
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```


```
*************************************
*  DODSON & ASSOCIATES, INC.        *
*  HYDROLOGIST AND CIVIL ENGINEERS  *
*  5629 FM 1960 WEST SUITE 314      *
*  HOUSTON, TEXAS  77069            *
*  (713) 440-3787 Fax (713) 440-4742 *
*************************************
```


```
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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END OF BANNER

THIS RUN EXECUTED 2/14/91 14:55: 8

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**************************************************
 HEC2 RELEASE DATED SEP 88 UPDATED SEPT 1989


 ERROR CORR -  01,02,03
 MODIFICATION -
**************************************************


T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-05
T2      JACKRABBIT WASH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      JACKRABBIT WASH 100 YEAR        J MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              2.                          0.006                                     1358.02

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1.                                                                     15.


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

   38.       42.        1.       43.        26       51.        4.        8.       10.        53
    54       13.       15.        0        200
```

SECTION 7.713 IS 681 FEET DOWNSTREAM OF THE CAP CANAL. THIS FLOODPLAIN DELINEATION STUDY BEGINS AT THE UPSTREAM FACE OF THE CAP CANAL. THE PURPOSE OF THIS SECTION IS TO PROVIDE INITIAL BACKWATER WITH AN ELEVATION COMPUTED BY SLOPE-AREA METHOD. THE THALWEG SLOPE FROM 7.713 TO 7.874 IS 0.0064. THE THALWEG SLOPE FROM 7.713 TO 8.062 IS 0.0057. THE STARTING SLOPE WAS SET AT 0.006 FEET/FOOT.

THE FLOODWAY WAS ORIGINALLY COMPUTED USING METHOD 6. RESULTS WERE REVIEWED AND ADJUSTMENTS WERE MADE TO YIELD REASONABLE FLOODWAY BOUNDARIES WHICH MEET THE 1.0 FOOT SURCHARGE LIMIT WHILE NOT CAUSING EXCESSIVE VELOCITIES. THE ORIGINAL METHOD 6 RUN WAS BASED ON EQUAL CONVEYANCE IN BOTH OVERBANKS.

NH CARDS ARE USED THROUGHOUT THIS MODEL FOR MANNINGS n VALUES DUE TO THE BRAIDED NATURE OF THE CHANNEL. MANNINGS n VALUES WERE SELECTED IN THE FIELD USING, AS A GUIDE, THE PRELIMINARY DRAFT (7-3-90.2) OF " MANNINGS ROUGHNESS COEFFICIENTS FOR STREAM CHANNELS AND FLOODPLAINS IN MARICOPA COUNTY, ARIZONA ", U.S. GEOLOGICAL SURVEY. MANNINGS n VALUES WERE DISTRIBUTED ACROSS INDIVIDUAL CROSS SECTIONS BY COMPARISON WITH 1:19000 AERIAL PHOTOGRAPHS USED FOR MAPPING.

CROSS SECTION LABELS INDICATE RIVER MILES ABOVE THE MOUTH.

Q IS COMPUTED DOWNSTREAM OF THE CONFLUENCE WITH STAR WASH

```
QT       2     33200     33200
NC                       0.1       0.3
NH       5      0.04      9908      0.05      9985     0.035     10091      0.05     10227      0.04
NH   11522
ET                        4.1      9208     10212
X1    7.713        46      9829     10227         0         0         0
GR   1371.4      8905.   1371.2     8929.   1368.8     8945.    1361.3     8969.    1354.5     8992.
GR   1353.6      9010.   1353.2     9041.   1353.1     9072.    1353.7     9125.    1353.7     9170.
GR   1354.6      9199.    1354.     9227.   1353.3     9250.    1352.2     9272.    1352.9     9294.
GR   1354.6      9326.   1353.7     9372.   1353.7     9427.    1353.7     9472.    1353.7     9502.
GR   1354.3      9524.    1355.     9554.    1355.     9602.    1354.6     9650.    1354.8     9701.
GR   1355.9      9744.   1356.3     9829.   1355.4     9908.    1354.6     9938.    1353.3     9985.
GR   1351.8     10000.   1351.5    10021.   1352.2    10047.    1353.4    10091.    1355.1    10118.
GR   1355.5     10157.   1356.3    10183.   1357.6    10201.     1361.    10227.    1361.1    10257.
GR   1361.1     10304.    1361.    10350.    1361.    10401.    1361.5    10450.    1363.5    10487.
GR   1366.5     10522.
```

SECTION 7.842 IS AT CENTERLINE OF CAP CANAL.

```
NH       5     0.035      9121      0.05      9142     0.035     10450      0.05     10521     0.035
NH    1.554
ET                        4.1      9320     10450
X1    7.842        28      9612     10212       640       690       681
GR   1372.8      9087.   1372.8     9121.   1370.3     9134.    1358.2     9142.    1358.7     9271.
GR   1359.3      9294.   1358.3     9332.   1358.8     9393.    1358.6     9472.    1358.5     9539.
GR   1359.2      9612.   1357.9     9679.   1358.6     9739.     1358.     9784.    1355.9     9805.
GR   1357.7      9829.   1359.1     9853.   1357.5     9900.    1357.8     9949.    1358.8    10000.
GR   1360.9     10212.   1360.8    10252.   1359.7    10306.    1360.1    10391.    1362.1    10450.
GR   1366.3     10497.   1377.3    10521.   1377.3    10554.

NH       7     0.035      9992      0.05     10000      0.03     10085      0.05     10259      0.03
NH   10524      0.05     10390     0.035     10497
ET                        4.1      9690     10390
X1    8.362        44      9860     10390      1365      1020      1162
GR   1374.4      9221.   1372.7     9260.   1370.5     9282.    1362.8     9297.    1365.8     9310.
GR   1367.5      9333.   1368.4     9366.   1367.3     9397.    1364.9     9411.    1365.4     9420.
GR   1367.2      9436.   1367.1     9483.   1366.5     9529.    1367.6     9562.    1367.2     9593.
GR   1366.7      9619.    1368.     9651.   1367.4     9693.     1367.     9758.    1365.6     9794.
GR   1365.1      9829.   1366.9     9860.   1366.6     9909.    1365.5     9954.    1364.8     9992.
GR   1363.3     10000.    1363.    10036.   1362.4    10068.     1362.    10085.    1367.2    10107.
GR   1367.2     10161.   1367.8    10205.   1365.8    10240.    1362.8    10259.    1363.8    10290.
GR   1362.6     10324.   1364.5    10356.   1365.7    10374.    1367.4    10390.    1367.2    10423.
GR   1366.9     10442.   1376.1    10466.   1377.4    10480.     1376.    10497.
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SECTION 8.279 IS THE FIRST SECTION UPSTREAM OF STAR WASH.
. IS COMPUTED JUST UPSTREAM OF THE CONFLUENCE WITH STAR WASH

WT	2	19800	19800							
NH	5	0.035	9923	0.05	9986	0.03	10048	0.05	10079	0.035
NH	10251									
ET			4.1	9550	10065					
X1	8.279	48	9727	10079	1640	1100	1146			
GR	1393.5	8674.	1390.3	8700.	1381.4	8727.	1380.9	8768.	1381.6	8839.
GR	1381.3	8885.	1380.9	8904.	1382.3	8936.	1382.3	8967.	1381.6	9020.
GR	1380.3	9083.	1380.1	9159.	1379.6	9225.	1376.5	9251.	1377.3	9270.
GR	1376.5	9297.	1376.4	9321.	1378.1	9341.	1376.7	9361.	1378.4	9388.
GR	1378.6	9425.	1376.1	9442.	1376.6	9450.	1377.9	9472.	1378.	9515.
GR	1377.7	9532.	1375.8	9544.	1377.9	9562.	1377.9	9605.	1377.3	9644.
GR	1377.8	9683.	1378.2	9727.	1377.5	9741.	1373.5	9766.	1375.3	9779.
GR	1376.9	9806.	1375.9	9839.	1376.3	9879.	1376.9	9923.	1375.	9954.
GR	1371.	9986.	1371.7	10000.	1373.3	10048.	1383.7	10079.	1385.8	10130.
GR	1384.9	10162.	1387.	10226.	1388.1	10251.				
NH	5	0.035	9916	0.05	9973	0.03	10044	0.05	10093	0.035
NH	10235									
ET			4.1	9590	10080					
X1	8.485	54	9668	10093	900	1100	1088			
GR	1399.8	8709.	1398.7	8726.	1395.	8741.	1393.	8759.	1393.7	8781.
GR	1390.3	8800.	1388.4	8814.	1387.9	8822.	1389.3	8843.	1389.9	8875.
GR	1390.2	8905.	1388.7	8929.	1388.2	8949.	1388.4	8973.	1387.9	8989.
GR	1389.	9017.	1387.9	9041.	1387.9	9069.	1387.9	9089.	1389.8	9116.
GR	1388.7	9146.	1389.1	9174.	1388.8	9209.	1387.9	9247.	1387.3	9270.
GR	1388.1	9300.	1387.3	9352.	1386.6	9395.	1386.6	9449.	1386.3	9485.
GR	1386.1	9504.	1383.8	9517.	1385.3	9529.	1383.3	9542.	1386.	9561.
GR	1384.1	9579.	1385.6	9600.	1384.3	9618.	1383.4	9633.	1387.3	9668.
GR	1386.9	9716.	1385.9	9765.	1385.7	9832.	1384.2	9873.	1384.7	9916.
GR	1382.9	9940.	1381.1	9958.	1380.2	9973.	1379.3	10000.	1379.6	10044.
GR	1385.2	10071.	1393.	10093.	1395.7	10199.	1397.2	10235.		
NH	5	0.035	9930	0.05	9977	0.03	10042	0.05	10100	0.035
NH	10188									
ET			4.1	9535	10075					
X1	8.680	40.	9602	10100	680	1030	1030			
GR	1399.1	9092.	1401.5	9118.	1400.6	9139.	1398.2	9157.	1392.	9175.
GR	1392.6	9190.	1392.	9197.	1394.1	9216.	1392.9	9256.	1392.1	9281.
GR	1392.8	9319.	1392.5	9363.	1392.2	9413.	1391.6	9455.	1390.7	9499.
GR	1391.1	9522.	1390.	9544.	1391.3	9566.	1393.3	9602.	1392.1	9650.
GR	1391.9	9699.	1392.3	9723.	1391.1	9756.	1390.9	9792.	1390.5	9821.
GR	1389.1	9834.	1389.4	9861.	1389.6	9889.	1390.1	9930.	1389.	9957.
GR	1387.4	9977.	1387.	9993.	1386.8	10000.	1386.7	10042.	1392.2	10056.
GR	1393.2	10070.	1400.	10100.	1401.2	10135.	1401.4	10177.	1402.4	10188.
NH	5	0.035	9888	0.05	9919	0.03	9999	0.05	10000	0.035
NH	10427									
ET			4.1	9685	10150					
X1	8.870	36	9660	10427	975	970	1003			
GR	1412.5	9374.	1410.3	9424.	1408.6	9454.	1408.1	9493.	1406.8	9528.
GR	1408.	9562.	1407.3	9599.	1405.8	9632.	1408.5	9660.	1407.5	9670.
GR	1396.1	9690.	1395.3	9707.	1397.8	9736.	1400.7	9793.	1398.7	9836.
GR	1397.9	9862.	1397.5	9888.	1395.8	9910.	1394.6	9919.	1394.3	9962.

GR	1395.5	9999.	1396.2	10000.	1395.2	10041.	1396.3	10057.	1396.6	10088.
GR	1397.1	10135.	1397.4	10184.	1397.3	10218.	1395.8	10234.	1397.6	10260.
GR	1397.	10297.	1396.7	10314.	1397.7	10342.	1401.	10379.	1405.8	10397.
GR	1405.5	10427.								
NH	4	0.05	9949	0.03	10034	0.05	10059	0.035	11144	
ET			4.1	9930	10450					
X1	9.060	37	9916	10289	945	980	1003			
GR	1415.2	9916.	1405.6	9930.	1402.3	9949.	1401.4	9970.	1401.4	10000.
GR	1400.4	10034.	1401.8	10045.	1403.4	10059.	1403.5	10112.	1404.	10174.
GR	1404.9	10236.	1405.5	10289.	1404.9	10347.	1405.5	10381.	1405.7	10417.
GR	1404.8	10445.	1406.	10485.	1405.	10515.	1403.8	10530.	1405.1	10557.
GR	1403.9	10580.	1405.7	10609.	1406.6	10652.	1407.1	10706.	1406.6	10757.
GR	1408.1	10815.	1405.7	10873.	1405.3	10922.	1404.8	10940.	1404.	10950.
GR	1415.	10972.	1406.	11010.	1407.5	11045.	1412.1	11076.	1415.4	11109.
GR	1416.5	11137.	1416.7	11144.						
NH	5	0.035	9932	0.05	9985	0.03	10018	0.05	10040	0.035
NH	10994									
ET			4.1	9971	10490					
X1	9.310	28.	9932	10386	1310	1070	1320			
GR	1425.6	9907.	1425.8	9932.	1421.4	9954.	1412.9	9975.	1406.2	9985.
GR	1405.5	10000.	1406.4	10018.	1408.	10040.	1408.9	10082.	1409.2	10131.
GR	1409.2	10176.	1413.1	10206.	1411.7	10252.	1412.4	10315.	1413.2	10386.
GR	1412.7	10466.	1413.	10551.	1412.8	10626.	1412.	10682.	1412.3	10729.
GR	1412.8	10786.	1412.3	10835.	1411.8	10867.	1411.	10878.	1412.6	10900.
GR	1415.4	10939.	1421.8	10969.	1421.9	10994.				
NH	7	0.035	9664	0.05	9733	0.03	9827	0.05	9968	0.03
NH	10080	0.05	10110	0.035	10179					
ET			4.1	9706	10097					
X1	9.492	22	9664	10110	940	750	961			
GR	1425.2	9533.	1428.1	9571.	1425.3	9596.	1425.9	9619.	1427.4	9633.
GR	1426.3	9664.	1424.7	9680.	1420.	9710.	1415.3	9733.	1414.5	9769.
GR	1416.	9827.	1416.5	9882.	1416.7	9927.	1416.	9968.	1414.7	9994.
GR	1414.1	10000.	1415.5	10037.	1414.4	10080.	1421.1	10099.	1424.8	10110.
GR	1426.7	10152.	1426.9	10179.						
NH	7	0.035	9459	0.05	9506	0.03	9537	0.05	9870	0.03
NH	10029	0.05	10087	0.035	10187					
ET			4.1	9525	10075					
X1	9.732	24.	9658	10087	880	1130	1109			
GR	1433.1	9300.	1431.5	9345.	1427.8	9389.	1425.	9421.	1426.	9459.
GR	1423.7	9485.	1421.7	9506.	1421.1	9517.	1421.	9537.	1424.7	9568.
GR	1424.6	9658.	1423.7	9732.	1423.3	9799.	1422.	9849.	1420.7	9870.
GR	1420.4	9927.	1420.2	9981.	1419.9	10000.	1420.1	10029.	1421.4	10051.
GR	1424.4	10067.	1432.7	10087.	1435.2	10143.	1434.	10187.		
NH	7	0.035	9842	0.05	9940	0.03	10000	0.05	10289	0.03
NH	10364	0.05	10409	0.035	10561					
ET			4.1	9861	10360					

X1	9.896	27	9842	10152	970	1030	1024			
GR	1436.7	9748.	1438.	9769.	1437.5	9803.	1435.1	9842.	1429.6	9875.
GR	1428.6	9907.	1427.2	9926.	1424.5	9940.	1424.5	9979.	1425.4	10000.
GR	1426.7	10033.	1427.2	10078.	1428.2	10118.	1430.7	10152.	1430.3	10190.
GR	1429.1	10251.	1428.8	10289.	1428.5	10333.	1429.6	10364.	1429.6	10381.
GR	1433.6	10409.	1433.2	10432.	1435.3	10469.	1435.6	10493.	1436.9	10508.
GR	1440.2	10541.	1440.5	10561.						
NH	7	0.035	9945	0.05	9974	0.03	10000	0.05	10132	0.03
NH	10212	0.05	10233	0.035	10739					
ET			4.1	9910	10410					
X1	10.095	43	9960	10233	1090	890	1051			
GR	1447.7	9505.	1446.6	9537.	1443.7	9574.	1440.9	9642.	1441.5	9676.
GR	1442.6	9715.	1442.	9741.	1443.9	9776.	1444.	9806.	1442.4	9836.
GR	1438.9	9864.	1435.9	9888.	1437.4	9919.	1438.4	9945.	1437.1	9960.
GR	1431.9	9974.	1431.5	9983.	1433.	9994.	1434.2	10000.	1435.	10022.
GR	1434.1	10056.	1433.7	10097.	1432.6	10132.	1433.	10171.	1431.7	10195.
GR	1432.3	10212.	1435.6	10233.	1435.6	10267.	1437.1	10308.	1437.7	10360.
GR	1437.4	10397.	1436.8	10432.	1436.2	10450.	1438.3	10485.	1436.9	10514.
GR	1435.4	10552.	1434.3	10565.	1436.3	10578.	1436.	10603.	1440.	10635.
GR	1441.2	10674.	1443.1	10709.	1443.	10739.				
NH	5	0.035	9843	0.05	9877	0.03	10025	0.05	10116	0.035
NH	10166									
ET			4.1	9600	10020					
X1	10.271	25	9843	10116	930	930	929			
GR	1454.6	9503.	1452.2	9524.	1447.7	9566.	1445.9	9586.	1444.4	9603.
GR	1445.6	9617.	1445.3	9643.	1445.7	9675.	1445.1	9726.	1443.8	9770.
GR	1443.	9818.	1442.9	9843.	1440.7	9863.	1439.9	9877.	1439.8	9905.
GR	1440.9	9931.	1440.1	9952.	1438.3	9992.	1438.	10000.	1437.7	10025.
GR	1438.8	10038.	1444.9	10046.	1448.2	10075.	1450.9	10116.	1450.9	10166.
NH	9	0.035	9827	0.05	9879	0.03	9906	0.05	9986	0.03
NH	10008	0.05	10113	0.03	10151	0.05	10230	0.035	11158	
ET			4.1	9830	10170					
X1	10.454	49	9827	10230	850	1080	966			
GR	1455.3	9696.	1454.3	9720.	1451.8	9742.	1450.3	9762.	1451.7	9799.
GR	1451.4	9827.	1450.1	9849.	1446.9	9871.	1444.1	9879.	1445.	9906.
GR	1446.2	9920.	1445.5	9950.	1445.1	9970.	1443.8	9986.	1442.9	10000.
GR	1444.	10008.	1446.7	10018.	1447.3	10054.	1445.9	10095.	1444.1	10113.
GR	1444.	10139.	1443.5	10151.	1445.5	10161.	1449.8	10179.	1452.1	10203.
GR	1455.4	10230.	1454.8	10284.	1454.2	10339.	1454.7	10386.	1454.1	10442.
GR	1455.5	10501.	1453.2	10543.	1454.2	10588.	1454.1	10621.	1453.8	10647.
GR	1455.1	10679.	1454.4	10705.	1453.6	10724.	1454.9	10757.	1454.7	10780.
GR	1453.8	10794.	1456.3	10823.	1457.3	10874.	1457.4	10921.	1458.3	10978.
GR	1459.1	11032.	1459.4	11081.	1460.	11130.	1460.2	11158.		

SECTION 10.644 IS THE FIRST SECTION UPSTREAM OF THE UNNAMED TRIBUTARY
" WEST FORK " OF JACKRABBIT WASH.
Q IS COMPUTED JUST UPSTREAM OF THE CONFLUENCE WITH THE UNNAMED
TRIBUTARY OF JACKRABBIT WASH.

QT	2	19700	19700							
NH	5	0.035	9895	0.05	9954	0.03	10031	0.04	10212	0.035
NH	10519									
ET			4.1	9932	10232					
X1	10.844	25	9895	10212	850	1170	1003			
GR	1456.	9863.	1466.	9895.	1463.1	9917.	1457.2	9936.	1452.3	9954.
GR	1450.	9969.	1450.6	10000.	1451.6	10031.	1452.1	10064.	1452.6	10097.
GR	1454.6	10136.	1455.4	10168.	1455.4	10190.	1457.4	10212.	1456.4	10253.
GR	1455.2	10271.	1454.6	10278.	1456.7	10303.	1456.2	10321.	1459.9	10347.
GR	1464.2	10386.	1466.3	10426.	1467.7	10458.	1469.2	10497.	1469.4	10519.
NH	6	0.035	9946	0.05	9986	0.03	10000	0.04	10320	0.03
NH	10366	0.04	10455							
ET			4.1	9965	10315					
X1	10.555	28	9946	10417	1020	970	1008			
GR	1474.6	9741.	1473.6	9815.	1471.1	9864.	1469.2	9907.	1468.2	9921.
GR	1465.3	9946.	1467.7	9960.	1462.4	9973.	1456.6	9986.	1457.1	10000.
GR	1455.5	10019.	1460.5	10039.	1461.	10055.	1459.7	10069.	1461.4	10097.
GR	1461.5	10131.	1460.4	10159.	1462.2	10182.	1461.6	10228.	1461.7	10271.
GR	1461.9	10300.	1460.6	10312.	1459.4	10320.	1458.9	10348.	1459.2	10366.
GR	1465.4	10390.	1469.2	10417.	1469.1	10455.				
NH	5	0.035	9895	0.05	9965	0.03	10037	0.04	10361	0.035
NH	10396									
ET			4.1	9935	10285					
X1	11.028	19	9869	10333	1050	945	1019			
GR	1481.	9831.	1481.7	9869.	1480.3	9895.	1473.	9931.	1468.4	9945.
GR	1467.8	9957.	1466.	9965.	1465.6	9999.	1465.1	10000.	1464.7	10037.
GR	1468.8	10052.	1468.	10079.	1467.3	10129.	1467.7	10180.	1467.8	10237.
GR	1469.4	10288.	1472.1	10333.	1470.5	10361.	1477.2	10396.		
NH	9	0.035	9611	0.05	9657	0.03	9694	0.04	9715	0.03
NH	9747	0.04	9965	0.03	10033	0.05	10061	0.035	10221	
ET			4.1	9700	10100					
X1	11.235	26	9611	10104	1080	1050	1093			
GR	1489.	9530.	1486.6	9573.	1484.5	9590.	1484.8	9611.	1479.3	9635.
GR	1476.	9657.	1474.	9671.	1474.9	9694.	1475.9	9715.	1473.6	9729.
GR	1474.5	9747.	1476.7	9794.	1477.	9846.	1476.8	9895.	1476.6	9936.
GR	1475.	9965.	1472.7	9982.	1472.8	10000.	1474.9	10033.	1476.6	10061.
GR	1477.6	10080.	1480.2	10104.	1480.3	10130.	1479.2	10147.	1485.8	10186.
GR	1487.3	10221.								
NH	8	0.05	9712	0.03	9741	0.04	9985	0.03	10017	0.04
NH	10129	0.03	10173	0.05	10217	0.035	10451			
ET			4.1	9750	10150					
X1	11.425	33	9649	10217	990	990	1003			
GR	1491.4	9623.	1491.	9649.	1483.	9674.	1482.9	9696.	1481.	9712.
GR	1483.7	9730.	1479.5	9741.	1482.2	9759.	1482.3	9788.	1481.5	9807.
GR	1481.2	9821.	1482.8	9838.	1482.4	9871.	1482.9	9906.	1482.9	9939.
GR	1482.2	9963.	1480.3	9985.	1479.4	10000.	1479.8	10000.	1480.	10017.
GR	1482.6	10025.	1482.7	10051.	1483.	10100.	1482.3	10116.	1480.2	10129.
GR	1481.3	10160.	1481.8	10173.	1486.3	10196.	1490.7	10217.	1493.5	10267.
GR	1494.2	10327.	1494.3	10405.	1494.4	10451.				

NH	8	0.05	9728	0.03	9740	0.04	9960	0.03	10034	0.04
NH	10254	0.03	10288	0.05	10363	0.035	10530			
ET			4.1	9880	10255					
X1	11.608	30	9905	10563	980	900	966			
GR	1499.9	9687.	1495.6	9707.	1489.3	9728.	1489.5	9740.	1493.2	9763.
GR	1491.8	9783.	1491.	9818.	1491.9	9863.	1491.6	9905.	1490.3	9939.
GR	1488.5	9960.	1485.3	9981.	1485.5	10000.	1488.8	10034.	1488.5	10069.
GR	1488.5	10100.	1488.	10126.	1488.1	10161.	1490.4	10192.	1490.1	10234.
GR	1489.2	10254.	1487.3	10271.	1488.5	10288.	1489.7	10302.	1490.9	10335.
GR	1493.1	10363.	1493.4	10388.	1497.2	10429.	1501.6	10473.	1501.9	10530.
NH	5	0.035	9451	0.05	9476	0.04	9987	0.03	10000	0.04
NH	10101									
ET			4.1	9690	10040					
X1	11.615	29	9838	10055	1070	1070	1093			
GR	1508.3	9262.	1507.4	9313.	1506.3	9362.	1505.6	9400.	1503.2	9429.
GR	1504.	9451.	1499.7	9476.	1498.8	9510.	1497.7	9543.	1495.7	9561.
GR	1497.5	9604.	1497.5	9650.	1497.8	9693.	1497.4	9724.	1496.2	9741.
GR	1496.6	9772.	1495.5	9795.	1497.5	9838.	1496.4	9869.	1496.1	9895.
GR	1494.7	9920.	1495.2	9952.	1494.8	9968.	1492.1	9987.	1492.3	10000.
GR	1493.8	10022.	1497.3	10034.	1505.9	10055.	1501.4	10101.		
NH	4	0.035	9863	0.03	10084	0.05	10131	0.035	10710	
ET			4.1	9880	10330					
X1	12.032	27	9741	10084	1005	1160	1146			
GR	1514.2	9662.	1511.3	9688.	1508.3	9710.	1511.2	9741.	1508.	9769.
GR	1504.5	9807.	1503.	9863.	1503.1	9914.	1501.9	9957.	1499.4	9994.
GR	1500.3	10000.	1501.9	10042.	1504.3	10084.	1505.2	10131.	1505.6	10193.
GR	1506.1	10262.	1507.3	10341.	1506.4	10408.	1505.6	10456.	1504.7	10471.
GR	1506.3	10487.	1507.2	10523.	1508.9	10554.	1511.4	10581.	1514.4	10615.
GR	1515.6	10669.	1516.9	10710.						
NH	5	0.035	9892	0.05	9950	0.03	10143	0.04	10344	0.035
NH	10721									
ET			4.1	9850	10400					
X1	12.220	26	9892	10216	1040	760	993			
GR	1520.4	9640.	1519.6	9681.	1516.	9707.	1515.5	9727.	1516.4	9753.
GR	1512.1	9783.	1510.9	9845.	1511.4	9892.	1510.3	9924.	1508.6	9950.
GR	1507.	9975.	1506.9	10000.	1507.4	10055.	1507.7	10107.	1509.	10143.
GR	1510.9	10176.	1512.1	10216.	1511.9	10278.	1511.8	10344.	1510.8	10408.
GR	1510.1	10450.	1511.4	10507.	1512.4	10580.	1513.7	10622.	1514.2	10673.
GR	1517.3	10721.								
NH	6	0.035	9504	0.05	9550	0.04	9968	0.03	10058	0.05
NH	10128	0.035	10165							
ET			4.1	9680	10030					
X1	12.360	33	9850	10128	740	680	739			
GR	1527.1	9216.	1526.3	9250.	1523.7	9271.	1526.4	9303.	1525.5	9327.
GR	1520.3	9353.	1519.2	9365.	1523.3	9384.	1523.6	9424.	1523.7	9442.
GR	1524.	9470.	1523.	9504.	1520.	9522.	1517.1	9550.	1516.7	9584.
GR	1516.7	9596.	1514.2	9605.	1516.6	9612.	1516.7	9673.	1515.3	9740.
GR	1513.9	9806.	1513.	9850.	1510.9	9899.	1510.2	9928.	1509.8	9968.
GR	1507.8	9984.	1510.1	10000.	1508.1	10032.	1508.6	10058.	1517.3	10078.

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GR   1523.3    10105.    1524.7    10128.    1524.    10165.

        SECTION 12.500 IS NEAR THE UNBRIDGED CROSSING OF WICKENBURG ROAD.

NH       8    0.035     9926    0.05     9968    0.03    10134    0.05    10194    0.04
NH   10289     0.03    10383    0.05    10442   0.035    10728
ET                       4.1     9925    10225
X1   12.500      49.     9926   10194      710     870      739
GR   1533.1    9366.   1532.4    9408.   1531.5    9443.   1530.6    9477.   1529.8    9505.
GR   1527.6    9522.   1522.6    9534.   1522.1    9546.   1523.3    9558.   1525.4    9575.
GR   1529.7    9600.   1530.8    9629.   1533.1    9661.   1529.4    9693.   1526.4    9732.
GR   1523.3    9766.   1522.7    9794.   1522.9    9812.   1523.2    9843.    1523.    9868.
GR   1521.8    9890.   1519.9    9926.   1518.1    9950.   1514.4    9968.   1513.6    9989.
GR   1514.2   10000.   1514.8   10036.    1514.   10061.   1515.1   10085.   1516.2   10103.
GR    1516.   10134.   1517.8   10163.    1519.   10194.   1519.3   10254.   1519.3   10289.
GR   1516.5   10303.   1518.7   10333.   1519.3   10350.   1517.5   10362.   1520.1   10383.
GR    1523.   10413.   1527.5   10442.   1529.4   10485.   1529.7   10539.   1528.8   10597.
GR   1527.4   10630.   1528.3   10664.   1530.6   10715.   1530.8   10728.

NH       7    0.035     9677    0.05     9692    0.03     9713    0.04    10000    0.03
NH   10095     0.05    10113    0.04    10144
ET                       4.1     9815    10115
X1   12.711      22     9677   10113     1060    1170     1114
GR   1539.4    9600.    1538.    9624.   1533.9    9649.   1529.3    9677.   1521.7    9692.
GR   1521.2    9701.   1523.4    9713.   1524.5    9754.   1524.1    9809.   1523.5    9834.
GR   1524.4    9861.   1522.9    9882.   1522.3    9896.   1523.9    9929.   1523.7    9958.
GR   1522.9    9980.   1523.9   10000.   1522.2   10039.   1522.9   10073.   1523.7   10095.
GR   1527.7   10113.   1528.9   10144.

NH       7    0.04     9950    0.05     9973    0.03    10000    0.04    10157    0.03
NH   10184    0.05    10193   0.035    10293
ET                       4.1     9890    10190
X1   12.978      26     9950   10193     1370    1350     1410
GR   1539.4    9705.   1538.8    9738.   1538.2    9773.   1538.5    9813.   1537.7    9846.
GR   1536.2    9871.   1536.8    9896.   1535.9    9926.   1534.9    9950.   1532.2    9961.
GR   1531.7    9973.   1529.9    9979.   1530.9   10000.   1532.4   10040.   1533.6   10072.
GR   1533.4   10105.   1533.8   10127.   1534.3   10145.   1533.2   10157.    1533.   10181.
GR   1533.8   10184.   1540.3   10193.   1546.2   10213.   1550.3   10237.   1551.9   10273.
GR   1552.1   10293.

NH       6    0.035     9924    0.05     9939    0.03    10050   0.035    10287    0.03
NH   10414    0.035    10537
ET                       4.1     9920    10300
X1   13.164      33     9924   10050      810    1080      982
GR   1551.8    9608.   1551.4    9665.   1551.2    9713.   1549.9    9750.   1548.7    9777.
GR   1550.7    9806.   1548.1    9828.   1544.9    9849.   1544.7    9874.   1544.9    9906.
GR   1544.1    9924.   1539.6    9939.   1538.7    9982.   1537.3   10000.   1536.7   10020.
GR    1539.   10040.   1541.2   10050.   1541.5   10104.   1542.6   10193.   1542.6   10259.
GR   1542.3   10287.   1539.6   10296.    1540.   10313.   1540.3   10362.   1540.3   10387.
GR   1543.3   10403.   1543.3   10414.   1542.7   10436.   1539.4   10449.   1542.1   10464.
GR   1544.5   10489.   1546.5   10521.   1546.7   10537.
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NH	6	0.035	9904	0.05	9934	0.03	10031	0.05	10051	0.04
NH	10547	0.035	10601							
ET			4.1	9900	10200					
X1	13.358	20	9904	10091	1000	1015	1024			
GR	1559.6	9664.	1558.	9722.	1554.4	9786.	1550.2	9848.	1548.5	9904.
GR	1547.5	9927.	1545.2	9934.	1545.5	9980.	1544.5	10000.	1545.3	10031.
GR	1547.8	10051.	1549.6	10091.	1550.6	10138.	1551.7	10217.	1551.9	10306.
GR	1551.9	10370.	1550.9	10420.	1550.9	10485.	1550.8	10547.	1555.6	10601.
NH	6	0.035	9689	0.05	9729	0.04	9892	0.03	10068	0.04
NH	10294	0.035	10331							
ET			4.1	9850	10200					
X1	13.348	29	9863	10154	1030	925	1003			
GR	1565.2	9609.	1564.7	9658.	1563.9	9689.	1559.4	9712.	1557.3	9729.
GR	1558.7	9756.	1559.3	9778.	1557.7	9793.	1556.1	9805.	1557.4	9835.
GR	1557.4	9863.	1556.4	9884.	1554.6	9892.	1554.1	9913.	1554.5	9929.
GR	1553.2	9946.	1554.1	9957.	1553.8	9964.	1553.5	10000.	1554.	10041.
GR	1556.	10068.	1556.	10105.	1555.9	10132.	1556.7	10142.	1559.3	10154.
GR	1559.5	10208.	1559.8	10261.	1560.6	10294.	1563.2	10331.		
NH	12	0.035	9765	0.05	9792	0.03	9831	0.05	9863	0.03
NH	9929	0.04	10000	0.03	10020	0.04	10213	0.03	10242	0.04
NH	10294	0.03	10340	0.04	10362					
ET			4.1	9800	10200					
X1	13.740	29	9727	10362	1085	870	1014			
GR	1570.4	9694.	1569.6	9727.	1566.6	9765.	1563.2	9792.	1562.4	9812.
GR	1562.1	9831.	1565.2	9849.	1561.7	9863.	1560.2	9883.	1560.7	9907.
GR	1562.	9929.	1562.4	9958.	1562.9	9993.	1561.9	10000.	1561.4	10020.
GR	1562.9	10044.	1563.5	10086.	1563.9	10135.	1564.6	10175.	1563.7	10213.
GR	1562.1	10223.	1564.3	10242.	1565.1	10261.	1564.6	10281.	1563.3	10294.
GR	1562.7	10316.	1563.	10333.	1563.7	10340.	1574.7	10362.		
NH	5	0.035	9587	0.04	9966	0.03	10024	0.05	10062	0.035
NH	10180									
ET			4.1	9600	10050					
X1	13.929	39	9587	10087	950	960	998			
GR	1581.9	9210.	1581.2	9255.	1578.6	9282.	1580.6	9310.	1579.9	9348.
GR	1577.6	9396.	1575.4	9443.	1574.9	9487.	1573.9	9517.	1573.7	9547.
GR	1573.8	9587.	1572.9	9609.	1571.8	9620.	1571.1	9630.	1571.8	9642.
GR	1569.9	9651.	1571.4	9666.	1571.1	9689.	1571.2	9715.	1572.2	9733.
GR	1569.4	9748.	1568.2	9761.	1569.1	9779.	1568.3	9797.	1569.1	9826.
GR	1567.6	9841.	1569.5	9865.	1569.9	9889.	1570.6	9919.	1569.5	9944.
GR	1567.8	9966.	1567.5	9996.	1567.6	10000.	1567.6	10024.	1571.	10039.
GR	1576.9	10062.	1581.2	10087.	1582.2	10129.	1583.6	10180.		
NH	9	0.04	9703	0.03	9732	0.04	9790	0.03	9809	0.04
NH	9986	0.03	10038	0.04	10091	0.03	10117	0.04	10259	
ET			4.1	9750	10200					
X1	14.137	34.	9667	10207	995	1120	1098			
GR	1586.	9552.	1585.5	9609.	1584.4	9649.	1583.1	9667.	1579.1	9681.
GR	1577.9	9695.	1576.6	9703.	1576.3	9714.	1576.6	9732.	1577.7	9759.
GR	1577.2	9790.	1576.8	9809.	1577.9	9835.	1578.7	9857.	1578.2	9889.
GR	1576.4	9921.	1576.8	9944.	1577.8	9965.	1578.	9975.	1575.8	9986.

GR	1575.8	10000.	1575.4	10018.	1575.8	10038.	1578.6	10059.	1577.7	10078.
GR	1575.5	10091.	1575.8	10117.	1578.4	10126.	1579.	10143.	1579.1	10169.
GR	1579.2	10182.	1582.	10207.	1588.3	10241.	1589.5	10259.		
NH	7	0.04	9981	0.03	10051	0.04	10110	0.03	10125	0.04
NH	10190	0.03	10197	0.04	10452					
ET			4.1	9700	10200					
X1	14.323	37.	9927	10235	1050	920	982			
GR	1595.7	9540.	1596.1	9597.	1594.4	9640.	1589.8	9671.	1585.9	9690.
GR	1585.2	9714.	1585.2	9731.	1584.2	9737.	1586.3	9758.	1586.4	9816.
GR	1584.8	9855.	1585.5	9895.	1585.4	9927.	1584.3	9954.	1583.1	9963.
GR	1580.8	9981.	1580.7	10000.	1580.6	10035.	1581.4	10051.	1582.9	10075.
GR	1585.2	10095.	1581.7	10110.	1581.6	10125.	1582.8	10144.	1582.8	10166.
GR	1581.2	10190.	1581.	10197.	1583.2	10214.	1582.2	10219.	1586.4	10235.
GR	1593.3	10278.	1591.	10309.	1592.	10344.	1591.1	10353.	1594.9	10390.
GR	1598.4	10421.	1599.6	10452.						
NH	7	0.035	9542	0.05	9555	0.03	9667	0.04	9969	0.05
NH	9986	0.03	10085	0.035	10329					
ET			4.1	9600	10100					
X1	14.547	29	9940	10117	1160	1195	1183			
GR	1601.9	9479.	1601.2	9512.	1600.	9530.	1596.5	9542.	1591.8	9555.
GR	1591.6	9568.	1590.3	9606.	1591.8	9638.	1590.7	9667.	1592.	9688.
GR	1594.9	9740.	1594.8	9795.	1592.3	9855.	1593.5	9897.	1593.4	9940.
GR	1591.9	9969.	1589.	9986.	1589.6	10000.	1589.5	10043.	1589.7	10073.
GR	1589.9	10085.	1595.8	10117.	1602.5	10165.	1602.5	10205.	1602.	10244.
GR	1611.9	10266.	1600.5	10273.	1605.7	10304.	1607.3	10329.		
NH	7	0.035	9261	0.04	9420	0.03	9450	0.04	9919	0.03
NH	10033	0.04	10060	0.035	10287					
ET			4.1	9550	10050					
X1	14.743	39.	9864	10060	1010	1020	1035			
GR	1610.1	9030.	1609.3	9095.	1607.2	9131.	1608.5	9162.	1605.2	9181.
GR	1607.4	9206.	1606.2	9226.	1601.7	9261.	1599.4	9289.	1600.2	9316.
GR	1600.	9350.	1600.7	9383.	1599.2	9403.	1597.2	9420.	1597.1	9450.
GR	1598.3	9480.	1599.	9520.	1599.	9571.	1598.6	9607.	1597.6	9621.
GR	1599.5	9663.	1600.4	9712.	1599.6	9754.	1597.9	9793.	1598.5	9828.
GR	1598.3	9864.	1595.8	9898.	1594.1	9919.	1594.1	9942.	1595.2	9972.
GR	1594.	10000.	1594.3	10033.	1595.5	10051.	1604.6	10060.	1608.6	10080.
GR	1609.9	10128.	1609.8	10179.	1611.4	10247.	1613.2	10287.		
NH	10	0.035	9842	0.05	9869	0.03	9902	0.04	9942	0.03
NH	9969	0.04	10020	0.03	10047	0.04	10495	0.03	10522	0.035
NH	10723									
ET			4.1	9800	10250					
X1	14.943	49.	9812	10069	860	1025	1056			
GR	1616.3	9238.	1616.9	9312.	1614.8	9356.	1611.9	9393.	1609.1	9442.
GR	1607.6	9499.	1606.1	9554.	1605.7	9578.	1605.5	9590.	1605.3	9594.
GR	1605.9	9598.	1607.2	9611.	1607.8	9650.	1606.6	9701.	1606.5	9730.
GR	1604.	9751.	1605.3	9772.	1606.1	9812.	1603.6	9842.	1600.6	9869.
GR	1602.5	9902.	1601.5	9910.	1604.1	9924.	1600.8	9942.	1600.7	9969.
GR	1605.3	9991.	1602.2	10000.	1600.9	10020.	1600.	10047.	1603.6	10069.
GR	1604.3	10106.	1603.6	10166.	1605.6	10217.	1607.4	10268.	1607.4	10328.
GR	1607.2	10383.	1606.5	10444.	1606.2	10478.	1602.2	10495.	1604.3	10510.

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GR   1602.7    10522.    1605.2    10534.    1609.1    10557.    1612.6    10572.    1612.5    10587.
GR   1616.7    10606.    1618.3    10644.    1618.7    10707.    1618.2    10723.

        CHANGE Q TO VALUE COMPUTED FOR VULTURE MINE ROAD.

QT       2     21100     21100
NH       6     0.035      9698      0.05      9764      0.03      9847      0.05      9979      0.03
NH   10041     0.035     10559
ET                         4.1      9750     10250
X1   15.123       41.      9732     10145       990       950       977
GR   1627.8     9095.    1626.9     9158.    1622.3     9219.    1621.6     9298.    1621.8     9353.
GR   1621.2     9396.    1619.1     9422.    1620.3     9467.    1621.3     9527.    1620.7     9536.
GR   1621.1     9604.    1621.5     9663.    1619.7     9698.    1615.1     9732.    1609.7     9764.
GR   1608.8     9794.    1607.8     9819.    1609.      9847.    1610.1     9863.    1610.8     9880.
GR   1611.3     9932.    1611.      9963.    1607.4     9979.    1606.9    10000.    1607.4    10041.
GR   1609.2    10064.    1610.9    10100.    1612.     10145.    1610.4    10173.    1611.7    10209.
GR   1611.7    10228.    1610.1    10249.    1611.6    10292.    1611.6    10345.    1610.8    10374.
GR   1609.8    10384.    1611.9    10411.    1613.7    10448.    1616.5    10460.    1626.1    10504.
GR   1627.2    10559.

NH       10    0.035      9222      0.04      9239      0.03      9274      0.04      9298     0.035
NH     9826     0.04      9886      0.05      9942      0.03     10045      0.05     10080     0.035
NH    10368
ET                         4.1      9450     10050
X1   15.304       32.      9826     10080       930       950       929
GR   1629.6     8902.    1630.1     8937.    1630.6     8970.    1624.7     9017.    1621.5     9055.
GR   1620.2     9127.    1619.2     9196.    1618.5     9222.    1615.3     9239.    1615.8     9274.
GR   1617.6     9298.    1618.3     9355.    1618.9     9440.    1618.9     9537.    1619.      9620.
GR   1613.8     9713.    1619.5     9792.    1619.3     9826.    1617.1     9863.    1616.5     9886.
GR   1613.4     9915.    1615.6     9942.    1614.5     9998.    1614.3    10000.    1614.3    10031.
GR   1613.3    10045.    1623.7    10080.    1624.8    10086.    1627.2    10124.    1630.6    10195.
GR   1632.4    10279.    1633.5    10368.
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THE FOLLOWING 3 SECTIONS MODEL A REACH WITH AN ISLAND WHICH IS ABOVE THE 100-YEAR FLOODPLAIN. FLOW IS CARRIED BY THE RELATIVELY NARROW BUT DEEPER CHANNEL AND BY THE WIDE BUT SHALLOWER LEFT OVERBANK.

AN INITIAL RUN WAS MADE TO DETERMINE THE FLOW DISTRIBUTION BETWEEN THE EAST AND WEST SIDES OF THE ISLAND TO ASSURE THAT THE MODEL WOULD YIELD REASONABLE RESULTS. THE UPSTREAM 2 SECTIONS WERE FOUND TO HAVE 60-65% OF THE FLOW IN EAST (LEFT OVERBANK) AREA WITH 35-40% OF THE FLOW IN THE WEST (PRIMARILY CHANNEL) AREA. THE FLOW DISTRIBUTION AT SECTION 15.507 WAS ORIGINALLY THE REVERSE.

ONCE FLOW IS SEPARATED BY THE ISLAND, IT CANNOT SWITCH FROM EAST TO WEST UNTIL THE TWO BRANCHES REJOIN JUST DOWNSTREAM OF SECTION 15.507. THEREFORE, FLOW DISTRIBUTION IN THE THREE SECTIONS (15.507, 15.715, & 15.923) SHOULD BE APPROXIMATELY EQUAL. ELEVATIONS OF THE CHANNEL INVERT AT SECTION 15.507 HAVE BEEN ADJUSTED UPWARD TO YIELD A DISTRIBUTION TO THE CHANNEL OF ABOUT 35-40%. THIS WILL YIELD APPROPRIATE ELEVATIONS IN THE LEFT OVERBANK AREA, ALTHOUGH ELEVATIONS COMPUTED IN THE CHANNEL WILL BE CONSERVATIVE BY A SMALL AMOUNT. THIS SOLUTION ALLOWS A RATIONAL FLOODWAY TO BE COMPUTED FOR THIS REACH.

TABLE OF RESULTS: (%FLOW IN WEST CHANNEL)	SECTION	FLOODWAY	NATURAL
	15.507	62%	40%
	15.715	52%	36%
	15.923	56%	43%

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NH      12     0.035     8821     0.03     8875     0.05     8919     0.04     9022     0.03
NH    9443     0.04      9449     0.035    9856     0.05     9872     0.03     9887     0.04
NH   10000     0.03     10041     0.04    10103
ET                        4.1     9128    10058
X1   15.507       44     9827    10072     1240     1010     1072
GR   1636.9    8757.    1636.6    8784.   1637.1    8801.   1637.2    8821.   1636.8    8850.
GR   1636.8    8875.    1632.9    8893.   1627.8    8919.   1626.1    8939.   1627.3    8957.
GR   1628.3    8978.    1627.1    9006.   1624.9    9022.    1625.    9043.   1626.3    9067.
GR   1627.2    9102.     1627.    9148.   1627.5    9196.    1628.   9223.    1628.3    9257.
GR   1628.6    9311.    1628.3    9357.   1627.1    9384.   1626.8    9406.   1628.2    9420.
GR   1633.3    9449.    1632.6    9496.   1631.7    9546.   1630.1    9598.   1630.2    9656.
GR   1628.2    9707.    1627.2    9725.   1628.4    9761.   1628.6    9801.   1628.3    9827.
GR     1627     9830      1627     9856     1627     9872     1627     9887     1627    10000
GR     1627    10041      1627    10055   1634.1    10072   1634.3    10103

NH      11     0.035     8702     0.05     8739     0.03     8762     0.05     8808     0.03
NH    9945     0.035     9948     0.03     9968     0.04     9990     0.03    10017     0.05
NH   10039     0.035    10318
ET                        4.1     8914    10044
X1   15.715       46.    9842    10089     1000     1000     1098
GR   1642.5    8635.    1644.3    8681.   1644.5    8702.   1641.3    8723.   1634.8    8739.
GR     1631.    8747.    1633.6    8762.   1633.9    8791.   1630.6    8808.   1631.1    8843.
GR   1632.2    8888.    1633.3    8964.   1634.3    9045.   1633.6    9095.   1635.3    9137.
GR   1636.5    9198.    1635.9    9241.   1634.9    9260.   1637.3    9279.   1640.2    9332.
GR   1643.3    9402.    1641.2    9476.   1642.5    9543.   1640.6    9592.    1642.    9635.
GR   1642.5    9687.    1641.4    9730.   1640.8    9755.   1641.2    9801.    1641.    9842.
GR   1638.6    9872.    1633.8    9906.   1632.5    9933.   1630.6    9948.   1630.9    9968.
GR     1629.   9990.     1628.   10000.    1628.3   10017.   1636.4   10039.   1637.8   10054.
GR     1641.  10089.    1643.5   10136.   1644.3   10176.   1646.3   10219.   1646.4   10276.
GR   1645.8   10318.

NH      10     0.035     8972     0.04     9031     0.035    9476     0.03     9566     0.035
NH    9950     0.05      9975     0.03    10000     0.04    10022     0.03    10079     0.035
NH   10170
ET                        4.1     9431    10081
X1   15.923       53     9950    10083     1220     1095     1098
GR   1655.9    8715.    1654.1    8762.   1653.4    8827.   1653.2    8869.   1653.3    8904.
GR     1652.   8930.    1650.1    8949.   1643.7    8972.   1640.5    8983.   1642.6    8993.
GR   1642.1    9013.    1640.5    9019.   1643.9    9031.   1643.4    9052.   1643.6    9078.
GR     1643.   9108.    1641.6    9141.   1642.1    9175.   1642.3    9213.   1642.7    9244.
GR   1642.7    9269.    1643.2    9295.   1641.4    9313.   1641.4    9341.   1641.1    9377.
GR   1641.7    9417.    1640.7    9446.   1640.6    9476.   1638.6    9501.   1639.3    9522.
GR   1641.5    9541.    1639.7    9566.   1641.8    9588.   1644.4    9612.   1648.8    9641.
GR   1651.5    9679.    1651.1    9710.   1653.6    9747.   1653.8    9802.   1652.6    9848.
GR   1645.1    9903.    1645.1    9950.   1641.3    9963.   1636.7    9975.   1635.5    9987.
GR   1638.1   10000.    1638.3   10022.   1637.6   10039.   1636.7   10063.   1636.4   10079.
GR   1645.5   10083.    1651.4   10118.   1651.8   10170.
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NH	7	0.035	9355	0.04	9645	0.03	9778	0.05	9837	0.03
NH	10042	0.05	10081	0.035	10450					
ET			4.1	9546	10096					
X1	16.129	40	9938	10094	1010	1080	1088			
GR	1653.9	9318.	1653.8	9334.	1648.6	9355.	1648.6	9384.	1650.5	9422.
GR	1651.1	9449.	1648.7	9471.	1648.	9490.	1648.4	9517.	1648.5	9532.
GR	1649.3	9552.	1648.4	9586.	1648.2	9615.	1648.6	9645.	1647.1	9667.
GR	1647.1	9700.	1646.2	9739.	1646.2	9778.	1647.	9794.	1647.6	9810.
GR	1646.2	9837.	1646.6	9886.	1646.2	9938.	1643.7	9975.	1641.8	9992.
GR	1643.1	10000.	1642.	10025.	1645.2	10042.	1647.9	10081.	1650.	10094.
GR	1655.2	10124.	1655.5	10166.	1653.1	10201.	1651.7	10213.	1653.5	10233.
GR	1654.3	10279.	1654.	10294.	1658.1	10341.	1660.	10403.	1660.4	10450.
NH	7	0.035	9932	0.05	9973	0.03	10079	0.04	10389	0.035
NH	10777	0.03	10790	0.035	11017					
ET			4.1	9965	10390					
X1	16.315	34	9932	10106	790	1020	982			
GR	1660.2	9895.	1659.7	9932.	1655.2	9953.	1651.2	9973.	1649.7	9998.
GR	1649.5	10000.	1650.5	10049.	1650.7	10079.	1653.1	10106.	1653.	10158.
GR	1652.7	10209.	1652.	10230.	1654.4	10255.	1654.1	10301.	1654.2	10336.
GR	1652.2	10361.	1653.5	10389.	1654.4	10432.	1655.7	10492.	1656.1	10548.
GR	1656.	10610.	1656.1	10662.	1656.4	10729.	1655.8	10767.	1653.3	10777.
GR	1654.1	10790.	1656.5	10808.	1657.3	10854.	1655.4	10868.	1658.1	10891.
GR	1660.9	10921.	1665.	10950.	1666.4	10986.	1664.6	11017.		
NH	11	0.05	9792	0.03	9831	0.05	9870	0.03	9903	0.05
NH	9948	0.03	10000	0.05	10035	0.03	10068	0.04	10620	0.03
NH	10646	0.04	10735							
ET			4.1	9800	10500					
X1	16.515	39	9744	10236	1045	1075	1056			
GR	1663.9	9713.	1664.6	9744.	1661.9	9762.	1659.4	9792.	1658.3	9815.
GR	1659.8	9831.	1660.4	9853.	1659.2	9870.	1657.6	9884.	1658.4	9903.
GR	1659.8	9920.	1659.2	9948.	1657.4	9968.	1656.3	9980.	1658.3	10000.
GR	1657.8	10035.	1656.	10046.	1657.5	10068.	1659.2	10099.	1659.9	10146.
GR	1660.2	10183.	1658.2	10206.	1659.8	10220.	1661.3	10236.	1661.4	10292.
GR	1661.6	10370.	1661.4	10409.	1660.3	10425.	1661.2	10461.	1661.9	10516.
GR	1661.3	10546.	1661.7	10576.	1661.	10602.	1659.2	10620.	1660.3	10646.
GR	1663.8	10668.	1673.6	10699.	1673.4	10729.	1673.1	10735.		
NH	9	0.035	9469	0.05	9508	0.04	9872	0.05	9923	0.03
NH	9974	0.05	9992	0.03	10023	0.04	10228	0.035	10448	
ET			4.1	9650	10250					
X1	16.711	33	9872	10278	1050	1050	1035			
GR	1673.7	9321.	1678.1	9373.	1673.	9418.	1668.2	9469.	1666.4	9508.
GR	1665.7	9539.	1665.3	9591.	1666.1	9625.	1665.3	9669.	1665.5	9700.
GR	1664.7	9724.	1666.	9759.	1666.7	9826.	1667.9	9872.	1666.8	9908.
GR	1663.7	9923.	1664.4	9957.	1664.8	9974.	1664.5	9992.	1663.8	10000.
GR	1663.9	10023.	1667.4	10050.	1667.1	10117.	1665.8	10138.	1667.6	10167.
GR	1665.1	10190.	1663.9	10202.	1668.	10228.	1669.3	10278.	1672.2	10309.
GR	1678.1	10356.	1679.2	10393.	1679.4	10448.				

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NH      7    0.035     9319    0.04     9937    0.05     9961    0.04     9981    0.03
NH  10078     0.05    10107   0.035    10225
ET                     4.1     9620    10120
X1  16.900       36     9937   10107     1040     990      998
GR  1687.8    8962.  1686.4    9054.  1682.7    9116.  1681.8    9149.  1680.9    9158.
GR   1682.    9169.  1683.3    9194.  1685.9    9252.  1685.6    9294.  1683.4    9319.
GR  1675.5    9339.  1670.6    9351.  1671.5    9354.  1674.7    9367.  1674.7    9418.
GR  1674.5    9475.  1674.4    9531.  1675.1    9556.  1675.3    9596.  1674.2    9623.
GR  1670.5    9642.  1671.7    9688.  1673.2    9731.  1672.4    9760.  1672.6    9803.
GR  1673.3    9857.  1674.6    9908.  1675.2    9937.  1674.5    9961.  1668.5    9981.
GR  1668.9   10000.  1670.6   10044.  1672.5   10078.  1676.1   10107.  1679.6   10175.
GR  1678.9   10225.

NH      9    0.04     9431    0.03     9451    0.04     9919    0.05     9973    0.03
NH  10032     0.05    10069   0.035    10421    0.04    10486   0.035    10660
ET                     4.1     9626    10076
X1  17.087       50     9712   10069     1030     985      987
GR  1683.7    9292.  1683.1    9327.  1682.3    9363.  1681.2    9391.  1679.9    9415.
GR  1679.7    9431.  1678.6    9442.  1679.9    9451.  1681.4    9468.  1681.4    9513.
GR  1682.1    9557.  1680.8    9594.  1681.4    9632.  1681.8    9676.  1681.5    9712.
GR  1680.4    9739.  1678.2    9754.  1676.8    9773.  1677.8    9794.  1678.7    9816.
GR  1680.1    9842.  1679.2    9869.  1678.1    9884.  1678.7    9919.  1678.3    9957.
GR  1676.9    9973.  1675.1    9992.  1675.1   10000.  1675.3   10016.  1676.5   10032.
GR  1680.1   10046.  1682.6   10069.  1684.5   10087.  1684.3   10094.  1685.3   10106.
GR  1686.3   10125.  1687.1   10154.  1690.1   10187.  1691.4   10214.  1691.4   10259.
GR   1691.   10302.   1689.   10345.  1688.9   10383.  1689.9   10421.  1688.8   10446.
GR  1690.6   10486.   1691.   10519.  1692.5   10564.  1692.8   10611.  1695.7   10660.

NH      5    0.035     9649    0.03     9795    0.04     9962    0.03    10051    0.04
NH  10928
ET                     4.1     9700    10250
X1  17.287       42     9633   10130     1030     960     1056
GR  1698.9    9491.  1696.6    9515.   1694.    9546.  1691.8    9580.  1692.1    9610.
GR  1691.5    9633.  1686.2    9649.  1684.3    9661.  1684.3    9699.  1686.1    9732.
GR  1684.8    9765.  1686.1    9795.   1686.    9837.  1686.1    9880.  1685.7    9922.
GR  1685.9    9962.  1684.3    9998.  1684.4   10000.  1683.8   10034.   1687.   10051.
GR  1686.5   10083.  1687.6   10130.  1687.6   10170.  1687.5   10231.   1688.   10289.
GR  1687.8   10346.  1688.7   10395.  1689.6   10446.  1690.2   10508.  1689.9   10559.
GR  1690.1   10601.  1688.3   10638.   1689.   10679.  1689.1   10726.  1689.2   10765.
GR  1688.8   10793.  1686.6   10804.  1688.7   10827.  1689.7   10855.  1692.7   10887.
GR  1702.8   10918.  1703.2   10928.

NH     13    0.035     9052    0.04     9144   0.035     9508    0.05     9519    0.03
NH   9560     0.05     9572    0.04     9597    0.05     9613    0.04     9759    0.03
NH   9840     0.04     9978    0.03    10047    0.04    10566
ET                     4.1     9600    10100
X1  17.487       60     9508   10113     1050     990     1056
GR  1709.8    8615.  1709.6    8630.  1710.6    8652.  1709.6    8688.  1707.8    8723.
GR  1705.1    8739.  1709.4    8769.  1711.1    8816.  1710.9    8857.  1708.2    8903.
GR   1706.    8953.  1702.1    9003.  1700.1    9052.   1698.    9088.  1699.5    9104.
GR  1697.6    9112.  1697.7    9115.  1700.5    9122.  1699.4    9144.  1704.7    9171.
GR  1705.8    9199.  1706.3    9234.  1707.4    9276.  1708.4    9312.   1708.    9334.
GR  1706.6    9362.  1705.3    9382.  1703.2    9398.  1706.7    9434.   1707.    9469.
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GR	1707.	9497.	1705.6	9508.	1691.3	9519.	1689.7	9541.	1691.	9560.
GR	1691.9	9572.	1690.9	9584.	1691.6	9597.	1692.8	9613.	1693.4	9677.
GR	1693.4	9759.	1691.3	9811.	1692.9	9840.	1691.9	9862.	1692.7	9890.
GR	1693.6	9911.	1692.	9956.	1693.4	9978.	1691.8	10000.	1690.5	10022.
GR	1691.1	10033.	1693.3	10047.	1694.1	10113.	1693.9	10192.	1695.6	10281.
GR	1697.5	10369.	1697.5	10450.	1696.4	10507.	1696.6	10540.	1699.7	10566.

SECTION 17.720 IS JUST DOWNSTREAM OF THE STUDY LIMIT AT VULTURE MINE ROAD (RM 17.800).

NH	5	0.035	9906	0.05	9918	0.03	10080	0.05	10108	0.04
NH	11383									
ET			4.1	9915	10415					
X1	17.720	58	9906	10221	1260	1115	1230			
GR	1720.3	9228.	1717.	9286.	1715.2	9332.	1713.4	9353.	1715.4	9390.
GR	1717.3	9435.	1716.4	9488.	1713.3	9546.	1711.8	9592.	1711.3	9651.
GR	1712.2	9690.	1712.7	9730.	1713.8	9771.	1715.5	9823.	1717.4	9860.
GR	1717.3	9890.	1716.5	9906.	1701.1	9918.	1699.9	9945.	1699.3	9975.
GR	1700.3	10000.	1700.4	10043.	1702.	10080.	1703.1	10108.	1702.	10147.
GR	1702.3	10184.	1704.2	10221.	1703.2	10267.	1703.4	10330.	1704.	10381.
GR	1703.1	10426.	1703.6	10492.	1703.6	10535.	1703.9	10586.	1704.5	10643.
GR	1703.1	10693.	1704.6	10745.	1702.8	10793.	1702.5	10822.	1704.7	10864.
GR	1703.5	10898.	1704.7	10963.	1704.2	11012.	1704.5	11049.	1704.4	11066.
GR	1703.4	11071.	1706.	11091.	1713.7	11135.	1717.	11160.	1717.2	11191.
GR	1714.8	11228.	1711.	11242.	1710.1	11261.	1716.	11293.	1718.	11323.
GR	1718.4	11349.	1719.1	11376.	1718.7	11383.				

NH	7	0.05	9970	0.03	10105	0.04	10163	0.03	10222	0.04
NH	10257	0.03	10403	0.04	11326					
ET			4.1	9965	10365					
X1	17.840	47	9952	10403	745	585	634			
GR	1715.6	9936.	1715.6	9952.	1706.7	9970.	1704.	9985.	1704.	10000.
GR	1704.9	10069.	1705.2	10105.	1707.1	10135.	1705.2	10163.	1704.	10190.
GR	1706.3	10222.	1706.9	10257.	1705.2	10290.	1704.4	10324.	1704.1	10355.
GR	1704.9	10378.	1706.7	10403.	1705.8	10444.	1706.1	10473.	1706.1	10499.
GR	1706.4	10514.	1706.7	10543.	1706.	10561.	1708.	10587.	1706.6	10616.
GR	1706.7	10652.	1707.3	10692.	1707.	10738.	1707.3	10789.	1707.6	10826.
GR	1708.1	10866.	1707.6	10905.	1706.8	10942.	1705.2	10954.	1707.	10977.
GR	1707.4	10999.	1709.2	11041.	1710.	11085.	1709.9	11117.	1709.4	11141.
GR	1711.4	11163.	1713.4	11189.	1714.2	11217.	1713.8	11247.	1714.3	11265.
GR	1715.8	11296.	1720.3	11326.						

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


*PROF 1

CCHV=     .300 CEHV=     .000
1490 NH CARD USED
*SECNO 7.713
    7.713     6.52  1358.02      .00  1358.02  1358.84      .82      .00      .00  1356.30
   33200.   23285.    9915.       0.    3219.    1342.       0.       0.       0.   1361.00
      .00     7.23     7.39      .00     .040     .036     .000     .000  1351.50  8980.09
  .005975       0.       0.       0.        0        0        0      .00  1224.12 10204.21


FLOW DISTRIBUTION FOR SECNO=      7.71          CWSEL=   1358.02

STA=    8980.    9041.    9072.    9125.    9170.    9227.    9272.    9294.    9326.    9372.    9427.    9472.    9524.
  PER Q=      6.2      3.8      5.9      4.5      4.7      5.4      3.2      3.1      3.8      5.5      4.5      4.9
   AREA=    260.1    151.0    244.9    194.4    219.2    216.5    120.3    136.6    178.0    237.6    194.4    218.0
    VEL=      7.9      8.3      8.0      7.6      7.1      8.2      8.9      7.6      7.1      7.6      7.6      7.5
  DEPTH=      4.3      4.9      4.6      4.3      3.8      4.8      5.5      4.3      3.9      4.3      4.3      4.2

STA=    9524.    9602.    9701.    9829.    9908.    9985.   10091.   10227.
  PER Q=      4.6      6.2      4.1      2.5      4.6     19.1      3.6
   AREA=    246.1    323.9    278.0    171.4    281.9    605.9    282.9
    VEL=      6.2      6.3      4.9      4.8      5.5     10.5      4.2
  DEPTH=      3.2      3.3      2.2      2.2      3.7      5.7      2.5

1490 NH CARD USED
*SECNO 7.842
    7.842     6.25  1362.15      .00      .00  1363.19     1.04     4.34      .00  1359.20
   33200.   13909.   17064.    2226.    1657.    2063.     408.      66.      19.   1360.90
      .00     8.39     8.27     5.45     .035     .035     .035     .000  1355.90  9139.39
  .007321     640.     681.     690.        2        0        0      .00  1311.01 10450.40


FLOW DISTRIBUTION FOR SECNO=      7.84          CWSEL=   1362.15

STA=    9139.    9271.    9332.    9393.    9472.    9539.    9612.   10212.   10391.   10450.
  PER Q=     12.5      4.8      5.6      6.8      6.2      5.8     51.4      6.0       .7
   AREA=    482.7    199.9    219.7    272.7    241.3    241.1   2062.7    346.2     62.1
    VEL=      8.6      8.0      8.5      8.3      8.5      8.1      8.3      5.8      3.8
  DEPTH=      3.7      3.3      3.6      3.5      3.6      3.3      3.4      1.9      1.0
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 8.062
    8.062     7.75  1369.75      .00      .00  1370.76     1.02     7.57      .01  1366.90
   33200.   10817.   21587.     795.    1670.    2437.     143.     184.      54.  1367.40
      .07     6.48     8.06     5.58     .035     .034     .035     .000  1362.00  9283.46
  .005236    1365.    1162.    1020.        3        0        0      .00  1165.97 10449.43


FLOW DISTRIBUTION FOR SECNO=      8.06          CWSEL=   1369.75

STA=    9283.    9333.    9420.    9483.    9562.    9651.    9758.    9829.    9860.    9992.   10000.   10085.   10259.
  PER Q=      4.3      3.8      3.3      4.2      3.8      4.1      6.4      2.6     10.8       .9     23.3      7.8
   AREA=    189.1    210.6    177.3    224.7    222.3    251.7    278.1    116.2    488.1     45.6    591.4    556.5
    VEL=      7.6      6.0      6.2      6.2      5.7      5.5      7.7      7.4      7.3      6.8     13.1      4.7
  DEPTH=      3.8      2.4      2.8      2.8      2.5      2.4      3.9      3.7      3.7      5.7      7.0      3.2

STA=   10259.   10324.   10390.   10449.
  PER Q=     15.9      6.3      2.4
   AREA=    422.5    333.2    142.6
    VEL=     12.5      6.3      5.6
  DEPTH=      6.5      5.0      2.4

1490 NH CARD USED
*SECNO 8.279
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    8.279     8.22  1379.22  1379.22      .00  1380.61     1.39     8.65      .00  1378.20
   19800.    5537.   14263.       0.     839.    1378.       0.     283.      87.  1383.70
      .10     6.60    10.35      .00     .035     .038     .000     .000  1371.00  9228.18
  .010884    1640.    1146.    1100.        4        8        0      .00   837.47 10065.65


FLOW DISTRIBUTION FOR SECNO=      8.28          CWSEL=   1379.22

STA=    9228.    9297.    9341.    9425.    9472.    9544.    9605.    9683.    9727.   10079.
  PER Q=      5.0      4.3      3.1      3.6      3.3      3.2      4.0      1.4     72.0
   AREA=    137.8    105.9    108.2     98.1    107.6     99.5    128.4     53.7   1377.8
    VEL=      7.2      8.1      5.7      7.3      6.0      6.4      6.2      5.1     10.4
  DEPTH=      2.0      2.4      1.3      2.1      1.5      1.6      1.6      1.2      4.1
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NR CARD USED
*SECNO 8.485
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

    8.485     8.96  1388.26      .00      .00  1389.17      .91     8.41      .14  1387.30
   19800.     5735.   14065.       0.     904.    1734.       0.     340.     107.   1393.00
      .14     6.34     8.11      .00     .035     .038     .000     .000  1379.30  8816.24
  .006508     900.    1088.    1100.        5        0        0      .00   950.25 10079.63


FLOW DISTRIBUTION FOR SECNO=      8.48         CWSEL=   1388.26

STA=    8816.    9449.    9517.    9542.    9579.    9618.    9633.    9668.   10093.
  PER Q=      4.2      4.3      4.0      4.9      5.0      3.0      3.5     71.0
   AREA=    235.4    147.3     96.0    126.4    131.2     66.1    101.8   1733.9
    VEL=      3.6      5.8      8.2      7.6      7.6      9.1      6.8      8.1
  DEPTH=       .4      2.2      3.8      3.4      3.4      4.4      2.9      4.2

1490 NR CARD USED
*SECNO 8.680
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    8.680     7.50  1394.20      .00      .00  1395.04      .84     5.86      .02  1393.30
   19800.     5376.   14424.       0.     902.    1841.       0.     397.     125.   1400.00
      .18     5.96     7.83      .00     .035     .037     .000     .000  1386.70  9168.62
  .006158     680.    1030.    1030.        4        0        0      .00   905.79 10074.41


FLOW DISTRIBUTION FOR SECNO=      8.68         CWSEL=   1394.20

STA=    9169.    9281.    9363.    9455.    9499.    9544.    9566.    9602.   10100.
  PER Q=      3.0      3.2      5.2      4.8      6.1      3.1      1.8     72.8
   AREA=    141.1    134.6    189.0    134.2    156.2     78.1     68.4   1841.1
    VEL=      4.2      4.7      5.5      7.1      7.7      7.8      5.1      7.8
  DEPTH=      1.3      1.6      2.1      3.0      3.5      3.5      1.9      3.9

1490 NR CARD USED
*SECNO 8.870
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

    8.870     6.29  1400.59      .00      .00  1401.61     1.03     6.57      .00  1408.50
   19800.       0.   19800.       0.       0.    2436.       0.     456.     143.   1409.50
      .22      .00     8.13      .00     .000     .035     .000     .000  1394.30  9682.12
  .006922     975.    1003.     970.        2        0        0      .00   687.91 10374.43


FLOW DISTRIBUTION FOR SECNO=      8.87          CWSEL=   1400.59

STA=    9682.   10379.
  PER Q=    100.0
   AREA=   2436.4
    VEL=      8.1
  DEPTH=      3.5

1490 NH CARD USED
*SECNO 9.060
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    9.060     7.04  1407.44      .00      .00  1408.31      .87     6.65      .05  1419.20
   19800.       0.   12390.    7410.       0.    1471.    1346.     516.     164.   1405.50
      .23      .00     8.42     5.51     .000     .036     .035     .000  1400.40  9928.10
  .006423     945.    1003.     980.        4        0        0      .00  1115.53 11043.63


FLOW DISTRIBUTION FOR SECNO=      9.06          CWSEL=   1407.44

STA=    9928.   10289.   10347.   10417.   10435.   10530.   10580.   10652.   10873.   10940.   10972.   11044.
  PER Q=     62.6      3.8      4.0      4.0      3.2      5.3      3.6      4.0      3.9      3.4      2.3
   AREA=   1471.3    130.0    142.5    143.0    103.9    148.4    132.1    214.8    138.2     95.1     98.0
    VEL=      8.4      5.8      5.5      5.6      6.1      7.0      5.5      3.6      5.5      7.0      4.7
  DEPTH=      4.1      2.2      2.0      2.1      2.3      3.0      1.8      1.0      2.1      3.0      1.4

1490 NH CARD USED
*SECNO 9.310
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    9.310     9.18  1414.68      .00      .00  1415.49      .81     7.16      .02  1425.80
   19800.       0.   14205.    5595.       0.    1802.    1094.     596.     191.   1413.20
      .30      .00     7.88     5.11     .000     .036     .035     .000  1405.50  9970.61
  .005233    1310.    1320.    1070.        4        0        0      .00   941.30 10911.91
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 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       DLOSS   BANK ELEV
 Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      9.31         CWSEL=   1414.68

STA=    9971.   10386.   10466.   10551.   10626.   10682.   10729.   10786.   10835.   10867.   10878.   10900.   10912.
  PER Q=     71.7      3.1      3.6      3.0      3.4      3.4      3.1      2.7      2.5      1.2      2.0       .2
   AREA=   1802.3    138.2    155.3    133.3    127.5    118.8    121.3    104.2     84.1     36.0     63.3     12.4
    VEL=      7.9      4.4      4.6      4.5      5.3      5.7      5.1      5.1      5.9      6.8      6.2      3.1
  DEPTH=      4.3      1.7      1.8      1.8      2.3      2.5      2.1      2.1      2.6      3.3      2.9      1.0

1490 NH CARD USED
*SECNO 9.492
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69

    9.492     6.40  1420.50      .00      .00  1422.33     1.83     6.84      .00  1426.30
   19800.       0.   19800.       0.       0.    1825.       0.     645.     204.   1424.80
      .32      .00    10.85      .00     .000     .040     .000     .000  1414.10  9706.81
  .011043     940.     961.     750.        2        0        0      .00   390.49 10097.30


FLOW DISTRIBUTION FOR SECNO=      9.49         CWSEL=   1420.50

STA=    9707.   10099.
  PER Q=    100.0
   AREA=   1824.8
    VEL=     10.9
  DEPTH=      4.7

1490 NH CARD USED
*SECNO 9.702
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.90

    9.702     7.93  1427.83      .00      .00  1428.37      .54     5.66      .39  1424.60
   19800.    5051.   14749.       0.     969.    2406.       0.     709.     217.   1432.70
      .37     5.21     6.13      .00     .041     .043     .000     .000  1419.90  9388.54
  .003047     880.    1109.    1130.        3        0        0      .00   686.74 10075.29
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      9.70          CWSEL=   1427.83

STA=    9389.    9485.    9517.    9537.    9568.    9658.   10087.
  PER Q=      3.9      6.0      6.7      3.7      5.2     74.5
   AREA=    212.6    178.7    135.8    154.6    287.0   2406.3
    VEL=      3.6      6.7      9.8      4.8      3.6      6.1
  DEPTH=      2.2      5.6      6.8      5.0      3.2      5.8

1490 NH CARD USED
*SECNO 9.896

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54

    9.896     7.37  1431.87  1431.85      .00  1433.63     1.76     5.26      .00  1435.10
   19800.       0.   15483.    4317.       0.    1361.     583.     771.     232.   1430.70
      .40      .00    11.38     7.41     .000     .038     .039     .000  1424.50  9861.34
  .010611     970.    1024.    1030.        6       15        0      .00   535.59 10396.93


FLOW DISTRIBUTION FOR SECNO=      9.90          CWSEL=   1431.87

STA=    9861.    9940.   10000.   10152.   10251.   10289.   10333.   10364.   10397.
  PER Q=      9.1     41.7     27.4      4.4      3.5      8.0      4.5      1.3
   AREA=    264.3    433.1    663.5    185.0    111.2    142.0     87.6     56.8
    VEL=      6.8     19.1      8.2      4.8      6.3     11.1     10.2      4.7
  DEPTH=      3.4      7.2      4.4      1.9      2.9      3.2      2.8      1.7

1490 NH CARD USED
*SECNO 10.095
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


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

   10.095     8.06  1439.56      .00      .00  1440.28      .72     6.34      .31  1437.10
   19800.     981.   12512.    6307.     214.    1676.    1113.     827.     246.   1435.60
      .44     4.59     7.47     5.67     .036     .043     .035     .000  1431.50  9858.74
  .004148    1090.    1051.     890.        4        0        0      .00   772.72 10631.46
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     10.10          CWSEL=   1439.56

STA=    9859.    9919.    9960.   10233.   10267.   10308.   10397.   10450.   10514.   10552.   10578.   10631.
  PER Q=      3.7      1.2     63.2      4.7      3.9      4.2      3.8      3.2      4.0      4.4      3.7
   AREA=    143.7     70.2   1676.0    134.6    131.5    186.5    141.1    137.5    129.5    116.6    135.8
    VEL=      5.1      3.4      7.5      6.8      5.9      4.5      5.3      4.6      6.2      7.4      5.4
  DEPTH=      2.4      1.7      6.1      4.0      3.2      2.1      2.7      2.1      3.4      4.5      2.5

1490 NH CARD USED
*SECNO 10.271

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   10.271     8.85  1446.55  1446.55      .00  1448.59     2.03     4.53      .00  1442.90
   19800.    2849.   16951.       0.     504.    1396.       0.     880.     260.   1450.90
      .46     5.66    12.15      .00     .035     .032     .000     .000  1437.70  9578.73
  .005813     930.     929.     930.       20        8        0      .00   481.81 10060.54


FLOW DISTRIBUTION FOR SECNO=     10.27          CWSEL=   1446.55

STA=    9579.    9726.    9818.    9843.    9877.   10025.   10075.
  PER Q=      3.1      7.8      3.5      6.4     74.5      4.7
   AREA=    169.4    244.0     90.1    182.7   1055.2    157.6
    VEL=      3.6      6.3      7.6      6.9     14.0      5.9
  DEPTH=      1.2      2.7      3.6      5.4      7.1      4.4

1490 NH CARD USED
*SECNO 10.454

3301 HV CHANGED MORE THAN HVINS

   10.454     9.55  1452.45      .00      .00  1453.52     1.07     4.65      .29  1451.40
   19800.     350.   19450.       0.     109.    2325.       0.     927.     270.   1455.40
      .50     3.21     8.37      .00     .035     .038     .000     .000  1442.90  9736.25
  .004120     850.     966.    1080.        2        0        0      .00   469.63 10205.89
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       DLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     10.45          CWSEL=   1452.45

STA=    9736.    9827.    9879.    9906.    9986.   10008.   10113.   10151.   10230.
  PER Q=      1.8      3.9     13.6     20.0     13.9     20.6     21.6      4.6
   AREA=    109.0    180.0    213.4    565.1    199.5    641.5    322.9    202.6
    VEL=      3.2      4.3     12.6      7.0     13.8      6.4     13.2      4.5
  DEPTH=      1.2      3.5      7.9      7.1      9.1      6.1      8.5      3.7

1490 NH CARD USED
*SECNO 10.644
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   10.644     8.37  1458.37  1458.37      .00  1460.53     2.16     6.35      .00  1466.00
   19700.       0.   17835.    1865.       0.    1467.     250.     975.     280.   1457.40
      .52      .00    12.16     7.47     .000     .038     .035     .000  1450.00  9932.24
  .010819     850.    1003.    1170.        3       15        0      .00   403.99 10336.23


FLOW DISTRIBUTION FOR SECNO=     10.64          CWSEL=   1458.37

STA=    9932.   10212.   10253.   10271.   10278.   10303.   10321.   10336.
  PER Q=     90.5      1.7      1.9      1.2      3.0      1.2       .4
   AREA=   1466.9     60.2     46.2     24.3     67.9     34.5     16.5
    VEL=     12.2      5.7      8.3     10.1      8.6      6.8      4.6
  DEPTH=      5.2      1.5      2.6      3.5      2.7      1.9      1.1

1490 NH CARD USED
*SECNO 10.835
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.58

   10.835     9.86  1466.46      .00      .00  1467.42      .96     6.53      .36  1469.30
   19700.       0.   19700.       0.       0.    2504.       0.    1024.     290.   1469.20
      .56      .00     7.87      .00     .000     .039     .000     .000  1456.60  9963.04
 .004321     1020.    1008.     970.        3        0        0      .00   441.20 10404.24
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     10.84         CWSEL=   1466.46

STA=    9963.   10417.
  PER Q=    100.0
   AREA=   2504.5
    VEL=      7.9
  DEPTH=      5.7

1490 NH CARD USED
*SECNO 11.028
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


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

   11.028     7.53  1472.23      .00      .00  1474.03     1.80     6.61      .00  1481.70
   19700.       0.   19575.     125.       0.    1814.      34.    1075.     300.   1472.10
      .58      .00    10.79     3.73     .000     .039     .039     .000  1464.70  9933.36
  .010819    1050.    1019.     945.        2        0        0      .00   436.64 10370.00


FLOW DISTRIBUTION FOR SECNO=     11.03         CWSEL=   1472.23

STA=    9933.   10333.   10561.   10370.
  PER Q=     99.4       .5       .2
   AREA=   1813.5     25.9      7.8
    VEL=     10.8      3.7      4.0
  DEPTH=      4.5       .9       .9

1490 NH CARD USED
*SECNO 11.235

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49

   11.235     7.93  1480.63      .00      .00  1481.81     1.18     7.60      .18  1484.80
   19700.       0.   19630.      70.       0.    2243.      31.    1126.     312.   1480.20
      .62      .00     8.75     2.26     .000     .033     .035     .000  1472.70  9629.20
 .004844    1080.    1093.    1050.        3        0        0      .00   526.24 10155.44
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     11.23          CWSEL=   1480.63

STA=    9629.    9657.    9694.    9715.    9747.    9965.   10033.   10061.   10104.   10155.
  PER Q=      1.3     12.7      4.3     11.9     31.3     30.9      4.1      3.0       .4
   AREA=     69.4    220.9    109.8    200.7    916.7    480.8    136.6    108.5     30.8
    VEL=      3.8     11.3      7.8     11.7      6.7     12.7      5.9      5.5      2.3
  DEPTH=      2.5      6.0      5.2      6.3      4.2      7.1      4.9      2.5       .6

1490 NA CARD USED
*SECNO 11.425
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
   11.425     7.11  1486.51      .00      .00  1487.59     1.08     5.74      .03  1491.00
   19700.       0.   19700.       0.       0.    2360.       0.    1180.     324.   1490.70
      .25      .00     8.35      .00     .000     .040     .000     .000  1479.40  9663.04
  .006274     990.     1003.     990.        2        0        0      .00   533.94 10196.98


FLOW DISTRIBUTION FOR SECNO=     11.43          CWSEL=   1486.51

STA=    9663.   10217.
  PER Q=    100.0
   AREA=   2360.0
    VEL=      8.3
  DEPTH=      4.4

1490 NA CARD USED
*SECNO 11.608

3265 DIVIDED FLOW

   11.608     7.77  1493.07      .00      .00  1494.45     1.37     6.86      .00  1491.60
   19700.    1541.   18159.       0.     306.    1877.       0.    1230.     337.   1493.10
      .38     5.03     9.68      .00     .038     .034     .000     .000  1485.30  9715.42
  .007324     980.     966.     900.        3        0        0      .00   644.63 10362.66


FLOW DISTRIBUTION FOR SECNO=     11.61          CWSEL=   1493.07

STA=    9715.    9762.    9863.    9905.    9960.   10034.   10254.   10288.   10363.
  PER Q=      3.6      3.1      1.1      4.7     35.4     37.4     10.7      4.1
   AREA=    107.9    143.2     55.6    149.3    476.8    903.3    169.9    177.2
    VEL=      6.7      4.3      3.8      6.2     14.6      8.1     12.4      4.5
  DEPTH=      2.3      1.4      1.3      2.7      6.4      4.1      5.0      2.4
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


1490 NH CARD USED
*SECNO 11.815
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
   11.815     8.68  1500.78      .00      .00  1501.87     1.09     7.34      .08  1497.50
   19700.     8928.  10772.       0.    1273.    1149.       0.    1287.     352.   1505.90
      .71     7.01     9.38      .00     .040     .039     .000     .000  1492.10  9469.71
  .006254    1070.    1093.    1070.        2        0        0      .00   572.79 10042.50


FLOW DISTRIBUTION FOR SECNO=     11.81          CWSEL=   1500.78

STA=    9470.    9543.    9604.    9650.    9693.    9724.    9772.    9795.    9838.   10055.
  PER Q=      3.4      9.7      5.0      4.3      3.2      8.0      4.6      7.2     54.7
   AREA=    139.0    253.2    150.9    134.6     98.6    203.5    108.8    184.1   1148.7
    VEL=      4.8      7.6      6.5      6.3      6.4      7.7      8.3      7.7      9.4
  DEPTH=      1.9      4.2      3.3      3.1      3.2      4.2      4.7      4.3      5.6

1490 NH CARD USED
*SECNO 12.032
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   12.032     8.50  1507.90  1507.90      .00  1509.26     1.36     6.07      .00  1511.20
   19700.       0.  16033.    3667.       0.    1578.     825.    1349.     369.   1504.30
      .75      .00    10.16     4.44     .000     .030     .038     .000  1499.40  9770.12
  .004774    1005.    1146.    1160.        2        6        0      .00   765.59 10535.71


FLOW DISTRIBUTION FOR SECNO=     12.03          CWSEL=   1507.90

STA=    9770.    9863.   10084.   10131.   10193.   10262.   10456.   10536.
  PER Q=      9.5     71.9      3.3      4.2      3.4      4.7      2.9
   AREA=    294.9   1282.7    147.9    154.8    141.3    255.8    125.3
    VEL=      6.3     11.0      4.4      5.4      4.7      3.7      4.6
  DEPTH=      3.2      5.8      3.1      2.5      2.0      1.3      1.6

1490 NH CARD USED
*SECNO 12.220
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   12.220     6.37  1513.27  1513.27      .00  1514.68     1.41     5.06      .00  1511.40
   19700.    1073.  15308.    3319.     214.    1462.     672.    1399.     385.   1512.10
      .78     5.02    10.47     4.94     .035     .030     .036     .000  1506.90  9774.85
  .005945    1040.     993.     760.        3       19        0      .00   833.21 10608.05
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     12.22         CWSEL=   1513.27

STA=     9775.    9892.    9950.   10143.   10216.   10344.   10408.   10450.   10507.   10608.
  PER Q=      5.4      4.3     68.6      4.8      3.1      3.3      3.9      4.4      2.2
   AREA=    214.0    176.7   1105.6    180.2    172.2    126.0    118.4    143.5    112.1
    VEL=      5.0      4.8     12.2      5.2      3.5      5.1      6.5      6.1      3.8
  DEPTH=      1.8      3.0      5.7      2.5      1.3      2.0      2.8      2.5      1.1

1490 Nh CARD USED
*SECNO 12.360
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
   12.361     9.47  1517.27      .00      .00  1518.88     1.61     4.20      .00  1513.00
   19700.    2559.   17141.       0.     514.    1593.       0.    1437.     397.   1524.70
      .80     4.97    10.76      .00     .040     .037     .000     .000  1507.80  9548.42
  .005521     740.     739.     680.        2        0        0      .00   529.50 10077.92


FLOW DISTRIBUTION FOR SECNO=     12.36         CWSEL=   1517.27

STA=     9548.    9806.    9850.   10078.
  PER Q=      7.2      5.7     87.0
   AREA=    346.5    167.8   1593.3
    VEL=      4.1      6.7     10.8
  DEPTH=      1.3      3.8      7.0

1490 Nh CARD USED
*SECNO 12.500
   12.501     7.78  1521.38      .00      .00  1523.07     1.69     4.19      .00  1519.90
   19700.     123.   16234.    3343.      39.    1461.     507.    1472.     406.   1519.00
      .81     3.18    11.11     6.59     .035     .031     .033     .000  1513.60  9884.22
  .005685     710.     739.     870.        3        0        0      .00   511.99 10396.22


FLOW DISTRIBUTION FOR SECNO=     12.50         CWSEL=   1521.38

STA=     9884.    9926.    9968.   10134.   10194.   10254.   10303.   10333.   10383.   10396.
  PER Q=       .6      3.9     72.4      6.0      3.2      3.8      5.2      4.7       .1
   AREA=     38.7    149.4   1089.8    222.2    133.7    121.4    113.3    130.3      8.4
    VEL=      3.2      5.2     13.1      5.4      4.8      6.1      9.0      7.1      1.7
  DEPTH=       .9      3.6      6.6      3.7      2.2      2.5      3.8      2.6       .6
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 12.711
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
   12.711     7.43  1528.63      .00      .00  1529.88     1.25     6.67      .13  1529.30
   19700.       0.   19681.      19.       0.    2190.      11.    1526.     418.   1527.70
      .85      .00     8.99     1.76     .000     .038     .040     .000  1521.20  9678.33
  .006264    1060.    1114.    1170.        3        0        0      .00   458.52 10136.85


FLOW DISTRIBUTION FOR SECNO=     12.71          CWSEL=   1528.63

STA=    9678.   10113.   10137.
  PER Q=     99.9       .1
   AREA=   2190.0     11.0
    VEL=      9.0      1.8
  DEPTH=      5.0       .5

1490 NH CARD USED
*SECNO 12.978
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   12.978     9.05  1538.95  1538.95      .00  1541.10     2.16    10.70      .00  1534.90
   19700.    1684.   18016.       0.     292.    1477.       0.    1590.     433.   1540.30
      .89     5.77    12.20      .00     .040     .039     .000     .000  1529.90  9729.93
  .009416    1370.    1410.    1350.        3       11        0      .00   461.20 10191.13


FLOW DISTRIBUTION FOR SECNO=     12.98          CWSEL=   1538.95

STA=    9730.    9926.    9950.   10193.
  PER Q=      4.9      3.6     91.4
   AREA=    207.0     85.1   1477.0
    VEL=      4.7      8.4     12.2
  DEPTH=      1.1      3.5      6.1

1490 NH CARD USED
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       QLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 13.164
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.73

   13.164     8.93  1545.63      .00      .00  1546.55      .92     5.07      .37  1544.10
   19700.     155.    7777.   11767.      70.     857.    1770.    1642.     446.   1541.20
      .92     2.23     9.08     6.65     .035     .033     .033     .000  1536.70  9844.19
  .003160     810.     982.    1080.        3        0        0      .00   662.95 10507.13


FLOW DISTRIBUTION FOR SECNO=     13.16          CWSEL=   1545.63

STA=    9844.    9924.   10050.   10104.   10193.   10259.   10296.   10313.   10362.   10387.   10403.   10449.   10489.
  PER Q=       .8     39.5      7.4      9.0      5.1      4.0      4.5     11.8      5.7      3.7      4.7      3.8
   AREA=     69.7    856.6    231.3    318.9    200.2    131.3     99.2    268.7    133.3     85.3    159.7    131.6
    VEL=      2.2      9.1      6.3      5.6      5.0      5.9      9.0      8.6      8.5      8.5      5.8      5.6
  DEPTH=       .9      6.8      4.3      3.6      3.0      3.5      5.8      5.5      5.3      5.3      3.5      3.3

STA=   10489.   10507.
  PER Q=       .1
   AREA=     10.3
    VEL=      1.6
  DEPTH=       .6

1490 NH CARD USED
*SECNO 13.358
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   13.358     8.78  1553.28  1553.28      .00  1554.68     1.40     3.80      .00  1548.50
   19700.    1819.   13864.    4017.     290.    1277.     970.    1703.     462.   1549.60
      .35     6.28    10.85     4.14     .035     .033     .040     .000  1544.50  9802.57
  .004479    1000.    1024.    1015.       20        6        0      .00   772.30 10574.87


FLOW DISTRIBUTION FOR SECNO=     13.36          CWSEL=   1553.28
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    9803.    9904.    9934.   10031.   10051.   10091.   10138.   10217.   10370.   10485.   10547.   10575.
  PER Q=     9.2      5.4     53.8      4.8      6.4      4.1      3.5      3.5      5.3      3.4       .6
   AREA=   289.8    169.9    789.9    134.5    183.1    149.3    168.1    219.6    248.4    150.5     34.5
    VEL=     6.3      6.3     13.4      7.1      6.8      5.4      4.1      3.2      4.2      4.5      3.3
  DEPTH=     2.9      5.7      8.1      6.7      4.6      3.2      2.1      1.4      2.2      2.4      1.2

1490 NH CARD USED
*SECNO 13.548

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PASSABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   13.548     6.72  1560.22  1560.22      .00  1562.12     1.90     5.39      .00  1557.40
   19700.    2099.   17418.    184.     369.    1502.      78.    1754.     477.   1559.30
      .56     5.69    11.60     2.36     .041     .031     .040     .000  1553.50  9707.82
  .006658    1030.    1003.    925.       20       15        0      .00   570.46 10278.27


FLOW DISTRIBUTION FOR SECNO=     13.55          CWSEL=   1560.22

STA=    9708.    9793.    9835.    9863.    9892.   10068.   10154.   10278.
  PER Q=     5.2      5.0      2.4      3.9     71.6     12.9       .9
   AREA=   146.0    143.9     78.9    107.4   1057.0    337.2     78.0
    VEL=     4.3      6.9      6.0      7.2     13.3      7.5      2.4
  DEPTH=     1.7      3.4      2.8      3.7      6.0      3.9       .6

1490 NH CARD USED
*SECNO 13.740
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

   13.740     7.35  1567.55      .00      .00  1568.45      .90     6.03      .30  1569.60
   19700.       0.    19700.       0.       0.    2587.       0.    1807.     491.   1574.70
     1.02      .00     7.61      .00     .000     .038     .000     .000  1560.20  9753.03
  .005309    1085.    1014.    870.        3        0        0      .00   594.66 10347.69
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     13.74         CWSEL=   1567.55

STA=    9753.   10362.
  PER Q=    100.0
   AREA=   2587.4
    VEL=      7.6
  DEPTH=      4.4

1490 NH CARD USED
*SECNO 13.929
1550 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

   13.929     6.61  1574.11      .00      .00  1575.66     1.55     7.21      .00  1573.80
   19700.      50.   19650.       0.      24.    1962.       0.    1859.     504.   1581.20
     1.04     2.07    10.02      .00     .035     .039     .000     .000  1567.50  9510.81
  .010406     950.     998.     960.        3        0        0      .00   540.30 10051.11


FLOW DISTRIBUTION FOR SECNO=     13.93         CWSEL=   1574.11

STA=    9511.    9587.   10062.
  PER Q=       .3     99.7
   AREA=     24.1   1961.9
    VEL=      2.1     10.0
  DEPTH=       .3      4.2

1490 NH CARD USED
*SECNO 14.137

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.51

   14.137     6.70  1582.10      .00      .00  1583.10     1.00     7.27      .17  1583.10
   19700.       0.   19700.       0.       0.    2458.       0.    1915.     517.   1582.00
     1.08      .00     8.01      .03     .000     .035     .040     .000  1575.40  9670.50
  .004531     995.    1098.    1120.        3        0        0      .00   537.05 10207.55
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     14.14         CWSEL=   1582.10

STA=    9670.    9703.    9732.    9790.    9809.    9986.   10038.   10091.   10117.   10207.
  PER Q=      2.9      8.8     10.1      4.9     28.1     19.8      8.9      9.9      6.6
   AREA=    105.0    163.9    277.9     96.9    804.2    335.3    249.5    167.7    258.1
    VEL=      5.4     10.6      7.1      9.9      6.9     11.6      7.0     11.6      5.1
  DEPTH=      3.2      5.7      4.8      5.1      4.5      6.4      4.7      6.5      2.9

1490 NH CARD USED
*SECNO 14.323

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   14.323     6.77  1587.37  1587.37      .00  1589.16     1.80     5.76      .00  1585.40
   19700.    2084.   17611.       6.     424.    1565.       3.    1966.     530.   1586.40
     1.11     4.92    11.25     1.99     .040     .034     .040     .000  1580.60  9682.86
  .007703    1050.     982.     920.        3        5        0      .00   558.15 10241.01


FLOW DISTRIBUTION FOR SECNO=     14.32         CWSEL=   1587.37

STA=    9683.    9758.    9895.    9927.    9981.   10051.   10110.   10125.   10190.   10197.   10235.   10241.
  PER Q=      3.9      5.1      1.6      7.8     35.9     13.5      6.0     15.9      3.3      6.9       .0
   AREA=    146.0    216.3     61.3    198.4    462.6    285.2     85.7    327.3     43.9    161.9      2.9
    VEL=      5.2      4.7      5.0      7.7     15.3      9.3     13.9      9.6     14.8      8.5      2.0
  DEPTH=      1.9      1.6      1.9      3.7      6.6      4.8      5.7      5.0      6.3      4.3       .5

1490 NH CARD USED
*SECNO 14.547
   14.547     6.82  1595.82      .00      .00  1597.30     1.48     8.04      .10  1593.40
   19700.    9690.   10010.       0.    1203.     898.       0.    2021.     545.   1595.80
     1.14     8.05    11.15      .03     .034     .031     .000     .000  1589.00  9543.88
  .006103    1160.    1183.    1195.        3        0        0      .00   573.27 10117.15


FLOW DISTRIBUTION FOR SECNO=     14.55         CWSEL=   1595.82
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       DLOSS   BANK ELEV
  Q        WLOB     WCH      WROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    9544.    9568.    9606.    9638.    9667.    9688.    9740.    9855.    9897.    9940.    9969.    9986.   10085.
  PER Q=     3.7     12.3      8.5      7.2      3.7      3.2      4.2      3.7      2.7      2.9      3.3     41.4
   AREA=    82.4    204.1    152.7    132.5     93.9    123.3    189.6    122.7    101.9     91.9     91.3    619.8
    VEL=     8.8     11.9     11.0     10.7      7.9      5.2      4.4      5.9      5.2      6.3      7.1     13.1
  DEPTH=     3.4      5.4      4.8      4.6      4.5      2.4      1.6      2.9      2.4      3.2      5.4      6.3

STA=   10085.   10117.
  PER Q=     3.3
   AREA=    95.1
    VEL=     6.8
  DEPTH=     3.0

1490 NH CARD USED
*SECNO 14.743
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
   14.743     7.56  1601.56      .00      .00  1602.61     1.06     5.19      .13  1598.30
   19701.    7557.   12143.       0.    1508.    1248.       0.    2078.     561.   1604.60
     1.18     5.01     9.73      .00     .038     .034     .000     .000  1594.00  9262.73
  .004278    1010.    1035.    1020.        3        0        0      .00   794.26 10056.99


FLOW DISTRIBUTION FOR SECNO=     14.74          CWSEL=   1601.56

STA=    9263.    9403.    9450.    9480.    9571.    9621.    9663.    9793.    9828.    9864.   10060.
  PER Q=     3.1      7.4      3.5      5.9      3.8      3.2      5.1      3.3      3.0     61.6
   AREA=   197.4    189.3    115.7    246.8    147.7    126.3    253.7    117.5    113.7   1248.1
    VEL=     3.1      7.7      6.0      4.7      5.0      5.1      4.0      5.4      5.2      9.7
  DEPTH=     1.4      4.0      3.9      2.7      3.0      3.0      2.0      3.4      3.2      6.5

1490 NH CARD USED
*SECNO 14.943

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   14.943     7.10  1607.10  1607.10      .00  1608.52     1.42     5.42      .00  1606.10
   19701.    1263.   13881.    4555.     270.    1300.     705.    2135.     579.   1603.60
     1.11     4.68    10.67     6.46     .035     .034     .037     .000  1600.00  9517.32
  .006937     860.    1056.    1025.        2        8        0      .00   826.59 10545.21
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      ARCB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     14.94         CWSEL=   1607.10

STA=    9517.    9751.    9812.    9842.    9869.    9902.    9942.    9969.   10020.   10047.   10069.   10106.   10166.
  PER Q=      3.5      2.9      2.1      4.9     12.0      8.0     12.3     12.3     13.3      5.5      3.9      6.4
   AREA=    162.3    107.5     67.5    135.0    183.2    184.7    171.5    262.4    179.6    116.6    116.6    189.0
    VEL=      4.2      5.4      6.1      7.2     12.9      8.5     14.2      9.2     14.6      9.3      6.7      6.7
  DEPTH=       .7      1.8      2.3      5.0      5.6      4.6      6.4      5.1      6.7      5.3      3.2      3.2

STA=   10166.   10217.   10510.   10534.   10545.
  PER Q=      3.7      5.4      3.6       .2
   AREA=    127.5    180.2     81.0     10.6
    VEL=      5.7      5.9      8.6      3.4
  DEPTH=      2.5       .6      3.4      1.0

1490 NH CARD USED
*SECNO 15.128
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
   15.128     7.28  1614.18      .00      .00  1615.15      .97     6.50      .14  1615.10
   21100.       0.   15061.    6039.       0.    1834.     860.    2190.     596.   1612.00
     1.24      .00     8.21     7.02     .000     .040     .035     .000  1606.90  9737.43
  .006462     990.     977.     950.        3        0        0      .00   712.64 10450.07


FLOW DISTRIBUTION FOR SECNO=     15.13         CWSEL=   1614.18

STA=    9737.   10145.   10173.   10209.   10228.   10249.   10292.   10345.   10374.   10384.   10411.   10448.   10450.
  PER Q=     71.4      2.8      3.9      1.4      2.5      5.2      4.2      2.9      1.5      3.2      1.0       .0
   AREA=   1834.0     83.5    112.8     47.2     68.9    143.3    136.9     86.5     38.8     90.0     51.2       .5
    VEL=      8.2      7.1      7.3      6.3      7.5      7.6      6.4      7.1      8.4      7.6      4.2      1.3
  DEPTH=      4.5      3.0      3.1      2.5      3.3      3.3      2.6      3.0      3.9      3.3      1.4       .2

1490 NH CARD USED
*SECNO 15.304
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
   15.304     6.55  1620.85      .00      .00  1621.88     1.04     6.73      .00  1619.30
   21100.   11190.    9910.       0.    1557.    1081.       0.    2247.     614.   1623.70
     1.27     7.19     9.17      .00     .035     .040     .000     .000  1614.30  9091.51
  .008125     930.     929.     950.        3        0        0      .00   976.58 10068.09
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     15.30          CWSEL=   1620.85

STA=    8092.    9222.    9274.    9298.    9355.    9440.    9537.    9620.    9713.    9792.    9826.   10080.
  PER Q=     3.1     14.5      4.1      6.1      5.9      5.3      4.4      5.1      3.4      1.1     47.0
   AREA=   141.9    252.2     99.4    164.8    190.5    188.3    156.9    180.5    133.6     49.0   1081.1
    VEL=     4.7     12.1      8.6      7.8      6.6      6.0      5.9      6.0      5.4      4.9      9.2
  DEPTH=     1.1      4.8      4.1      2.9      2.2      1.9      1.9      1.9      1.7      1.4      4.5

1490 NH CARD USED
*SECNO 15.507
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

   15.507     5.61  1630.51      .00      .00  1631.39      .88     9.46      .05  1628.30
   211000.   14615.    6485.       0.    1991.     814.       0.    2321.     641.  1634.10
     1.52     7.34     7.97      .00     .038     .038     .000     .000  1624.90  8705.17
  .007939    1240.    1072.    1010.        4        0        0      .00  1006.79 10063.41


FLOW DISTRIBUTION FOR SECNO=     15.51          CWSEL=   1630.51

STA=    8905.    8957.    9006.    9022.    9043.    9067.    9102.    9148.    9196.    9257.    9357.    9406.    9707.
  PER Q=     5.5      4.2      3.1      7.7      5.3      5.0      5.6      5.4      4.6      5.3      5.3      3.3
   AREA=   158.6    135.7     72.2    116.8    116.7    131.7    157.0    156.6    154.9    206.2    154.3    148.1
    VEL=     7.4      6.5      9.0     13.9      9.5      8.0      7.5      7.3      6.2      5.4      7.2      4.7
  DEPTH=     3.1      2.8      4.5      5.6      4.9      3.8      3.4      3.3      2.5      2.1      3.1       .5

STA=    9707.    9761.    9827.   10072.
  PER Q=     5.2      3.9     30.7
   AREA=   148.3    134.1    813.6
    VEL=     7.4      6.1      8.0
  DEPTH=     2.7      2.0      3.4

1490 NH CARD USED
*SECNO 15.715
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

   15.715     9.04  1637.04      .00      .00  1638.08     1.03     6.68      .00  1641.00
   211000.   13595.    7505.       0.    1755.     849.       0.    2385.     661.  1641.00
     1.55     7.75     8.84      .00     .035     .037     .000     .000  1628.00  8733.48
  .005347    1000.    1098.    1000.        4        0        0      .00   706.35 10045.89
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     15.72          CWSEL=   1637.04

STA=    8733.    8762.    8808.    8843.    8888.    8964.    9045.    9095.    9137.    9277.   10054.
  PER Q=      4.9      4.5     12.5     11.0     12.7      8.5      4.8      3.0      2.5     35.6
   AREA=    110.5    177.0    216.8    242.7    326.3    262.7    154.7    108.9    155.4    848.7
    VEL=      9.3      5.4     12.2      9.5      8.2      6.8      6.6      5.9      3.4      8.8
  DEPTH=      3.9      3.8      6.2      5.4      4.3      3.2      3.1      2.6      1.1      5.2

1490 NH CARD USED
*SECNO 15.923
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   15.923     8.67  1644.17  1644.17      .00  1645.53     1.37     7.07      .00  1645.10
   21100.   11993.    9107.       0.    1576.     806.       0.    2452.     681.   1648.50
     1.39     7.61    11.30      .00     .033     .036     .000     .000  1635.50  8970.32
  .006853    1220.    1098.    1095.        2       10        0      .00   767.91 10081.57


FLOW DISTRIBUTION FOR SECNO=     15.92          CWSEL=   1644.17

STA=    8970.    9031.    9175.    9244.    9341.    9377.    9417.    9446.    9476.    9501.    9522.    9541.    9566.
  PER Q=      3.1      4.6      3.2      4.8      3.6      4.8      3.8      4.1      6.1      6.4      4.1      5.0
   AREA=    126.5    194.7    126.5    179.4    105.0    130.7    100.6    105.5    114.2    109.6     81.1    101.7
    VEL=      5.1      5.0      5.3      5.6      7.2      7.7      8.1      8.1     11.3     12.3     10.8     10.4
  DEPTH=      2.1      1.4      1.8      1.8      2.9      3.3      3.5      3.5      4.6      5.2      4.3      4.1

STA=    9566.    9610.   10083.
  PER Q=      3.3     43.2
   AREA=    101.1    805.9
    VEL=      6.9     11.3
  DEPTH=      2.3      6.3

1490 NH CARD USED
*SECNO 16.129

3265 DIVIDED FLOW
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


   16.129     8.66  1650.46      .00      .00  1651.85     1.39     6.32      .00  1646.20
   21100.   10884.   10216.       1.    1553.     886.       1.    2510.     699.   1650.00
     1.42     7.01    11.54     1.16     .034     .030     .035     .000  1641.80  9347.49
 .005369    1010.    1088.    1080.        3        0        0      .00   715.52 10096.66


FLOW DISTRIBUTION FOR SECNO=     16.13         CWSEL=   1650.46

STA=    9347.    9517.    9615.    9667.    9700.    9739.    9778.    9837.    9886.    9938.   10042.   10081.   10094.
  PER Q=      3.9      3.5      3.2      4.3      6.2      7.5      5.0      8.7      9.2     44.1      3.9       .4
   AREA=    210.9    178.8    119.3    110.9    148.6    166.2    208.5    199.0    211.2    713.5    152.5     19.6
    VEL=      4.0      4.1      5.6      8.1      8.9      9.5      5.1      9.2      9.2     13.1      5.4      4.1
  DEPTH=      1.2      1.8      2.3      3.4      3.8      4.3      3.5      4.1      4.1      6.9      3.9      1.5

STA=   10094.   10097.
  PER Q=       .0
   AREA=       .6
    VEL=      1.2
  DEPTH=       .2

1490 NH CARD USED
*SECNO 16.315
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   16.315     7.45  1656.95  1656.95      .00  1658.23     1.28     5.72      .03  1659.70
   21100.       0.   10297.   10803.       0.     928.    1641.    2563.     716.   1653.10
     1.45      .00    11.10     6.58     .000     .036     .038     .000  1649.50  9944.81
 .006918     790.     982.    1020.        1       10        0      .00   914.03 10881.24


FLOW DISTRIBUTION FOR SECNO=     16.32         CWSEL=   1656.95

STA=    9945.   10106.   10158.   10209.   10230.   10255.   10301.   10361.   10389.   10432.   10548.   10777.   10881.
  PER Q=     48.8      7.4      7.9      3.9      3.3      3.5      6.2      4.3      4.5      4.0      3.4      2.8
   AREA=    927.5    203.0    209.3     96.7     93.9    124.4    192.0    114.9    129.2    173.3    206.9     97.2
    VEL=     11.1      7.7      7.9      8.5      7.4      6.0      6.8      7.9      7.4      4.8      3.5      6.1
  DEPTH=      5.8      3.9      4.1      4.6      3.8      2.7      3.2      4.1      3.0      1.5       .9       .9
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 16.515
   16.515     7.47  1663.47      .00      .00  1664.27      .80     5.90      .14  1664.60
   21100.       0.   16707.    4393.       0.    2162.     956.    2633.     739.   1661.30
     1.49      .00     7.73     4.60     .000     .035     .038     .000  1656.00  9751.51
  .004549    1045.    1056.    1075.        3        0        0      .00   914.44 10665.95


FLOW DISTRIBUTION FOR SECNO=     16.51          CWSEL=   1663.47

STA=    9752.    9792.    9831.    9870.    9903.    9948.   10000.   10035.   10068.   10236.   10370.   10461.   10576.
  PER Q=      1.5      7.7      3.0      8.4      4.5     15.8      5.6     12.3     20.4      5.2      4.7      4.1
   AREA=     93.0    177.1    136.7    175.0    185.6    306.4    189.8    220.2    677.7    272.9    217.0    221.3
    VEL=      3.5      9.1      4.6     10.1      5.2     10.9      6.2     11.8      6.3      4.0      4.5      3.9
  DEPTH=      2.3      4.5      3.5      5.3      4.1      5.9      5.4      6.7      4.0      2.0      2.4      1.9

STA=   10576.   10646.   10666.
  PER Q=      6.4       .5
   AREA=    212.8     31.7
    VEL=      6.3      3.4
  DEPTH=      3.0      1.6

1490 NH CARD USED
*SECNO 16.711
   16.711     5.66  1669.36      .00      .00  1670.39     1.02     6.11      .00  1667.90
   21100.    9966.   11134.       0.    1340.    1282.       0.    2701.     760.   1669.30
     1.53     7.44     8.68      .04     .040     .033     .035     .000  1663.70  9456.63
  .007892    1050.    1035.    1050.        2        0        0      .00   822.06 10278.69


FLOW DISTRIBUTION FOR SECNO=     16.71          CWSEL=   1669.36

STA=    9457.    9539.    9591.    9625.    9669.    9700.    9724.    9759.    9826.    9872.    9923.    9974.    9992.
  PER Q=      5.3      7.7      4.6      6.0      4.8      4.2      5.5      6.6      2.4      3.2     16.2      3.0
   AREA=    190.5    201.0    124.6    161.2    122.9    102.3    140.5    202.0     95.0    134.2    261.7     84.9
    VEL=      5.9      8.1      7.8      7.8      8.3      8.7      8.3      6.9      5.3      5.0     13.1      7.4
  DEPTH=      2.3      3.9      3.7      3.7      4.0      4.3      4.0      3.0      2.1      2.6      5.1      4.7

STA=    9992.   10023.   10228.   10278.
  PER Q=     10.9     19.0       .5
   AREA=    168.5    596.9     35.7
    VEL=     13.6      6.7      3.0
  DEPTH=      5.4      2.9       .7
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 16.900
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
   16.900     8.27  1676.77      .00      .00  1677.75      .98     7.35      .01  1675.20
   21100.   13030.    8063.       7.    1873.     863.       4.    2764.     779.  1676.10
     1.56     6.96     9.34     1.66     .040     .038     .035     .000  1668.50  9335.78
  .006596    1040.     998.     990.        4        0        0      .00   784.24 10120.03


FLOW DISTRIBUTION FOR SECNO=     16.90          CWSEL=   1676.77

STA=    9336.    9367.    9475.    9531.    9623.    9642.    9688.    9731.    9760.    9803.    9857.    9908.    9937.
  PER Q=      3.8      5.4      3.3      3.6      3.2     11.9      7.0      4.1      6.9      7.2      4.1      1.2
   AREA=    111.6    229.3    129.9    167.9     84.0    260.8    185.8    115.1    183.6    206.3    143.8     54.2
    VEL=      7.2      5.0      5.3      4.5      8.0      9.6      8.0      7.6      7.9      7.4      6.0      4.6
  DEPTH=      3.6      2.1      2.3      1.8      4.4      5.7      4.3      4.0      4.3      3.8      2.8      1.9

STA=    9937.   10107.   10120.
  PER Q=     38.2       .0
   AREA=    862.9      4.4
    VEL=      9.3      1.7
  DEPTH=      5.1       .3

1490 NH CARD USED
*SECNO 17.087
   17.087     8.14  1683.24      .00      .00  1684.55     1.32     6.80      .00  1681.50
   21100.    3999.   17098.       3.     730.    1730.       2.    2825.     796.  1682.60
     1.59     5.48     9.88     1.65     .038     .036     .035     .000  1675.10  9319.02
  .006957    1030.     987.     985.        3        0        0      .00   756.02 10075.03


FLOW DISTRIBUTION FOR SECNO=     17.09          CWSEL=   1683.24

STA=    9319.    9431.    9451.    9513.    9632.    9712.    9919.    9973.   10032.   10069.   10075.
  PER Q=      4.7      4.0      3.0      4.7      2.6     35.1      9.3     33.9      2.7       .0
   AREA=    181.0     80.8    126.6    212.7    129.1    898.9    270.2    448.6    112.5      1.9
    VEL=      5.4     10.4      5.1      4.6      4.3      8.2      7.2     16.0      5.1      1.6
  DEPTH=      1.6      4.0      2.0      1.8      1.6      4.3      5.0      7.6      3.0       .3

1490 NH CARD USED
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 17.287
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

   17.287     6.24  1690.04      .00      .00  1690.91      .87     6.22      .13  1691.50
   21100.       0.   17269.    3831.       0.    2145.     955.    2891.     819.   1687.60
     1.63      .00     8.05     4.01     .000     .035     .040     .000  1683.80  9637.41
  .005151    1030.    1056.     960.        2        0        0      .00  1163.81 10858.63


FLOW DISTRIBUTION FOR SECNO=     17.29          CWSEL=   1690.04

STA=    9637.   10130.   10231.   10346.   10679.   10827.   10859.
  PER Q=     81.8      5.8      5.5      3.5      3.2       .3
   AREA=   2145.4    249.5    254.8    235.0    191.1     24.1
    VEL=      8.0      4.9      4.5      3.1      3.5      2.3
  DEPTH=      4.4      2.5      2.2       .7      1.3       .8

1490 NH CARD USED
*SECNO 17.487
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
   17.487     6.67  1696.37      .00      .00  1697.41     1.05     6.51      .00  1705.60
   21100.       0.   19353.    1747.       0.    2294.     345.    2959.     842.   1694.10
     1.67      .00     8.44     5.07     .000     .038     .040     .000  1689.70  9515.10
  .007639    1050.    1056.     990.        2        0        0      .00   801.48 10316.58


FLOW DISTRIBUTION FOR SECNO=     17.49          CWSEL=   1696.37

STA=    9515.   10113.   10192.   10281.   10317.
  PER Q=     91.7      5.1      3.1       .1
   AREA=   2293.9    187.1    144.0     13.7
    VEL=      8.4      5.8      4.5      1.7
  DEPTH=      3.8      2.4      1.6       .4

1490 NH CARD USED
*SECNO 17.720
   17.720     6.48  1705.78      .00      .00  1706.87     1.09     9.45      .00  1716.50
   21100.       0.   13076.    8024.       0.    1335.    1530.    3035.     868.   1704.20
     1.71      .00     9.79     5.24     .000     .036     .040     .000  1699.30  9914.35
  .008080    1260.    1230.    1115.        4        0        0      .00  1175.00 11089.35
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 17.72 CWSEL= 1705.78

STA=	9914.	10221.	10330.	10426.	10492.	10586.	10745.	10822.	10963.	11089.
PER Q=	62.0	7.0	5.5	4.6	5.1	3.5	5.7	3.3	3.4	
AREA=	1335.0	252.6	207.0	160.8	197.8	188.3	191.1	159.7	172.6	
VEL=	9.8	5.9	5.6	6.0	5.5	3.9	6.3	4.3	4.1	
DEPTH=	4.4	2.3	2.2	2.4	2.1	1.2	2.5	1.1	1.4	

1490 NH CARD USED
*SECNO 17.840

3265 DIVIDED FLOW

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

17.840	5.58	1709.58	.00	.00	1710.23	.65	3.24	.13	1715.60
21100.	0.	13975.	7125.	0.	1902.	1635.	3079.	884.	1706.70
1.74	.00	7.35	4.36	.000	.033	.040	.000	1704.00	9964.20
.003683	745.	634.	585.	2	0	0	.00	1106.87	11142.84

FLOW DISTRIBUTION FOR SECNO= 17.84 CWSEL= 1709.58

STA=	9964.	10403.	10444.	10499.	10543.	10616.	10692.	10789.	10905.	10977.	11143.
PER Q=	66.2	3.2	4.8	3.1	3.9	4.3	4.5	3.5	4.7	1.7	
AREA=	1902.0	136.0	195.0	137.3	190.4	207.7	234.5	214.0	210.1	109.8	
VEL=	7.3	5.0	5.2	4.8	4.3	4.4	4.1	3.4	4.7	3.2	
DEPTH=	4.3	3.3	3.5	3.1	2.6	2.7	2.4	1.8	2.9	.7	

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							1359.02	

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

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


*PROF 2
0

CCHV=     .300 CEHV=     .000
1490 NH CARD USED
*SECNO 7.713
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9208.0   10212.0  TYPE=      1  TARGET=     1004.000
    7.713     7.52  1359.02      .00  1358.02  1359.85      .83      .00      .00  1356.30
   33200.   21660.   11540.       0.    2844.    1721.       0.       0.       0. 100000.00
      .00     7.62     6.70      .00     .040     .044     .000     .000  1351.50  9208.00
  .005326       0.       0.       0.        0        0        0      .00  1003.86 10211.86


FLOW DISTRIBUTION FOR SECNO=      7.71         CWSEL=   1359.02

STA=    9208.    9250.    9272.    9294.    9326.    9372.    9427.    9472.    9502.    9554.    9602.    9650.    9701.
  PER Q=      5.0      3.8      4.0      4.2      5.3      7.3      6.0      4.0      5.5      4.0      4.3      4.8
   AREA=    215.7    137.9    142.3    168.6    224.0    292.6    239.4    159.6    241.5    193.0    202.6    220.3
    VEL=      7.6      9.2      9.4      8.2      7.8      8.3      8.3      8.3      7.6      6.9      7.1      7.2
  DEPTH=      5.1      6.3      6.5      5.3      4.9      5.3      5.3      5.3      4.6      4.0      4.2      4.3

STA=    9701.    9744.    9829.   10212.
  PER Q=      3.1      4.1     34.8
   AREA=    157.8    248.2   1721.2
    VEL=      6.4      5.5      6.7
  DEPTH=      3.7      2.9      4.5

1490 NH CARD USED
*SECNO 7.842

3470 ENCROACHMENT STATIONS=     9320.0   10450.0  TYPE=      1  TARGET=     1130.000
    7.842     6.75  1362.65      .00  1362.15  1363.72     1.07     3.87      .00  1359.20
   33200.    9938.   20115.    3147.    1166.    2364.     528.      66.      16.  1360.90
      .02     8.52     8.51     5.96     .035     .035     .035     .000  1355.90  9320.00
  .006454     640.     681.     690.        1        0        0      .00  1130.00 10450.00


FLOW DISTRIBUTION FOR SECNO=      7.84         CWSEL=   1362.65
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    9320.    9393.    9472.    9539.    9612.   10212.   10306.   10391.   10450.
  PER Q=      7.7      8.0      7.2      7.0     60.6      3.5      4.7      1.3
   AREA=    300.8    312.4    275.0    277.8   2364.5    202.1    234.2     91.7
    VEL=      8.5      8.5      8.7      8.3      8.5      5.7      6.7      4.5
  DEPTH=      4.1      4.0      4.1      3.8      3.9      2.1      2.8      1.6

1490 NH CARD USED
*SECNO 8.062
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9690.0   10390.0  TYPE=      1  TARGET=      700.000
    8.062     8.55  1370.55      .00  1369.75  1371.90     1.35     8.18      .00  1366.90
   33200.    6558.   26642.       0.     702.    2857.       0.     171.      41. 100000.00
      .06     9.35     9.32      .00     .035     .041     .000     .000  1362.00  9690.00
  .007139    1365.    1162.    1020.        3        0        0      .00   700.00 10390.00


FLOW DISTRIBUTION FOR SECNO=      8.06          CWSEL=   1370.55

STA=    9690.    9758.    9794.    9829.    9860.   10390.
  PER Q=      5.4      4.3      5.9      4.2     80.2
   AREA=    226.5    152.7    181.7    140.8   2857.5
    VEL=      7.9      9.4     10.8      9.8      9.3
  DEPTH=      3.3      4.2      5.2      4.5      5.4

1490 NH CARD USED
*SECNO 8.279
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .52


3470 ENCROACHMENT STATIONS=     9550.0   10065.0  TYPE=      1  TARGET=      515.000
    8.279     8.92  1379.92      .00  1379.22  1381.54     1.62     9.64      .00  1378.20
   19800.    2645.   17155.       0.     387.    1614.       0.     250.      59. 100000.00
      .09     6.83    10.63      .00     .035     .038     .000     .000  1371.00  9550.00
  .009300    1640.    1146.    1100.        3        0        0      .00   515.00 10065.00


FLOW DISTRIBUTION FOR SECNO=      8.28          CWSEL=   1379.92
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    9550.    9605.    9644.    9683.    9727.   10065.
  PER Q=      4.0      3.3      3.4      2.7     86.6
   AREA=    119.5     90.5     92.4     84.5   1614.2
    VEL=      6.6      7.2      7.3      6.3     10.6
  DEPTH=      2.2      2.3      2.4      1.9      4.8

1490 NH CARD USED
*SECNO 8.485
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9590.0   10080.0  TYPE=      1  TARGET=      490.000
    8.485     9.45  1388.75      .00  1388.26  1389.98     1.23     8.32      .12  1387.30
   19800.    2464.   17336.       0.     296.    1935.       0.     301.      71. 100000.00
      .13     8.33     8.96      .00     .035     .038     .000     .000  1379.30  9590.00
  .006673     900.    1088.    1100.        3        0        0      .00   490.00 10080.00


FLOW DISTRIBUTION FOR SECNO=      8.48          CWSEL=   1388.75

STA=    9590.    9618.    9633.    9668.   10080.
  PER Q=      4.0      3.7      4.7     87.6
   AREA=    103.4     73.5    118.9   1934.9
    VEL=      7.8     10.0      7.8      9.0
  DEPTH=      3.7      4.9      3.4      4.7

1490 NH CARD USED
*SECNO 8.680
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9535.0   10075.0  TYPE=      1  TARGET=      540.000
    8.680     8.28  1394.98      .00  1394.20  1396.00     1.02     5.96      .06  1393.30
   19800.    1659.   18141.       0.     234.    2209.       0.     354.      83. 100000.00
      .16     7.08     8.21      .00     .035     .037     .000     .000  1386.70  9535.00
  .005429     680.    1030.    1030.        3        0        0      .00   540.00 10075.00


FLOW DISTRIBUTION FOR SECNO=      8.68          CWSEL=   1394.98

STA=    9535.    9566.    9602.   10075.
  PER Q=      5.4      2.9     91.6
   AREA=    138.0     96.4   2209.4
    VEL=      7.8      6.0      8.2
  DEPTH=      4.5      2.7      4.7
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 8.870
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9685.0   10150.0  TYPE=      1  TARGET=      465.000
    8.870     6.84  1401.14      .00  1400.59  1402.70     1.56     6.70      .00100000.00
   19800.       0.   19800.       0.       0.    1974.       0.     405.      94. 100000.00
      .19      .00    10.03      .00     .000     .035     .000     .000  1394.30  9685.00
  .008447     975.    1003.     970.        2        0        0      .00   465.00 10150.00


FLOW DISTRIBUTION FOR SECNO=      8.87          CWSEL=   1401.14

STA=    9685.   10150.
  PER Q=    100.0
   AREA=   1974.2
    VEL=     10.0
  DEPTH=      4.2

1490 NH CARD USED
*SECNO 9.060
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9930.0   10450.0  TYPE=      1  TARGET=      520.000
    9.060     8.03  1408.43      .00  1407.44  1409.59     1.16     6.77      .12100000.00
   19800.       0.   16417.    3383.       0.    1822.     505.     455.     106.   1405.50
      .22      .00     9.01     6.70     .000     .036     .035     .000  1400.40  9930.00
  .005533     945.    1003.     980.        3        0        0      .00   520.00 10450.00


FLOW DISTRIBUTION FOR SECNO=      9.06          CWSEL=   1408.43

STA=    9930.   10289.   10347.   10381.   10417.   10445.   10450.
  PER Q=     82.9      6.5      3.8      3.2      3.1       .5
   AREA=   1822.2    187.0    109.6    101.6     88.9     17.7
    VEL=      9.0      6.9      6.9      6.3      6.8      5.2
  DEPTH=      5.1      3.2      3.2      2.8      3.2      3.5
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 9.310
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9971.0   10490.0  TYPE=      1  TARGET=      519.000
    9.310     9.91  1415.41      .00  1414.68  1416.53     1.13     6.93      .01100000.00
   19800.       0.   18351.    1449.       0.    2104.     260.     524.     121.   1413.20
      .26      .00     8.72     5.57     .000     .036     .035     .000  1405.50  9971.00
  .005228    1310.    1320.    1070.        4        0        0      .00   519.00 10490.00


FLOW DISTRIBUTION FOR SECNO=      9.31         CWSEL=   1415.41

STA=    9971.   10386.   10466.   10490.
  PER Q=     92.7      5.5      1.8
   AREA=   2104.4    196.4     63.9
    VEL=      8.7      5.6      5.5
  DEPTH=      5.1      2.5      2.7

1490 NH CARD USED
*SECNO 9.492
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9706.0   10097.0  TYPE=      1  TARGET=      391.000
    9.492     6.95  1421.05      .00  1420.50  1422.51     1.46     5.98      .00100000.00
   19800.       0.   19800.       0.       0.    2041.       0.     572.     131. 100000.00
      .29      .00     9.70      .00     .000     .040     .000     .000  1414.10  9706.00
  .007662     940.     961.     750.        2        0        0      .00   391.00 10097.00


FLOW DISTRIBUTION FOR SECNO=      9.49         CWSEL=   1421.05

STA=    9706.   10097.
  PER Q=    100.0
   AREA=   2041.0
    VEL=      9.7
  DEPTH=      5.2

1490 NH CARD USED
*SECNO 9.702
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       QLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9525.0   10075.0  TYPE=      1  TARGET=      550.000
    9.702     7.98  1427.88      .00  1427.83  1428.60      .72     5.87      .22  1424.60
   19800.    2734.   17066.       0.     530.    2426.       0.     634.     142. 100000.00
      .33     5.16     7.03      .00     .045     .043     .000     .000  1419.90  9525.00
  .003968     880.    1109.    1130.        2        0        0      .00   550.00 10075.00


FLOW DISTRIBUTION FOR SECNO=      9.70         CWSEL=   1427.88

STA=    9525.    9537.    9568.    9658.   10075.
  PER Q=      3.5      4.3      6.0     86.2
   AREA=     82.3    156.1    291.2   2426.1
    VEL=      8.3      5.5      4.1      7.0
  DEPTH=      6.9      5.0      3.2      5.8

1490 NH CARD USED
*SECNO 9.896
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9861.0   10360.0  TYPE=      1  TARGET=      499.000
    9.896     8.37  1432.87      .00  1431.87  1433.96     1.09     5.36      .00100000.00
   19800.       0.   14330.    5470.       0.    1651.     724.     696.     154.   1430.70
      .37      .00     8.68     7.56     .000     .046     .039     .000  1424.50  9861.00
  .007274     970.    1024.    1030.        2        0        0      .00   499.00 10360.00


FLOW DISTRIBUTION FOR SECNO=      9.90         CWSEL=   1432.87

STA=    9861.   10152.   10190.   10251.   10289.   10333.   10360.
  PER Q=     72.4      2.1      5.3      4.7     10.4      5.1
   AREA=   1650.8     90.1    193.5    149.0    185.8    105.1
    VEL=      8.7      4.5      5.5      6.3     11.0      9.7
  DEPTH=      5.7      2.4      3.2      3.9      4.2      3.9

1490 NH CARD USED
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 10.095
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9910.0   10410.0  TYPE=      1  TARGET=      500.000
   10.095     8.14  1439.64      .00  1439.56  1440.87     1.23     6.91      .00  1437.10
   19800.     441.   15888.    3471.      96.    1700.     497.     750.     166.   1435.60
      .40     4.60     9.35     6.98     .039     .043     .035     .000  1431.50  9910.00
  .006381    1090.    1051.     890.        4        0        0      .00   500.00 10410.00


FLOW DISTRIBUTION FOR SECNO=     10.10          CWSEL=   1439.64

STA=    9910.    9960.   10233.   10267.   10308.   10360.   10410.
  PER Q=      2.2     80.2      6.0      5.1      3.4      3.0
   AREA=     96.0   1699.8    137.5    135.1    116.7    108.1
    VEL=      4.6      9.3      8.6      7.5      5.8      5.5
  DEPTH=      1.9      6.2      4.0      3.3      2.2      2.2

1490 NH CARD USED
*SECNO 10.271
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9600.0   10020.0  TYPE=      1  TARGET=      420.000
   10.271     9.25  1446.95  1446.95  1446.55  1449.08     2.13     6.01      .00  1442.90
   19800.    3837.   15963.       0.     579.     1263.       0.     794.     176. 100000.00
      .42     6.63    12.64      .00     .035     .034     .000     .000  1437.70  9600.00
  .006550     930.     929.     930.        3        8        0      .00   420.00 10020.00


FLOW DISTRIBUTION FOR SECNO=     10.27          CWSEL=   1446.95

STA=    9600.    9726.    9770.    9818.    9843.   10020.
  PER Q=      4.6      3.5      6.9      4.4     80.6
   AREA=    198.6    109.9    170.3     99.9   1263.2
    VEL=      4.6      6.3      8.0      8.7     12.6
  DEPTH=      1.6      2.5      3.5      4.0      7.1
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 10.454
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9830.0   10170.0  TYPE=      1  TARGET=      340.000
   10.454    10.42  1453.32      .00  1452.45  1454.26      .94     4.83      .36100000.00
   19800.       0.   19800.       0.       0.    2544.       0.     842.     184. 100000.00
      .46      .00     7.78      .00     .000     .045     .000     .000  1442.90  9830.00
  .004018     850.     966.    1080.        1        0        0      .00   340.00 10170.00


FLOW DISTRIBUTION FOR SECNO=     10.45          CWSEL=   1453.32

STA=    9830.   10170.
  PER Q=    100.0
   AREA=   2544.2
    VEL=      7.8
  DEPTH=      7.5

1490 NH CARD USED
*SECNO 10.644
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9932.0   10232.0  TYPE=      1  TARGET=      300.000
   10.644     8.48  1458.48  1458.48  1458.37  1461.11     2.63     6.49      .00100000.00
   19700.       0.   19558.     142.       0.    1498.      26.     889.     191.   1457.40
      .48      .00    13.05     5.36     .000     .038     .035     .000  1450.00  9932.00
  .012153     850.    1003.    1170.        3       15        0      .00   300.00 10232.00


FLOW DISTRIBUTION FOR SECNO=     10.64          CWSEL=   1458.48

STA=    9932.   10212.   10232.
  PER Q=     99.3       .7
   AREA=   1498.2     26.5
    VEL=     13.1      5.4
  DEPTH=      5.4      1.3
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 10.835
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.65


3470 ENCROACHMENT STATIONS=     9965.0   10315.0  TYPE=      1  TARGET=      350.000
   10.835    10.81  1467.41      .00  1466.46  1468.53     1.12     6.97      .45100000.00
   19700.       0.   19700.       0.       0.    2320.       0.     934.     199. 100000.00
      .51      .00     8.49      .00     .000     .040     .000     .000  1456.60  9965.00
  .004455    1020.    1008.     970.        3        0        0      .00   350.00 10315.00


FLOW DISTRIBUTION FOR SECNO=     10.84         CWSEL=   1467.41

STA=    9965.   10315.
  PER Q=    100.0
   AREA=   2320.1
    VEL=      8.5
  DEPTH=      6.6

1490 NH CARD USED
*SECNO 11.028
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9935.0   10285.0  TYPE=      1  TARGET=      350.000
   11.028     8.04  1472.74      .00  1472.23  1474.38     1.63     5.85      .00100000.00
   19700.       0.   19700.       0.       0.    1921.       0.     983.     207. 100000.00
      .54      .00    10.26      .00     .000     .039     .000     .000  1464.70  9935.00
  .007661    1050.    1019.     945.        3        0        0      .00   350.00 10285.00


FLOW DISTRIBUTION FOR SECNO=     11.03         CWSEL=   1472.74
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    9935.   10285.
  PER Q=    100.0
   AREA=   1920.8
    VEL=     10.3
  DEPTH=      5.5

1490 NH CARD USED
*SECNO 11.235
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9700.0   10100.0  TYPE=      1  TARGET=      400.000
   11.235     8.26  1480.96      .00  1480.63  1482.39     1.43     7.96      .06100000.00
   19700.       0.   19700.       0.       0.    2050.       0.    1033.     216. 100000.00
      .57      .00     9.61      .00     .000     .038     .000     .000  1472.70  9700.00
  .006928    1080.    1093.    1050.        4        0        0      .00   400.00 10100.00


FLOW DISTRIBUTION FOR SECNO=     11.23          CWSEL=   1480.96

STA=    9700.   10100.
  PER Q=    100.0
   AREA=   2050.3
    VEL=      9.6
  DEPTH=      5.1

1490 NH CARD USED
*SECNO 11.425
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9750.0   10150.0  TYPE=      1  TARGET=      400.000
   11.425     8.15  1487.55      .00  1486.51  1488.79     1.24     6.34      .06100000.00
   19700.       0.   19700.       0.       0.    2202.       0.    1082.     225. 100000.00
      .60      .00     8.94      .00     .000     .038     .000     .000  1479.40  9750.00
  .005788     990.    1003.     990.        3        0        0      .00   400.00 10150.00


FLOW DISTRIBUTION FOR SECNO=     11.43          CWSEL=   1487.55

STA=    9750.   10150.
  PER Q=    100.0
   AREA=   2202.4
    VEL=      8.9
  DEPTH=      5.5
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       DLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 11.608
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9880.0   10255.0  TYPE=      1  TARGET=      375.000
   11.608     8.51  1493.81      .00  1493.07  1495.61     1.80     6.82      .00  1491.60
   19700.     290.   19410.       0.      53.    1792.       0.    1127.     234. 100000.00
      .63     5.47    10.83      .00     .040     .038     .000     .000  1485.30  9880.00
  .008809     980.     966.     900.        2        0        0      .00   375.00 10255.00


FLOW DISTRIBUTION FOR SECNO=     11.61          CWSEL=   1493.81

STA=    9880.    9905.   10255.
  PER Q=      1.5     98.5
   AREA=     53.1   1791.8
    VEL=      5.5     10.8
  DEPTH=      2.1      5.1

1490 NH CARD USED
*SECNO 11.815
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION     11.81 EXTENDED       .45 FEET


3470 ENCROACHMENT STATIONS=     9690.0   10040.0  TYPE=      1  TARGET=      350.000
   11.815     9.75  1501.85      .00  1500.78  1503.21     1.36     7.47      .13  1497.50
   19700.    6252.   13448.       0.     762.    1363.       0.    1176.     243. 100000.00
      .66     8.20     9.86      .00     .040     .039     .000     .000  1492.10  9690.00
  .005485    1070.    1093.    1070.        2        0        0      .00   350.00 10040.00


FLOW DISTRIBUTION FOR SECNO=     11.81          CWSEL=   1501.85

STA=    9690.    9724.    9741.    9772.    9795.    9838.   10040.
  PER Q=      5.1      3.5      7.3      6.0      9.8     68.3
   AREA=    143.9     85.8    166.9    133.4    230.0   1363.3
    VEL=      6.9      8.1      8.5      8.9      8.4      9.9
  DEPTH=      4.2      5.0      5.4      5.8      5.3      6.7
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 12.032
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9880.0   10330.0  TYPE=      1  TARGET=      450.000
   12.032     8.89  1508.29  1508.29  1507.90  1510.41     2.11     6.34      .00100000.00
   19700.       0.   16145.    3555.       0.    1280.     628.    1228.     253.   1504.30
      .69      .00    12.61     5.66     .000     .030     .039     .000  1499.40  9880.00
  .005802    1005.    1146.    1160.        2       15        0      .00   450.00 10330.00


FLOW DISTRIBUTION FOR SECNO=     12.03          CWSEL=   1508.29

STA=    9880.   10084.   10131.   10193.   10262.   10330.
  PER Q=     82.0      4.4      6.0      5.0      2.6
   AREA=   1280.2    166.5    179.3    168.5    113.9
    VEL=     12.6      5.3      6.6      5.9      4.5
  DEPTH=      6.3      3.5      2.9      2.4      1.7

1490 NH CARD USED
*SECNO 12.220

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9850.0   10400.0  TYPE=      1  TARGET=      550.000
   12.220     7.22  1514.12      .00  1513.27  1515.46     1.34     4.82      .23  1511.40
   19700.     679.   17031.    1990.     124.    1738.     436.    1274.     264.   1512.10
      .71     5.49     9.80     4.57     .035     .031     .038     .000  1506.90  9850.00
  .004376    1040.     993.     760.        2        0        0      .00   550.00 10400.00


FLOW DISTRIBUTION FOR SECNO=     12.22          CWSEL=   1514.12

STA=    9850.    9892.    9950.   10143.   10216.   10344.   10400.
  PER Q=      3.4      5.6     74.1      6.7      5.9      4.2
   AREA=    123.6    226.0   1269.8    242.4    281.2    154.4
    VEL=      5.5      4.9     11.5      5.5      4.2      5.3
  DEPTH=      2.9      3.9      6.6      3.3      2.2      2.8
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 12.360
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9680.0   10030.0  TYPE=      1  TARGET=      350.000
   12.360     9.57  1517.37  1517.29  1517.27  1519.72     2.35     4.27      .00  1513.00
   19700.    3008.   16692.       0.     443.    1278.       0.    1307.     271. 100000.00
      .73     6.79    13.06      .00     .040     .036     .000     .000  1507.80  9680.00
  .008038     740.     739.     680.        4       11        0      .00   350.00 10030.00


FLOW DISTRIBUTION FOR SECNO=     12.36          CWSEL=   1517.37

STA=    9680.    9740.    9806.    9850.   10030.
  PER Q=      1.9      6.1      7.3     84.7
   AREA=     87.1    183.4    172.8   1277.7
    VEL=      4.2      6.6      8.3     13.1
  DEPTH=      1.5      2.8      3.9      7.1

1490 NH CARD USED
*SECNO 12.500

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9925.0   10225.0  TYPE=      1  TARGET=      300.000
   12.500     8.85  1522.45      .00  1521.38  1524.27     1.82     4.39      .16  1519.90
   19700.       6.   19143.     551.       3.    1748.     104.    1338.     277.   1519.00
      .75     2.30    10.95     5.27     .035     .032     .040     .000  1513.60  9925.00
  .004565     710.     739.     870.        2        0        0      .00   300.00 10225.00


FLOW DISTRIBUTION FOR SECNO=     12.50          CWSEL=   1522.45

STA=    9925.    9926.    9968.   10134.   10194.   10225.
  PER Q=       .0      5.5     83.4      8.3      2.8
   AREA=      2.5    194.3   1267.3    286.3    104.5
    VEL=      2.3      5.5     13.0      5.7      5.3
  DEPTH=      2.5      4.6      7.6      4.8      3.4
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 12.711
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION     12.71 EXTENDED       .17 FEET


3470 ENCROACHMENT STATIONS=     9815.0   10115.0  TYPE=      1  TARGET=      300.000
   12.711     7.87  1529.07      .00  1528.63  1531.21     2.14     6.94      .00100000.00
   19700.       0.   19692.       8.       0.    1679.       3.    1383.     284.   1527.70
      .78     .00    11.73     3.06     .000     .038     .040     .000  1521.20  9815.00
  .008982    1060.    1114.    1170.        2        0        0      .00   300.00 10115.00


FLOW DISTRIBUTION FOR SECNO=     12.71          CWSEL=   1529.07

STA=    9815.   10113.   10115.
  PER Q=    100.0       .0
   AREA=   1678.5      2.7
    VEL=     11.7      3.1
  DEPTH=      5.6      1.3

1490 NH CARD USED
*SECNO 12.978
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9890.0   10190.0  TYPE=      1  TARGET=      300.000
   12.978     9.97  1539.87      .00  1538.95  1541.55     1.68    10.20      .14  1534.90
   19700.    1617.   18083.       0.     230.    1699.       0.    1441.     294. 100000.00
      .81     7.02    10.65      .00     .040     .039     .000     .000  1529.90  9890.00
  .005969    1370.    1410.    1350.        4        0        0      .00   300.00 10190.00


FLOW DISTRIBUTION FOR SECNO=     12.98          CWSEL=   1539.87

STA=    9890.    9926.    9950.   10190.
  PER Q=      4.0      4.2     91.8
   AREA=    123.1    107.3   1698.7
    VEL=      6.3      7.8     10.6
  DEPTH=      3.4      4.5      7.1
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       DLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 13.164
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9920.0   10300.0  TYPE=      1  TARGET=      380.000
   13.164     9.05  1545.74      .00  1545.63  1547.88     2.14     6.33      .00  1544.10
   19700.      24.   11749.    7928.       6.     871.     934.    1484.     302.   1541.20
      .84     3.82    13.49     8.49     .035     .033     .035     .000  1536.70  9920.00
  .006807     810.     982.    1080.        3        0        0      .00   380.00 10300.00


FLOW DISTRIBUTION FOR SECNO=     13.16         CWSEL=   1545.74

STA=    9920.    9924.   10050.   10104.   10193.   10259.   10287.   10300.
  PER Q=       .1     59.6     11.3     14.0      7.9      3.6      3.4
   AREA=      6.2    870.7    237.3    328.9    207.6     92.3     67.5
    VEL=      3.8     13.5      9.4      8.4      7.5      7.8      9.9
  DEPTH=      1.6      6.9      4.4      3.7      3.1      3.3      5.2

1490 NH CARD USED
*SECNO 13.358

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9900.0   10200.0  TYPE=      1  TARGET=      300.000
   13.358     8.89  1553.39  1553.39  1553.28  1556.06     2.67     7.04      .00  1548.50
   19700.     116.   17740.    1845.      19.    1298.     300.    1524.     310.   1549.60
      .86     6.00    13.67     6.14     .035     .033     .040     .000  1544.50  9900.00
  .006981    1000.    1024.    1015.        3        8        0      .00   300.00 10200.00


FLOW DISTRIBUTION FOR SECNO=     13.36         CWSEL=   1553.39

STA=    9900.    9904.    9934.   10031.   10051.   10091.   10138.   10200.
  PER Q=       .6      7.0     68.6      6.2      8.3      5.4      4.0
   AREA=     19.3    173.1    800.4    136.7    187.4    154.4    145.9
    VEL=      6.0      7.9     16.9      8.9      8.7      6.9      5.4
  DEPTH=      4.8      5.8      8.3      6.8      4.7      3.3      2.4
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 13.548

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9850.0   10200.0  TYPE=      1  TARGET=      350.000
   13.548     7.18  1560.68      .00  1560.22  1562.79     2.11     6.57      .17  1557.40
   19700.     237.   19255.     204.      43.    1636.      60.    1562.     317.   1559.30
      .88     5.56    11.77     3.42     .040     .031     .040     .000  1553.50  9850.00
  .006199    1030.    1043.     925.        2        0        0      .00   350.00 10200.00


FLOW DISTRIBUTION FOR SECNO=     13.55         CWSEL=   1560.68

STA=    9850.    9863.    9892.   10068.   10154.   10200.
  PER Q=      1.2      4.5     78.2     15.0      1.0
   AREA=     42.7    120.9   1138.3    376.9     59.6
    VEL=      5.6      7.5     13.5      7.8      3.4
  DEPTH=      3.3      4.2      6.5      4.4      1.3

1490 NH CARD USED
*SECNO 13.740
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9800.0   10200.0  TYPE=      1  TARGET=      400.000
   13.740     7.86  1568.06      .00  1567.55  1569.39     1.34     6.37      .23100000.00
   19700.       0.   19700.       0.       0.    2125.       0.    1607.     326. 100000.00
      .92      .00     9.27      .00     .000     .038     .000     .000  1560.20  9800.00
  .006370    1085.    1014.     870.        3        0        0      .00   400.00 10200.00


FLOW DISTRIBUTION FOR SECNO=     13.74         CWSEL=   1568.06

STA=    9800.   10200.
  PER Q=    100.0
   AREA=   2124.5
    VEL=      9.3
  DEPTH=      5.3
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 13.929
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9600.0   10050.0  TYPE=      1  TARGET=      450.000
   13.929     7.21  1574.71      .00  1574.11  1575.92     1.22     6.50      .03100000.00
   19700.       0.   19700.       0.       0.    2224.       0.    1657.     336. 100000.00
      .95      .00     8.86      .00     .000     .039     .000     .000  1567.50  9600.00
  .006651     950.     998.     960.        3        0        0      .00   450.00 10050.00


FLOW DISTRIBUTION FOR SECNO=     13.93          CWSEL=   1574.71

STA=    9600.   10050.
  PER Q=    100.0
   AREA=   2223.7
    VEL=      8.9
  DEPTH=      4.9

1490 NH CARD USED
*SECNO 14.137
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9750.0   10200.0  TYPE=      1  TARGET=      450.000
   14.137     6.78  1582.18      .00  1582.10  1583.51     1.33     7.59      .00100000.00
   19700.       0.   19700.       0.       0.    2127.       0.    1712.     347. 100000.00
      .98      .00     9.26      .00     .000     .038     .000     .000  1575.40  9750.00
  .007181     995.    1098.    1120.        3        0        0      .00   450.00 10200.00


FLOW DISTRIBUTION FOR SECNO=     14.14          CWSEL=   1582.18

STA=    9750.   10200.
  PER Q=    100.0
   AREA=   2126.7
    VEL=      9.3
  DEPTH=      4.7

1490 NH CARD USED
*SECNO 14.323
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9700.0   10200.0  TYPE=      1  TARGET=      500.000
   14.323     7.72  1588.32      .00  1587.37  1589.62     1.30     6.10      .01  1585.40
   19700.    3312.   16388.       0.     618.    1681.       0.    1762.     358. 100000.00
     1.01     5.36     9.75      .00     .040     .037     .000     .000  1580.60  9700.00
  .005368    1050.     982.     920.        3        0        0      .00   500.00 10200.00


FLOW DISTRIBUTION FOR SECNO=     14.32          CWSEL=   1588.32

STA=    9700.    9737.    9816.    9895.    9927.   10200.
  PER Q=      3.3      4.3      6.6      2.6     83.2
   AREA=    115.5    178.5    232.7     91.7   1681.4
    VEL=      5.6      4.8      5.6      5.5      9.7
  DEPTH=      3.1      2.3      2.9      2.9      6.2

1490 NH CARD USED
*SECNO 14.547
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9600.0   10100.0  TYPE=      1  TARGET=      500.000
   14.547     6.91  1595.91  1595.91  1595.82  1597.80     1.89     8.04      .00  1593.40
   19700.    8635.   11065.       0.     979.     885.       0.    1819.     371. 100000.00
     1.04     8.82    12.50      .00     .035     .035     .000     .000  1589.00  9600.00
  .009008    1160.    1183.    1195.        2       15        0      .00   500.00 10100.00


FLOW DISTRIBUTION FOR SECNO=     14.55          CWSEL=   1595.91

STA=    9600.    9638.    9667.    9688.    9740.    9855.    9897.    9940.   10100.
  PER Q=     12.3      9.0      4.7      4.2      5.6      4.7      3.4     56.2
   AREA=    189.0    135.1     95.7    127.8    199.7    126.3    105.7    885.1
    VEL=     12.8     13.1      9.7      6.4      5.5      7.3      6.4     12.5
  DEPTH=      5.0      4.7      4.6      2.5      1.7      3.0      2.5      5.5
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 14.743
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


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


3470 ENCROACHMENT STATIONS=     9550.0   10050.0  TYPE=      1  TARGET=      500.000
   14.743     8.48  1602.48      .00  1601.56  1603.68     1.20     5.67      .21  1598.30
   19700.    5874.   13826.       0.    1103.    1396.       0.    1870.     383. 100000.00
     1.07     5.33     9.91      .00     .040     .034     .000     .000  1594.00  9550.00
  .003739    1010.    1035.    1020.        3        0        0      .00   500.00 10050.00


FLOW DISTRIBUTION FOR SECNO=     14.74          CWSEL=   1602.48

STA=    9550.    9607.    9663.    9754.    9793.    9828.    9864.   10050.
  PER Q=      5.4      6.6      4.9      4.0      4.6      4.3     70.2
   AREA=    205.7    226.5    228.4    145.6    149.9    147.0   1395.8
    VEL=      5.2      5.8      4.2      5.5      6.0      5.8      9.9
  DEPTH=      3.6      4.0      2.5      3.7      4.3      4.1      7.5

1490 NH CARD USED
*SECNO 14.943

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66


3470 ENCROACHMENT STATIONS=     9800.0   10250.0  TYPE=      1  TARGET=      450.000
   14.943     7.25  1607.25  1607.21  1607.10  1609.24     1.99     5.56      .00  1606.10
   19700.      66.   16169.    3466.      15.    1340.     491.    1920.     394.   1603.60
     1.10     4.30    12.07     7.06     .035     .034     .040     .000  1600.00  9800.00
  .008591     860.    1056.    1025.        4       15        0      .00   450.00 10250.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     14.94          CWSEL=   1607.25

STA=    9800.    9812.    9842.    9869.    9902.    9942.    9969.   10020.   10047.   10069.   10106.   10166.   10217.
  PER Q=      .3      2.6      5.8     14.0      9.4     14.3     14.3     15.4      6.4      4.7      7.7      4.5
   AREA=    15.3     72.1    139.1    188.2    190.8    175.6    270.2    183.7    120.0    122.2    198.2    135.3
    VEL=     4.3      7.0      8.2     14.6      9.7     16.0     10.4     16.5     10.6      7.6      7.6      6.6
  DEPTH=     1.3      2.4      5.2      5.7      4.8      6.5      5.3      6.8      5.5      3.3      3.3      2.7

STA=   10217.   10250.
  PER Q=      .6
   AREA=    35.3
    VEL=     3.6
  DEPTH=     1.1

1490 NH CARD USED
*SECNO 15.128
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9750.0   10250.0  TYPE=      1  TARGET=      500.000
   15.128     8.05  1614.95      .00  1614.18  1616.04     1.09     6.53      .27100000.00
   21100.       0.   18098.    3002.       0.    2124.     397.    1968.     404.   1612.00
     1.13      .00     8.52     7.56     .000     .039     .035     .000  1606.90  9750.00
  .005463     990.     977.     950.        4        0        0      .00   500.00 10250.00


FLOW DISTRIBUTION FOR SECNO=     15.13          CWSEL=   1614.95

STA=    9750.   10145.   10173.   10209.   10228.   10249.   10250.
  PER Q=     85.8      3.8      5.2      2.0      3.2       .1
   AREA=   2123.7    105.0    140.4     61.8     85.1      4.8
    VEL=      8.5      7.6      7.8      6.9      8.0      2.8
  DEPTH=      5.4      3.8      3.9      3.3      4.1      4.8

1490 NH CARD USED
*SECNO 15.304
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9450.0   10050.0  TYPE=      1  TARGET=      600.000
   15.304     7.35  1621.65  1621.65  1620.85  1623.19     1.54     6.41      .00  1619.30
   21100.    7601.   13499.      0.     993.    1223.      0.    2019.     416. 100000.00
     1.16     7.65    11.04     .00     .035     .039     .000     .000  1614.30  9450.00
  .008957     930.     929.     950.        2       10        0      .00   600.00 10050.00


FLOW DISTRIBUTION FOR SECNO=     15.30         CWSEL=   1621.65

STA=    9450.    9537.    9620.    9713.    9792.    9826.   10050.
  PER Q=      8.8      8.3      9.6      6.9      2.5     64.0
   AREA=    239.2    224.1    255.7    197.5     76.5   1223.1
    VEL=      7.7      7.8      7.9      7.4      6.9     11.0
  DEPTH=      2.7      2.7      2.7      2.5      2.2      5.5

1490 NH CARD USED
*SECNO 15.507
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9128.0   10058.0  TYPE=      1  TARGET=      930.000
   15.507     6.56  1631.46     .00  1630.51  1632.41     .96     9.05      .17  1628.30
   21100.   12120.    8980.      0.    1706.    1026.      0.    2085.     435. 100000.00
     1.20     7.10     8.76     .00     .038     .038     .000     .000  1624.90  9128.00
  .006964    1240.    1072.    1010.        3        0        0      .00   814.61 10058.00


FLOW DISTRIBUTION FOR SECNO=     15.51         CWSEL=   1631.46
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST


STA=    9128.    9148.    9196.    9223.    9257.    9311.    9357.    9384.    9406.    9598.    9707.    9761.    9801.
  PER Q=     3.1      7.7      3.5      3.7      5.0      4.2      3.6      4.0      3.0      4.8      8.0      4.1
   AREA=    88.3    201.9    100.1    112.4    162.4    138.3    101.4     99.1    115.5    190.9    199.3    118.3
    VEL=     7.3      8.1      7.4      6.9      6.5      6.5      7.5      8.5      5.5      5.4      8.5      7.3
  DEPTH=     4.4      4.2      3.7      3.3      3.0      3.0      3.8      4.5       .6      1.8      3.7      3.0

STA=    9801.    9827.   10058.
  PER Q=     2.7     42.6
   AREA=    78.2   1025.7
    VEL=     7.4      8.8
  DEPTH=     3.0      4.4

1490 NH CARD USED
*SECNO 15.715
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     8914.0   10044.0  TYPE=      1  TARGET=     1130.000
   15.715    10.04  1638.04      .00  1637.04  1639.46     1.42     7.05      .00  1641.00
   21100.   10221.   10879.       0.    1258.    1014.       0.    2145.     451. 100000.00
     1.23     8.13    10.73      .00     .035     .037     .000     .000  1628.00  8914.00
  .006524    1000.    1098.    1000.        3        0        0      .00   546.71 10044.00


FLOW DISTRIBUTION FOR SECNO=     15.72          CWSEL=   1638.04

STA=    8914.    8964.    9045.    9095.    9137.    9198.    9260.    9293.   10044.
  PER Q=    11.5     14.7      8.5      5.8      3.5      3.5      1.0     51.6
   AREA=   255.4    343.9    204.8    151.0    130.9    129.7     42.1   1013.6
    VEL=     9.5      9.0      8.8      8.0      5.7      5.7      4.9     10.7
  DEPTH=     5.1      4.2      4.1      3.6      2.1      2.1      1.3      6.0

1490 NH CARD USED
*SECNO 15.923
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9431.0   10081.0  TYPE=      1  TARGET=      650.000
   15.923     9.65  1645.15      .00  1644.17  1647.35     2.20     7.89      .00  1645.10
   21100.    9576.   11524.       0.     845.     933.       0.    2199.     463. 100000.00
     1.26    11.33    12.35      .00     .032     .036     .000     .000  1635.50  9431.00
  .007153    1220.    1098.    1095.        2        0        0      .00   317.49 10081.00


FLOW DISTRIBUTION FOR SECNO=     15.92          CWSEL=   1645.15

STA=    9431.    9476.    9501.    9522.    9541.    9566.    9588.    9950.   10081.
  PER Q=     8.9      8.6      8.7      6.0      7.4      4.4      1.4     54.6
   AREA=   202.0    138.9    130.3     99.8    126.4     96.9     51.2    933.3
    VEL=     9.3     13.1     14.1     12.6     12.3      9.6      5.6     12.3
  DEPTH=     4.5      5.6      6.2      5.3      5.1      4.4       .1      7.1

1490 NH CARD USED
*SECNO 16.129

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.51


3470 ENCROACHMENT STATIONS=     9546.0   10096.0  TYPE=      1  TARGET=      550.000
   16.129     9.62  1651.42      .00  1650.46  1652.46     1.04     4.77      .35  1646.20
   21100.   11205.    9890.       5.    1663.    1035.       2.    2253.     473.   1650.00
     1.29     6.74     9.56     2.05     .033     .031     .035     .000  1641.80  9546.00
  .003136    1010.    1088.    1080.        1        0        0      .00   550.00 10096.00


FLOW DISTRIBUTION FOR SECNO=     16.13          CWSEL=   1651.42

STA=    9546.    9615.    9667.    9700.    9739.    9778.    9810.    9886.    9938.   10042.   10081.   10094.   10096.
  PER Q=     3.7      4.3      5.0      6.9      8.0      3.1     12.1     10.1     41.9      4.3       .7       .0
   AREA=   191.1    169.0    142.5    185.9    203.5    142.9    367.8    260.9    812.9    189.8     32.1      2.5
    VEL=     4.1      5.3      7.4      7.9      8.3      4.5      6.9      8.1     10.9      4.8      4.3      2.1
  DEPTH=     2.8      3.2      4.3      4.8      5.2      4.5      4.8      5.0      7.8      4.9      2.5      1.2
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 16.315
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS=     9965.0   10390.0  TYPE=      1  TARGET=      425.000
   16.315     7.51  1657.01  1657.01  1656.95  1659.17     2.16     4.60      .00100000.00
   21100.       0.   12248.    8852.       0.     892.    1052.    2302.     484.   1653.10
     1.31      .00    13.73     8.41     .000     .034     .040     .000  1649.50  9965.00
  .008714     790.     982.    1020.       20       19        0      .00   425.00 10390.00


FLOW DISTRIBUTION FOR SECNO=     16.32         CWSEL=   1657.01

STA=    9965.   10106.   10158.   10209.   10230.   10255.   10301.   10336.   10361.   10389.   10390.
  PER Q=     58.0      8.5      9.0      4.5      3.8      4.1      3.3      3.8      4.9       .1
   AREA=    892.1    205.7    212.0     97.8     95.2    126.8    100.0     95.2    116.4      3.5
    VEL=     13.7      8.7      9.0      9.7      8.4      6.8      7.0      8.4      9.0      3.4
  DEPTH=      6.3      4.0      4.2      4.7      3.8      2.8      2.9      3.8      4.2      3.5

1490 NH CARD USED
*SECNO 16.515
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.59


3470 ENCROACHMENT STATIONS=     9800.0   10500.0  TYPE=      1  TARGET=      700.000
   16.515     8.47  1664.47      .00  1663.47  1665.14      .68     5.53      .45100000.00
   21100.       0.   17188.    3912.       0.    2471.     833.    2366.     497.   1661.30
     1.36      .00     6.95     4.69     .000     .040     .040     .000  1656.00  9800.00
  .003462    1045.    1056.    1075.        3        0        0      .00   700.00 10500.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     16.51          CWSEL=   1664.47

STA=    9800.   10236.   10292.   10370.   10409.   10425.   10461.   10500.
  PER Q=     81.5      3.9      5.0      2.5      1.4      3.3      2.4
   AREA=   247.4    175.0    232.1    116.1     58.0    134.1    118.1
    VEL=      7.0      4.7      4.5      4.5      5.2      5.3      4.4
  DEPTH=      5.7      3.1      3.0      3.0      3.6      3.7      3.0

1490 NH CARD USED
*SECNO 16.711
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55


3470 ENCROACHMENT STATIONS=     9650.0   10250.0  TYPE=      1  TARGET=      600.000
   16.711     6.01  1669.71      .00  1669.36  1671.12     1.41     5.97      .00  1667.90
   21100.    7748.   13352.       0.     813.    1400.       0.    2432.     513. 10000Q.00
     1.39     9.53     9.53      .00     .040     .040     .000     .000  1663.70  9650.00
  .011366    1050.    1035.    1050.        2        0        0      .00   600.00 10250.00


FLOW DISTRIBUTION FOR SECNO=     16.71          CWSEL=   1669.71

STA=    9650.    9669.    9700.    9724.    9759.    9826.    9872.   10250.
  PER Q=      3.5      6.6      5.7      7.6      9.5      3.7     63.3
   AREA=     80.5    133.6    110.6    152.6    225.1    110.8   1400.4
    VEL=      9.1     10.5     11.0     10.6      8.9      7.1      9.5
  DEPTH=      4.2      4.3      4.6      4.4      3.4      2.4      3.7

1490 NH CARD USED
*SECNO 16.900
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

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


3470 ENCROACHMENT STATIONS=     9620.0   10120.0  TYPE=      1  TARGET=      500.000
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


   16.900     9.13  1677.63      .00  1676.77  1678.73     1.10     7.52      .09  1675.20
   21100.   11765.    9284.      51.    1514.    1009.      16.    2487.     526.  1676.10
     1.42     7.77     9.20     3.30     .040     .038     .035     .000  1668.50  9620.00
  .005192   1040.     998.     990.        3        0        0      .00   500.00 10120.00


FLOW DISTRIBUTION FOR SECNO=     16.90         CWSEL=   1677.63

STA=    9620.    9642.    9688.    9731.    9760.    9803.    9857.    9908.    9937.   10107.   10120.
  PER Q=      4.0     13.3      8.5      5.1      8.3      9.0      5.7      2.0     44.0       .2
   AREA=    110.4    300.4    222.7    140.1    220.6    252.7    187.7     79.2   1008.9     15.5
    VEL=      7.6      9.4      8.0      7.6      8.0      7.5      6.4      5.2      9.2      3.3
  DEPTH=      5.0      6.5      5.2      4.8      5.1      4.7      3.7      2.7      5.9      1.2

1490 NH CARD USED
*SECNO 17.087

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9626.0   10076.0  TYPE=      1  TARGET=      450.000
   17.087     8.33  1683.43      .00  1683.24  1685.34     1.92     6.61      .00  1681.50
   21100.     800.   20292.       7.     157.    1799.       3.    2539.     537.  1682.60
     1.45     5.10    11.28     2.33     .040     .036     .035     .000  1675.10  9626.00
  .006704   1030.     987.     985.        3        0        0      .00   450.00 10076.00


FLOW DISTRIBUTION FOR SECNO=     17.09         CWSEL=   1683.43

STA=    9626.    9712.    9919.    9973.   10032.   10069.   10076.
  PER Q=      3.8     42.2     11.0     39.5      3.4       .0
   AREA=    156.9    938.5    280.5    459.9    119.6      3.2
    VEL=      5.1      9.5      8.3     18.1      6.0      2.3
  DEPTH=      1.8      4.5      5.2      7.8      3.2       .5

1490 NH CARD USED
*SECNO 17.287
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     9700.0   10250.0  TYPE=      1  TARGET=      550.000
   17.287     7.21  1691.01      .00  1690.04  1692.02     1.01     6.41      .27100000.00
   21100.      0.   18797.    2303.       0.    2257.     412.    2594.     549.   1687.60
     1.49     .00     8.33     5.59     .000     .036     .040     .000  1683.80  9700.00
  .004509   1030.    1056.     960.        3        0        0      .00   550.00 10250.00


FLOW DISTRIBUTION FOR SECNO=     17.29          CWSEL=   1691.01

STA=    9700.   10130.   10170.   10231.   10250.
  PER Q=     89.1      3.6      5.7      1.6
   AREA=   2257.2    136.3    210.8     65.1
    VEL=      8.3      5.6      5.7      5.1
  DEPTH=      5.2      3.4      3.5      3.4

1490 NH CARD USED
*SECNO 17.487
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9600.0   10100.0  TYPE=      1  TARGET=      500.000
   17.487     7.48  1697.18      .00  1696.37  1698.58     1.40     6.56      .00100000.00
   21100.      0.   21100.       0.       0.    2223.       0.    2653.     561. 100000.00
     1.52     .00     9.49      .00     .000     .040     .000     .000  1689.70  9600.00
  .009183   1050.    1056.     990.        2        0        0      .00   500.00 10100.00


FLOW DISTRIBUTION FOR SECNO=     17.49          CWSEL=   1697.18

STA=    9600.   10100.
  PER Q=    100.0
   AREA=   2222.9
    VEL=      9.5
  DEPTH=      4.4

1490 NH CARD USED
*SECNO 17.720
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9915.0   10415.0  TYPE=      1  TARGET=      500.000
   17.720     7.47  1706.77      .00  1705.78  1708.25     1.47     9.66      .00100000.00
   21100.      0.   16948.    4152.       0.    1637.     623.    2716.     575.   1704.20
     1.55     .00    10.35     6.67     .000     .036     .040     .000  1699.30  9915.00
  .006915   1260.    1230.    1115.        5        0        0      .00   500.00 10415.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     17.72         CWSEL=   1706.77

STA=    9915.   10221.   10267.   10330.   10381.   10415.
  PER Q=     80.3      4.4      7.3      4.9      3.1
   AREA=   1637.1    141.4    218.9    156.8    105.9
    VEL=     10.4      6.5      7.1      6.5      6.2
  DEPTH=      5.4      3.1      3.5      3.1      3.1

1490 NH CARD USED
*SECNO 17.840
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9965.0   10365.0  TYPE=      1  TARGET=      400.000
   17.840     6.52  1710.52      .00  1709.58  1712.05     1.53     3.80      .00100000.00
   21100.       0.   21100.       0.       0.    2125.       0.    2748.     582. 100000.00
     1.57      .00     9.93      .00     .000     .033     .000     .000  1704.00  9965.00
  .005321     745.     634.     585.        3        0        0      .00   400.00 10365.00


FLOW DISTRIBUTION FOR SECNO=     17.84         CWSEL=   1710.52

STA=    9965.   10365.
  PER Q=    100.0
   AREA=   2125.5
    VEL=      9.9
  DEPTH=      5.3
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THIS RUN EXECUTED 2/14/91 14:56:13

****
HEC2 RELEASE DATED SEP 88 UPDATED SEPT 1989

ERROR CORR - 01,02,03
MODIFICATION -
****

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

JACKRABBIT WASH 100 YEAR

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
	7.713	1351.50	1358.02	33200.00	7.39	.00	1224.12	6.52	.82	8980.09	10204.21	23285.25	.00
	7.713	1351.50	1359.02	33200.00	6.70	.00	1003.86	7.52	.83	9208.00	10211.86	21660.41	.00
	7.842	1355.90	1362.15	33200.00	8.27	4.13	1311.01	6.25	1.04	9139.39	10450.40	13909.35	2226.48
	7.842	1355.90	1362.65	33200.00	8.51	3.63	1130.00	6.75	1.07	9320.00	10450.00	9937.63	3147.18
	8.062	1362.00	1369.75	33200.00	8.86	7.59	1165.97	7.75	1.02	9283.46	10449.43	10817.45	795.48
	8.062	1362.00	1370.55	33200.00	9.32	7.90	700.00	8.55	1.35	9690.00	10390.00	6557.58	.00
*	8.279	1371.00	1379.22	19800.00	10.35	9.47	837.47	8.22	1.39	9228.18	10065.65	5536.74	.00
*	8.279	1371.00	1379.92	19800.00	10.63	9.37	515.00	8.92	1.62	9550.00	10065.00	2644.61	.00
	8.485	1379.30	1388.26	19800.00	8.11	9.04	950.25	8.96	.91	8816.24	10079.63	5735.32	.00
	8.485	1379.30	1388.75	19800.00	8.96	8.83	490.00	9.45	1.23	9590.00	10080.00	2463.99	.00
	8.680	1386.70	1394.20	19800.00	7.83	5.94	905.79	7.50	.84	9168.62	10074.41	5376.42	.00
	8.680	1386.70	1394.98	19800.00	8.21	6.23	540.00	8.28	1.02	9535.00	10075.00	1659.23	.00
	8.870	1394.30	1400.59	19800.00	8.13	6.39	687.91	6.29	1.03	9682.12	10374.43	.00	.00
	8.870	1394.30	1401.14	19800.00	10.03	6.16	465.00	6.84	1.56	9685.00	10150.00	.00	.00
	9.060	1400.40	1407.44	19800.00	8.42	6.85	1115.53	7.04	.87	9928.10	11043.63	.00	7410.08
	9.060	1400.40	1408.43	19800.00	9.01	7.29	520.00	8.03	1.16	9930.00	10450.00	.00	3382.78
	9.310	1405.50	1414.68	19800.00	7.88	7.24	941.30	9.18	.81	9970.61	10911.91	.00	5594.62
	9.310	1405.50	1415.41	19800.00	8.72	6.98	519.00	9.91	1.13	9971.00	10490.00	.00	1449.19
*	9.492	1414.10	1420.50	19800.00	10.85	5.82	390.49	6.40	1.83	9706.81	10097.30	.00	.00
	9.492	1414.10	1421.05	19800.00	9.70	5.65	391.00	6.95	1.46	9706.00	10097.00	.00	.00
*	9.702	1419.90	1427.83	19800.00	6.13	7.33	686.74	7.93	.54	9388.54	10075.29	5050.99	.00
	9.702	1419.90	1427.88	19800.00	7.03	6.83	550.00	7.98	.72	9525.00	10075.00	2733.63	.00

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
*	9.896	1424.50	1431.87	19800.00	11.38	4.04	535.59	7.37	1.76	9861.34	10396.93	.00	4316.79
	9.896	1424.50	1432.87	19800.00	8.68	4.99	499.00	8.37	1.09	9861.00	10360.00	.00	5470.01
*	10.095	1431.50	1439.56	19800.00	7.47	7.68	772.72	8.06	.72	9858.74	10631.46	981.12	6306.52
	10.095	1431.50	1439.64	19800.00	9.35	6.77	500.00	8.14	1.23	9910.00	10410.00	441.12	3471.33
*	10.271	1437.70	1446.55	19800.00	12.15	7.00	481.81	8.85	2.03	9578.73	10060.54	2849.17	.00
*	10.271	1437.70	1446.95	19800.00	12.64	7.30	420.00	9.25	2.13	9600.00	10020.00	3837.38	.00
	10.454	1442.90	1452.45	19800.00	8.37	5.90	469.63	9.55	1.07	9736.25	10205.89	350.25	.00
	10.454	1442.90	1453.32	19800.00	7.78	6.37	340.00	10.42	.94	9830.00	10170.00	.00	.00
*	10.644	1450.00	1458.37	19700.00	12.16	5.91	403.99	8.37	2.16	9932.24	10336.23	.00	1864.99
*	10.644	1450.00	1458.48	19700.00	13.05	5.16	300.00	8.48	2.63	9932.00	10232.00	.00	141.92
*	10.835	1456.60	1466.46	19700.00	7.87	8.09	441.20	9.86	.96	9963.04	10404.24	.00	.00
*	10.835	1456.60	1467.41	19700.00	8.49	8.93	350.00	10.81	1.12	9965.00	10315.00	.00	.00
*	11.028	1464.70	1472.23	19700.00	10.79	5.77	436.64	7.53	1.80	9933.36	10370.00	.00	125.29
	11.028	1464.70	1472.74	19700.00	10.26	5.33	350.00	8.04	1.63	9935.00	10285.00	.00	.00
*	11.235	1472.70	1480.63	19700.00	8.75	8.40	526.24	7.93	1.18	9629.20	10155.44	.00	69.79
	11.235	1472.70	1480.96	19700.00	9.61	8.22	400.00	8.26	1.43	9700.00	10100.00	.00	.00
	11.425	1479.40	1486.51	19700.00	8.35	5.88	533.94	7.11	1.08	9663.04	10196.98	.00	.00
	11.425	1479.40	1487.55	19700.00	8.94	6.59	400.00	8.15	1.24	9750.00	10150.00	.00	.00
	11.608	1485.30	1493.07	19700.00	9.68	6.57	644.63	7.77	1.37	9715.42	10362.66	1541.47	.00
	11.608	1485.30	1493.81	19700.00	10.83	6.26	375.00	8.51	1.80	9880.00	10255.00	290.00	.00
	11.815	1492.10	1500.78	19700.00	9.38	7.71	572.79	8.68	1.09	9469.71	10042.50	8927.61	.00
	11.815	1492.10	1501.85	19700.00	9.86	8.04	350.00	9.75	1.36	9690.00	10040.00	6251.50	.00
*	12.032	1499.40	1507.90	19700.00	10.16	7.12	765.59	8.50	1.36	9770.12	10535.71	.00	3667.31
*	12.032	1499.40	1508.29	19700.00	12.61	6.44	450.00	8.89	2.11	9880.00	10330.00	.00	3554.65
*	12.220	1506.90	1513.27	19700.00	10.47	5.37	833.21	6.37	1.41	9774.85	10608.05	1073.17	3318.67
	12.220	1506.90	1514.12	19700.00	9.80	5.83	550.00	7.22	1.34	9850.00	10400.00	679.12	1989.95
	12.360	1507.80	1517.27	19700.00	10.76	4.00	529.50	9.47	1.61	9548.42	10077.92	2558.55	.0
	12.360	1507.80	1517.37	19700.00	13.06	3.25	350.00	9.57	2.35	9680.00	10030.00	3008.14	.0
	12.500	1513.60	1521.38	19700.00	11.11	4.11	511.99	7.78	1.69	9884.22	10396.22	122.92	3343.0
	12.500	1513.60	1522.45	19700.00	10.95	5.08	300.00	8.85	1.82	9925.00	10225.00	5.84	550.98
	12.711	1521.20	1528.63	19700.00	8.99	7.25	458.52	7.43	1.25	9678.33	10136.85	.00	19.3
	12.711	1521.20	1529.07	19700.00	11.73	6.62	300.00	7.87	2.14	9815.00	10115.00	.00	8.1
*	12.978	1529.90	1538.95	19700.00	12.20	10.32	461.20	9.05	2.16	9729.93	10191.13	1684.35	.0
	12.978	1529.90	1539.87	19700.00	10.65	10.80	300.00	9.97	1.68	9890.00	10190.00	1616.82	.0

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
*	13.164	1536.70	1545.63	19700.00	9.08	6.69	662.95	8.93	.92	9844.19	10507.13	155.16	11767.35
	13.164	1536.70	1545.74	19700.00	13.49	5.87	380.00	9.05	2.14	9920.00	10300.00	23.76	7927.73
*	13.358	1544.50	1553.28	19700.00	10.85	7.64	772.30	8.78	1.40	9802.57	10574.87	1819.44	4016.84
*	13.358	1544.50	1553.39	19700.00	13.67	7.64	300.00	8.89	2.67	9900.00	10200.00	115.86	1844.59
*	13.548	1553.50	1560.22	19700.00	11.60	6.94	570.46	6.72	1.90	9707.82	10278.27	2098.55	183.87
	13.548	1553.50	1560.68	19700.00	11.77	7.30	350.00	7.18	2.11	9850.00	10200.00	237.12	203.71
	13.740	1560.20	1567.55	19700.00	7.61	7.33	594.66	7.35	.90	9753.03	10347.69	.00	.00
	13.740	1560.20	1568.06	19700.00	9.27	7.38	400.00	7.86	1.34	9800.00	10200.00	.00	.00
	13.929	1567.50	1574.11	19700.00	10.02	6.56	540.30	6.61	1.55	9510.81	10051.11	49.75	.00
	13.929	1567.50	1574.71	19700.00	8.86	6.65	450.00	7.21	1.22	9600.00	10050.00	.00	.00
*	14.137	1575.40	1582.10	19700.00	8.01	7.99	537.05	6.70	1.00	9670.50	10207.55	.00	.09
	14.137	1575.40	1582.18	19700.00	9.26	7.47	450.00	6.78	1.33	9750.00	10200.00	.00	.0
*	14.323	1580.60	1587.37	19700.00	11.25	5.27	558.15	6.77	1.80	9682.86	10241.01	2083.54	5.77
	14.323	1580.60	1588.32	19700.00	9.75	6.14	500.00	7.72	1.30	9700.00	10200.00	3312.31	.00
	14.547	1589.00	1595.82	19700.00	11.15	8.46	573.27	6.82	1.48	9543.88	10117.15	9690.36	.00
*	14.547	1589.00	1595.91	19700.00	12.50	7.59	500.00	6.91	1.89	9600.00	10100.00	8635.34	.00
	14.743	1594.00	1601.56	19700.00	9.73	5.74	794.26	7.56	1.06	9262.73	10056.99	7556.86	.00
*	14.743	1594.00	1602.48	19700.00	9.91	6.57	500.00	8.48	1.20	9550.00	10050.00	5873.90	.00
*	14.943	1600.00	1607.10	19700.00	10.67	5.54	826.59	7.10	1.42	9517.32	10545.21	1263.40	4555.32
*	14.943	1600.00	1607.25	19700.00	12.07	4.77	450.00	7.25	1.99	9800.00	10250.00	65.64	3465.83
	15.128	1606.90	1614.18	21100.00	8.21	7.08	712.64	7.28	.97	9737.43	10450.07	.00	6038.68
	15.128	1606.90	1614.95	21100.00	8.52	7.70	500.00	8.05	1.09	9750.00	10250.00	.00	3001.61
	15.304	1614.30	1620.85	21100.00	9.17	6.66	976.58	6.55	1.04	9091.51	10068.09	11189.67	.00
*	15.304	1614.30	1621.65	21100.00	11.04	6.70	600.00	7.35	1.54	9450.00	10050.00	7600.68	.00
	15.507	1624.90	1630.51	21100.00	7.97	9.67	1006.79	5.61	.88	8905.17	10063.41	14615.18	.00
	15.507	1624.90	1631.46	21100.00	8.76	9.81	814.61	6.56	.96	9128.00	10058.00	12119.77	.00
	15.715	1628.00	1637.04	21100.00	8.84	6.53	706.35	9.04	1.03	8733.48	10045.89	13595.48	.00
	15.715	1628.00	1638.04	21100.00	10.73	6.59	546.71	10.04	1.42	8914.00	10044.00	10221.05	.00
*	15.923	1635.50	1644.17	21100.00	11.30	7.12	767.91	8.67	1.37	8970.32	10081.57	11993.00	.00
	15.923	1635.50	1645.15	21100.00	12.35	7.11	317.49	9.65	2.20	9431.00	10081.00	9576.07	.00
	16.129	1641.80	1650.46	21100.00	11.54	6.29	715.52	8.66	1.39	9347.49	10096.66	10883.63	.71
*	16.129	1641.80	1651.42	21100.00	9.56	6.27	550.00	9.62	1.04	9546.00	10096.00	11205.35	5.10
*	16.315	1649.50	1656.95	21100.00	11.10	6.49	914.03	7.45	1.28	9944.81	10881.24	.00	10803.02
*	16.315	1649.50	1657.01	21100.00	13.73	5.58	425.00	7.51	2.16	9965.00	10390.00	.00	8852.06

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
	16.515	1656.00	1663.47	21100.00	7.73	6.52	914.44	7.47	.80	9751.51	10665.95	.00	4393.18
*	16.515	1656.00	1664.47	21100.00	6.95	7.46	700.00	8.47	.68	9800.00	10500.00	.00	3911.85
	16.711	1663.70	1669.36	21100.00	8.68	5.89	822.06	5.66	1.02	9456.63	10278.69	9966.14	.00
*	16.711	1663.70	1669.71	21100.00	9.53	5.24	600.00	6.01	1.41	9650.00	10250.00	7748.44	.00
	16.900	1668.50	1676.77	21100.00	9.34	7.40	784.24	8.27	.98	9335.78	10120.03	13029.70	7.26
*	16.900	1668.50	1677.63	21100.00	9.20	7.93	500.00	9.13	1.10	9620.00	10120.00	11764.96	51.24
	17.087	1675.10	1683.24	21100.00	9.88	6.47	756.02	8.14	1.32	9319.02	10075.03	3999.04	3.16
	17.087	1675.10	1683.43	21100.00	11.28	5.80	450.00	8.33	1.92	9626.00	10076.00	800.05	7.46
	17.287	1683.80	1690.04	21100.00	8.05	6.80	1163.81	6.24	.87	9637.41	10858.63	.00	3830.59
	17.287	1683.80	1691.01	21100.00	8.33	7.58	550.00	7.21	1.01	9700.00	10250.00	.00	2302.99
	17.487	1689.70	1696.37	21100.00	8.44	6.33	801.48	6.67	1.05	9515.10	10316.58	.00	1747.16
	17.487	1689.70	1697.18	21100.00	9.49	6.18	500.00	7.48	1.40	9600.00	10100.00	.00	.00
	17.720	1699.30	1705.78	21100.00	9.79	9.41	1175.00	6.48	1.09	9914.35	11089.35	.00	8023.81
	17.720	1699.30	1706.77	21100.00	10.35	9.59	500.00	7.47	1.47	9915.00	10415.00	.00	4151.60
*	17.840	1704.00	1709.58	21100.00	7.35	3.80	1106.87	5.58	.65	9964.20	11142.84	.00	7125.07
	17.840	1704.00	1710.52	21100.00	9.93	3.74	400.00	6.52	1.53	9965.00	10365.00	.00	.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=     8.279  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     8.279  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=     8.279  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     9.492  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     9.702  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     9.896  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    10.095  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    10.271  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    10.271  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    10.271  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=    10.271  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    10.271  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    10.644  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    10.644  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    10.644  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    10.644  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    10.835  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    10.835  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    11.028  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    11.235  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    12.032  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    12.032  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    12.032  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    12.032  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    12.220  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    12.220  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    12.978  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    12.978  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    13.164  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    13.358  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    13.358  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    13.358  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=    13.358  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    13.358  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    13.548  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    13.548  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
```

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CAUTION SECNO=    13.548  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=    14.137  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    14.323  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    14.323  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    14.547  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    14.547  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    14.743  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    14.943  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    14.943  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=    14.943  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    15.304  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    15.304  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    15.923  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    15.923  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    16.129  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    16.315  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    16.315  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    16.315  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    16.315  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    16.315  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=    16.515  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    16.711  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    16.900  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    17.840  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

FLOODWAY DATA, JACKRABBIT WASH 100 YEAR
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
7.713	1004.	4565.	7.3	1359.0	1358.0	1.0
7.842	1130.	4058.	8.2	1362.7	1362.2	.5
8.062	700.	3559.	9.3	1370.5	1369.7	.8
8.279	515.	2001.	9.9	1379.9	1379.2	.7
8.485	490.	2231.	8.9	1388.8	1388.3	.5
8.680	540.	2444.	8.1	1395.0	1394.2	.8
8.870	465.	1974.	10.0	1401.1	1400.6	.5
9.060	520.	2327.	8.5	1408.4	1407.4	1.0
9.310	519.	2365.	8.4	1415.4	1414.7	.7
9.492	391.	2041.	9.7	1421.1	1420.5	.6
9.702	550.	2956.	6.7	1427.9	1427.8	.1
9.896	499.	2374.	8.3	1432.9	1431.9	1.0
10.095	500.	2293.	8.6	1439.6	1439.6	.0
10.271	420.	1842.	10.8	1446.9	1446.6	.3
10.454	340.	2544.	7.8	1453.3	1452.5	.8
10.644	300.	1525.	12.9	1458.5	1458.4	.1
10.835	350.	2320.	8.5	1467.4	1466.5	.9
11.028	350.	1921.	10.3	1472.7	1472.2	.5
11.235	400.	2050.	9.6	1481.0	1480.6	.4
11.425	400.	2202.	8.9	1487.5	1486.5	1.0
11.608	375.	1845.	10.7	1493.8	1493.1	.7
11.815	350.	2125.	9.3	1501.8	1500.8	1.0
12.032	450.	1908.	10.3	1508.3	1507.9	.4
12.220	550.	2297.	8.6	1514.1	1513.3	.8
12.360	350.	1721.	11.4	1517.4	1517.3	.1
12.500	300.	1855.	10.6	1522.4	1521.4	1.0
12.711	300.	1681.	11.7	1529.1	1528.6	.5
12.978	300.	1929.	10.2	1539.9	1538.9	1.0
13.164	380.	1810.	10.9	1545.7	1545.6	.1
13.358	300.	1617.	12.2	1553.4	1553.3	.1
13.548	350.	1738.	11.3	1560.7	1560.2	.5
13.740	400.	2125.	9.3	1568.1	1567.5	.6
13.929	450.	2224.	8.9	1574.7	1574.1	.6
14.137	450.	2127.	9.3	1582.2	1582.1	.1
14.323	500.	2300.	8.6	1588.3	1587.4	.9
14.547	500.	1864.	10.6	1595.9	1595.8	.1
14.743	500.	2499.	7.9	1602.5	1601.6	.9
14.943	450.	1846.	10.7	1607.2	1607.1	.1
15.128	500.	2521.	8.4	1614.9	1614.2	.7
15.304	600.	2216.	9.5	1621.6	1620.8	.8
15.507	930.	2732.	7.7	1631.5	1630.5	1.0
15.715	1130.	2271.	9.3	1638.0	1637.0	1.0

FLOODWAY DATA, JACKRABBIT WASH 100 YEAR
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
15.923	650.	1779.	11.9	1645.2	1644.2	1.0
16.129	550.	2701.	7.8	1651.4	1650.5	.9
16.315	425.	1945.	10.9	1657.0	1657.0	.0
16.515	700.	3305.	6.4	1664.5	1663.5	1.0
16.711	600.	2214.	9.5	1669.7	1669.4	.3
16.900	500.	2538.	8.3	1677.6	1676.8	.8
17.087	450.	1959.	10.8	1683.4	1683.2	.2
17.287	550.	2669.	7.9	1691.0	1690.0	1.0
17.487	500.	2223.	9.5	1697.2	1696.4	.8
17.720	500.	2260.	9.3	1706.8	1705.8	1.0
17.840	400.	2125.	9.9	1710.5	1709.6	.9

```
****************************************************
*  WATER SURFACE PROFILES                          *
*  DEVELOPED BY THE COE                            *
*  VERSION OF SEPTEMBER 1988                       *
*  ERROR: 01,02,03                                 *
*  RUN DATE     5/25/91    TIME    10:31:48        *
****************************************************
```


```
*************************************
*  DODSON & ASSOCIATES, INC.        *
*  HYDROLOGIST AND CIVIL ENGINEERS  *
*  5629 FM 1960 WEST SUITE 314      *
*  HOUSTON, TEXAS  77069            *
*  (713) 440-3787 Fax (713) 440-4742 *
*************************************
```


```
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
```

END OF BANNER

THIS RUN EXECUTED 5/25/91 10:31:48

```
**************************************************
 HEC2 RELEASE DATED SEP 88 UPDATED SEPT 1989


 ERROR CORR -  01,02,03
 MODIFICATION -
**************************************************


T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-05
T2      JACKRABBIT WASH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      STAR WASH 100 YEAR      (602) 244-8100  J. MISCHLER

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              2.                         0.006                                1363

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    -1                -1.                                                              15.


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

   38.      42.      1.       43.      26       51.      4.       8.       10.      53
    54       13       15
```

JACKRABBIT WASH SECTION 7.874 IS JUST DOWNSTREAM OF THE CONFLUENCE OF STAR WASH AND JACKRABBIT WASH. JACKRABBIT WASH SECTION 8.062 IS WITHIN THE STAR WASH CONFLUENCE AREA AND HAS BEEN RENAMED SECTION 0.095 FOR THIS MODEL TO REPRESENT ITS LOCATION IN STAR WASH 500 FEET UPSTREAM OF THE THALWEG CONFLUENCE. THIS FLOODPLAIN DELINEATION BEGINS AT THE CONFLUENCE AND PROCEEDS UPSTREAM ABOUT 2 MILES TO THE INTERSECTION OF STAR WASH AND THE POWERLINES. THE PURPOSE OF JACKRABBIT WASH SECTION 7.874 IS TO PROVIDE INITIAL BACKWATER WITH AN ELEVATION COMPUTED BY SLOPE AREA METHOD. THE THALWEG SLOPE FROM JACKRABBIT WASH SECTIONS 7.713 TO 7.874 IS 0.0064. THE THALWEG SLOPE FROM JACKRABBIT WASH SECTIONS 7.713 TO 8.062 IS 0.0057. THE STARTING SLOPE WAS SET AT 0.006 FEET/FOOT. THE HYDROLOGY ANALYSIS DETERMINED THAT THE FLOOD PEAKS ON STAR WASH AND JACKRABBIT WASH DO NOT COINCIDE, THEREFORE, STAR WASH IS MODELED SEPARATELY INSTEAD OF AS A TRIBUTARY RUN.

NH CARDS ARE USED THROUGHOUT THIS MODEL FOR MANNINGS n VALUES DUE TO THE BRAIDED NATURE OF THE CHANNEL. MANNINGS n VALUES WERE SELECTED IN THE FIELD USING, AS A GUIDE, THE PRELIMINARY DRAFT (7-3-90.2) OF " MANNINGS ROUGHNESS COEFFICIENTS FOR STREAM CHANNELS AND FLOODPLAINS IN MARICOPA COUNTY, ARIZONA ", U.S. GEOLOGICAL SURVEY. MANNINGS n VALUES WERE DISTRIBUTED ACROSS INDIVIDUAL CROSS SECTIONS BY COMPARISON WITH 1:19000 AERIAL PHOTOGRAPHS USED FOR MAPPING.

CROSS SECTION LABELS INDICATE RIVER MILES ABOVE THE MOUTH.
Q IS COMPUTED JUST DOWNSTREAM OF THE CONFLUENCE WITH POWERLINE WASH

```
QT      1    17600.
NC                          .1      .3
NH      3    0.035    10048    0.05    10055    0.035    11171
X1  7.874       42     9586   10055        0        0        0
GR  1365.4   9287.   1364.1   9307.   1361.6   9334.   1361.6   9363.   1361.3   9391.
GR  1360.8   9411.   1359.5   9447.   1359.2   9481.   1359.6   9531.   1361.8   9586.
GR  1360.5   9628.   1360.4   9666.   1359.5   9704.   1358.5   9728.   1357.8   9742.
GR  1360.9   9764.   1360.8   9811.   1360.8   9863.   1360.8   9908.   1358.9   9928.
GR  1358.5   9965.   1358.4  10000.   1357.3  10048.   1362.5  10055    1362.6  10170.
GR  1362.5  10202.   1363.1  10262.    1364.  10329.   1363.4  10379.    1366.  10441.
GR  1369.6  10485.   1371.1  10542.   1371.3  10621.   1372.7  10703.   1373.1  10785.
GR  1371.8  10849.   1372.6  10908.   1376.2  10959.   1375.3  11021.   1375.9  11087.
GR  1375.9  11141.   1374.5  11171.

NH      7    0.035     9992    0.05    10000    0.03    10085    0.05    10259    0.03
NH  10324     0.05    10390   0.035    10497
X1  0.095       44     9860   10390     1135     900      993
GR  1374.4   9221.   1372.7   9260.   1370.5   9282.   1362.8   9297.   1365.8   9310.
GR  1367.5   9333.   1368.4   9366.   1367.3   9397.   1364.9   9411.   1365.4   9420.
GR  1367.2   9436.   1367.1   9483.   1366.5   9529.   1367.6   9562.   1367.2   9593.
GR  1366.7   9619.    1368.   9651.   1367.4   9693.    1367.   9758.   1365.6   9794.
GR  1365.1   9829.   1366.9   9860.   1366.6   9909.   1365.5   9954.   1364.8   9992.
GR  1363.3  10000.    1363.  10036.   1362.4  10068.    1362.  10085.   1367.2  10107.
GR  1367.2  10161.   1367.8  10205.   1365.8  10240.   1362.8  10259.   1363.8  10290.
GR  1362.6  10324.   1364.5  10356.   1365.7  10374.   1367.4  10390.   1367.2  10423.
GR  1366.9  10442.   1376.1  10466.   1377.4  10480.    1376.  10497.

NH      4     0.04     9827   0.035    10062    0.05    10085    0.04    10811
X1    .321      24.     9812   10085      890    1415     1193
GR  1380.4   9671.   1380.6   9716.   1377.4   9755.   1374.4   9785.   1374.2   9812.
GR  1371.7   9827.   1372.1   9874.   1372.3   9915.   1371.7   9943.   1370.6   9970.
GR  1370.4  10000.   1370.6  10062.   1372.6  10085.   1374.6  10166.   1375.1  10227.
GR  1375.6  10285.   1375.8  10346.   1376.1  10360.   1375.9  10427.   1375.8  10505.
GR  1376.7  10581.    1379.  10674.   1379.3  10764.    1380.  10811.

NH      5     0.04     9845    0.05     9885   0.035    10052    0.05    10075    0.04
NH  10798
X1    .504      30.     9845   10075      890     1080      966
GR  1386.4   9740.   1386.3   9773.   1385.5   9813.   1382.8   9845.   1378.1   9868.
GR  1375.9   9885.   1374.8   9935.   1374.6   9961.   1375.3   9993.   1374.4  10000.
GR  1373.9  10035.    1374.  10052.   1378.8  10075.   1377.9  10136.   1377.9  10209.
GR  1377.9  10261.   1376.4  10280.   1377.8  10306.   1377.9  10335.   1375.1  10340.
GR  1376.9  10352.   1378.2  10374.   1379.4  10423.   1378.6  10458.    1377.  10488.
GR  1378.8  10528.   1378.8  10622.   1380.7  10721.   1386.5  10764.   1387.9  10798.

NH     11     0.04     9924    0.05     9932   0.035    10089    0.05    10145    0.04
NH  10337     0.05    10360   0.035    10404    0.05    10454   0.035    10505    0.05
NH  10527     0.04    11529
X1    .694      44.     9916   10527      950     920     1003
GR  1392.1   9835.   1391.3   9894.   1388.5   9916.   1385.5   9924.   1378.7   9932.
GR  1377.9   9959.   1379.4   9980.   1379.1  10000.   1379.9  10031.   1379.8  10089.
GR  1381.7  10145.   1381.5  10190.   1381.2  10223.   1381.8  10269.   1381.7  10274.
GR  1380.7  10280.   1382.3  10301.    1382.  10327.   1380.9  10337.   1381.8  10360.
```

GR	1379.3	10372.	1382.	10404.	1382.7	10430.	1380.9	10454.	1379.	10476.
GR	1380.6	10505.	1382.9	10527.	1382.6	10607.	1382.1	10684.	1382.4	10757.
GR	1383.	10824.	1382.4	10899.	1382.6	10978.	1382.6	11053.	1382.5	11131.
GR	1383.4	11179.	1387.	11212.	1388.5	11260.	1387.9	11303.	1387.9	11357.
GR	1385.8	11406.	1387.8	11456.	1389.2	11496.	1394.9	11529.		
NH	5	0.04	9955	0.05	9972	0.035	10023	0.05	10050	0.04
NH	10757	0.05	10812	0.035	10888	0.05	10947	0.04	11023	
X1	.855	36	9955	10552	1005	1010	1008			
GR	1391.2	9625.	1390.9	9683.	1389.9	9720.	1386.3	9753.	1386.4	9807.
GR	1386.9	9867.	1387.3	9909.	1387.2	9936.	1387.6	9955.	1386.6	9972.
GR	1384.	9993.	1384.	10000.	1386.3	10023.	1387.3	10050.	1387.2	10118.
GR	1386.2	10150.	1387.1	10200.	1387.2	10267.	1386.8	10348.	1386.5	10406.
GR	1385.2	10447.	1386.4	10487.	1385.8	10528.	1387.9	10552.	1388.6	10573.
GR	1388.5	10632.	1388.2	10697.	1388.4	10757.	1386.2	10812.	1386.7	10849.
GR	1386.2	10872.	1386.1	10888.	1388.4	10909.	1388.8	10947.	1393.2	10995.
GR	1392.7	11023.								
NH	8	0.04	9932	0.05	9942	0.035	10055	0.04	10667	0.05
NH	10686	0.035	10721	0.05	10743	0.04	11041			
X1	1.100	45	9932	10331	1170	920	1135			
GR	1403.1	9584.	1403.	9621.	1401.4	9652.	1399.3	9690.	1395.4	9719.
GR	1396.6	9771.	1393.8	9815.	1393.4	9874.	1391.8	9906.	1392.9	9932.
GR	1392.3	9942.	1390.5	9956.	1390.5	9992.	1391.1	10000.	1390.3	10031.
GR	1392.3	10055.	1392.9	10083.	1393.1	10134.	1391.3	10170.	1392.2	10204.
GR	1391.9	10244.	1392.	10280.	1391.5	10308.	1393.6	10331.	1392.8	10358.
GR	1392.2	10371.	1392.9	10394.	1393.1	10434.	1392.8	10447.	1391.4	10457.
GR	1393.1	10492.	1393.5	10550.	1391.8	10593.	1391.8	10636.	1391.8	10667.
GR	1389.6	10686.	1390.4	10721.	1393.5	10743.	1392.2	10818.	1392.3	10866.
GR	1394.	10915.	1394.1	10956.	1393.	10966.	1398.2	11003.	1400.4	11041.
NH	7	0.04	9956	0.035	10034	0.04	10080	0.035	10111	0.04
NH	10268	0.035	10322	0.05	10345					
X1	1.269	31	9934	10345	950	740	892			
GR	1408.2	9420.	1407.8	9460.	1407.1	9505.	1404.7	9547.	1401.9	9588.
GR	1402.9	9625.	1401.8	9646.	1402.	9677.	1403.2	9708.	1401.	9736.
GR	1399.5	9759.	1398.5	9773.	1399.4	9789.	1399.	9803.	1400.	9836.
GR	1399.5	9880.	1398.8	9934.	1396.8	9956.	1396.2	9995.	1395.9	10000.
GR	1395.7	10034.	1397.5	10063.	1394.9	10080.	1395.2	10111.	1396.9	10139.
GR	1398.2	10189.	1397.6	10233.	1396.9	10268.	1394.	10292.	1397.4	10322.
GR	1401.	10345.								
NH	7	0.04	9955	0.05	9966	0.035	10023	0.04	10442	0.05
NH	10513	0.035	10575	0.04	11245					
X1	1.464	58.	9955	10603	995	1060	1030			
GR	1412.1	9640.	1412.	9679.	1410.5	9708.	1405.7	9733.	1404.2	9767.
GR	1403.3	9801.	1405.5	9817.	1404.6	9836.	1403.3	9848.	1401.9	9856.
GR	1403.2	9867.	1404.4	9888.	1404.5	9923.	1403.8	9955.	1400.9	9966.
GR	1400.9	9990.	1400.3	10000.	1399.9	10023.	1403.7	10040.	1403.6	10085.
GR	1403.2	10134.	1402.9	10176.	1402.	10198.	1402.9	10231.	1401.4	10262.
GR	1402.8	10293.	1402.9	10327.	1401.3	10346.	1403.3	10374.	1401.7	10417.
GR	1401.6	10442.	1400.3	10461.	1401.2	10486.	1400.5	10513.	1400.3	10547.
GR	1401.2	10575.	1407.9	10603.	1408.	10618.	1405.4	10640.	1402.8	10661.
GR	1404.2	10676.	1403.3	10686.	1404.	10701.	1404.6	10727.	1407.1	10755.

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GR   1408.3    10785.    1408.3    10816.    1410.     10850.    1411.5    10892.    1411.5    10927.
GR   1411.6    10975.    1410.5    11014.    1410.2    11040.    1410.7    11081.    1411.5    11135.
GR   1413.3    11184.    1413.4    11232.    1413.4    11245.

NH      14      0.03      8912      0.04      9470      0.05      9481     0.035      9507      0.05
NH    9515      0.04      9965      0.05      9976     0.035     10024      0.05     10041      0.04
NH   10452      0.05     10463     0.035     10470      0.05     10486      0.04     10710
X1   1.660       60.      9965     10167       980       980      1035
GR   1416.8     8888.    1416.8     8912.    1416.9     8956.    1416.9     8984.    1416.2     9020.
GR   1414.8     9071.    1413.8     9109.     1415.     9160.     1414.     9206.    1412.3     9258.
GR   1410.5     9310.     1410.     9360.    1408.8     9378.    1409.8     9405.    1409.7     9436.
GR   1410.      9456.    1409.2     9470.    1405.7     9481.    1405.2     9495.    1406.2     9507.
GR   1407.7     9515.    1409.2     9527.    1409.6     9585.    1408.9     9649.    1408.7     9701.
GR   1408.7     9760.    1409.5     9827.    1409.6     9885.     1410.     9926.    1409.4     9965.
GR   1405.3     9976.    1404.8    10000.    1406.7    10024.    1407.5    10041.    1407.3    10068.
GR   1406.6    10085.    1405.4    10089.    1408.2    10112.    1409.2    10167.    1409.1    10226.
GR   1408.3    10284.    1408.5    10337.    1408.3    10370.    1407.7    10379.     1406.    10387.
GR   1409.2    10404.    1408.7    10438.    1407.6    10452.    1404.3    10463.    1404.5    10470.
GR   1407.5    10486.    1406.5    10504.    1410.4    10517.     1415.    10537.    1414.3    10558.
GR   1412.9    10570.    1416.6    10592.    1418.6    10633.    1419.3    10674.    1418.4    10710.

      SECTION 1.886 IS JUST UPSTREAM OF THE CONFLUENCE WITH POWERLINE WASH.

QT       1    14000.
NH       9      0.04      9363      0.05      9374     0.035      9389      0.05      9399      0.04
NH    9860      0.05      9895     0.035     10066      0.05     10090      0.04     10567
X1   1.886        42      9860     10090      1120      1240      1193
GR   1420.1     9187.    1418.8     9225.    1418.2     9270.    1415.7     9314.    1415.4     9347.
GR   1414.3     9363.    1410.1     9374.    1410.6     9389.    1412.5     9399.    1414.9     9424.
GR   1414.5     9464.     1415.     9499.    1414.5     9513.    1412.6     9517.    1415.2     9531.
GR   1416.7     9595.    1416.1     9658.    1415.2     9712.    1414.6     9750.    1414.2     9756.
GR   1416.4     9783.    1415.8     9826.    1416.4     9860.     1415.     9878.    1411.2     9895.
GR   1412.8     9942.     1412.     9961.     1412.     9983.     1412.    10000.    1412.9    10040.
GR   1412.1    10066.    1416.3    10090.    1418.9    10131.    1421.6    10166.    1421.9    10210.
GR   1420.3    10254.    1420.9    10298.    1421.8    10346.    1422.5    10403.    1423.8    10464.
GR   1423.6    10543.    1423.7    10567.

      SECTION 2.097 IS NEAR THE INTERSECTION OF STAR WASH AND OVERHEAD
      HIGH VOLTAGE POWER LINES. (LIMIT OF DETAILED STUDY)

NH       5      0.04      9931      0.05      9960     0.035     10169      0.05     10211      0.04
NH   10700
X1   2.097       41.      9931     10211      1000      1190      1114
GR   1424.9     9349.    1424.1     9394.    1420.3     9429.    1419.7     9462.    1418.6     9471.
GR   1417.      9479.    1416.9     9481.    1419.4     9496.    1420.7     9534.    1419.7     9590.
GR   1420.4     9640.    1419.2     9661.    1420.5     9684.    1419.3     9697.     1420.     9703.
GR   1419.8     9758.    1420.8     9822.    1420.7     9871.    1421.4     9906.    1420.9     9931.
GR   1419.7     9947.    1416.8     9960.    1416.2     9985.    1418.4    10000.    1417.7    10024.
GR   1417.9    10074.    1418.8    10116.    1419.7    10169.    1421.8    10211.    1421.3    10262.
GR   1421.1    10298.    1421.7    10310.    1421.3    10349.    1421.2    10395.    1420.6    10430.
GR   1420.7    10472.    1419.4    10491.    1421.5    10527.     1422.    10571.     1423.    10634.
GR   1423.3    10700.
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*PROF 1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 7.874
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    7.874     5.96  1363.26      .00  1363.00  1364.08      .82      .00      .00  1361.80
   17600.    5105.   12161.     334.     738.    1623.     134.       0.       0.   1362.50
      .00     6.92     7.49     2.49     .035     .035     .035     .000  1357.30  9316.03
  .006086       0.       0.       0.        0        0        4      .00   958.21 10274.23


FLOW DISTRIBUTION FOR SECNO=      7.87         CWSEL=   1363.26

STA=    9316.    9411.    9447.    9481.    9531.    9586.   10055.   10274.
  PER Q=      4.4      4.5      6.2      9.0      5.0     69.1      1.9
   AREA=    158.3    112.1    133.1    193.2    141.0   1623.3    133.9
    VEL=      4.8      7.1      8.2      8.2      6.2      7.5      2.5
  DEPTH=      1.7      3.1      3.9      3.9      2.6      3.5       .6

1490 NH CARD USED
*SECNO  .095
     .095     6.61  1368.61      .00      .00  1369.24      .63     5.13      .02  1366.90
   17600.    4531.   12807.     262.    1019.    1838.      77.      65.      25.   1367.40
      .05     4.45     6.97     3.40     .035     .031     .035     .000  1362.00  9285.67
  .004156    1135.     993.     900.        3        0        0      .00  1160.81 10446.48


FLOW DISTRIBUTION FOR SECNO=       .09         CWSEL=   1368.61

STA=    9286.    9310.    9420.    9529.    9651.    9794.    9829.    9860.    9992.   10000.   10085.   10259.   10324.
  PER Q=      3.2      3.8      4.3      3.4      4.6      3.9      2.4      9.9      1.1     29.1      6.3     19.4
   AREA=     89.1    157.5    189.6    173.3    214.0    114.3     81.1    338.7     36.5    495.2    359.6    349.0
    VEL=      6.4      4.2      4.0      3.5      3.8      6.0      5.2      5.1      5.2     10.3      3.1      9.8
  DEPTH=      3.7      1.4      1.7      1.4      1.5      3.3      2.6      2.6      4.6      5.8      2.1      5.4

STA=   10324.   10390.   10446.
  PER Q=      7.0      1.5
   AREA=    258.5     77.1
    VEL=      4.8      3.4
  DEPTH=      3.9      1.4
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO  .321

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .321     6.16  1376.56  1376.56      .00  1377.99     1.44     6.25      .24  1374.20
   17600.     406.   14503.    2691.      84.    1397.     591.     131.      51.   1372.60
      .08     4.82    10.38     4.55     .040     .036     .040     .000  1370.40  9763.42
  .007142     890.    1193.    1415.        3       11        0      .00   805.57 10568.99


FLOW DISTRIBUTION FOR SECNO=       .32          CWSEL=   1376.56

STA=    9763.    9812.    9827.   10062.   10085.   10166.   10285.   10569.
  PER Q=      2.3      2.3     75.4      4.7      8.8      4.1      2.4
   AREA=     84.2     54.1   1228.5    114.0    239.6    174.2    177.6
    VEL=      4.8      7.3     10.8      7.3      6.5      4.1      2.4
  DEPTH=      1.7      3.6      5.2      5.0      3.0      1.5       .6

1490 NH CARD USED
*SECNO  .504
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
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3301 HV CHANGED MORE THAN HVINS

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

.504	7.71	1381.61	.00	.00	1382.06	.45	3.97	.10	1382.80
17600.	0.	8726.	8874.	0.	1374.	2101.	196.	71.	1378.80
.13	.00	6.35	4.22	.000	.039	.040	.000	1373.90	9850.80
.002513	890.	966.	1080.	3	0	0	.00	876.97	10727.78

FLOW DISTRIBUTION FOR SECNO= .50 CWSEL= 1381.61

STA=	9851.	10075.	10136.	10209.	10261.	10306.	10340.	10374.	10458.	10528.	10622.	10728.
PER Q=	49.6	4.6	6.9	4.9	5.8	3.5	4.6	4.7	6.7	5.6	3.0	
AREA=	1373.6	199.1	271.1	193.1	202.2	134.7	156.8	229.4	263.0	264.5	187.6	
VEL=	6.4	4.1	4.5	4.5	5.1	4.6	5.2	3.6	4.5	3.7	2.8	
DEPTH=	6.1	3.3	3.7	3.7	4.5	4.0	4.6	2.7	3.8	2.8	1.8	

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


1490 NH CARD USED
*SECNO  .694
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
     .694     6.72  1384.62      .00      .00  1385.01      .39     2.94      .01  1388.50
   17600.       0.   12726.    4874.       0.    2330.    1335.     275.      95.   1382.90
     .19      .00     5.46     3.65     .000     .041     .040     .000  1377.90  9925.04
  .003722     950.    1003.     920.        4        0        0      .00  1265.11 11190.15


FLOW DISTRIBUTION FOR SECNO=      .69         CWSEL=   1384.62

STA=    9925.   10527.   10607.   10684.   10757.   10824.   10899.   10978.   11053.   11131.   11179.   11190.
  PER Q=     72.3      2.9      3.9      4.0      2.6      2.9      3.5      3.1      3.4      1.4       .1
   AREA=   2330.2    149.3    174.5    172.8    128.4    143.8    167.2    151.3    161.2     80.0      6.8
    VEL=      5.5      3.4      3.9      4.0      3.5      3.5      3.7      3.6      3.7      3.2      1.6
  DEPTH=      3.9      1.9      2.3      2.4      1.9      1.9      2.1      2.0      2.1      1.7       .6

1490 NH CARD USED
*SECNO  .885
     .885     5.46  1389.46      .00      .00  1390.02      .56     4.96      .05  1387.60
   17600.     3361.   11036.    3203.     580.    1728.     655.     352.     124.   1387.90
     .23     5.79     6.39     4.89     .040     .039     .040     .000  1384.00  9724.03
  .006813    1005.    1008.    1010.        3        0        0      .00  1230.17 10954.20


FLOW DISTRIBUTION FOR SECNO=      .88         CWSEL=   1389.46

STA=    9724.    9807.    9867.    9909.    9955.    9972.   10023.   10050.   10552.   10757.   10849.   10888.   10954.
  PER Q=      7.3      5.9      3.1      2.9      1.0     12.0      1.9     47.8      4.1      7.4      5.2      1.5
   AREA=    213.7    168.6     99.1     98.8     40.1    224.7     71.8   1391.1    220.9    230.2    122.2     81.5
    VEL=      6.0      6.1      5.4      5.1      4.3      9.4      4.7      6.0      3.2      5.7      7.5      3.3
  DEPTH=      2.6      2.8      2.4      2.1      2.4      4.4      2.7      2.8      1.1      2.5      3.1      1.2

1490 NH CARD USED
*SECNO 1.100
    1.100     5.64  1395.24      .00      .00  1395.68      .44     5.65      .01  1392.90
   17600.     1116.    7868.    8616.     273.    1344.    1738.     428.     153.   1393.60
     .29     4.09     5.85     4.96     .040     .037     .040     .000  1389.60  9792.34
  .004228    1170.    1135.     920.        3        0        0      .00  1189.61 10981.95
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 1.10 CWSEL= 1395.24

STA=	9792.	9906.	9932.	9942.	10055.	10331.	10394.	10457.	10550.	10636.	10667.	10721.	10818.
PER Q=	4.2	2.1	.6	20.8	23.4	3.8	3.7	5.4	7.5	3.3	11.3	6.2	
AREA=	197.7	75.2	26.4	495.4	822.4	152.7	150.9	217.3	259.4	106.7	269.8	251.8	
VEL=	3.8	4.9	3.7	7.4	5.0	4.4	4.4	4.4	5.1	5.5	7.4	4.3	
DEPTH=	1.7	2.9	2.6	4.4	3.0	2.4	2.4	2.3	3.0	3.4	5.0	2.6	

STA=	10818.	10866.	10956.	10982.
PER Q=	4.1	3.1	.6	
AREA=	143.6	151.4	34.8	
VEL=	5.0	3.6	3.0	
DEPTH=	3.0	1.7	1.3	

1490 NH CARD USED
*SECNO 1.269

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.269	6.61	1400.61	1400.61	.00	1402.21	1.59	5.39	.35	1398.80
17600.	1037.	16563.	0.	232.	1595.	0.	479.	170.	1401.00
.31	4.47	10.39	.00	.040	.036	.000	.000	1394.00	9741.94
.010287	950.	892.	740.	1	11	0	.00	600.59	10342.53

FLOW DISTRIBUTION FOR SECNO= 1.27 CWSEL= 1400.61

STA=	9742.	9880.	9934.	9956.	10034.	10080.	10111.	10268.	10322.	10345.
PER Q=	3.7	2.2	2.6	22.9	10.6	13.2	24.6	19.4	.8	
AREA=	153.1	79.0	61.9	346.8	191.4	172.4	518.0	271.3	33.0	
VEL=	4.3	4.9	7.5	11.6	9.7	13.5	8.3	12.6	4.1	
DEPTH=	1.1	1.5	2.8	4.4	4.2	5.6	3.3	5.0	1.6	

1490 NH CARD USED
*SECNO 1.464
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

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

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.01

1.464	6.72	1406.62	.00	.00	1406.99	.36	4.66	.12	1403.80
17600.	1930.	14765.	905.	548.	2917.	264.	544.	189.	1407.90
.37	3.52	5.06	3.43	.040	.040	.040	.000	1399.90	9728.15
.002538	995.	1030.	1060.	4	0	0	.00	989.71	10749.75

FLOW DISTRIBUTION FOR SECNO= 1.46 CWSEL= 1406.62

STA=	9728.	9817.	9867.	9955.	10603.	10701.	10750.
PER Q=	3.6	3.2	4.2	83.9	3.8	1.4
AREA=	193.1	139.3	215.2	2916.7	180.0	83.7
VEL=	3.3	4.0	3.4	5.1	3.7	2.9
DEPTH=	2.2	2.8	2.4	4.5	1.8	1.7

1490 NH CARD USED
*SECNO 1.660
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .54

1.660	6.42	1410.72	.00	.00	1411.46	.74	4.36	.11	1409.40
17600.	5704.	5897.	5999.	1018.	727.	882.	618.	214.	1409.20
.41	5.60	8.11	6.80	.039	.040	.041	.000	1404.30	9303.73
.008857	980.	1035.	980.	3	0	0	.00	1214.65	10518.38

FLOW DISTRIBUTION FOR SECNO= 1.66 CWSEL= 1410.72

STA=	9304.	9470.	9495.	9507.	9585.	9701.	9760.	9885.	9965.	10167.	10284.	10337.	10379.
PER Q=	3.0	6.3	4.0	3.9	5.5	3.8	4.5	1.5	33.5	6.2	4.3	3.6	
AREA=	149.0	109.7	60.2	133.7	193.6	119.0	176.0	77.3	727.2	209.4	122.8	100.9	
VEL=	3.6	10.1	11.7	5.1	5.0	5.6	4.5	3.4	8.1	5.2	6.1	6.3	
DEPTH=	.9	4.4	5.0	1.7	1.7	2.0	1.4	1.0	3.6	1.8	2.3	2.4	

STA=	10379.	10404.	10452.	10470.	10486.	10504.	10518.
PER Q=	3.7	3.1	5.7	3.3	3.2	1.0	
AREA=	83.9	96.0	96.7	75.5	66.9	29.7	
VEL=	7.8	5.6	10.4	7.8	8.4	5.8	
DEPTH=	3.4	2.0	5.4	4.7	3.7	2.1	

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


1490 NH CARD USED
*SECNO 1.886
    1.886     7.45  1417.55      .00      .00  1418.14      .58     6.66      .02  1416.40
   14000.    6128.    7852.      21.    1356.    1102.      13.     686.     241.   1416.30
      .47     4.52     7.12     1.64     .040     .036     .040     .000  1410.10  9281.27
  .003626    1120.    1193.    1240.        2        0        0      .00   828.60 10109.86


FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1417.55

STA=    9281.    9363.    9389.    9424.    9464.    9499.    9531.    9658.    9750.    9826.    9860.    9895.   10066.
  PER Q=      3.5      9.6      6.3      3.7      3.1      3.8      3.5      5.6      3.6      1.0      3.0     50.8
   AREA=    140.1    167.1    156.6    114.4     98.3    106.6    176.1    204.2    142.7     49.6    109.3    912.1
    VEL=      3.5      8.0      5.6      4.5      4.5      5.0      2.8      3.9      3.5      2.9      3.8      7.8
  DEPTH=      1.7      6.4      4.5      2.9      2.8      3.3      1.4      2.2      1.9      1.5      3.1      5.3

STA=   10066.   10090.   10110.
  PER Q=      2.3       .1
   AREA=     80.6     12.5
    VEL=      4.0      1.6
  DEPTH=      3.4       .6

1490 NH CARD USED
*SECNO 2.097
    2.097     6.05  1422.25      .00      .00  1422.86      .61     4.72      .01  1420.90
   14000     5149.    7537.    1314.    1087.    1011.     405.     747.     266.   1421.80
      .52     4.74     7.45     3.24     .040     .035     .040     .000  1416.20  9411.01
  .005461    1000.    1114.    1190.        4        0        0      .00  1175.92 10586.93


FLOW DISTRIBUTION FOR SECNO=      2.10          CWSEL=   1422.25

STA=    9411.    9471.    9496.    9590.    9640.    9684.    9758.    9822.    9931.    9960.   10169.   10211.   10430.
  PER Q=      4.0      5.6      6.4      3.7      3.8      6.1      3.8      3.4      2.6     49.9      1.3      4.0
   AREA=    119.8    107.8    198.7    110.1    106.8    175.6    125.0    143.3     83.3    864.7     63.1    206.8
    VEL=      4.7      7.2      4.5      4.6      5.0      4.9      4.3      3.3      4.4      8.1      2.9      2.7
  DEPTH=      2.0      4.3      2.1      2.2      2.4      2.4      2.0      1.3      2.9      4.1      1.5       .9

STA=   10430.   10491.   10587.
  PER Q=      3.2      2.2
   AREA=    109.2     89.0
    VEL=      4.1      3.4
  DEPTH=      1.8       .9
```

THIS RUN EXECUTED 5/25/91 10:31:54

****
HEC2 RELEASE DATED SEP 88 UPDATED SEPT 1989

ERROR CORR - 01,02,03
MODIFICATION -
****

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

STAR WASH 100 YEAR

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
	7.874	1357.30	1363.26	17600.00	7.49	.00	958.21	5.96	.82	9316.03	10274.23	5104.88	333.86
	.095	1362.00	1368.61	17600.00	6.97	5.34	1160.81	6.61	.63	9285.67	10446.48	4530.69	261.93
*	.321	1370.40	1376.56	17600.00	10.38	7.95	805.57	6.16	1.44	9763.42	10568.99	405.99	2690.63
*	.504	1373.90	1381.61	17600.00	6.35	5.06	876.97	7.71	.45	9850.80	10727.78	.00	8874.24
	.694	1377.90	1384.62	17600.00	5.46	3.00	1265.11	6.72	.39	9925.04	11190.15	.00	4873.53
	.885	1384.00	1389.46	17600.00	6.39	4.84	1230.17	5.46	.56	9724.03	10954.20	3360.58	3203.49
	1.100	1389.60	1395.24	17600.00	5.85	5.78	1189.61	5.64	.44	9792.34	10981.95	1115.64	8616.22
*	1.269	1394.00	1400.61	17600.00	10.39	5.37	600.59	6.61	1.59	9741.94	10342.53	1037.02	.00
*	1.464	1399.90	1406.62	17600.00	5.06	6.01	989.71	6.72	.36	9728.15	10749.75	1929.79	904.98
*	1.660	1404.30	1410.72	17600.00	8.11	4.09	1214.65	6.42	.74	9303.73	10518.38	5704.04	5998.82
	1.886	1410.10	1417.55	14000.00	7.12	6.84	828.60	7.45	.58	9281.27	10109.86	6127.88	20.54
	2.097	1416.20	1422.25	14000.00	7.45	4.70	1175.92	6.05	.61	9411.01	10586.93	5149.12	1314.29

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .321  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .321  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .504  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     1.269  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.269  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     1.464  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.660  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

```
****************************************************
*  WATER SURFACE PROFILES                          *
*  DEVELOPED BY THE COE                            *
*  VERSION OF SEPTEMBER 1988                       *
*  ERROR: 01,02,03                                 *
*  RUN DATE     5/25/91    TIME    10:32:32        *
****************************************************
```


```
*************************************
*  DODSON & ASSOCIATES, INC.        *
*  HYDROLOGIST AND CIVIL ENGINEERS  *
*  5629 FM 1960 WEST SUITE 314      *
*  HOUSTON, TEXAS  77069            *
*  (713) 440-3787 Fax (713) 440-4742 *
*************************************
```


```
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
```

END OF BANNER

THIS RUN EXECUTED 5/25/91 10:32:32

```
**************************************************
 HEC2 RELEASE DATED SEP 88 UPDATED SEPT 1989


 ERROR CORR -  01,02,03
 MODIFICATION -
**************************************************


T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-05
T2      JACKRABBIT WASH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      STAR WASH 100 YEAR      (602) 244-8100  J. MISCHLER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              2.                                                          1376.56

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1.                                                                     15.


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

   38.       42.        1.       43.        26       51.        4.        8.       10.        53
    54       13.       15.        0        200
```

THIS FLOODWAY DELINEATION BEGINS UPSTREAM OF THE JACKRABBIT WASH CONFLUENCE AND PROCEEDS UPSTREAM ABOUT 2 MILES TO THE INTERSECTION OF STAR WASH AND THE POWERLINES. THE FIRST SECTION FROM THE NATURAL 100-YEAR PROFILE MODEL THAT IS UPSTREAM OF THE COMPUTED JACKRABBIT WASH FLOODWAY IS SECTION 0.321. THE STARTING ELEVATION IS FROM THE NATURAL PROFILE RUN, WHICH ASSUMED CRITICAL DEPTH.

THE FLOODWAY WAS ORIGINALLY COMPUTED USING METHOD 6. RESULTS WERE REVIEWED AND ADJUSTMENTS WERE MADE TO YIELD REASONABLE FLOODWAY BOUNDARIES WHICH MEET THE 1.0 FOOT SURCHARGE LIMIT WHILE NOT CAUSING EXCESSIVE VELOCITIES. THE ORIGINAL METHOD 6 RUN WAS BASED ON EQUAL CONVEYANCE IN BOTH OVERBANKS.

THE HYDROLOGY ANALYSIS DETERMINED THAT THE FLOOD PEAKS ON STAR WASH AND JACKRABBIT WASH DO NOT COINCIDE, THEREFORE, STAR WASH IS MODELED SEPARATELY INSTEAD OF AS A TRIBUTARY RUN.

NH CARDS ARE USED THROUGHOUT THIS MODEL FOR MANNINGS n VALUES DUE TO THE BRAIDED NATURE OF THE CHANNEL. MANNINGS n VALUES WERE SELECTED IN THE FIELD USING, AS A GUIDE, THE PRELIMINARY DRAFT (7-3-90.2) OF " MANNINGS ROUGHNESS COEFFICIENTS FOR STREAM CHANNELS AND FLOODPLAINS IN MARICOPA COUNTY, ARIZONA ", U.S. GEOLOGICAL SURVEY. MANNINGS n VALUES WERE DISTRIBUTED ACROSS INDIVIDUAL CROSS SECTIONS BY COMPARISON WITH 1:19000 AERIAL PHOTOGRAPHS USED FOR MAPPING.

CROSS SECTION LABELS INDICATE RIVER MILES ABOVE THE MOUTH.
Q IS COMPUTED JUST DOWNSTREAM OF THE CONFLUENCE WITH POWERLINE WASH

NC				.1	.3					
QT	2	17600	17600							
ET			4.1	9812	10126					
NH	4	0.04	9827	0.035	10062	0.05	10085	0.04	10811	
X1	.321	24.	9812	10085	890	1415	1193			
GR	1380.4	9671.	1380.6	9716.	1377.4	9755.	1374.4	9785.	1374.2	9812.
GR	1371.7	9827.	1372.1	9874.	1372.3	9915.	1371.7	9943.	1370.6	9970.
GR	1370.4	10000.	1370.6	10062.	1372.6	10085.	1374.6	10166.	1375.1	10227.
GR	1375.6	10285.	1375.8	10346.	1376.1	10360.	1375.9	10427.	1375.8	10505.
GR	1376.7	10581.	1379.	10674.	1379.3	10764.	1380.	10811.		
NH	5	0.04	9845	0.05	9885	0.035	10052	0.05	10075	0.04
NH	10798									
ET			4.1	9850	10320					
X1	.504	30.	9845	10075	890	1080	966			
GR	1386.4	9740.	1386.3	9773.	1385.5	9813.	1382.8	9845.	1378.1	9868.
GR	1375.9	9885.	1374.8	9935.	1374.6	9961.	1375.3	9993.	1374.4	10000.
GR	1373.9	10035.	1374.	10052.	1378.8	10075.	1377.9	10136.	1377.9	10209.
GR	1377.9	10261.	1376.4	10280.	1377.8	10306.	1377.9	10335.	1375.1	10340.
GR	1376.9	10352.	1378.2	10374.	1379.4	10423.	1378.6	10458.	1377.	10488.
GR	1378.8	10528.	1378.8	10622.	1380.7	10721.	1386.5	10764.	1387.9	10798.
NH	11	0.04	9924	0.05	9932	0.035	10089	0.05	10145	0.04
NH	10337	0.05	10360	0.035	10404	0.05	10454	0.035	10505	0.05
NH	10527	0.04	11529							
ET			4.1	9925	10735					
X1	.694	44.	9916	10527	950	920	1003			
GR	1392.1	9835.	1391.3	9894.	1388.5	9916.	1385.5	9924.	1378.7	9932.
GR	1377.9	9959.	1379.4	9980.	1379.1	10000.	1379.9	10031.	1379.8	10089.
GR	1381.7	10145.	1381.5	10190.	1381.2	10223.	1381.8	10269.	1381.7	10274.
GR	1380.7	10280.	1382.3	10301.	1382.	10327.	1380.9	10337.	1381.8	10360.
GR	1379.8	10372.	1382.	10404.	1382.7	10430.	1380.9	10454.	1379.	10476.
GR	1380.6	10505.	1382.9	10527.	1382.6	10607.	1382.1	10684.	1382.4	10757.
GR	1383.	10824.	1382.4	10899.	1382.6	10978.	1382.6	11053.	1382.5	11131.
GR	1383.4	11179.	1387.	11212.	1388.5	11260.	1387.9	11303.	1387.9	11357.
GR	1385.8	11406.	1387.8	11456.	1389.2	11496.	1394.9	11529.		
NH	9	0.04	9955	0.05	9972	0.035	10023	0.05	10050	0.04
NH	10757	0.05	10812	0.035	10888	0.05	10947	0.04	11023	
ET			4.1	9935	10730					
X1	.885	36	9955	10552	1005	1010	1008			
GR	1391.2	9625.	1390.9	9683.	1389.9	9720.	1386.3	9753.	1386.4	9807.
GR	1386.9	9867.	1387.3	9909.	1387.2	9936.	1387.6	9955.	1386.6	9972.
GR	1384.	9993.	1384.	10000.	1386.3	10023.	1387.3	10050.	1387.2	10118.
GR	1386.2	10150.	1387.1	10200.	1387.2	10267.	1386.8	10348.	1386.5	10406.
GR	1385.2	10447.	1386.4	10487.	1385.8	10528.	1387.9	10552.	1388.6	10573.
GR	1388.5	10632.	1388.2	10697.	1388.4	10757.	1386.2	10812.	1386.7	10849.
GR	1386.2	10872.	1386.1	10888.	1388.4	10909.	1388.8	10947.	1393.2	10995.
GR	1392.7	11023.								

NH	8	0.04	9932	0.05	9942	0.035	10055	0.04	10667	0.05
NH	10686	0.035	10721	0.05	10743	0.04	11041			
ET			4.1	9880	10680					
X1	1.100	45	9932	10331	1170	920	1135			
GR	1403.1	9584.	1403.	9621.	1401.4	9652.	1399.3	9690.	1395.4	9719.
GR	1396.6	9771.	1393.8	9815.	1393.4	9874.	1391.8	9906.	1392.9	9932.
GR	1392.3	9942.	1390.5	9956.	1390.5	9992.	1391.1	10000.	1390.3	10031.
GR	1392.3	10055.	1392.9	10083.	1393.1	10134.	1391.3	10170.	1392.2	10204.
GR	1391.9	10244.	1392.	10280.	1391.5	10308.	1393.6	10331.	1392.8	10358.
GR	1392.2	10371.	1392.9	10394.	1393.1	10434.	1392.8	10447.	1391.4	10457.
GR	1393.1	10492.	1393.5	10550.	1391.8	10593.	1391.8	10636.	1391.8	10667.
GR	1389.6	10686.	1390.4	10721.	1393.5	10743.	1392.2	10818.	1392.3	10866.
GR	1394.	10915.	1394.1	10956.	1393.	10966.	1398.2	11003.	1400.4	11041.
NH	7	0.04	9956	0.035	10034	0.04	10080	0.035	10111	0.04
NH	10268	0.035	10322	0.05	10345					
ET			4.1	9760	10340					
X1	1.269	31	9934	10345	950	740	892			
GR	1408.2	9420.	1407.8	9460.	1407.1	9505.	1404.7	9547.	1401.9	9588.
GR	1402.9	9625.	1401.8	9646.	1402.	9677.	1403.2	9708.	1401.	9736.
GR	1399.5	9759.	1398.5	9773.	1399.4	9789.	1399.	9803.	1400.	9836.
GR	1399.5	9880.	1398.8	9934.	1396.8	9956.	1396.2	9995.	1395.9	10000.
GR	1395.7	10034.	1397.5	10063.	1394.9	10080.	1395.2	10111.	1396.9	10139.
GR	1398.2	10189.	1397.6	10233.	1396.9	10268.	1394.	10292.	1397.4	10322.
GR	1401.	10345.								
NH	7	0.04	9955	0.05	9966	0.035	10023	0.04	10442	0.05
NH	10513	0.035	10575	0.04	11245					
ET			4.1	9840	10495					
X1	1.464	58.	9955	10603	995	1060	1030			
GR	1412.1	9640.	1412.	9679.	1410.5	9708.	1405.7	9733.	1404.2	9767.
GR	1403.3	9801.	1405.5	9817.	1404.6	9836.	1403.3	9848.	1401.9	9856.
GR	1403.2	9867.	1404.4	9888.	1404.5	9923.	1403.8	9955.	1400.9	9966.
GR	1400.9	9990.	1400.3	10000.	1399.9	10023.	1403.7	10040.	1403.6	10085.
GR	1403.2	10134.	1402.9	10176.	1402.	10198.	1402.9	10231.	1401.4	10262.
GR	1402.8	10293.	1402.9	10327.	1401.3	10346.	1403.3	10374.	1401.7	10417.
GR	1401.6	10442.	1400.3	10461.	1401.2	10486.	1400.5	10513.	1400.3	10547.
GR	1401.2	10575.	1407.9	10603.	1408.	10618.	1405.4	10640.	1402.8	10661.
GR	1404.2	10676.	1403.3	10686.	1404.	10701.	1404.6	10727.	1407.1	10755.
GR	1408.3	10785.	1408.3	10816.	1410.	10850.	1411.5	10892.	1411.5	10927.
GR	1411.6	10975.	1410.5	11014.	1410.2	11040.	1410.7	11081.	1411.5	11135.
GR	1413.3	11184.	1413.4	11232.	1413.4	11245.				
NH	14	0.03	8912	0.04	9470	0.05	9481	0.035	9507	0.05
NH	9515	0.04	9965	0.05	9976	0.035	10024	0.05	10041	0.04
NH	10452	0.05	10463	0.035	10470	0.05	10486	0.04	10710	
ET			4.1	9540	10280					
X1	1.660	60.	9965	10167	980	980	1035			
GR	1416.8	8888.	1416.8	8912.	1416.9	8956.	1416.9	8984.	1416.2	9020.
GR	1414.8	9071.	1413.8	9109.	1415.	9160.	1414.	9206.	1412.3	9258.
GR	1410.5	9310.	1410.	9360.	1408.8	9378.	1409.8	9405.	1409.7	9436.
GR	1410.	9456.	1409.2	9470.	1405.7	9481.	1405.2	9495.	1406.2	9507.
GR	1407.7	9515.	1409.2	9527.	1409.6	9585.	1408.9	9649.	1408.7	9701.

GR	1408.7	9760.	1409.5	9827.	1409.6	9885.	1410.	9926.	1409.4	9965.
GR	1405.3	9976.	1404.8	10000.	1406.7	10024.	1407.5	10041.	1407.3	10068.
GR	1406.6	10085.	1405.4	10089.	1408.2	10112.	1409.2	10167.	1409.1	10226.
GR	1408.3	10284.	1408.5	10337.	1408.3	10370.	1407.7	10379.	1406.	10387.
GR	1409.2	10404.	1408.7	10438.	1407.6	10452.	1404.3	10463.	1404.5	10470.
GR	1407.5	10486.	1406.5	10504.	1410.4	10517.	1415.	10537.	1414.3	10558.
GR	1412.9	10570.	1416.6	10592.	1418.6	10633.	1419.3	10674.	1418.4	10710.

SECTION 1.886 IS JUST UPSTREAM OF THE CONFLUENCE WITH POWERLINE WASH.
Q IS COMPUTED JUST UPSTREAM OF THE CONFLUENCE WITH POWERLINE WASH

QT	2	14000	14000							
NH	9	0.04	9363	0.05	9374	0.035	9389	0.05	9399	0.04
NH	9860	0.05	9895	0.035	10066	0.05	10090	0.04	10567	
ET			4.1	9480	10090					
X1	1.886	42	9860	10090	1120	1240	1193			
GR	1420.1	9187.	1418.8	9225.	1418.2	9270.	1415.7	9314.	1415.4	9347.
GR	1414.3	9363.	1410.1	9374.	1410.6	9389.	1412.5	9399.	1414.9	9424.
GR	1414.5	9464.	1415.	9499.	1414.5	9513.	1412.6	9517.	1415.2	9531.
GR	1416.7	9595.	1416.1	9658.	1415.2	9712.	1414.6	9750.	1414.2	9756.
GR	1416.4	9783.	1415.8	9826.	1416.4	9860.	1415.	9878.	1411.2	9895.
GR	1412.8	9942.	1412.	9961.	1412.	9983.	1412.	10000.	1412.9	10040.
GR	1412.1	10066.	1416.3	10090.	1418.9	10131.	1421.6	10166.	1421.9	10210.
GR	1420.3	10254.	1420.9	10298.	1421.8	10346.	1422.5	10403.	1423.8	10464.
GR	1423.6	10543.	1423.7	10567.						

SECTION 2.097 IS NEAR THE INTERSECTION OF STAR WASH AND OVERHEAD
HIGH VOLTAGE POWER LINES. (LIMIT OF DETAILED STUDY)

NH	5	0.04	9931	0.05	9960	0.035	10169	0.05	10211	0.04
NH	10700									
ET			4.1	9630	10210					
X1	2.097	41.	9931	10211	1000	1190	1114			
GR	1424.9	9349.	1424.1	9394.	1420.3	9429.	1419.7	9462.	1418.6	9471.
GR	1417.	9479.	1416.9	9481.	1419.4	9496.	1420.7	9534.	1419.7	9590.
GR	1420.4	9640.	1419.2	9661.	1420.5	9684.	1419.3	9697.	1420.	9703.
GR	1419.8	9758.	1420.8	9822.	1420.7	9871.	1421.4	9906.	1420.9	9931.
GR	1419.7	9947.	1416.8	9960.	1416.2	9985.	1418.4	10000.	1417.7	10024.
GR	1417.9	10074.	1418.8	10116.	1419.7	10169.	1421.8	10211.	1421.3	10262.
GR	1421.1	10298.	1421.7	10310.	1421.3	10349.	1421.2	10395.	1420.6	10430.
GR	1420.7	10472.	1419.4	10491.	1421.5	10527.	1422.	10571.	1423.	10634.
GR	1423.3	10700.								

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


*PROF 1



CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .321
3720 CRITICAL DEPTH ASSUMED
     .321     6.16  1376.56  1376.56  1376.56  1377.99     1.43      .00      .00  1374.20
   17600.     407.   14491.    2702.      85.    1399.     595.       0.       0.   1372.60
      .00     4.81    10.36     4.54     .040     .036     .040     .000  1370.40  9763.35
  .007096     890.    1193.    1415.        0        4        0      .00   806.25 10569.60


FLOW DISTRIBUTION FOR SECNO=       .32          CWSEL=   1376.56

STA=    9763.    9812.    9827.   10062.   10085.   10166.   10285.   10570.
  PER Q=     2.3      2.3     75.4      4.7      8.8      4.1      2.4
   AREA=    84.6     54.2   1230.2    114.2    240.2    175.1    179.7
    VEL=     4.8      7.3     10.8      7.3      6.5      4.1      2.4
  DEPTH=     1.7      3.6      5.2      5.0      3.0      1.5       .6

1490 NH CARD USED
*SECNO  .504
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
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3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.68

.504	7.71	1381.61	.00	.00	1382.06	.45	3.97	.10	1382.80
17600.	0.	8730.	8870.	0.	1373.	2099.	65.	20.	1378.80
.05	.00	6.36	4.23	.000	.039	.040	.000	1373.90	9850.82
.002521	890.	966.	1080.	3	0	0	.00	876.92	10727.75

FLOW DISTRIBUTION FOR SECNO= .50 CWSEL= 1381.61

STA=	9851.	10075.	10136.	10209.	10261.	10306.	10340.	10374.	10458.	10528.	10622.	10728.
PER Q=	49.6	4.6	6.9	4.9	5.8	3.5	4.6	4.7	6.7	5.6	3.0	
AREA=	1372.7	198.8	270.8	192.9	202.0	134.6	156.6	229.0	262.7	264.1	187.2	
VEL=	6.4	4.1	4.5	4.5	5.1	4.6	5.2	3.6	4.5	3.7	2.8	
DEPTH=	6.1	3.3	3.7	3.7	4.5	4.0	4.6	2.7	3.8	2.8	1.8	

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


1490 NH CARD USED
*SECNO  .694
1550 MANNINGS N VALUES FOR CHANNEL COMPOSITED
     .694     6.72  1384.62      .00      .00  1385.01      .39     2.94      .01  1388.50
   17600.       0.   12725.    4875.       0.    2331.    1336.     144.      44.   1382.90
      .11      .00     5.46     3.65     .000     .041     .040     .000  1377.90  9925.04
  .003718     950.    1003.     920.        4        0        0      .00  1265.12 11190.16


FLOW DISTRIBUTION FOR SECNO=       .69          CWSEL=   1384.62

STA=    9925.   10527.   10607.   10684.   10757.   10824.   10899.   10978.   11053.   11131.   11179.   11190.
  PER Q=     72.3      2.9      3.9      4.0      2.6      2.9      3.6      3.1      3.4      1.4       .1
   AREA=   2330.8    149.4    174.6    172.8    128.5    143.8    167.3    151.3    161.3     80.0      6.8
    VEL=      5.5      3.4      3.9      4.0      3.5      3.5      3.7      3.6      3.7      3.2      1.6
  DEPTH=      3.9      1.9      2.3      2.4      1.9      1.9      2.1      2.0      2.1      1.7       .6

1490 NH CARD USED
*SECNO  .885
     .885     5.46  1389.46      .00      .00  1390.02      .56     4.96      .05  1387.60
   17600.    3361.   11036.    3203.     580.    1727.     655.     221.      72.   1387.90
      .15     5.79     6.39     4.89     .040     .039     .040     .000  1384.00  9724.04
  .006818    1005.    1008.    1010.        3        0        0      .00  1230.16 10954.20


FLOW DISTRIBUTION FOR SECNO=       .88          CWSEL=   1389.46

STA=    9724.    9807.    9867.    9909.    9955.    9972.   10023.   10050.   10552.   10757.   10849.   10888.   10954.
  PER Q=      7.3      5.9      3.1      2.9      1.0     12.0      1.9     47.8      4.1      7.4      5.2      1.5
   AREA=    213.7    168.6     99.1     98.8     40.1    224.7     71.8   1390.8    220.8    230.1    122.2     81.4
    VEL=      6.0      6.1      5.4      5.1      4.3      9.4      4.7      6.1      3.2      5.7      7.5      3.3
  DEPTH=      2.6      2.8      2.4      2.1      2.4      4.4      2.7      2.8      1.1      2.5      3.1      1.2

1490 NH CARD USED
*SECNO 1.100
    1.100     5.64  1395.24      .00      .00  1395.68      .44     5.65      .01  1392.90
   17600.    1116.    7868.    8616.     273.    1344.    1739.     297.     101.   1393.60
      .21     4.09     5.85     4.96     .040     .037     .040     .000  1389.60  9792.34
  .004226    1170.    1135.     920.        3        0        0      .00  1189.62 10981.95
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=      1.10         CWSEL=   1395.24

STA=    9792.    9906.    9932.    9942.   10055.   10331.   10394.   10457.   10550.   10636.   10667.   10721.   10818.
  PER Q=      4.2      2.1       .6     20.8     23.4      3.8      3.7      5.4      7.5      3.3     11.3      6.2
   AREA=    197.8     75.2     26.4    495.5    822.5    152.7    150.9    217.4    259.5    106.7    269.8    251.8
    VEL=      3.8      4.9      3.7      7.4      5.0      4.4      4.4      4.4      5.1      5.5      7.4      4.3
  DEPTH=      1.7      2.9      2.6      4.4      3.0      2.4      2.4      2.3      3.0      3.4      5.0      2.6

STA=   10818.   10866.   10956.   10982.
  PER Q=      4.1      3.1       .6
   AREA=    143.6    151.4     34.8
    VEL=      5.0      3.6      3.0
  DEPTH=      3.0      1.7      1.3

1490 NH CARD USED
*SECNO 1.269

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    1.269     6.61  1400.61  1400.61      .00  1402.21     1.59     5.39      .35  1398.80
   17600.    1037.   16563.       0.     232.    1595.       0.     348.     119.   1401.00
      .23     4.47    10.39      .00     .040     .036     .000     .000  1394.00  9741.94
  .010288     950.     892.     740.        1       11        0      .00   600.59 10342.53


FLOW DISTRIBUTION FOR SECNO=      1.27         CWSEL=   1400.61

STA=    9742.    9880.    9934.    9956.   10034.   10080.   10111.   10268.   10322.   10345.
  PER Q=      3.7      2.2      2.6     22.9     10.6     13.2     24.6     19.4       .8
   AREA=    153.1     79.0     61.9    346.8    191.4    172.4    517.9    271.3     33.0
    VEL=      4.3      4.9      7.5     11.6      9.7     13.5      8.3     12.6      4.1
  DEPTH=      1.1      1.5      2.8      4.4      4.2      5.6      3.3      5.0      1.6

1490 NH CARD USED
*SECNO 1.464
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
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3265 DIVIDED FLOW

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

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.01

1.464	6.72	1406.62	.00	.00	1406.99	.36	4.66	.12	1403.80
17600.	1930.	14765.	905.	548.	2917.	264.	413.	138.	1407.90
.29	3.52	5.06	3.43	.040	.040	.040	.000	1399.90	9728.15
.002538	995.	1030.	1060.	4	0	0	.00	989.71	10749.75

FLOW DISTRIBUTION FOR SECNO= 1.46 CWSEL= 1406.62

STA=	9728.	9817.	9867.	9955.	10603.	10701.	10750.
PER Q=	3.6	3.2	4.2	83.9	3.8	1.4
AREA=	193.1	139.3	215.2	2916.7	180.0	83.7
VEL=	3.3	4.0	3.4	5.1	3.7	2.9
DEPTH=	2.2	2.8	2.4	4.5	1.8	1.7

1490 NH CARD USED
*SECNO 1.660
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .54

1.660	6.42	1410.72	.00	.00	1411.46	.74	4.36	.11	1409.40
17600.	5704.	5897.	5999.	1019.	727.	882.	487.	163.	1409.20
.33	5.60	8.11	6.80	.039	.040	.041	.000	1404.30	9303.73
.008856	980.	1035.	980.	3	0	0	.00	1214.65	10518.38

FLOW DISTRIBUTION FOR SECNO= 1.66 CWSEL= 1410.72

STA=	9304.	9470.	9495.	9507.	9585.	9701.	9760.	9885.	9965.	10167.	10284.	10337.	10379.
PER Q=	3.0	6.3	4.0	3.9	5.5	3.8	4.5	1.5	33.5	6.2	4.3	3.6	
AREA=	149.0	109.7	60.2	133.7	193.6	119.0	176.0	77.3	727.3	209.5	122.8	100.9	
VEL=	3.6	10.1	11.7	5.1	5.0	5.6	4.5	3.4	8.1	5.2	6.1	6.3	
DEPTH=	.9	4.4	5.0	1.7	1.7	2.0	1.4	1.0	3.6	1.8	2.3	2.4	

STA=	10379.	10404.	10452.	10470.	10486.	10504.	10518.
PER Q=	3.7	3.1	5.7	3.3	3.2	1.0	
AREA=	83.9	96.0	96.7	75.5	66.9	29.7	
VEL=	7.8	5.6	10.4	7.8	8.4	5.8	
DEPTH=	3.4	2.0	5.4	4.7	3.7	2.1	

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


1490 NH CARD USED
*SECNO 1.886
    1.886     7.45  1417.55      .00      .00  1418.13      .58     6.66      .02  1416.40
   14000.    6128.    7852.      21.    1356.    1102.      13.     555.     190.  1416.30
      .39     4.52     7.12     1.64     .040     .036     .040     .000  1410.10  9281.27
  .003626    1120.    1193.    1240.        2        0        0      .00   828.59 10109.86


FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1417.55

STA=    9281.    9363.    9389.    9424.    9464.    9499.    9531.    9658.    9750.    9826.    9860.    9895.   10066.
  PER Q=      3.5      9.6      6.3      3.7      3.1      3.8      3.5      5.6      3.6      1.0      3.0     50.8
   AREA=    140.1    167.1    156.6    114.4     98.3    106.6    176.1    204.2    142.7     49.6    109.3    912.1
    VEL=      3.5      8.0      5.6      4.5      4.5      5.0      2.8      3.9      3.5      2.9      3.8      7.8
  DEPTH=      1.7      6.4      4.5      2.9      2.8      3.3      1.4      2.2      1.9      1.5      3.1      5.3

STA=   10066.   10090.   10110.
  PER Q=      2.3       .1
   AREA=     80.6     12.5
    VEL=      4.0      1.6
  DEPTH=      3.4       .6

1490 NH CARD USED
*SECNO 2.097
    2.097     6.05  1422.25      .00      .00  1422.86      .61     4.72      .01  1420.90
   14000.    5149.    7537.    1314.    1087.    1011.     405.     616.     215.  1421.80
      .44     4.74     7.45     3.24     .040     .035     .040     .000  1416.20  9411.01
  .005461    1000.    1114.    1190.        4        0        0      .00  1175.92 10586.93


FLOW DISTRIBUTION FOR SECNO=      2.10          CWSEL=   1422.25

STA=    9411.    9471.    9496.    9590.    9640.    9684.    9758.    9822.    9931.    9960.   10169.   10211.   10430.
  PER Q=      4.0      5.6      6.4      3.7      3.8      6.1      3.8      3.4      2.6     49.9      1.3      4.0
   AREA=    119.8    107.8    198.7    110.1    106.8    175.6    125.0    143.3     83.3    864.7     63.1    206.8
    VEL=      4.7      7.2      4.5      4.6      5.0      4.9      4.3      3.3      4.4      8.1      2.9      2.7
  DEPTH=      2.0      4.3      2.1      2.2      2.4      2.4      2.0      1.3      2.9      4.1      1.5       .9

STA=   10430.   10491.   10587.
  PER Q=      3.2      2.2
   AREA=    109.2     89.0
    VEL=      4.1      3.4
  DEPTH=      1.8       .9
```

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							1377.56	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLOC	IBW	CHNIM	ITRACE
	15		-1							15.

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


*PROF 2



CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .321

3470 ENCROACHMENT STATIONS=     9812.0   10126.0  TYPE=      1  TARGET=      314.000
     .321     7.16  1377.56      .00  1376.56  1379.00     1.44      .00      .00  1374.20
   17600.       0.   16371.    1229.       0.    1670.     183.       0.       0.   1372.60
      .00      .00     9.80     6.73     .000     .036     .040     .000  1370.40  9812.00
  .005067     890.    1193.    1415.        0        0        0      .00   314.00 10126.00


FLOW DISTRIBUTION FOR SECNO=       .32          CWSEL=   1377.56

STA=    9812.    9827.   10062.   10085.   10126.
  PER Q=      2.5     85.1      5.4      7.0
   AREA=     69.2   1464.1    137.1    182.6
    VEL=      6.4     10.2      6.9      6.7
  DEPTH=      4.6      6.2      6.0      4.5

1490 NH CARD USED
*SECNO  .504
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
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3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 9850.0 10320.0 TYPE= 1 TARGET= 470.000

.504	8.35	1382.25	.00	1381.61	1383.01	.76	3.95	.07100000.00	
17600.	0.	11574.	6026.	0.	1516.	1073.	51.	9.	1378.80
.04	.00	7.64	5.61	.000	.039	.040	.000	1373.90	9850.00
.003219	890.	966.	1080.	2	0	0	.00	470.00	10320.00

FLOW DISTRIBUTION FOR SECNO= .50 CWSEL= 1382.25

STA=	9850.	10075.	10136.	10209.	10261.	10280.	10306.	10320.
PER Q=	65.8	7.0	10.1	7.2	3.4	4.8	1.7	
AREA=	1515.8	237.7	317.3	226.0	96.8	133.8	61.9	
VEL=	7.6	5.2	5.6	5.6	6.2	6.3	4.7	
DEPTH=	6.7	3.9	4.3	4.3	5.1	5.1	4.4	

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

1490 NH CARD USED
*SECNO .694
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

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3470 ENCROACHMENT STATIONS=     9925.0   10735.0  TYPE=      1  TARGET=      810.000
     .694     7.61  1385.51      .00  1384.62  1385.91      .41     2.87      .04100000.00
   17600.       0.   15097.    2503.       0.    2860.     630.     119.      23.   1382.90
     .09      .00     5.28     3.97     .000     .041     .040     .000  1377.90  9925.00
  .002653     950.    1003.     920.        2        0        0      .00   810.00 10735.00


FLOW DISTRIBUTION FOR SECNO=       .69          CWSEL=   1385.51

STA=    9925.   10527.   10607.   10684.   10735.
  PER Q=     85.8      4.7      5.7      3.9
   AREA=   2859.8    219.7    242.3    167.9
    VEL=      5.3      3.8      4.1      4.1
  DEPTH=      4.8      2.7      3.1      3.3

1490 NH CARD USED
*SECNO  .885

3301 HV CHANGED MORE THAN HVINS


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


3470 ENCROACHMENT STATIONS=     9935.0   10730.0  TYPE=      1  TARGET=      795.000
     .885     5.78  1389.78      .00  1389.46  1390.82     1.04     4.72      .19  1387.60
   17600.      312.   16123.    1165.      48.    1917.     248.     185.      42.   1387.90
     .13     6.54     8.41     4.70     .040     .039     .040     .000  1384.00  9935.00
  .010362    1005.    1008.    1010.        3        0        0      .00   795.00 10730.00


FLOW DISTRIBUTION FOR SECNO=       .88          CWSEL=   1389.78

STA=    9935.    9955.    9972.   10023.   10050.   10552.   10697.   10730.
  PER Q=      1.8      1.5     16.6      2.9     70.6      5.2      1.4
   AREA=     47.8     45.5    240.9     80.4   1550.5    197.4     50.3
    VEL=      6.5      5.8     12.1      6.3      8.0      4.7      4.9
  DEPTH=      2.4      2.7      4.7      3.0      3.1      1.4      1.5
```

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

1490 NH CARD USED
*SECNO 1.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.79

3470 ENCROACHMENT STATIONS= 9880.0 10680.0 TYPE= 1 TARGET= 800.000

1.100	6.60	1396.20	.00	1395.24	1396.68	.48	5.80	.06	1392.90
17600.	978.	10299.	6323.	197.	1725.	1275.	252.	61.	1393.60
.18	4.96	5.97	4.96	.040	.038	.040	.000	1389.60	9880.00
.003232	1170.	1135.	920.	4	0	0	.00	800.00	10680.00

FLOW DISTRIBUTION FOR SECNO= 1.10 CWSEL= 1396.20

STA=	9880.	9932.	9942.	10055.	10331.	10371.	10434.	10492.	10550.	10593.	10636.	10667.	10680.
PER Q=	5.6	.8	25.2	32.5	3.4	5.7	6.5	4.1	4.3	6.1	4.4	1.5	
AREA=	197.4	36.0	603.3	1085.9	129.0	211.7	221.3	168.0	152.5	189.1	136.3	66.9	
VEL=	5.0	4.0	7.4	5.3	4.6	4.7	5.2	4.3	4.9	5.7	5.7	3.9	
DEPTH=	3.8	3.6	5.3	3.9	3.2	3.4	3.8	2.9	3.5	4.4	4.4	5.1	

1490 NH CARD USED
*SECNO 1.269
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

```
3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9760.0   10340.0  TYPE=      1  TARGET=      580.000
    1.269     6.61  1400.61  1400.61  1400.61  1402.20     1.59     4.83      .33  1398.80
   17600.    1066.   16534.       0.     221.    1593.       0.     301.      75. 100000.00
      .21     4.83    10.38      .00     .040     .039     .000     .000  1394.00  9760.00
  .011764     950.     892.     740.        2        5        0      .00   580.00 10340.00


FLOW DISTRIBUTION FOR SECNO=      1.27         CWSEL=   1400.61
```

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

STA=	9760.	9880.	9934.	10340.
PER Q=	3.7	2.3	93.9	
AREA=	142.0	78.8	1592.7	
VEL=	4.6	5.2	10.4	
DEPTH=	1.2	1.5	3.9	

1490 NH CARD USED
*SECNO 1.464
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

```
3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.97


3470 ENCROACHMENT STATIONS=     9840.0   10495.0  TYPE=      1  TARGET=      655.000
    1.464     7.37  1407.27      .00  1406.62  1407.78      .51     5.46      .11  1403.80
   17600.    1794.   15806.       0.     389.    2718.       0.     359.      90. 100000.00
      .26     4.61     5.82      .00     .040     .041     .000     .000  1399.90  9840.00
  .003019     995.    1030.    1060.        5        0        0      .00   655.00 10495.00


FLOW DISTRIBUTION FOR SECNO=      1.46          CWSEL=   1407.27

STA=    9840.    9867.    9923.    9955.   10495.
  PER Q=      3.5      4.2      2.5     89.8
   AREA=    117.6    171.6     99.9   2718.0
    VEL=      5.2      4.3      4.4      5.8
  DEPTH=      4.4      3.1      3.1      5.0

1490 NH CARD USED
*SECNO 1.660
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
```

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .60

3470 ENCROACHMENT STATIONS= 9540.0 10280.0 TYPE= 1 TARGET= 740.000

1.660	7.45	1411.75	.00	1410.72	1412.75	1.00	4.82	.15	1409.40
17600.	6727.	8767.	2106.	1060.	935.	316.	423.	106.	1409.20
.29	6.34	9.38	6.66	.040	.040	.040	.000	1404.30	9540.00
.008469	980.	1035.	980.	3	0	0	.00	740.00	10280.00

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

FLOW DISTRIBUTION FOR SECNO= 1.66 CWSEL= 1411.75

STA=	9540.	9585.	9649.	9701.	9760.	9827.	9885.	9965.	10167.	10226.	10280.
PER Q=	3.4	5.7	6.1	7.3	6.6	4.2	4.9	49.8	5.6	6.3	
AREA=	103.5	159.7	153.2	179.7	177.3	127.4	159.6	935.0	153.2	163.0	
VEL=	5.8	6.3	7.0	7.2	6.5	5.8	5.4	9.4	6.5	6.9	
DEPTH=	2.3	2.5	2.9	3.0	2.6	2.2	2.0	4.6	2.6	3.0	

1490 NH CARD USED
*SECNO 1.886
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

```
3470 ENCROACHMENT STATIONS=     9480.0   10090.0  TYPE=      1  TARGET=      610.000
    1.886     8.38  1418.48      .00  1417.55  1419.08      .61     6.30      .04  1416.40
   14000.    4796.    9204.       0.    1079.    1313.       0.     485.     124. 100000.00
      .35     4.44     7.01      .00     .040     .039     .000     .000  1410.10  9480.00
  .003421    1120.    1193.    1240.        2        0        0      .00   610.00 10090.00


FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1418.48

STA=    9480.    9513.    9531.    9595.    9658.    9712.    9750.    9783.    9860.   10090.
  PER Q=     4.2      3.5      4.7      3.3      4.7      4.9      3.8      5.1     65.7
   AREA=   120.8     83.8    161.8    130.9    152.7    136.0    110.3    183.1   1313.2
    VEL=     4.8      5.9      4.0      3.5      4.3      5.1      4.9      3.9      7.0
  DEPTH=     3.7      4.7      2.5      2.1      2.8      3.6      3.3      2.4      5.7

1490 NH CARD USED
*SECNO 2.097
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
```

```
3470 ENCROACHMENT STATIONS=     9630.0   10210.0  TYPE=      1  TARGET=      580.000
    2.097     6.85  1423.05      .00  1422.25  1423.83      .78     4.70      .05  1420.90
   14000.    4469.    9531.       0.     810.    1233.       0.     540.     138. 100000.00
      .39     5.52     7.73      .00     .040     .039     .000     .000  1416.20  9630.00
  .005757    1000.    1114.    1190.        3        0        0      .00   580.00 10210.00


FLOW DISTRIBUTION FOR SECNO=      2.10         CWSEL=   1423.05
```

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

STA=	9630.	9661.	9684.	9758.	9822.	9871.	9931.	10210.
PER Q=	3.9	3.2	10.2	7.0	4.0	3.7	68.1	
AREA=	95.4	73.6	234.5	176.0	112.7	117.5	1232.8	
VEL=	5.7	6.1	6.1	5.5	4.9	4.4	7.7	
DEPTH=	3.1	3.2	3.2	2.7	2.3	2.0	4.4	

THIS RUN EXECUTED 5/25/91 10:32:40

****
HEC2 RELEASE DATED SEP 88 UPDATED SEPT 1989

ERROR CORR - 01,02,03
MODIFICATION -
****

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

STAR WASH 100 YEAR

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
*	.321	1370.40	1376.56	17600.00	10.36	.00	806.25	6.16	1.43	9763.35	10569.60	407.14	2701.66
	.321	1370.40	1377.56	17600.00	9.80	.00	314.00	7.16	1.44	9812.00	10126.00	.00	1229.29
*	.504	1373.90	1381.61	17600.00	6.36	5.05	876.92	7.71	.45	9850.82	10727.75	.00	8869.96
	.504	1373.90	1382.25	17600.00	7.64	4.69	470.00	8.35	.76	9850.00	10320.00	.00	6025.89
	.694	1377.90	1384.62	17600.00	5.46	3.01	1265.12	6.72	.39	9925.04	11190.16	.00	4874.87
	.694	1377.90	1385.51	17600.00	5.28	3.26	810.00	7.61	.41	9925.00	10735.00	.00	2502.90
	.885	1384.00	1389.46	17600.00	6.39	4.84	1230.16	5.46	.56	9724.04	10954.20	3360.57	3203.06
*	.885	1384.00	1389.78	17600.00	8.41	4.27	795.00	5.78	1.04	9935.00	10730.00	312.19	1164.57
	1.100	1389.60	1395.24	17600.00	5.85	5.78	1189.62	5.64	.44	9792.34	10981.95	1115.73	8616.32
*	1.100	1389.60	1396.20	17600.00	5.97	6.42	800.00	6.60	.48	9880.00	10680.00	978.37	6322.62
*	1.269	1394.00	1400.61	17600.00	10.39	5.37	600.59	6.61	1.59	9741.94	10342.53	1036.91	.00
*	1.269	1394.00	1400.61	17600.00	10.38	4.41	580.00	6.61	1.59	9760.00	10340.00	1066.29	.00
*	1.464	1399.90	1406.62	17600.00	5.06	6.01	989.71	6.72	.36	9728.15	10749.75	1929.79	904.98
*	1.464	1399.90	1407.27	17600.00	5.82	6.66	655.00	7.37	.51	9840.00	10495.00	1793.72	.00
*	1.660	1404.30	1410.72	17600.00	8.11	4.09	1214.65	6.42	.74	9303.73	10518.38	5704.20	5998.79
*	1.660	1404.30	1411.75	17600.00	9.38	4.47	740.00	7.45	1.00	9540.00	10280.00	6726.91	2106.34
	1.886	1410.10	1417.55	14000.00	7.12	6.84	828.59	7.45	.58	9281.27	10109.86	6127.77	20.53
	1.886	1410.10	1418.48	14000.00	7.01	6.73	610.00	8.38	.61	9480.00	10090.00	4795.82	.00
	2.097	1416.20	1422.25	14000.00	7.45	4.70	1175.92	6.05	.61	9411.01	10586.93	5149.12	1314.29
	2.097	1416.20	1423.05	14000.00	7.73	4.57	580.00	6.85	.78	9630.00	10210.00	4468.77	.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .321  PROFILE=  1  CRITICAL DEPTH ASSUMED

WARNING SECNO=      .504  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .885  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.100  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     1.269  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.269  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     1.269  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.269  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     1.464  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     1.464  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.660  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     1.660  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

FLOODWAY DATA, STAR WASH 100 YEAR
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
.321	314.	1853.	9.5	1377.6	1376.6	1.0
.504	470.	2589.	6.8	1382.2	1381.6	.6
.694	810.	3490.	5.0	1385.5	1384.6	.9
.885	795.	2213.	8.0	1389.8	1389.5	.3
1.100	800.	3197.	5.5	1396.2	1395.2	1.0
1.269	580.	1813.	9.7	1400.6	1400.6	.0
1.464	655.	3107.	5.7	1407.3	1406.6	.7
1.660	740.	2311.	7.6	1411.7	1410.7	1.0
1.886	610.	2393.	5.9	1418.5	1417.6	.9
2.097	580.	2042.	6.9	1423.0	1422.3	.7

```
****************************************************
*  WATER SURFACE PROFILES                          *
*  DEVELOPED BY THE COE                            *
*  VERSION OF SEPTEMBER 1988                       *
*  ERROR: 01,02,03                                 *
*  RUN DATE     2/15/91   TIME    8: 2:46          *
****************************************************
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************************************
*  DODSON & ASSOCIATES, INC.
*  HYDROLOGIST AND CIVIL ENGINEERS
*  5629 FM 1960 WEST SUITE 314
*  HOUSTON, TEXAS  77069
*  (713) 440-3787 Fax (713) 440-4742
************************************
```


```
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
```

END OF BANNER

THIS RUN EXECUTED 2/15/91 8: 2:46

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**************************************************
 HEC2 RELEASE DATED SEP 88 UPDATED SEPT 1989


 ERROR CORR -  01,02,03
 MODIFICATION -
**************************************************


T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-05
T2      JACKRABBIT WASH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      UNNAMED WASH 100 YEAR   (602) 244-8100 J. MISCHLER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              2.                          0.0067                                  1441.82

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     -1                 -1.                                                                    15.


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.       42.        1.       43.       26.       51.        4.        8.       10.       53.
    54.       13.       15.        0.

        JACKRABBIT WASH SECTION 10.271 IS JUST DOWNSTREAM OF THE CONFLUENCE OF
        AN UNNAMED WASH "WEST FORK" AND JACKRABBIT WASH. JACKRABBIT WASH
        SECTION 10.454 IS WITHIN THE UNNAMED WASH CONFLUENCE AREA AND HAS BEEN
        RENAMED SECTION 0.060 FOR THIS MODEL TO REPRESENT ITS LOCATION IN THE
        UNNAMED WASH 315 FEET UPSTREAM OF THE THALWEG CONFLUENCE. THIS
        FLOODPLAIN DELINEATION BEGINS AT THE CONFLUENCE AND PROCEEDS UPSTREAM
        ABOUT 7 MILES TO THE INTERSECTION OF THE UNNAMED WASH AND VULTURE
        MINE ROAD. THE PURPOSE OF JACKRABBIT WASH SECTION 10.271 IS TO PROVIDE
        INITIAL BACKWATER WITH AN ELEVATION COMPUTED BY SLOPE AREA METHOD.
        THE THALWEG SLOPE FROM JACKRABBIT WASH SECTIONS 10.095 TO 10.271 IS
        0.0067. THE STARTING SLOPE WAS SET AT 0.0067 FEET/FOOT. THE HYDROLOGY
        ANALYSIS DETERMINED THAT THE FLOOD PEAKS ON THE UNNAMED WASH AND
        JACKRABBIT WASH DO NOT COINCIDE, THEREFORE, THE UNNAMED WASH IS MODELED
        SEPARATELY INSTEAD OF AS A TRIBUTARY RUN.

        NH CARDS ARE USED THROUGHOUT THIS MODEL FOR MANNINGS n VALUES DUE TO
        THE BRAIDED NATURE OF THE CHANNEL. MANNINGS n VALUES WERE SELECTED IN
        THE FIELD USING, AS A GUIDE, THE PRELIMINARY DRAFT (7-3-90.2) OF
        " MANNINGS ROUGHNESS COEFFICIENTS FOR STREAM CHANNELS AND FLOODPLAINS IN
        MARICOPA COUNTY, ARIZONA ", U.S. GEOLOGICAL SURVEY. MANNINGS n VALUES
        WERE DISTRIBUTED ACROSS INDIVIDUAL CROSS SECTIONS BY COMPARISON WITH
        1:19000 AERIAL PHOTOGRAPHS USED FOR MAPPING.

        CROSS SECTION LABELS INDICATE RIVER MILES ABOVE THE MOUTH.
        Q IS COMPUTED JUST UPSTREAM OF THE CONFLUENCE WITH JACKRABBIT WASH
```

GT	1	2900								
NC				0.1	0.3					
NH	5	0.035	9843	0.05	9877	0.03	10025	0.05	10116	0.035
NH	10166									
X1	1.271	25	9843	10116	0	0	0			
GR	1454.6	9503.	1452.2	9524.	1447.7	9566.	1445.9	9586.	1444.4	9603.
GR	1445.6	9617.	1445.3	9643.	1445.7	9675.	1445.1	9726.	1443.8	9770.
GR	1443.	9818.	1442.9	9843.	1440.7	9863.	1439.9	9877.	1439.8	9905.
GR	1440.9	9931.	1440.1	9952.	1438.3	9992.	1438.	10000.	1437.7	10025.
GR	1438.8	10038.	1444.9	10046.	1448.2	10075.	1450.9	10116.	1450.9	10166.
NH	9	0.035	9827	0.05	9879	0.03	9906	0.05	9986	0.03
NH	10008	0.05	10113	0.03	10151	0.05	10230	0.035	11158	
X1	0.060	45	9827	10230	850	1080	966			
GR	1451.7	9799.	1451.4	9827.	1450.1	9849.	1446.9	9871.	1444.1	9879.
GR	1445.	9906.	1446.2	9920.	1445.5	9950.	1445.1	9970.	1443.8	9986.
GR	1442.9	10000.	1444.	10008.	1446.7	10018.	1447.3	10054.	1445.9	10095.
GR	1444.1	10113.	1444.	10139.	1443.5	10151.	1445.5	10161.	1449.8	10179.
GR	1452.1	10203.	1455.4	10230.	1454.8	10284.	1454.2	10339.	1454.7	10386.
GR	1454.1	10442.	1453.5	10501.	1453.2	10543.	1454.2	10588.	1454.1	10621.
GR	1453.8	10647.	1455.1	10679.	1454.4	10705.	1453.6	10724.	1454.9	10757.
GR	1454.7	10780.	1453.8	10794.	1456.3	10823.	1457.3	10874.	1457.4	10921.
GR	1458.3	10978.	1459.1	11032.	1459.4	11081.	1460.	11130.	1460.2	11158.
NH	5	0.035	9974	0.05	9988	0.03	10038	0.05	10063	0.035
NH	11025									
X1	.292	47.	9924	10192	1250	1215	1225			
GR	1468.9	9578.	1466.	9625.	1462.6	9682.	1459.3	9728.	1461.9	9744.
GR	1464.9	9775.	1462.8	9802.	1459.8	9834.	1458.1	9855.	1460.8	9881.
GR	1462.3	9903.	1462.	9924.	1460.4	9937.	1456.6	9955.	1459.2	9974.
GR	1457.2	9981.	1454.4	9988.	1454.8	10000.	1454.2	10038.	1455.8	10063.
GR	1458.	10082.	1456.	10115.	1456.9	10140.	1457.4	10162.	1456.7	10172.
GR	1460.4	10192.	1459.7	10219.	1462.7	10264.	1465.3	10309.	1465.1	10335.
GR	1466.3	10389.	1466.5	10436.	1465.8	10470.	1466.5	10506.	1466.4	10557.
GR	1465.7	10601.	1464.4	10636.	1463.	10655.	1464.6	10672.	1465.4	10688.
GR	1466.7	10729.	1467.	10794.	1468.6	10864.	1468.8	10918.	1468.8	10972.
GR	1469.4	11023.	1469.5	11025.						
NH	5	0.035	9927	0.05	9962	0.03	10027	0.05	10044	0.035
NH	10369									
X1	.460	24	9812	10141	900	850	887			
GR	1469.2	9801.	1468.5	9812.	1463.1	9835.	1461.9	9849.	1463.8	9890.
GR	1465.	9927.	1464.7	9946.	1461.7	9962.	1461.7	10000.	1461.7	10027.
GR	1463.9	10044.	1463.1	10079.	1461.6	10089.	1463.7	10106.	1461.8	10116.
GR	1464.6	10141.	1465.	10186.	1464.4	10216.	1464.4	10231.	1467.6	10263.
GR	1468.2	10283.	1466.4	10304.	1468.1	10329.	1471.	10369.		
NH	3	0.035	9710	0.037	10074	0.035	10466			
X1	.667	33.	9710	10074	1100	985	1093			
GR	1513.1	9477.	1480.2	9509.	1478.1	9554.	1474.7	9593.	1472.2	9629.
GR	1474.	9648.	1476.5	9687.	1475.5	9710.	1472.5	9729.	1469.7	9744.
GR	1471.7	9763.	1471.4	9790.	1470.6	9824.	1471.1	9857.	1470.5	9909.
GR	1469.2	9940.	1470.9	9966.	1468.4	9984.	1467.8	10000.	1466.6	10025.

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GR   1468.2    10044.    1473.9    10074.    1476.3    10102.    1478.6    10132.    1479.7    10181.
GR   1478.1    10228.     1479.    10262.    1477.7    10296.    1475.6    10314.    1478.1    10351.
GR   1479.4    10403.    1481.6    10455.    1481.5    10466.

NH       5     0.035      9926      0.05      9948      0.03     10022      0.05     10044      0.04
NH   10664
X1    .865        38      9900     10243       860      1125      1045
GR   1488.9     9414.    1486.1     9472.    1485.9     9523.    1484.1     9557.    1485.8     9598.
GR   1487.8     9651.    1488.3     9695.    1486.1     9731.    1483.7     9753.    1486.7     9787.
GR   1487.2     9830.    1486.2     9875.    1486.3     9900.    1481.1     9926.    1476.6     9948.
GR   1476.3     9961.    1475.8     9975.     1475.    10000.    1477.3    10022.    1479.4    10044.
GR   1480.8    10110.    1478.8    10134.    1477.6    10162.    1481.9    10194.    1479.1    10213.
GR   1485.3    10243.    1487.9    10275.    1487.6    10332.    1485.3    10366.    1481.9    10395.
GR   1487.4    10425.    1486.2    10468.    1489.1    10508.    1487.5    10538.    1488.6    10576.
GR   1490.6    10616.    1492.9    10651.    1494.5    10664.

NH       8     0.035      9805      0.05      9836      0.03      9863      0.05      9987      0.03
NH   10048      0.05     10140      0.04     10185     0.035     10501
X1   1.064        31      9770     10185      1150       860      1051
GR   1497.9     9659.    1497.4     9689.    1495.6     9728.    1492.1     9770.    1488.2     9805.
GR   1486.3     9836.    1483.3     9845.    1487.6     9863.    1487.1     9889.    1486.8     9921.
GR   1487.6     9955.    1485.8     9987.    1483.6    10000.    1483.5    10030.    1485.5    10048.
GR   1487.6    10063.    1487.8    10106.    1488.2    10140.    1486.5    10159.    1485.6    10162.
GR   1493.2    10185.    1491.4    10217.    1490.1    10253.    1490.5    10273.    1496.9    10315.
GR   1498.7    10357.    1499.8    10388.    1497.9    10416.    1496.1    10438.    1498.4    10479.
GR   1500.5    10501.

NH       4     0.035      9773      0.04      9985      0.03     10014     0.035     10462
X1   1.241        34.     9849     10030       900       965       935
GR   1505.3     9516.    1505.     9591.    1502.2     9667.    1499.4     9731.    1496.5     9773.
GR   1492.5     9796.    1496.4     9831.    1495.4     9849.    1493.8     9861.    1490.6     9873.
GR   1493.6     9894.    1491.7     9910.    1490.7     9917.    1493.9     9940.     1494.     9960.
GR   1493.6     9968.    1488.4     9985.    1489.2    10000.    1488.4    10014.    1494.5    10030.
GR   1493.9    10065.    1493.7    10094.    1495.7    10129.    1496.5    10169.    1496.2    10197.
GR   1497.2    10235.    1497.1    10270.    1495.6    10289.    1494.9    10298.    1496.8    10331.
GR   1498.4    10376.    1500.9    10415.    1502.2    10456.    1500.9    10462.

NH       3     0.035      9863     0.033     10093     0.035     10525
X1   1.432        26      9863     10093      1000      1000      1008
GR   1501.6     9618.    1500.1     9645.    1500.8     9698.    1500.9     9758.    1499.4     9804.
GR   1500.4     9863.    1499.8     9904.    1498.4     9928.     1496.     9948.    1496.4     9971.
GR    1496.     9997.    1495.9    10000.    1497.4    10018.    1498.5    10030.    1499.8    10053.
GR   1503.5    10093.    1507.9    10134.    1508.6    10165.    1503.4    10206.    1501.5    10229.
GR   1501.7    10249.    1506.8    10293.    1507.5    10346.    1508.4    10402.    1511.5    10470.
GR   1512.4    10525.
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SECTION 1.640 IS AT THE WICKENBURG ROAD CROSSING OF THE
UNNAMED WEST FORK OF JACKRABBIT WASH.
Q IS COMPUTED AT WICKENBURG ROAD

QT	1	3000								
NH	5	0.05	9861	0.040	10141	0.035	10365	0.03	10404	0.035
NH	10614									
X1	1.840	36.	9861	10141	1090	930	1098			
GR	1517.3	9625.	1517.2	9690.	1514.7	9740.	1515.8	9766.	1516.8	9808.
GR	1517.0	9835.	1512.7	9861.	1507.3	9890.	1506.0	9913.	1506.7	9958.
GR	1515.5	9974.	1501.7	9987.	1501.7	10000.	1504.1	10021.	1504.6	10042.
GR	1502.9	10058.	1506.3	10083.	1508.7	10116.	1511.3	10141.	1513.9	10171.
GR	1512.6	10190.	1513.9	10207.	1514.0	10222.	1513.8	10237.	1510.8	10252.
GR	1514.	10276.	1516.5	10314.	1519.6	10365.	1519.6	10404.	1518.8	10446.
GR	1515.7	10479.	1514.2	10500.	1516.9	10533.	1518.7	10568.	1520.8	10602.
GR	1521.0	10614.								
NH	8	0.05	9964	0.05	9983	0.03	10017	0.05	10065	0.03
NH	10079	0.05	10132	0.03	10145	0.035	10390			
X1	1.800	28.	9948	10234	815	850	845			
GR	1523.8	9640.	1523.6	9706.	1521.8	9742.	1519.8	9770.	1520.3	9805.
GR	1518.6	9846.	1517.	9891.	1516.3	9931.	1516.9	9948.	1513.3	9964.
GR	1507.1	9983.	1506.4	9990.	1506.7	10000.	1507.9	10017.	1510.7	10035.
GR	1509.7	10065.	1510.2	10079.	1512.9	10105.	1510.1	10132.	1510.2	10145.
GR	1511.7	10176.	1516.1	10207.	1520.2	10234.	1519.4	10265.	1519.8	10299.
GR	1522.9	10328.	1524.9	10363.	1524.6	10390.				
NH	5	0.05	9729	0.04	10081	0.035	10120	0.04	10151	0.035
NH	10255									
X1	1.999	27.	9729	10081	1110	990	1051			
GR	1533.2	9624.	1531.8	9691.	1529.6	9729.	1523.8	9753.	1518.1	9778.
GR	1517.	9792.	1520.	9811.	1520.2	9840.	1521.1	9866.	1518.9	9882.
GR	1519.6	9903.	1517.7	9935.	1518.1	9956.	1518.	9970.	1513.9	9984.
GR	1513.1	10000.	1514.4	10024.	1518.7	10036.	1519.9	10053.	1525.9	10081.
GR	1525.6	10099.	1523.4	10120.	1521.9	10134.	1523.9	10151.	1527.3	10180.
GR	1528.7	10225.	1529.	10255.						
NH	6	0.05	9984	0.03	9999	0.05	10049	0.03	10092	0.04
NH	10184	0.035	10424							
X1	2.182	27.	9948	10121	830	870	966			
GR	1537.7	9727.	1536.4	9775.	1532.2	9820.	1531.5	9863.	1530.2	9882.
GR	1528.	9890.	1531.6	9909.	1535.3	9930.	1533.1	9948.	1527.1	9964.
GR	1521.1	9984.	1521.9	9999.	1522.8	10000.	1523.6	10015.	1524.6	10034.
GR	1522.5	10049.	1522.4	10065.	1522.4	10092.	1524.6	10121.	1525.1	10154.
GR	1525.6	10184.	1527.5	10231.	1531.1	10267.	1530.5	10307.	1532.	10339.
GR	1533.2	10378.	1533.	10424.						
NH	5	0.035	9945	0.05	9982	0.03	10022	0.05	10037	0.035
NH	10098									
X1	2.356	22	9945	10059	650	790	919			
GR	1538.6	9586.	1538.5	9609.	1537.5	9627.	1537.5	9648.	1534.7	9681.
GR	1534.1	9692.	1535.4	9729.	1534.9	9764.	1534.2	9808.	1532.1	9844.
GR	1531.	9870.	1532.7	9919.	1534.	9945.	1533.2	9972.	1529.1	9982.
GR	1522.4	9997.	1528.8	10000.	1529.5	10022.	1533.1	10037.	1538.4	10042.
GR	1543.5	10059.	1545.5	10098.						

NH	7	0.035	9965	0.05	9985	0.03	10019	0.05	10030	0.035
NH	10069	0.04	10104	0.035	10326					
X1	2.550	18	9936	10049	800	1050	1024			
GR	1547.7	9849.	1547.3	9885.	1547.2	9921.	1546.4	9936.	1540.1	9965.
GR	1535.2	9985.	1535.2	10000.	1535.5	10019.	1539.4	10030.	1540.3	10049.
GR	1538.7	10069.	1539.1	10093.	1538.1	10104.	1540.5	10131.	1542.9	10168.
GR	1545.4	10229.	1547.5	10294.	1549.1	10326.				
NH	3	0.035	9865	0.035	10099	0.035	10226			
X1	2.728	19.	9865	10099	1040	830	940			
GR	1556.8	9694.	1556.7	9746.	1556.3	9805.	1553.4	9844.	1550.2	9865.
GR	1547.	9903.	1544.1	9930.	1543.1	9944.	1545.	9961.	1543.1	9973.
GR	1541.	9985.	1541.7	10000.	1542.8	10022.	1546.	10039.	1545.7	10068.
GR	1548.9	10099.	1550.9	10136.	1551.7	10192.	1551.5	10226.		
NH	7	0.04	9917	0.05	9932	0.03	9962	0.05	9993	0.03
NH	10028	0.05	10036	0.035	10168					
X1	2.916	22.	9842	10050	970	1000	993			
GR	1562.5	9578.	1561.1	9619.	1558.4	9654.	1557.3	9682.	1559.3	9724.
GR	1559.2	9773.	1558.2	9815.	1557.2	9842.	1553.1	9867.	1551.6	9898.
GR	1551.9	9917.	1549.5	9932.	1551.4	9962.	1550.6	9975.	1548.8	9993.
GR	1548.7	10000.	1548.7	10028.	1550.4	10036.	1558.1	10050.	1560.6	10072.
GR	1561.8	10147.	1562.	10168.						
NH	3	0.04	9892	0.038	10148	0.035	10281			
X1	3.108	19.	9892	10148	900	1070	1014			
GR	1567.4	9831.	1567.9	9871.	1566.4	9892.	1561.7	9912.	1559.3	9921.
GR	1559.2	9939.	1558.1	9957.	1555.2	9970.	1554.9	10000.	1556.2	10031.
GR	1558.4	10045.	1558.	10078.	1560.2	10110.	1563.7	10148.	1562.5	10179.
GR	1563.8	10207.	1565.9	10245.	1568.8	10274.	1568.9	10281.		
NH	6	0.035	9876	0.03	9899	0.05	9933	0.03	10028	0.05
NH	10042	0.035	10305							
X1	3.288	23.	9815	10042	1010	820	950			
GR	1574.8	9674.	1574.8	9726.	1573.7	9780.	1571.7	9815.	1567.6	9844.
GR	1563.7	9876.	1564.	9899.	1565.2	9916.	1562.6	9933.	1562.5	9950.
GR	1562.2	9960.	1562.9	9993.	1562.1	10000.	1561.9	10028.	1569.	10042.
GR	1570.7	10074.	1572.8	10112.	1573.9	10140.	1573.9	10180.	1572.1	10205.
GR	1572.2	10248.	1573.3	10294.	1573.2	10305.				
NC	0.035	0.035	0.035							
X1	3.513	15	9848	10136	1110	1260	1188			
GR	1585.9	9813.	1583.	9848.	1572.8	9884.	1571.5	9911.	1571.9	9940.
GR	1571.6	9964.	1569.	9970.	1568.3	9995.	1569.2	10000.	1570.3	10034.
GR	1571.7	10050.	1573.5	10075.	1576.7	10103.	1583.8	10136.	1584.1	10158.
NH	5	0.035	9924	0.05	9941	0.03	10039	0.05	10064	0.035
NH	10331									
X1	3.680	22.	9924	10064	860	860	882			
GR	1589.8	9727.	1589.1	9783.	1586.6	9828.	1582.1	9860.	1579.5	9875.
GR	1580.1	9906.	1580.3	9924.	1577.9	9941.	1576.3	9968.	1575.4	9992.
GR	1575.5	10000.	1576.5	10023.	1575.7	10039.	1580.5	10064.	1581.3	10092.
GR	1581.8	10140.	1581.	10172.	1583.	10215.	1585.6	10254.	1585.4	10284.

GR	1588.2	10317.	1587.7	10331.						
NH	6	0.035	9978	0.05	9993	0.03	10008	0.04	10185	0.03
NH	10195	0.035	10396							
X1	3.875	24.	9978	10222	975	1025	1030			
GR	1600.3	9747.	1599.6	9789.	1595.7	9817.	1590.4	9844.	1589.8	9869.
GR	1587.2	9895.	1586.1	9930.	1586.3	9955.	1586.3	9978.	1582.2	9993.
GR	1582.3	10000.	1581.9	10008.	1584.4	10017.	1585.4	10067.	1585.6	10131.
GR	1584.9	10162.	1582.7	10185.	1583.1	10195.	1585.3	10211.	1587.3	10222.
GR	1585.8	10266.	1591.	10314.	1592.4	10363.	1594.4	10396.		
NH	3	0.035	9597	0.038	10135	0.035	10214			
X1	4.066	28.	9597	10135	1020	940	1008			
GR	1602.6	9497.	1599.	9541.	1596.8	9597.	1594.7	9639.	1593.4	9662.
GR	1595.5	9695.	1593.9	9721.	1592.5	9736.	1594.5	9759.	1594.4	9780.
GR	1592.	9806.	1593.3	9844.	1593.	9864.	1591.7	9879.	1593.5	9899.
GR	1593.8	9932.	1593.6	9960.	1593.1	9972.	1591.5	9979.	1591.1	10000.
GR	1592.1	10033.	1593.	10055.	1592.8	10071.	1591.4	10083.	1593.9	10107.
GR	1596.2	10135.	1598.	10181.	1598.4	10214.				
NH	6	0.035	9893	0.05	9908	0.03	10033	0.05	10077	0.03
NH	10094	0.035	10239							
X1	4.260	17	9871	10055	1060	960	1024			
GR	1610.5	9838.	1606.1	9871.	1602.2	9893.	1596.7	9908.	1597.8	9937.
GR	1597.9	9961.	1597.	9997.	1597.2	10000.	1596.	10033.	1600.2	10055.
GR	1598.8	10077.	1597.9	10094.	1601.4	10122.	1601.2	10153.	1600.8	10173.
GR	1604.3	10204.	1606.5	10239.						
NH	5	0.035	9928	0.05	9971	0.03	10009	0.05	10061	0.035
NH	10199									
X1	4.452	23	9928	10018	1120	840	1014			
GR	1612.8	9599.	1612.7	9632.	1610.8	9671.	1608.5	9698.	1607.4	9713.
GR	1608.9	9743.	1607.6	9775.	1606.7	9809.	1605.4	9849.	1604.6	9869.
GR	1605.7	9902.	1605.8	9928.	1604.5	9952.	1601.4	9971.	1601.4	9986.
GR	1602.2	10000.	1602.2	10009.	1606.4	10018.	1605.4	10061.	1605.5	10091.
GR	1606.	10121.	1607.6	10160.	1607.8	10199.				
NH	7	0.035	9958	0.05	9976	0.03	10019	0.05	10034	0.035
NH	10177	0.03	10191	0.035	10897					
X1	4.671	57.	9921	10261	930	1320	1156			
GR	1626.4	8725.	1623.4	8788.	1620.7	8843.	1620.2	8900.	1619.5	8939.
GR	1619.	8960.	1617.4	8969.	1619.3	8979.	1618.5	8994.	1621.5	9012.
GR	1621.3	9051.	1620.3	9087.	1620.9	9131.	1621.1	9173.	1619.5	9219.
GR	1617.1	9269.	1618.1	9299.	1617.9	9325.	1617.4	9341.	1619.2	9358.
GR	1619.1	9404.	1620.3	9467.	1620.5	9522.	1620.6	9558.	1622.3	9593.
GR	1621.2	9641.	1620.6	9692.	1618.5	9737.	1616.	9776.	1615.4	9806.
GR	1615.3	9859.	1614.2	9889.	1615.5	9921.	1614.2	9958.	1611.3	9976.
GR	1611.1	10000.	1611.4	10019.	1613.8	10034.	1614.7	10079.	1614.3	10131.
GR	1614.	10164.	1609.7	10177.	1610.7	10191.	1615.2	10219.	1621.	10261.
GR	1619.4	10299.	1620.	10331.	1619.	10360.	1619.7	10379.	1620.6	10441.
GR	1621.8	10467.	1622.5	10512.	1623.4	10575.	1622.4	10666.	1623.2	10738.
GR	1623.2	10822.	1624.1	10897.						

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NH      5     0.035     9955     0.05     9981     0.03    10020     0.05    10034    0.035
NH  10216
X1  4.844        12     9898    10034      750     1000      913
GR  1629.1     9801.   1628.1    9855.   1627.9    9898.   1623.7    9916.   1618.6    9955.
GR  1617.8     9981.   1616.6   10000.   1616.9   10020.   1620.2   10034.   1619.9   10096.
GR  1619.8    10172.   1621.8   10216.

NH      5     0.035     9958     0.05     9970     0.03     9991     0.05    10000    0.035
NH  10251
X1  5.036        18     9942    10090     1250      775     1014
GR  1634.1     9685.    1632.    9708.   1628.1    9738.   1627.6    9765.   1627.1    9794.
GR  1627.6     9811.   1627.3    9842.   1627.6    9903.    1628.    9942.   1627.5    9958.
GR  1624.      9970.   1623.7    9991.   1626.4   10000.   1627.6   10036.   1631.1   10090.
GR  1631.1    10141.   1631.5   10203.   1632.5   10251.

NH      5     0.035     9929     0.05     9963     0.03    10168     0.05    10197    0.035
NH  10226
X1  5.228        29     9929    10197      970     1025     1014
GR  1645.5     9150.    1644.    9208.   1640.6    9276.   1640.4    9315.   1639.6    9336.
GR  1637.9     9342.   1639.7    9359.   1640.8    9403.   1641.9    9479.   1642.7    9553.
GR  1642.8     9619.   1642.3    9682.    1641.    9712.   1639.6    9735.   1641.8    9778.
GR  1640.1     9812.   1637.5    9841.   1635.2    9872.    1637.    9929.    1636.    9963.
GR  1632.9     9981.   1633.7   10000.   1634.8   10045.   1635.8   10070.   1634.9   10114.
GR  1634.     10148.   1635.3   10168.    1642.   10197.   1641.9   10226.

NH      3     0.035     9931    0.034    10160    0.035    10183
X1  5.415        16     9931    10160      995     1020      987
GR  1642.5     9895.   1641.9    9931.   1640.2    9954.   1637.5    9969.   1636.4    9981.
GR  1635.9     9999.   1636.3   10000.   1636.6   10013.   1639.9   10026.   1640.2   10062.
GR  1640.1    10091.   1638.8   10104.   1637.3   10117.   1641.2   10132.   1648.1   10160.
GR  1646.     10183.

NH      6     0.035     9911     0.05     9953     0.04     9977     0.03    10000     0.05
NH  10028     0.035    10252
X1  5.607        20     9967    10028      990     1080     1014
GR  1656.1     9678.   1658.7    9727.   1656.9    9777.    1655.    9815.   1655.9    9854.
GR  1655.3     9890.   1652.5    9911.   1649.7    9931.   1651.8    9953.   1651.4    9967.
GR  1643.8     9977.   1643.5    9994.    1644.   10000.   1645.2   10015.   1647.3   10028.
GR  1648.     10066.    1648.   10105.   1648.7   10140.   1650.4   10195.   1650.4   10252.

NH      6     0.035     9958     0.03    10035    0.035    10290     0.03    10324     0.04
NH  10371     0.035    10454
X1  5.815        36.    9945    10420     1060     1040     1098
GR  1665.      9431.   1663.8    9483.   1662.7    9551.   1661.9    9590.   1660.6    9612.
GR  1662.1     9666.   1662.6    9720.    1663.    9757.   1661.2    9781.   1661.5    9807.
GR  1662.1     9821.   1662.4    9849.   1662.1    9874.   1659.5    9895.   1658.7    9909.
GR  1660.4     9930.   1659.8    9945.   1654.6    9958.   1653.4    9981.   1653.6   10000.
GR  1653.7    10035.   1657.4   10036.   1657.1   10080.   1657.4   10131.   1656.9   10182.
GR  1656.9    10209.   1657.4   10246.   1656.5   10268.   1652.5   10290.   1654.2   10324.
GR  1653.4    10344.    1655.   10371.   1657.4   10387.   1662.4   10405.   1663.8   10420.
GR  1663.9    10454.
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NH      3    0.035     9815    0.037    10168    0.035    10306
X1   6.022       21     9815    10168     1070     1090     1093
GR   1671.    9449.   1670.8    9508.    1669.    9566.   1669.2    9629.   1669.7    9689.
GR   1669.4   9726.   1669.7    9770.    1669.    9815.   1666.2    9841.   1665.1    9889.
GR   1664.1   9930.   1663.6    9967.   1662.5    9989.   1661.2   10000.   1660.8   10031.
GR   1661.6  10057.    1663.   10078.   1663.9   10107.   1664.8   10168.    1665.   10243.
GR   1665.1  10306.

NH      4    0.035     9959     0.05     9972     0.03    10000    0.035    10250
X1   6.123       20     9936    10027     1090      740     1061
GR   1674.8   9729.    1671.    9772.    1670.    9800.   1670.1    9819.   1668.9    9825.
GR   1671.2   9847.   1671.4    9901.   1671.9    9936.   1669.8    9959.   1668.8    9972.
GR   1666.9   9985.   1667.6   10000.   1669.3   10017.   1670.7   10027.   1671.1   10065.
GR   1669.9  10116.   1670.3   10161.   1670.1   10188.   1669.1   10203.   1674.5   10250.

NH      7    0.035     9953     0.05     9974     0.03    10031     0.05    10090     0.03
NH  10160     0.05    10207    0.035    10297
X1   6.424       16     9928    10045      980      960     1061
GR   1685.5   9796.   1682.1    9835.   1678.7    9885.   1680.4    9928.   1679.5    9953.
GR   1674.9   9974.   1675.6   10000.   1676.2   10031.   1678.4   10045.   1678.4   10090.
GR   1676.5  10118.   1678.6   10160.   1678.7   10207.   1678.9   10241.   1681.4   10271.
GR   1684.9  10297.

NH      5    0.035     9943     0.05     9972     0.03    10021     0.05    10045    0.035
NH  10223
X1   6.628       16     9914    10069     1080     1000     1077
GR   1690.6   9868.   1688.6    9886.   1685.1    9914.   1684.3    9943.   1683.5    9961.
GR   1682.7   9972.   1681.5    9976.   1682.3   10000.   1682.6   10021.   1685.3   10045.
GR   1685.9  10069.   1683.6   10086.   1685.5   10112.   1686.4   10141.   1688.4   10186.
GR   1690.1  10223.

NH      5    0.035     9956     0.05     9966     0.03     9987     0.05    10000    0.035
NH  10357
X1   6.553       18     9942    10087     1210     1060     1188
GR   1694.8   9785.   1693.8    9837.   1693.7    9884.   1694.6    9918.   1694.4    9942.
GR   1693.2   9956.   1688.9    9966.   1689.9    9987.   1691.7   10000.   1692.5   10041.
GR   1693.9  10087.   1693.5   10141.   1692.9   10187.   1694.3   10216.   1694.6   10257.
GR   1694.2  10278.   1695.2   10318.   1695.6   10357.
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SECTION 7.074 IS TAKEN ALONG VULTURE MINE ROAD.
(LIMIT OF DETAILED STUDY)

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NH      5    0.035     9973     0.05     9991     0.03    10017     0.05    10042    0.035
NH  10200
X1   7.074       11     9900    10042     1070     1140     1167
GR   1706.1   9867.   1704.9    9900.   1700.6    9937.   1699.6    9973.   1697.1    9991.
GR   1697.2  10000.   1697.8   10017.    1702.   10042.   1702.2   10088.   1707.1   10151.
GR   1701.1  10200.
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*PROF 1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 10.271
   10.271     4.12  1441.82      .00  1441.82  1442.51      .69      .00      .00  1442.90
    2900.       0.    2900.       0.       0.     434.       0.       0.       0.   1450.90
      .00      .00     6.68      .00     .000     .031     .000     .000  1437.70  9852.82
  .006690       0.       0.       0.        0        0        0      .00   189.14 10041.96


FLOW DISTRIBUTION FOR SECNO=     10.27         CWSEL=   1441.82

STA=    9853.    9877.   10025.   10046.
  PER Q=      2.4     88.6      8.9
   AREA=     27.0    354.5     52.4
    VEL=      2.6      7.3      5.0
  DEPTH=      1.1      2.4      3.1

1490 NH CARD USED
*SECNO  .060
     .060     4.41  1447.31      .00      .00  1447.68      .37     5.13      .03  1451.40
    2900.       0.    2900.       0.       0.     593.       0.      11.       5.   1455.40
      .05      .00     4.89      .00     .000     .031     .000     .000  1442.90  9868.19
  .004321     850.     966.    1080.        5        0        0      .00   300.38 10168.57


FLOW DISTRIBUTION FOR SECNO=       .06         CWSEL=   1447.31

STA=    9868.    9879.    9906.    9986.   10008.   10113.   10151.   10179.
  PER Q=      1.2     16.4     16.0     24.0      6.6     32.0      3.7
   AREA=     15.0     74.5    153.6     86.3    101.3    127.4     34.9
    VEL=      2.4      6.4      3.0      8.1      1.9      7.3      3.0
  DEPTH=      1.4      2.8      1.9      3.9      1.0      3.4      2.0

1490 NH CARD USED
*SECNO  .292
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .292     3.68  1457.88  1457.88      .00  1458.80      .92     9.30      .16  1462.00
    2900.       0.    2900.       0.       0.     378.       0.      25.      13.   1460.40
      .15      .00     7.68      .00     .000     .037     .000     .000  1454.20  9948.92
  .016697    1250.    1225.    1215.       12       15        0      .00   212.36 10178.40


FLOW DISTRIBUTION FOR SECNO=       .29          CWSEL=   1457.88

STA=    9949.   10192.
  PER Q=    100.0
   AREA=    377.7
    VEL=      7.7
  DEPTH=      1.8

1490 NH CARD USED
*SECNO  .460

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.04

     .460     3.34  1464.94      .00      .00  1465.29      .35     6.43      .06  1468.50
    2900.       0.    2870.      30.       0.     604.      23.      35.      19.   1464.60
      .15      .00     4.75     1.27     .000     .031     .035     .000  1461.60  9827.16
  .004031     900.     887.     850.        6        0        0      .00   393.86 10236.40


FLOW DISTRIBUTION FOR SECNO=       .46          CWSEL=   1464.94

STA=    9827.    9931.    9962.   10027.   10044.   10141.   10236.
  PER Q=     17.9      1.9     50.0      3.9     25.3      1.0
   AREA=    147.1     29.7    210.6     36.4    180.6     23.4
    VEL=      3.5      1.8      6.9      3.1      4.1      1.3
  DEPTH=      1.5      1.0      3.2      2.1      1.9       .2
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NM CARD USED
*SECNO  .667

3265 DIVIDED FLOW


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

     .667     4.96  1471.56      .00      .00  1472.06      .50     6.73      .05  1475.50
    2900.       0.    2900.       0.       0.     510.       0.      50.      28.   1473.90
      .20      .00     5.68      .00     .000     .037     .000     .000  1466.60  9734.01
  .010541    1100.    1093.     985.        3        0        0      .00   314.28 10061.71


FLOW DISTRIBUTION FOR SECNO=       .67          CWSEL=   1471.56

STA=    9734.   10074.
  PER Q=    100.0
   AREA=    510.2
    VEL=      5.7
  DEPTH=      1.6

1490 NM CARD USED
*SECNO  .865
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

     .865     5.36  1480.36      .00      .00  1480.80      .45     8.74      .01  1486.30
    2900.       0.    2900.       0.       0.     540.       0.      62.      34.   1485.30
      .26      .00     5.37      .00     .000     .039     .000     .000  1475.00  9929.64
  .006798     860.    1045.    1125.        4        0        0      .00   241.21 10219.08


FLOW DISTRIBUTION FOR SECNO=       .87          CWSEL=   1480.36

STA=    9930.   10243.
  PER Q=    100.0
   AREA=    540.0
    VEL=      5.4
  DEPTH=      2.2
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 1.064
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    1.064     5.07  1488.37      .00      .00  1488.68      .30     7.86      .01  1492.10
    2900.       0.    2900.       0.       0.     655.       0.      77.      42.   1493.20
      .32      .00     4.43      .00     .000     .045     .000     .000  1483.30  9803.44
  .008266    1150.    1051.     860.        8        0        0      .00   366.95 10170.39


FLOW DISTRIBUTION FOR SECNO=      1.06          CWSEL=   1488.37

STA=    9803.   10185.
  PER Q=    100.0
   AREA=    654.7
    VEL=      4.4
  DEPTH=      1.8

1490 NH CARD USED
*SECNO 1.241
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

    1.241     6.14  1494.54      .00      .00  1495.02      .48     6.29      .05  1495.40
    2900.      86.    2729.      86.      31.     481.      40.      89.      49.   1494.50
      .37     2.80     5.68     2.16     .040     .038     .035     .000  1488.40  9784.26
  .005581     900.     935.     965.        4        0        0      .00   283.37 10108.74


FLOW DISTRIBUTION FOR SECNO=      1.24          CWSEL=   1494.54

STA=    9784.    9814.   10030.   10109.
  PER Q=      3.0     94.1      2.9
   AREA=     30.7    480.7     39.7
    VEL=      2.8      5.7      2.2
  DEPTH=      1.0      2.8       .5

1490 NH CARD USED
*SECNO 1.432
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3265 DIVIDED FLOW

    1.432     4.49  1500.39      .00      .00  1500.97      .58     5.92      .03  1500.40
    2903.      97.    2803.       0.      48.     453.       0.     102.      55.   1503.50
      .42     2.00     6.19      .00     .035     .033     .000     .000  1495.90  9639.71
  .006192    1000.    1008.    1000.        3        0        0      .00   312.73 10059.42


FLOW DISTRIBUTION FOR SECNO=      1.43          CWSEL=   1500.39

STA=    9640.    9863.   10093.
  PER Q=      3.3      96.7
   AREA=     48.4     453.1
    VEL=      2.0       6.2
  DEPTH=       .2       2.3

1490 NH CARD USED
*SECNO 1.640
    1.640     5.85  1507.55      .00      .00  1508.03      .49     7.06      .01  1512.70
    3000.       0.    3000.       0.       0.     535.       0.     115.      62.   1511.30
      .47      .00     5.61      .00     .000     .040     .000     .000  1501.70  9888.68
  .006669    1090.    1098.     930.        5        0        0      .00   211.45 10100.13


FLOW DISTRIBUTION FOR SECNO=      1.64          CWSEL=   1507.55

STA=    9889.   10116.
  PER Q=    100.0
   AREA=    534.7
    VEL=      5.6
  DEPTH=      2.5

1490 NH CARD USED
*SECNO 1.800
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

    1.800     6.37  1512.77      .00      .00  1513.18      .40     5.14      .01  1516.90
    3000.       0.    3000.       0.       0.     588.       0.     126.      66.   1520.20
      .52      .00     5.10      .00     .000     .042     .000     .000  1506.40  9965.60
  .005562     815.     845.     850.        2        0        0      .00   215.67 10183.60
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      1.80         CWSEL=   1512.77

STA=    9966.   10207.
  PER Q=    100.0
   AREA=    588.2
    VEL=      5.1
  DEPTH=      2.7

1490 NR CARD USED
*SECNO 1.999

3265 DIVIDED FLOW

    1.999     6.60  1519.70      .00      .00  1520.25      .55     7.03      .04  1529.60
    3000.       0.    3000.       0.       0.     504.       0.     139.      71.   1525.90
      .57      .00     5.95      .00     .000     .040     .000     .000  1513.10  9770.99
  .008186    1110.    1051.     990.        4        0        0      .00   212.06 10050.15


FLOW DISTRIBUTION FOR SECNO=      2.00         CWSEL=   1519.70

STA=    9771.   10053.
  PER Q=    100.0
   AREA=    504.2
    VEL=      6.0
  DEPTH=      2.4

1490 NR CARD USED
*SECNO 2.182
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    2.182     5.10  1526.20      .00      .00  1526.69      .48     6.43      .01  1533.10
    3000.       0.    2778.     222.       0.     484.      75.     150.      76.   1524.60
      .62      .00     5.74     2.97     .000     .041     .040     .000  1521.10  9966.99
  .005580     830.     966.     870.        4        0        0      .00   231.96 10198.95


FLOW DISTRIBUTION FOR SECNO=      2.18         CWSEL=   1526.20

STA=    9967.   10121.   10154.   10184.   10199.
  PER Q=     92.6      5.1      2.1       .2
   AREA=    483.9     44.7     25.6      4.5
    VEL=      5.7      3.4      2.5      1.4
  DEPTH=      3.1      1.4       .9       .3
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 2.356
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    2.356     5.14  1533.54  1533.54      .00  1534.46      .91     6.67      .13  1534.00
    3000.     983.    2017.      0.     160.     243.       0.     160.      80.   1543.50
      .05     6.15     8.29      .00     .035     .040     .000     .000  1528.40  9819.23
  .011218     650.     919.     790.        5        5        0      .00   193.73 10037.42


FLOW DISTRIBUTION FOR SECNO=      2.36          CWSEL=   1533.54

STA=    9819.    9844.    9870.    9919.    9936.   10042.
  PER Q=      2.2     12.3     17.7       .6     67.2
   AREA=     17.9     51.9     83.1      7.1    243.2
    VEL=      3.6      7.1      6.4      2.5      8.3
  DEPTH=       .7      2.0      1.7       .4      3.2

1490 NH CARD USED
*SECNO 2.550
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

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

    2.550     5.95  1541.15      .00      .00  1541.74      .59     7.25      .03  1546.40
    3000.       0.    2233.     767.       0.     338.     169.     170.      84.   1540.30
      .09      .00     6.60     4.53     .000     .039     .038     .000  1535.20  9960.12
  .005148     800.    1024.    1050.        5        0        0      .00   181.07 10141.19


FLOW DISTRIBUTION FOR SECNO=      2.55          CWSEL=   1541.15

STA=    9960.   10049.   10069.   10093.   10104.   10131.   10141.
  PER Q=     74.4      4.7      8.3      4.7      7.7       .2
   AREA=    338.3     33.2     54.3     28.2     50.2      3.4
    VEL=      6.6      4.3      4.6      5.0      4.6      1.5
  DEPTH=      3.8      1.7      2.3      2.6      1.9       .3
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 2.728
    2.728     5.64  1546.64      .00      .00  1547.35      .71     5.58      .04  1550.20
    3000.       0.    3000.       0.       0.     444.       0.     180.      88.   1548.90
      .73      .00     6.76      .00     .000     .035     .000     .000  1541.00  9906.35
  .007138    1040.     940.     830.        4        0        0      .00   170.76 10077.11


FLOW DISTRIBUTION FOR SECNO=      2.73          CWSEL=   1546.64

STA=    9906.   10099.
  PER Q=    100.0
   AREA=    444.0
    VEL=      6.8
  DEPTH=      2.6

1490 NH CARD USED
*SECNO 2.916
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    2.916     4.75  1553.45      .00      .00  1554.00      .55     6.64      .02  1557.20
    3000.       0.    3000.       0.       0.     505.       0.     191.      92.   1558.10
      .78      .00     5.94      .00     .000     .040     .000     .000  1548.70  9864.80
  .006269     970.     993.    1000.        4        0        0      .00   176.77 10041.57


FLOW DISTRIBUTION FOR SECNO=      2.92          CWSEL=   1553.45

STA=    9865.   10050.
  PER Q=    100.0
   AREA=    504.9
    VEL=      5.9
  DEPTH=      2.9

1490 NH CARD USED
*SECNO 3.108
    3.108     5.10  1560.00      .00      .00  1560.57      .57     6.56      .01  1566.40
    3000.       0.    3000.       0.       0.     495.       0.     203.      96.   1563.70
      .82      .00     6.06      .00     .000     .038     .000     .000  1554.90  9918.38
  .006231     900.    1014.    1070.        3        0        0      .00   188.70 10107.08
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IOC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      3.11          CWSEL=   1560.00

STA=    9918.   10110.
  PER Q=    100.0
   AREA=    494.8
    VEL=      6.1
  DEPTH=      2.6

1490 NH CARD USED
*SECNO 3.288
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    3.288     4.05  1565.95      .00      .00  1566.55      .59     5.97      .01  1571.70
    3000.       0.    3000.       0.       0.     485.       0.     214.     100.   1569.00
      .87      .00     6.19      .00     .000     .036     .000     .000  1561.90  9857.49
  .005926    1010.     950.     820.        2        0        0      .00   178.51 10036.00


FLOW DISTRIBUTION FOR SECNO=      3.29          CWSEL=   1565.95

STA=    9857.   10042.
  PER Q=    100.0
   AREA=    484.8
    VEL=      6.2
  DEPTH=      2.7

*SECNO 3.513
    3.513     5.14  1573.44      .00      .00  1574.06      .62     7.50      .01  1583.00
    3000.       0.    3000.       0.       0.     473.       0.     227.     105.   1583.80
      .92      .00     6.34      .00     .000     .035     .000     .000  1568.30  9881.75
  .006745    1110.    1188.    1260.        2        0        0      .00   192.36 10074.12


FLOW DISTRIBUTION FOR SECNO=      3.51          CWSEL=   1573.44

STA=    9882.   10136.
  PER Q=    100.0
   AREA=    473.4
    VEL=      6.3
  DEPTH=      2.5
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       DLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 3.680

3265 DIVIDED FLOW

    3.680     4.29  1579.69      .00      .00  1580.60      .91     6.45      .09  1580.30
    3000.       1.     2999.       0.       1.     391.       0.     235.     109.   1580.50
      .95      .79     7.67      .00     .035     .036     .000     .000  1575.40  9873.90
  .007165     860.     882.     860.        3        0        0      .00   142.37 10059.78


FLOW DISTRIBUTION FOR SECNO=      3.68          CWSEL=   1579.69

STA=    9874.    9885.   10064.
  PER Q=        .0    100.0
   AREA=       1.0    391.1
    VEL=        .8      7.7
  DEPTH=        .1      3.0

1490 NH CARD USED
*SECNO 3.875
1550 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    3.875     5.10  1587.00      .00      .00  1587.36      .36     6.70      .06  1586.30
    3000.     118.     2820.      62.      49.     572.      28.     248.     115.   1587.30
     1.01     2.40     4.93     2.23     .035     .039     .035     .000  1581.90  9901.26
  .005431     975.     1030.    1025.        3        0        0      .00   365.50 10277.11


FLOW DISTRIBUTION FOR SECNO=      3.88          CWSEL=   1587.00

STA=    9901.    9978.   10222.   10277.
  PER Q=       3.9     94.0      2.1
   AREA=      49.2    571.7     27.9
    VEL=       2.4      4.9      2.2
  DEPTH=        .6      2.4       .5
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 4.066

3265 DIVIDED FLOW

    4.066     3.24  1594.34      .00      .00  1594.74      .40     7.37      .01  1596.80
    3000.       0.    3000.       0.       0.     589.       0.     262.     124.   1596.20
     1.07      .00     5.09      .00     .000     .038     .000     .000  1591.10  9645.29
  .010377    1020.    1008.     940.        4        0        0      .00   406.80 10112.41


FLOW DISTRIBUTION FOR SECNO=      4.07          CWSEL=   1594.34

STA=    9645.   10135.
  PER Q=    100.0
   AREA=    589.2
    VEL=      5.1
  DEPTH=      1.4

1490 NH CARD USED
*SECNO 4.260
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

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

    4.260     4.48  1600.48      .00      .00  1600.95      .46     6.19      .02  1606.10
    3000.       0.    2687.     313.       0.     477.      85.     275.     131.   1600.20
     1.12      .00     5.63     3.69     .000     .035     .034     .000  1596.00  9897.67
  .003971    1060.    1024.     960.        5        0        0      .00   217.03 10114.70


FLOW DISTRIBUTION FOR SECNO=      4.26          CWSEL=   1600.48

STA=    9898.   10055.   10077.   10094.   10115.
  PER Q=     89.6      1.3      6.3      2.8
   AREA=    477.1     21.7     36.3     26.8
    VEL=      5.6      1.9      5.2      3.2
  DEPTH=      3.0      1.0      2.1      1.3

1490 NH CARD USED
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 4.452
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    4.452     5.09  1606.45  1606.45      .00  1607.21      .76     6.00      .09  1605.80
    3000.     479.    2274.     247.     107.     296.      77.     287.     137.   1606.40
     1.16     4.49     7.68     3.21     .035     .042     .038     .000  1601.40  9816.74
  .009332    1120.    1014.     840.        4        8        0      .00   315.19 10131.93


FLOW DISTRIBUTION FOR SECNO=      4.45          CWSEL=   1606.45

STA=    9817.    9869.    9902.    9928.   10018.   10091.   10132.
  PER Q=      6.8      7.2      2.0     75.8      5.8      2.5
   AREA=     45.9     42.8     18.2    296.0     53.5     23.4
    VEL=      4.4      5.0      3.3      7.7      3.2      3.1
  DEPTH=       .9      1.3       .7      3.3       .7       .6

1490 NH CARD USED
*SECNO 4.671

3265 DIVIDED FLOW

    4.671     5.61  1615.31      .00      .00  1615.68      .38     8.44      .04  1615.50
    3000.      69.    2931.       0.      32.     590.       0.     302.     145.   1621.00
     1.22     2.17     4.96      .00     .035     .036     .000     .000  1609.70  9854.60
  .005713     930.    1156.    1320.        6        0        0      .00   355.01 10219.79


FLOW DISTRIBUTION FOR SECNO=      4.67          CWSEL=   1615.31

STA=    9855.    9916.   10261.
  PER Q=      2.3     97.7
   AREA=     31.9    590.3
    VEL=      2.2      5.0
  DEPTH=       .5      2.0

1490 NH CARD USED
*SECNO 4.844
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IOC      ICONT    CORAR    TOPWID     ENDST


1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
   4.844     4.62  1621.22      .00      .00  1621.85      .62     6.09      .07  1627.90
   3000.       0.    2152.     848.       0.     308.     199.     314.     152.  1620.20
    1.27      .00     6.98     4.25     .000     .040     .035     .000  1616.60  9934.93
 .007654     750.     913.    1000.        4        0        0      .00   268.39 10203.32


FLOW DISTRIBUTION FOR SECNO=      4.84          CWSEL=   1621.22

STA=    9935.   10034.   10096.   10172.   10203.
  PER Q=     71.7     10.1     16.0      2.2
   AREA=    308.3     72.8    104.4     22.3
    VEL=      7.0      4.1      4.6      3.0
  DEPTH=      3.1      1.2      1.4       .7

1490 NH CARD USED
*SECNO 5.036
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
   5.036     5.24  1628.94      .00      .00  1629.40      .46     7.53      .02  1628.00
   3000.    1283.    1717.       0.     288.     284.       0.     327.     159.  1631.10
    1.32     4.45     6.05      .00     .035     .037     .000     .000  1623.70  9731.49
 .006955    1250.    1014.     775.        5        0        0      .00   325.28 10056.77


FLOW DISTRIBUTION FOR SECNO=      5.04          CWSEL=   1628.94

STA=    9731.    9765.    9794.    9811.    9842.    9903.    9942.   10090.
  PER Q=      3.9      7.5      4.4      7.2     14.1      5.8     57.2
   AREA=     32.4     46.3     27.1     46.4     91.3     44.7    283.6
    VEL=      3.6      4.8      4.8      4.6      4.6      3.9      6.1
  DEPTH=      1.0      1.6      1.6      1.5      1.5      1.1      2.5

1490 NH CARD USED
*SECNO 5.228
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

   5.228     3.79  1636.69      .00      .00  1637.32      .62     7.87      .05  1637.00
   3000.     166.    2834.       0.      50.     438.       0.     339.     166.  1642.00
    1.36     3.30     6.47      .00     .035     .033     .000     .000  1632.90  9851.87
 .008908     970.    1014.    1025.        4        0        0      .00   302.03 10174.03
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      5.23          CWSEL=   1636.69

STA=    9852.    9872.    9919.   10197.
  PER Q=      1.6      3.9     94.5
   AREA=     15.0     35.3    438.3
    VEL=      3.3      3.3      6.5
  DEPTH=       .7       .7      1.9

1490 NH CARD USED
*SECNO 5.415

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66

    5.415     6.01  1641.91      .00      .00  1642.31      .40     4.97      .02  1641.90
    3000.       0.    3000.       0.       0.     595.       0.     351.     172.   1648.10
     1.42      .02     5.04      .00     .000     .034     .000     .000  1635.90  9930.30
  .003230     995.     987.    1020.        5        0        0      .00   204.59 10134.89


FLOW DISTRIBUTION FOR SECNO=      5.41          CWSEL=   1641.91

STA=    9930.   10160.
  PER Q=    100.0
   AREA=    594.7
    VEL=      5.0
  DEPTH=      2.9

1490 NH CARD USED
*SECNO 5.607
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HW CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    5.607     5.88  1649.38  1649.38      .00  1650.30      .92     4.89      .16  1651.40
    3000.       0.    2241.     759.       0.     264.     163.     363.     177.   1647.30
     1.45      .00     8.49     4.65     .000     .041     .035     .000  1643.50  9969.66
  .007819     990.    1014.    1080.       20        6        0      .00   192.37 10162.03
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      5.61          CWSEL=   1649.38

STA=    9970.   10028.   10066.   10105.   10140.   10162.
  PER Q=     74.7     11.9      8.4      4.6       .5
   AREA=    264.1     65.8     53.9     36.1      7.5
    VEL=      8.5      5.4      4.7      3.8      1.8
  DEPTH=      4.5      1.7      1.4      1.0       .3

1490 NH CARD USED
*SECNO 5.815

3265 DIVIDED FLOW

    5.815     4.09  1656.59      .00      .00  1657.12      .53     6.78      .04  1659.80
    3000.       0.    3000.       0.       0.     512.       0.     375.     182.   1663.80
     1.51      .00     5.86      .00     .000     .034     .000     .000  1652.50  9953.03
  .005061    1060.    1098.    1040.        5        0        0      .00   198.45 10381.58


FLOW DISTRIBUTION FOR SECNO=      5.82          CWSEL=   1656.59

STA=    9953.   10387.
  PER Q=    100.0
   AREA=    511.6
    VEL=      5.9
  DEPTH=      2.6

1490 NH CARD USED
*SECNO 6.022

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

    6.022     4.05  1664.85      .00      .00  1665.51      .66     8.35      .04  1669.00
    3000.       0.    3000.       0.       0.     461.       1.     387.     188.   1664.80
     1.55      .00     6.51      .42     .000     .037     .035     .000  1660.80  9899.15
  .012832    1070.    1093.    1090.        3        0        0      .00   288.49 10187.64


FLOW DISTRIBUTION FOR SECNO=      6.02          CWSEL=   1664.85
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST


STA=    9899.   10168.   10188.
  PER Q=    100.0       .0
   AREA=    460.7       .5
    VEL=      6.5       .4
  DEPTH=      1.7       .0

1490 NH CARD USED
*SECNO 6.223

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.79

    6.223     4.98  1671.88      .00      .00  1672.18      .30     6.64      .04  1671.90
    3000.      571.    1337.    1092.     172.     256.     301.     400.     196.   1670.70
     1.62     3.33     5.22     3.63     .035     .036     .035     .000  1666.90  9762.06
  .004013     1090.    1061.     740.        4        0        0      .00   463.41 10227.19


FLOW DISTRIBUTION FOR SECNO=      6.22          CWSEL=   1671.88

STA=    9762.    9800.    9819.    9847.    9935.   10027.   10065.   10116.   10161.   10188.   10203.   10227.
  PER Q=      4.5      4.7      7.6      2.2     44.6      3.3      7.8     10.5      5.7      5.3      3.7
   AREA=     43.0     34.7     54.5     39.3    256.1     37.2     70.3     80.0     45.3     34.2     33.6
    VEL=      3.1      4.0      4.2      1.7      5.2      2.7      3.3      3.9      3.8      4.7      3.3
  DEPTH=      1.1      1.8      1.9       .4      2.8      1.0      1.4      1.8      1.7      2.3      1.4

1490 NH CARD USED
*SECNO 6.424
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    6.424     4.29  1679.19  1679.19      .00  1679.91      .73     5.82      .13  1680.40
    3000.        7.    2065.     928.       5.     273.     192.     414.     205.   1678.40
     1.66     1.55     7.57     4.83     .035     .038     .033     .000  1674.90  9877.82
  .008756      980.    1061.     960.        8       10        0      .00   309.56 10244.46
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       DLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      6.42          CWSEL=   1679.19

STA=    9878.    9885.    9897.   10045.   10090.   10118.   10160.   10207.   10241.   10244.
  PER Q=      .1       .2     68.8      2.8     10.9     14.8      1.6       .9       .0
   AREA=     1.8      3.0    272.7     35.5     48.7     68.8     25.3     13.2       .5
    VEL=     1.5      1.6      7.6      2.4      6.7      6.4      1.8      2.1      1.1
  DEPTH=      .2       .2      3.0       .8      1.7      1.6       .5       .4       .1

1490 NH CARD USED
*SECNO 6.628
    6.628     4.81  1686.31      .00      .00  1686.93      .62     7.01      .01  1685.10
    3000.      13.    2656.     331.       6.     404.      83.     426.     211.   1685.90
     1.71     2.18     6.58     3.98     .035     .031     .035     .000  1681.50  9904.27
  .005164    1080.    1077.    1000.        5        0        0      .00   234.02 10138.29


FLOW DISTRIBUTION FOR SECNO=      6.63          CWSEL=   1686.31

STA=    9904.    9914.    9943.    9972.   10021.   10045.   10069.   10086.   10112.   10138.
  PER Q=      .4      6.6     10.9     62.5      7.1      1.4      3.6      6.8       .6
   AREA=     5.9     46.9     78.9    204.0     56.8     17.2     26.6     45.9     10.7
    VEL=     2.2      4.2      4.2      9.2      3.8      2.4      4.1      4.4      1.7
  DEPTH=      .6      1.6      2.7      4.2      2.4       .7      1.6      1.8       .4

1490 NH CARD USED
*SECNO 6.853
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    6.853     5.50  1694.40  1694.40      .00  1695.05      .64     8.05      .01  1694.40
    3000.     134.    2394.     472.      50.     344.     119.     439.     220.   1693.90
     1.76     2.69     6.96     3.95     .035     .037     .035     .000  1688.90  9805.59
  .009605    1210.    1188.    1060.        3        8        0      .00   412.59 10286.16


FLOW DISTRIBUTION FOR SECNO=      6.85          CWSEL=   1694.40
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 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
 Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    9806.    9884.    9942.   10087.   10141.   10187.   10286.
  PER Q=     3.8       .6     79.8      4.2      8.7      2.9
   AREA=    40.2      9.4    343.8     38.0     55.4     26.0
    VEL=     2.8      2.1      7.0      3.3      4.7      3.3
  DEPTH=      .5       .2      2.4       .7      1.2       .3

1490 NM CARD USED
*SECNO 7.074
    7.074     5.60  1702.70      .00      .00  1703.52      .82     8.42      .05  1704.90
    3022.       0.    2934.      66.       0.     400.      29.     452.     227.   1702.00
     1.30      .00     7.34     2.23     .000     .033     .035     .000  1697.10  9918.89
  .005000    1070.    1167.    1140.        5        0        0      .00   175.61 10094.49


FLOW DISTRIBUTION FOR SECNO=      7.07          CWSEL=   1702.70

STA=    9919.    9973.    9991.   10017.   10042.   10088.   10094.
  PER Q=    19.6     15.5     52.5     10.3      2.1       .1
   AREA=   112.8     78.4    138.5     70.1     27.8      1.6
    VEL=     5.2      5.9     11.4      4.4      2.3      1.3
  DEPTH=     2.1      4.4      5.3      2.8       .6       .3
```

THIS RUN EXECUTED 2/15/91 8: 3: 7

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**************************************************
 HEC2 RELEASE DATED SEP 88 UPDATED SEPT 1989

 ERROR CORR -  01,02,03
 MODIFICATION -
**************************************************
```

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

UNNAMED WASH 100 YEAR

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
	10.271	1437.70	1441.82	2900.00	6.68	.00	189.14	4.12	.69	9852.82	10041.96	.00	.00
	.060	1442.90	1447.31	2900.00	4.89	5.49	300.38	4.41	.37	9868.19	10168.57	.00	.00
*	.292	1454.20	1457.88	2900.00	7.68	10.58	212.36	3.68	.92	9948.92	10178.40	.00	.00
*	.460	1461.60	1464.94	2900.00	4.75	7.05	393.86	3.34	.35	9827.16	10236.40	.00	29.71
*	.667	1466.60	1471.56	2900.00	5.68	6.62	314.28	4.96	.50	9734.01	10061.71	.00	.00
	.865	1475.00	1480.36	2900.00	5.37	8.80	241.21	5.36	.45	9929.64	10219.08	.00	.00
	1.064	1483.30	1488.37	2900.00	4.43	8.02	366.95	5.07	.30	9803.44	10170.39	.00	.00
	1.241	1488.40	1494.54	2900.00	5.68	6.17	283.37	6.14	.48	9784.26	10108.74	85.83	85.54
	1.432	1495.90	1500.39	2900.00	6.19	5.85	312.73	4.49	.58	9639.71	10059.42	96.65	.00
	1.640	1501.70	1507.55	3000.00	5.61	7.15	211.45	5.85	.49	9888.68	10100.13	.00	.00
	1.800	1506.40	1512.77	3000.00	5.10	5.23	215.67	6.37	.40	9965.60	10183.60	.00	.00
	1.999	1513.10	1519.70	3000.00	5.95	6.92	212.06	6.60	.55	9770.99	10050.15	.00	.00
	2.182	1521.10	1526.20	3000.00	5.74	6.51	231.96	5.10	.48	9966.99	10198.95	.00	221.91
*	2.356	1528.40	1533.54	3000.00	8.29	7.34	193.73	5.14	.91	9819.23	10037.42	982.94	.00
*	2.550	1535.20	1541.15	3000.00	6.60	7.61	181.07	5.95	.59	9960.12	10141.19	.00	766.69
	2.728	1541.00	1546.64	3000.00	6.76	5.49	170.76	5.64	.71	9906.35	10077.11	.00	.00
	2.916	1548.70	1553.45	3000.00	5.94	6.81	176.77	4.75	.55	9864.80	10041.57	.00	.00

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
	3.108	1554.90	1560.00	3000.00	6.06	6.54	188.70	5.10	.57	9918.38	10107.08	.00	.0
	3.288	1561.90	1565.95	3000.00	6.19	5.96	178.51	4.05	.59	9857.49	10036.00	.00	.0
	3.513	1568.30	1573.44	3000.00	6.34	7.48	192.36	5.14	.62	9881.75	10074.12	.00	.0
	3.680	1575.40	1579.69	3000.00	7.67	6.25	142.37	4.29	.91	9873.90	10059.78	.82	.0
	3.875	1581.90	1587.00	3000.00	4.93	7.31	365.50	5.10	.36	9901.26	10277.11	118.18	62.1
	4.066	1591.10	1594.34	3000.00	5.09	7.34	406.80	3.24	.40	9645.29	10112.41	.00	.0
*	4.260	1596.00	1600.48	3000.00	5.63	6.15	217.03	4.48	.46	9897.67	10114.70	.00	313.0
*	4.452	1601.40	1606.45	3000.00	7.68	5.96	315.19	5.05	.76	9816.74	10131.93	479.49	246.9
	4.671	1609.70	1615.31	3000.00	4.96	8.86	355.01	5.61	.38	9854.60	10219.79	69.15	.0
	4.844	1616.60	1621.22	3000.00	6.98	5.92	268.39	4.62	.62	9934.93	10203.32	.00	848.3
	5.036	1623.70	1628.94	3000.00	6.05	7.72	325.28	5.24	.46	9731.49	10056.77	1283.02	.0
	5.228	1632.90	1636.69	3000.00	6.47	7.75	302.03	3.79	.62	9851.87	10174.03	165.94	.0
*	5.415	1635.90	1641.91	3000.00	5.04	5.22	204.59	6.01	.40	9930.30	10134.89	.00	.0
*	5.607	1643.50	1649.38	3000.00	8.49	7.47	192.37	5.88	.92	9969.66	10162.03	.00	758.5
	5.815	1652.50	1656.59	3000.00	5.86	7.21	198.45	4.09	.53	9953.03	10381.58	.00	.0
*	6.022	1660.80	1664.85	3000.00	6.51	8.26	288.49	4.05	.66	9899.15	10187.64	.00	.2
*	6.223	1666.90	1671.88	3000.00	5.22	7.04	463.41	4.98	.30	9762.06	10227.19	570.57	1092.1
*	6.424	1674.90	1679.19	3000.00	7.57	7.30	309.56	4.29	.73	9877.82	10244.46	7.39	927.5
	6.628	1681.50	1686.31	3000.00	6.58	7.12	234.02	4.81	.62	9904.27	10138.29	12.88	331.1
*	6.853	1688.90	1694.40	3000.00	6.96	8.09	412.59	5.50	.64	9805.59	10286.16	133.56	472.0
	7.074	1697.10	1702.70	3000.00	7.34	8.30	175.61	5.60	.82	9918.89	10094.49	.00	65.6

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .292  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .292  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .460  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .667  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     2.356  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.356  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     2.550  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     4.260  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     4.452  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     4.452  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     5.415  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     5.607  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     5.607  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     5.607  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     6.022  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     6.223  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     6.424  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     6.424  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     6.853  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     6.853  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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****************************************************
*  WATER SURFACE PROFILES                          *
*  DEVELOPED BY THE CUE                            *
*  VERSION OF SEPTEMBER 1988                       *
*  ERROR: 01,02,03                                 *
*  RUN DATE     2/15/91   TIME    7:48:44          *
****************************************************
```


```
*************************************
*  DODSON & ASSOCIATES, INC.        *
*  HYDROLOGIST AND CIVIL ENGINEERS  *
*  5629 FM 1960 WEST SUITE 314      *
*  HOUSTON, TEXAS  77069            *
*  (713) 440-3787 Fax (713) 440-4742 *
*************************************
```


```
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
```

END OF BANNER

THIS RUN EXECUTED 2/15/91 7:48:44

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**************************************************
 HEC2 RELEASE DATED SEP 88 UPDATED SEPT 1989


 ERROR CORR -  01,02,03
 MODIFICATION -
**************************************************


T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-05
T2      JACKRABBIT WASH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      UNNAMED WASH 100 YEAR   (602) 244-8100 J. MISCHLER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              2.                                                          1447.31

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1.                                                                     15.


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

   38.       42.        1.       43.        26        51.        4.        8.       10.        53
    54       13.       15.        0.       200

       THIS FLOODWAY DELINEATION BEGINS UPSTREAM OF THE JACKRABBIT WASH
       CONFLUENCE AND PROCEEDS UPSTREAM ABOUT 7 MILES TO THE VULTURE MINE
       ROAD CROSSING.  THE FIRST SECTION UPSTREAM OF THE CONFLUENCE IS SECTION
       0.06 (EQUIVALENT TO JACKRABBIT WASH SECTION 10.454).  THE STARTING
       ELEVATION IS FROM THE NATURAL PROFILE RUN.

       THE FLOODWAY WAS ORIGINALLY COMPUTED USING METHOD 6 (EQUAL CONVEYANCE,
       GOAL MEASURED AGAINST ENERGY GRADE).  RESULTS WERE REVIEWED AND
       ADJUSTMENTS WERE MADE TO YIELD REASONABLE FLOODWAY BOUNDARIES WHICH
       MEET THE 1.0 FOOT SURCHARGE LIMIT WHILE NOT CAUSING EXCESSIVE
       VELOCITIES.

       THE HYDROLOGY ANALYSIS DETERMINED THAT THE FLOOD PEAKS ON THE UNNAMED
       TRIBUTARY AND JACKRABBIT WASH DO NOT COINCIDE, THEREFORE, THE TRIBUTARY
       IS MODELLED SEPARATELY INSTEAD OF AS A CONTINUOUS TRIBUTARY RUN.

       NH CARDS ARE USED THROUGHOUT THIS MODEL FOR MANNINGS n VALUES DUE TO
       THE BRAIDED NATURE OF THE CHANNEL. MANNINGS n VALUES WERE SELECTED IN
       THE FIELD USING, AS A GUIDE, THE PRELIMINARY DRAFT (7-3-90.2) OF
       " MANNINGS ROUGHNESS COEFFICIENTS FOR STREAM CHANNELS AND FLOODPLAINS IN
       MARICOPA COUNTY, ARIZONA ", U.S. GEOLOGICAL SURVEY. MANNINGS n VALUES
       WERE DISTRIBUTED ACROSS INDIVIDUAL CROSS SECTIONS BY COMPARISON WITH
       1:19000 AERIAL PHOTOGRAPHS USED FOR MAPPING.

       CROSS SECTION LABELS INDICATE RIVER MILES ABOVE THE MOUTH.
       Q IS COMPUTED JUST UPSTREAM OF THE CONFLUENCE WITH JACKRABBIT WASH
```

```
WT      2      2900      2900
NC                                0.1       0.3
NH      9     0.035      9827      0.05      9879      0.03      9906      0.05      9986      0.03
NH   11158      0.05     10113      0.03     10151      0.05     10230     0.035     11158
```

WHEN METHOD 10.6 WAS USED TO START THE MODEL, GIVEN A 1.0 FOOT GOAL, THE COMPUTER GENERATED START AND END STATIONS OUTSIDE THE NATURAL 100-YEAR FLOOD BOUNDARY. ENCROACHMENT STATIONS HAVE THEREFORE BEEN SET EQUAL TO THE NATURAL 100-YEAR BOUNDARY.

```
ET                          4.1      9868     10168
X1     0.050       45      9827     10230       850      1080       966
GR    1451.7    9799.    1451.4     9827.    1450.1     9849.    1446.9     9871.    1444.1     9879.
GR    1445.     9906.    1446.2     9920.    1445.5     9950.    1445.1     9970.    1443.8     9986.
GR    1442.9   10000.    1444.     10008.    1446.7    10018.    1447.3    10054.    1445.9    10095.
GR    1444.1   10113.    1444.     10139.    1443.5    10151.    1445.5    10161.    1449.8    10179.
GR    1452.1   10203.    1455.4    10230.    1454.8    10284.    1454.2    10339.    1454.7    10386.
GR    1454.1   10442.    1453.5    10501.    1453.2    10543.    1454.2    10588.    1454.1    10621.
GR    1453.8   10647.    1455.1    10679.    1454.4    10705.    1453.6    10724.    1454.9    10757.
GR    1454.7   10780.    1453.8    10794.    1456.3    10823.    1457.3    10874.    1457.4    10921.
GR    1453.3   10978.    1459.1    11032.    1459.4    11081.    1460.     11130.    1460.2    11158.

NH      5     0.035      9974      0.05      9988      0.03     10038      0.05     10063     0.035
NH   11425
ET                          4.1      9950     10150
X1     .292       47.      9924     10192      1250      1215      1225
GR    1465.9    9578.    1466.     9625.    1462.6    9682.    1459.3    9728.    1461.9    9744.
GR    1464.9    9775.    1462.8    9802.    1459.8    9834.    1458.1    9855.    1460.8    9881.
GR    1461.3    9903.    1462.     9924.    1460.4    9937.    1456.6    9955.    1459.2    9974.
GR    1457.2    9981.    1454.4    9988.    1454.8   10000.    1454.2   10038.    1455.8   10063.
GR    1458.    10082.    1456.    10115.    1456.9   10140.    1457.4   10162.    1456.7   10172.
GR    1461.4   10192.    1459.7   10219.    1462.7   10264.    1465.3   10309.    1465.1   10335.
GR    1466.3   10389.    1466.5   10436.    1465.8   10470.    1466.5   10506.    1466.4   10557.
GR    1465.7   10601.    1464.4   10636.    1463.    10655.    1464.6   10672.    1465.4   10688.
GR    1466.7   10729.    1467.    10794.    1468.6   10864.    1468.8   10918.    1468.8   10972.
GR    1469.4   11023.    1469.5   11025.

NH      5     0.035      9927      0.05      9962      0.03     10027      0.05     10044     0.035
NH   10369
ET                          4.1      9900     10085
X1     .460       24      9812     10141       900       850       887
GR    1468.2    9801.    1468.5    9812.    1463.1    9835.    1461.9    9849.    1463.8    9890.
GR    1465.     9927.    1464.7    9946.    1461.7    9962.    1461.7   10000.    1461.7   10027.
GR    1463.9   10044.    1463.1   10079.    1461.6   10089.    1463.7   10106.    1461.8   10116.
GR    1464.6   10141.    1465.    10186.    1464.4   10216.    1464.4   10231.    1467.6   10263.
GR    1465.2   10283.    1466.4   10304.    1468.1   10329.    1471.    10369.

NH      3     0.035      9710     0.037     10074     0.035     10466
ET                          4.1      9900     10040
```

X1	.667	33.	9710	10074	1100	985	1093			
GR	1513.1	9477.	1480.2	9509.	1478.1	9554.	1474.7	9593.	1472.2	9629.
GR	1474.	9648.	1476.5	9687.	1475.5	9710.	1472.5	9729.	1469.7	9744.
GR	1471.7	9763.	1471.4	9790.	1470.6	9824.	1471.1	9857.	1470.5	9909.
GR	1469.2	9940.	1470.9	9966.	1468.4	9984.	1467.8	10000.	1466.6	10025.
GR	1465.2	10044.	1473.9	10074.	1476.3	10102.	1478.6	10132.	1479.7	10181.
GR	1478.1	10228.	1479.	10262.	1477.7	10296.	1475.6	10314.	1478.1	10351.
GR	1479.4	10403.	1481.6	10455.	1481.5	10466.				
NH	5	0.035	9926	0.05	9948	0.03	10022	0.05	10044	0.04
NH	10064									
ET			4.1	9980	10080					
X1	.865	38	9900	10243	860	1125	1045			
GR	1488.9	9414.	1486.1	9472.	1485.9	9523.	1484.1	9557.	1485.8	9598.
GR	1487.8	9651.	1488.3	9695.	1486.1	9731.	1483.7	9753.	1486.7	9787.
GR	1487.2	9830.	1486.2	9875.	1486.3	9900.	1481.1	9926.	1476.6	9948.
GR	1476.3	9961.	1475.8	9975.	1475.	10000.	1477.3	10022.	1479.4	10044.
GR	1480.8	10110.	1478.8	10134.	1477.6	10162.	1481.9	10194.	1479.1	10213.
GR	1485.3	10243.	1487.9	10275.	1487.6	10332.	1485.3	10366.	1481.9	10395.
GR	1487.4	10425.	1486.2	10468.	1489.1	10508.	1487.5	10538.	1488.6	10576.
GR	1490.6	10616.	1492.9	10651.	1494.5	10664.				
NH	8	0.035	9805	0.05	9836	0.03	9863	0.05	9987	0.03
NH	10048	0.05	10140	0.04	10185	0.035	10501			
ET			4.1	9925	10075					
X1	1.064	31	9770	10185	1150	860	1051			
GR	1497.9	9659.	1497.4	9689.	1495.6	9728.	1492.1	9770.	1488.2	9805.
GR	1488.3	9836.	1483.3	9845.	1487.6	9863.	1487.1	9889.	1486.8	9921.
GR	1487.6	9955.	1485.8	9987.	1483.6	10000.	1483.5	10030.	1485.5	10048.
GR	1487.6	10063.	1487.8	10106.	1488.2	10140.	1486.5	10159.	1485.6	10162.
GR	1493.2	10185.	1491.4	10217.	1490.1	10253.	1490.5	10273.	1496.9	10315.
GR	1498.7	10357.	1499.8	10388.	1497.9	10416.	1496.1	10438.	1498.4	10479.
GR	1500.5	10501.								
NH	4	0.035	9773	0.04	9985	0.03	10014	0.035	10462	
ET			4.1	9925	10025					
X1	1.241	34.	9849	10030	900	965	935			
GR	1505.3	9516.	1505.	9591.	1502.2	9667.	1499.4	9731.	1496.5	9773.
GR	1492.5	9796.	1496.4	9831.	1495.4	9849.	1493.8	9861.	1490.6	9873.
GR	1493.6	9894.	1491.7	9910.	1490.7	9917.	1493.9	9940.	1494.	9960.
GR	1493.6	9968.	1488.4	9985.	1489.2	10000.	1488.4	10014.	1494.5	10030.
GR	1493.9	10065.	1493.7	10094.	1495.7	10129.	1496.5	10169.	1496.2	10197.
GR	1497.2	10235.	1497.1	10270.	1495.6	10289.	1494.9	10298.	1496.8	10331.
GR	1498.4	10376.	1500.9	10415.	1502.2	10456.	1500.9	10462.		
NH	3	0.035	9863	0.033	10093	0.035	10525			
ET			4.1	9955	10055					
X1	1.432	26	9863	10093	1000	1000	1008			
GR	1501.6	9618.	1500.1	9645.	1500.8	9698.	1500.9	9758.	1499.4	9804.
GR	1500.4	9863.	1499.8	9904.	1498.4	9928.	1496.	9948.	1496.4	9971.
GR	1496.	9997.	1495.9	10000.	1497.4	10018.	1498.5	10030.	1499.8	10053.
GR	1503.5	10093.	1507.9	10134.	1508.6	10165.	1503.4	10206.	1501.5	10229.
GR	1501.7	10249.	1506.8	10293.	1507.5	10346.	1508.4	10402.	1511.5	10470.
GR	1512.4	10525.								

SECTION 1.640 IS AT THE WICKENBURG ROAD CROSSING OF THE
UNNAMED WEST FORK OF JACKRABBIT WASH.
Q IS COMPUTED AT WICKENBURG ROAD

QT	2	3000	3000							
NH	5	0.05	9861	0.040	10141	0.035	10365	0.03	10404	0.035
NH	10614									
ET			4.1	9960	10050					
X1	1.640	36.	9861	10141	1090	930	1098			
GR	1517.3	9625.	1517.2	9690.	1514.7	9740.	1515.8	9766.	1516.8	9808.
GR	1517.0	9835.	1512.7	9861.	1507.3	9890.	1506.0	9913.	1506.7	9958.
GR	1505.5	9974.	1501.7	9987.	1501.7	10000.	1504.1	10021.	1504.6	10042.
GR	1512.9	10058.	1506.3	10083.	1508.7	10116.	1511.3	10141.	1513.9	10171.
GR	1512.6	10190.	1513.9	10207.	1514.0	10222.	1513.8	10237.	1510.8	10252.
GR	1514.	10276.	1516.5	10314.	1519.6	10365.	1519.6	10404.	1518.8	10446.
GR	1515.7	10479.	1514.2	10500.	1516.9	10533.	1518.7	10568.	1520.8	10602.
GR	1521.0	10614.								
NH	8	0.05	9964	0.05	9983	0.03	10017	0.05	10065	0.03
NH	10079	0.05	10132	0.03	10145	0.035	10390			
ET			4.1	9970	10060					
X1	1.800	28.	9948	10234	815	850	845			
GR	1523.8	9640.	1523.6	9706.	1521.8	9742.	1519.8	9770.	1520.3	9805.
GR	1518.6	9846.	1517.	9891.	1516.3	9931.	1516.9	9948.	1513.3	9964.
GR	1507.1	9983.	1506.4	9990.	1506.7	10000.	1507.9	10017.	1510.7	10035.
GR	1509.7	10065.	1510.2	10079.	1512.9	10105.	1510.1	10132.	1510.2	10145.
GR	1511.7	10176.	1516.1	10207.	1520.2	10234.	1519.4	10265.	1519.8	10299.
GR	1522.9	10328.	1524.9	10363.	1524.6	10390.				
NH	5	0.05	9729	0.04	10081	0.035	10120	0.04	10151	0.035
NH	10255									
ET			4.1	9960	10040					
X1	1.999	27.	9729	10081	1110	990	1051			
GR	1533.2	9624.	1531.8	9691.	1529.6	9729.	1523.8	9753.	1518.1	9778.
GR	1517.	9792.	1520.	9811.	1520.2	9840.	1521.1	9866.	1518.9	9882.
GR	1519.6	9903.	1517.7	9935.	1518.1	9956.	1518.	9970.	1513.9	9984.
GR	1513.1	10000.	1514.4	10024.	1518.7	10036.	1519.9	10053.	1525.9	10081.
GR	1525.6	10099.	1523.4	10120.	1521.9	10134.	1523.9	10151.	1527.3	10180.
GR	1528.7	10225.	1529.	10255.						
NH	6	0.05	9984	0.03	9999	0.05	10049	0.03	10092	0.04
NH	10184	0.035	10424							
ET			4.1	9970	10080					
X1	2.182	27.	9948	10121	830	870	966			
GR	1537.7	9727.	1536.4	9775.	1532.2	9820.	1531.5	9863.	1530.2	9882.
GR	1528.	9890.	1531.6	9909.	1535.3	9930.	1533.1	9948.	1527.1	9964.
GR	1521.1	9984.	1521.9	9999.	1522.8	10000.	1523.6	10015.	1524.6	10034.
GR	1522.5	10049.	1522.4	10065.	1522.4	10092.	1524.6	10121.	1525.1	10154.
GR	1525.6	10184.	1527.5	10231.	1531.1	10267.	1530.5	10307.	1532.	10339.
GR	1533.2	10378.	1533.	10424.						

NH	5	0.035	9945	0.05	9982	0.03	10022	0.05	10037	0.035
NH	10098									
ET			4.1	9915	10030					
X1	2.356	22	9945	10059	650	790	919			
GR	1538.6	9586.	1538.5	9609.	1537.5	9627.	1537.5	9648.	1534.7	9681.
GR	1534.1	9692.	1535.4	9729.	1534.9	9764.	1534.2	9808.	1532.1	9844.
GR	1531.	9870.	1532.7	9919.	1534.	9945.	1533.2	9972.	1529.1	9982.
GR	1528.4	9997.	1528.8	10000.	1529.5	10022.	1533.1	10037.	1538.4	10042.
GR	1543.5	10059.	1545.5	10098.						
NH	7	0.035	9965	0.05	9985	0.03	10019	0.05	10030	0.035
NH	10069	0.04	10104	0.035	10326					
ET			4.1	9970	10070					
X1	2.550	18	9936	10049	800	1050	1024			
GR	1547.7	9849.	1547.3	9885.	1547.2	9921.	1546.4	9936.	1540.1	9965.
GR	1535.2	9985.	1535.2	10000.	1535.5	10019.	1539.4	10030.	1540.3	10049.
GR	1538.7	10069.	1539.1	10093.	1538.1	10104.	1540.5	10131.	1542.9	10168.
GR	1545.4	10229.	1547.5	10294.	1549.1	10326.				
NH	3	0.035	9865	0.035	10099	0.035	10226			
ET			4.1	9965	10045					
X1	2.728	19.	9865	10099	1040	830	940			
GR	1556.8	9694.	1556.7	9746.	1556.3	9805.	1553.4	9844.	1550.2	9865.
GR	1547.	9903.	1544.1	9930.	1543.1	9944.	1545.	9961.	1543.1	9973.
GR	1541.	9985.	1541.7	10000.	1542.8	10022.	1546.	10039.	1545.7	10068.
GR	1548.9	10099.	1550.9	10136.	1551.7	10192.	1551.5	10226.		
NH	7	0.04	9917	0.05	9932	0.03	9962	0.05	9993	0.03
NH	10028	0.05	10036	0.035	10168					
ET			4.1	9960	10040					
X1	2.916	22.	9842	10050	970	1000	993			
GR	1562.5	9578.	1561.1	9619.	1558.4	9654.	1557.3	9682.	1559.3	9724.
GR	1559.2	9773.	1558.2	9815.	1557.2	9842.	1553.1	9867.	1551.6	9898.
GR	1551.9	9917.	1549.5	9932.	1551.4	9962.	1550.6	9975.	1548.8	9993.
GR	1548.7	10000.	1548.7	10028.	1550.4	10036.	1558.1	10050.	1560.6	10072.
GR	1561.8	10147.	1562.	10168.						
NH	3	0.04	9892	0.038	10148	0.035	10281			
ET			4.1	9960	10035					
X1	3.108	19.	9892	10148	900	1070	1014			
GR	1567.4	9831.	1567.9	9871.	1566.4	9892.	1561.7	9912.	1559.3	9921.
GR	1559.2	9939.	1558.1	9957.	1555.2	9970.	1554.9	10000.	1556.2	10031.
GR	1558.4	10045.	1558.	10078.	1560.2	10110.	1563.7	10148.	1562.5	10179.
GR	1563.8	10207.	1565.9	10245.	1568.8	10274.	1568.9	10281.		
NH	6	0.035	9876	0.03	9899	0.05	9933	0.03	10028	0.05
NH	10042	0.035	10305							
ET			4.1	9955	10030					
X1	3.288	23.	9815	10042	1010	820	950			
GR	1574.8	9674.	1574.8	9726.	1573.7	9780.	1571.7	9815.	1567.6	9844.
GR	1563.7	9876.	1564.	9899.	1565.2	9916.	1562.6	9933.	1562.5	9950.
GR	1562.2	9960.	1562.9	9993.	1562.1	10000.	1561.9	10028.	1569.	10042.
GR	1570.7	10074.	1572.8	10112.	1573.9	10140.	1573.9	10180.	1572.1	10205.

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GR   1572.2    10248.    1573.3    10294.    1573.2    10305.

NC   0.035     0.035     0.035
ET                       4.1       9960      10035
X1   5.513     15        9848      10136     1110      1260      1188
GR   1566.9    9813.     1583.     9848.     1572.8    9884.     1571.5    9911.     1571.9    9940.
GR   1571.6    9964.     1569.     9970.     1568.3    9995.     1569.2    10000.    1570.3    10034.
GR   1571.7    10050.    1573.5    10075.    1576.7    10103.    1583.8    10136.    1584.1    10158.

NH   5         0.035     9924      0.05      9941      0.03      10039     0.05      10064     0.035
NH   10331
ET                       4.1       9960      10035
X1   5.680     22.       9924      10064     860       860       882
GR   1589.8    9727.     1589.1    9783.     1586.6    9828.     1582.1    9860.     1579.5    9875.
GR   1580.1    9906.     1580.3    9924.     1577.9    9941.     1576.3    9968.     1575.4    9992.
GR   1575.5    10000.    1576.5    10023.    1575.7    10039.    1580.5    10064.    1581.3    10092.
GR   1581.8    10140.    1581.     10172.    1583.     10215.    1585.6    10254.    1585.4    10284.
GR   1588.2    10317.    1587.7    10331.

NH   6         0.035     9978      0.05      9993      0.03      10008     0.04      10185     0.03
NH   10195     0.035     10396
ET                       4.1       9950      10125
X1   5.875     24.       9978      10222     975       1025      1030
GR   1600.3    9747.     1599.6    9789.     1595.7    9817.     1590.4    9844.     1589.8    9869.
GR   1587.2    9895.     1586.1    9930.     1586.3    9955.     1586.3    9978.     1582.2    9993.
GR   1582.3    10000.    1581.9    10008.    1584.4    10017.    1585.4    10067.    1585.6    10131.
GR   1584.9    10162.    1582.7    10185.    1583.1    10195.    1585.3    10211.    1587.3    10222.
GR   1585.8    10266.    1591.     10314.    1592.4    10363.    1594.4    10396.

NH   3         0.035     9597      0.038     10135     0.035     10214
ET                       4.1       9900      10050
X1   4.066     28.       9597      10135     1020      940       1008
GR   1602.6    9497.     1599.     9541.     1596.8    9597.     1594.7    9639.     1593.4    9662.
GR   1595.5    9695.     1593.9    9721.     1592.5    9736.     1594.5    9759.     1594.4    9780.
GR   1592.     9806.     1593.3    9844.     1593.     9864.     1591.7    9879.     1593.5    9899.
GR   1593.8    9932.     1593.6    9960.     1593.1    9972.     1591.5    9979.     1591.1    10000.
GR   1592.1    10033.    1593.     10055.    1592.8    10071.    1591.4    10083.    1593.9    10107.
GR   1596.2    10135.    1598.     10181.    1598.4    10214.

NH   6         0.035     9893      0.05      9908      0.03      10033     0.05      10077     0.03
NH   10094     0.035     10239
ET                       4.1       9925      10075
X1   4.260     17        9871      10055     1060      960       1024
GR   1610.5    9838.     1606.1    9871.     1602.2    9893.     1596.7    9908.     1597.8    9937.
GR   1597.9    9961.     1597.     9997.     1597.2    10000.    1596.     10033.    1600.2    10055.
GR   1598.8    10077.    1597.9    10094.    1601.4    10122.    1601.2    10153.    1600.8    10173.
GR   1604.3    10204.    1606.5    10239.

NH   5         0.035     9928      0.05      9971      0.03      10009     0.05      10061     0.035
NH   10199
ET                       4.1       9925      10075
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X1	4.452	23	9928	10018	1120	840	1014			
GR	1612.8	9599.	1612.7	9632.	1610.8	9671.	1608.5	9698.	1607.4	9713.
GR	1608.9	9743.	1607.6	9775.	1606.7	9809.	1605.4	9849.	1604.6	9869.
GR	1605.7	9902.	1605.8	9928.	1604.5	9952.	1601.4	9971.	1601.4	9986.
GR	1602.2	10000.	1602.2	10009.	1606.4	10018.	1605.4	10061.	1605.5	10091.
GR	1606.	10121.	1607.6	10160.	1607.8	10199.				
NH	7	0.035	9958	0.05	9976	0.03	10019	0.05	10034	0.035
NH	10177	0.03	10191	0.035	10897					
ET			4.1	9860	10040					
X1	4.671	57.	9921	10261	930	1320	1156			
GR	1626.4	8725.	1623.4	8788.	1620.7	8843.	1620.2	8900.	1619.5	8939.
GR	1619.	8960.	1617.4	8969.	1619.3	8979.	1618.5	8994.	1621.5	9012.
GR	1621.3	9051.	1620.3	9087.	1620.9	9131.	1621.1	9173.	1619.5	9219.
GR	1617.1	9269.	1618.1	9299.	1617.9	9325.	1617.4	9341.	1619.2	9358.
GR	1619.1	9404.	1620.3	9467.	1620.5	9522.	1620.6	9558.	1622.3	9593.
GR	1621.2	9641.	1620.6	9692.	1618.5	9737.	1616.	9776.	1615.4	9806.
GR	1615.3	9859.	1614.2	9889.	1615.5	9921.	1614.2	9958.	1611.3	9976.
GR	1611.1	10000.	1611.4	10019.	1613.8	10034.	1614.7	10079.	1614.3	10131.
GR	1614.	10164.	1609.7	10177.	1610.7	10191.	1615.2	10219.	1621.	10261.
GR	1619.4	10299.	1620.	10331.	1619.	10360.	1619.7	10379.	1620.6	10441.
GR	1621.8	10467.	1622.5	10512.	1623.4	10575.	1622.4	10666.	1623.2	10738.
GR	1623.2	10822.	1624.1	10897.						
NH	5	0.035	9955	0.05	9981	0.03	10020	0.05	10034	0.035
NH	10216									
ET			4.1	9945	10065					
X1	4.844	12	9898	10034	750	1000	913			
GR	1627.1	9801.	1628.1	9855.	1627.9	9898.	1623.7	9916.	1618.6	9955.
GR	1617.8	9981.	1616.6	10000.	1616.9	10020.	1620.2	10034.	1619.9	10096.
GR	1619.8	10172.	1621.8	10216.						
NH	5	0.035	9958	0.05	9970	0.03	9991	0.05	10000	0.035
NH	10251									
ET			4.1	9925	10045					
X1	5.036	18	9942	10090	1250	775	1014			
GR	1634.1	9685.	1632.	9708.	1628.1	9738.	1627.6	9765.	1627.1	9794.
GR	1627.6	9811.	1627.3	9842.	1627.6	9903.	1628.	9942.	1627.5	9958.
GR	1624.	9970.	1623.7	9991.	1626.4	10000.	1627.6	10036.	1631.1	10090.
GR	1631.1	10141.	1631.5	10203.	1632.5	10251.				
NH	5	0.035	9929	0.05	9963	0.03	10168	0.05	10197	0.035
NH	10226									
ET			4.1	9945	10065					
X1	5.228	29	9929	10197	970	1025	1014			
GR	1645.5	9150.	1644.	9208.	1640.6	9276.	1640.4	9315.	1639.6	9336.
GR	1637.9	9342.	1639.7	9359.	1640.8	9403.	1641.9	9479.	1642.7	9553.
GR	1642.8	9619.	1642.3	9682.	1641.	9712.	1639.6	9735.	1641.8	9778.
GR	1640.1	9812.	1637.5	9841.	1635.2	9872.	1637.	9929.	1636.	9963.
GR	1632.9	9981.	1633.7	10000.	1634.8	10045.	1635.8	10070.	1634.9	10114.
GR	1634.	10148.	1635.3	10168.	1642.	10197.	1641.9	10226.		

NH	3	0.035	9931	0.034	10160	0.035	10183			
ET			4.1	9970	10070					
X1	5.415	16	9931	10160	995	1020	987			
GR	1641.5	9895.	1641.9	9931.	1640.2	9954.	1637.5	9969.	1636.4	9981.
GR	1635.9	9999.	1636.3	10000.	1636.6	10013.	1639.9	10026.	1640.2	10062.
GR	1641.1	10091.	1638.8	10104.	1637.3	10117.	1641.2	10132.	1648.1	10160.
GR	1646.	10183.								
NH	6	0.035	9911	0.05	9953	0.04	9977	0.03	10000	0.05
NH	10028	0.035	10252							
ET			4.1	9980	10080					
X1	5.607	20	9967	10028	990	1080	1014			
GR	1658.1	9678.	1658.7	9727.	1656.9	9777.	1655.	9815.	1655.9	9854.
GR	1655.3	9890.	1652.5	9911.	1649.7	9931.	1651.8	9953.	1651.4	9967.
GR	1643.8	9977.	1643.5	9994.	1644.	10000.	1645.2	10015.	1647.3	10028.
GR	1648.	10066.	1648.	10105.	1648.7	10140.	1650.4	10195.	1650.4	10252.
NH	6	0.035	9958	0.03	10035	0.035	10290	0.03	10324	0.04
NH	10371	0.035	10454							
ET			4.1	9954	10350					
X1	5.815	36.	9945	10420	1060	1040	1098			
GR	1665.	9431.	1663.8	9483.	1662.7	9551.	1661.9	9590.	1660.6	9612.
GR	1662.1	9666.	1662.6	9720.	1663.	9757.	1661.2	9781.	1661.5	9807.
GR	1662.1	9821.	1662.4	9849.	1662.1	9874.	1659.5	9895.	1658.7	9909.
GR	1660.4	9930.	1659.8	9945.	1654.6	9958.	1653.4	9981.	1653.6	10000.
GR	1653.7	10035.	1657.4	10036.	1657.1	10080.	1657.4	10131.	1656.9	10182.
GR	1656.9	10209.	1657.4	10246.	1656.5	10268.	1652.5	10290.	1654.2	10324.
GR	1655.4	10344.	1655.	10371.	1657.4	10387.	1662.4	10405.	1663.8	10420.
GR	1663.9	10454.								
NH	3	0.035	9815	0.037	10168	0.035	10306			
ET			4.1	9900	10060					
X1	6.022	21	9815	10168	1070	1090	1093			
GR	1671.	9449.	1670.8	9508.	1669.	9566.	1669.2	9629.	1669.7	9689.
GR	1669.4	9726.	1669.7	9770.	1669.	9815.	1666.2	9841.	1665.1	9889.
GR	1664.1	9930.	1663.6	9967.	1662.5	9989.	1661.2	10000.	1660.8	10031.
GR	1661.6	10057.	1663.	10078.	1663.9	10107.	1664.8	10168.	1665.	10243.
GR	1665.1	10306.								
NH	4	0.035	9959	0.05	9972	0.03	10000	0.035	10250	
ET			4.1	9920	10080					
X1	6.223	20	9936	10027	1090	740	1061			
GR	1674.8	9729.	1671.	9772.	1670.	9800.	1670.1	9819.	1668.9	9825.
GR	1671.2	9847.	1671.4	9901.	1671.9	9936.	1669.8	9959.	1668.8	9972.
GR	1666.9	9985.	1667.6	10000.	1669.3	10017.	1670.7	10027.	1671.1	10065.
GR	1669.9	10116.	1670.3	10161.	1670.1	10188.	1669.1	10203.	1674.5	10250.
NH	7	0.035	9953	0.05	9974	0.03	10031	0.05	10090	0.03
NH	10160	0.05	10207	0.035	10297					
ET			4.1	9955	10105					

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X1    6.424      16     9928    10045      980      960     1061
GR   1685.5    9796.   1682.1     9835.   1678.7    9885.   1680.4     9928.   1679.5     9953.
GR   1674.9    9974.   1675.6    10000.   1676.2   10031.   1678.4    10045.   1678.4    10090.
GR   1676.5   10118.   1678.6    10160.   1678.7   10207.   1678.9    10241.   1681.4    10271.
GR   1684.9   10297.

NH      5     0.035     9943     0.05     9972     0.03    10021     0.05    10045    0.035
NH  10223
ET                      4.1     9939    10079
X1    6.628      16     9914    10069     1080     1000     1077
GR   1690.6    9868.   1688.6     9886.   1685.1    9914.   1684.3     9943.   1683.5     9961.
GR   1682.7    9972.   1681.5     9976.   1682.3   10000.   1682.6    10021.   1685.3    10045.
GR   1685.9   10069.   1683.6    10086.   1685.5   10112.   1686.4    10141.   1688.4    10186.
GR   1690.1   10223.

NH      5     0.035     9956     0.05     9966     0.03     9987     0.05    10000    0.035
NH  10357
ET                      4.1     9950    10050
X1    6.853      18     9942    10087     1210     1060     1188
GR   1694.8    9785.   1693.8     9837.   1693.7    9884.   1694.6     9918.   1694.4     9942.
GR   1693.2    9956.   1688.9     9966.   1689.9    9987.   1691.7    10000.   1692.5    10041.
GR   1693.9   10087.   1693.5    10141.   1692.9   10187.   1694.3    10216.   1694.6    10257.
GR   1694.2   10278.   1695.2    10318.   1695.6   10357.

     SECTION 7.074 IS TAKEN ALONG VULTURE MINE ROAD.
     (LIMIT OF DETAILED STUDY)

NH      5     0.035     9973     0.05     9991     0.03    10017     0.05    10042    0.035
NH  10200
ET                      4.1     9925    10025
X1    7.074      11     9900    10042     1070     1140     1167
GR   1708.1    9867.   1704.9     9900.   1700.6    9937.   1699.6     9973.   1697.1     9991.
GR   1697.2   10000.   1697.8    10017.   1702.    10042.   1702.2    10088.   1707.1    10151.
GR   1711.1   10200.
```

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


 *PROF 1
0

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO  .060
     .060     4.41  1447.31      .00  1447.31  1447.68      .37      .00      .00  1451.40
    2900.       0.    2900.       0.       0.     594.       0.       0.       0.   1455.40
      .00      .00     4.89      .00     .000     .031     .000     .000  1442.90  9868.18
  .004312     850.     966.    1080.        0        0        0      .00   300.40 10168.58


 FLOW DISTRIBUTION FOR SECNO=       .06          CWSEL=   1447.31

 STA=    9868.    9879.    9906.    9986.   10008.   10113.   10151.   10179.
   PER Q=      1.2     16.4     16.0     24.0      6.7     32.0      3.7
    AREA=     15.1     74.5    153.7     86.3    101.5    127.5     35.0
     VEL=      2.4      6.4      3.0      8.1      1.9      7.3      3.0
   DEPTH=      1.4      2.8      1.9      3.9      1.0      3.4      2.0

 1490 NH CARD USED
 *SECNO  .292
 1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

 3265 DIVIDED FLOW


 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
     .292     3.68  1457.88  1457.88      .00  1458.80      .92     9.30      .16  1462.00
    2900.       0.    2900.       0.       0.     377.       0.      14.       7.   1460.40
      .04      .00     7.68      .00     .000     .037     .000     .000  1454.20  9948.92
  .016735    1250.    1225.    1215.       12       15        0      .00   212.30 10178.39


 FLOW DISTRIBUTION FOR SECNO=       .29          CWSEL=   1457.88

 STA=    9949.   10192.
   PER Q=    100.0
    AREA=    377.4
     VEL=      7.7
   DEPTH=      1.8
```

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


1490 NR CARD USED
*SECNO  .460

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.04

     .460     3.34  1464.94      .00      .00  1465.29      .35     6.43      .06  1468.50
    2900.       0.    2870.      30.       0.     605.      23.      24.      13.   1464.60
      .10      .00     4.75     1.27     .000     .031     .035     .000  1461.60  9827.16
  .004027     900.     887.     850.        6        0        0      .00   394.05 10236.41


FLOW DISTRIBUTION FOR SECNO=       .46          CWSEL=   1464.94

STA=    9827.    9931.    9962.   10027.   10044.   10141.   10236.
  PER Q=     17.9      1.9     50.0      3.9     25.3      1.0
   AREA=    147.2     29.7    210.7     36.4    180.7     23.4
    VEL=      3.5      1.8      6.9      3.1      4.1      1.3
  DEPTH=      1.5      1.0      3.2      2.1      1.9       .2

1490 NR CARD USED
*SECNO  .667

3265 DIVIDED FLOW


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

     .667     4.96  1471.56      .00      .00  1472.06      .50     6.73      .05  1475.50
    2900.       0.    2900.       0.       0.     510.       0.      38.      22.   1473.90
      .15      .00     5.69      .00     .000     .037     .000     .000  1466.60  9734.01
  .010562    1100.    1093.     985.        3        0        0      .00   314.14 10061.70


FLOW DISTRIBUTION FOR SECNO=       .67          CWSEL=   1471.56
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    9734.   10074.
  PER Q=    100.0
   AREA=    509.8
    VEL=      5.7
  DEPTH=      1.6

1490 NH CARD USED
*SECNO  .865
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

     .865     5.36  1480.36      .00      .00  1480.80      .45     8.74      .01  1486.30
    2900.       0.    2900.       0.       0.     540.       0.      51.      29.   1485.30
      .20      .00     5.37      .00     .000     .039     .000     .000  1475.00  9929.63
  .006738     860.    1045.    1125.        4        0        0      .00   241.34 10219.08


FLOW DISTRIBUTION FOR SECNO=       .87          CWSEL=   1480.36

STA=    9930.   10243.
  PER Q=    100.0
   AREA=    540.3
    VEL=      5.4
  DEPTH=      2.2

1490 NH CARD USED
*SECNO 1.064
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    1.064     5.07  1488.37      .00      .00  1488.68      .30     7.86      .01  1492.10
    2900.       0.    2900.       0.       0.     654.       0.      65.      36.   1493.20
      .27      .00     4.43      .00     .000     .045     .000     .000  1483.30  9803.45
  .008277    1150.    1051.     860.        8        0        0      .00   366.94 10170.39


FLOW DISTRIBUTION FOR SECNO=      1.06          CWSEL=   1488.37

STA=    9803.   10185.
  PER Q=    100.0
   AREA=    654.4
    VEL=      4.4
  DEPTH=      1.8
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 1.241
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

    1.241     6.14  1494.54      .00      .00  1495.02      .48     6.29      .05  1495.40
    2900.      86.    2728.      86.      31.     481.      40.      78.      43.   1494.50
      .32     2.80     5.67     2.16     .040     .038     .035     .000  1488.40  9784.25
  .005576     900.     935.     965.        4        0        0      .00   283.40 10108.75


FLOW DISTRIBUTION FOR SECNO=      1.24         CWSEL=   1494.54

STA=    9784.    9814.   10030.   10109.
  PER Q=      3.0     94.1      3.0
   AREA=     30.7    480.8     39.7
    VEL=      2.8      5.7      2.2
  DEPTH=      1.0      2.8       .5

1490 NH CARD USED
*SECNO 1.432

3265 DIVIDED FLOW

    1.432     4.49  1500.39      .00      .00  1500.97      .58     5.92      .03  1500.40
    2900.      96.    2804.       0.      48.     453.       0.      90.      50.   1503.50
      .36     2.00     6.19      .00     .035     .033     .000     .000  1495.90  9639.72
  .006197    1000.    1008.    1000.        3        0        0      .00   312.54 10059.42


FLOW DISTRIBUTION FOR SECNO=      1.43         CWSEL=   1500.39

STA=    9640.    9863.   10093.
  PER Q=      3.3     96.7
   AREA=     48.3    453.0
    VEL=      2.0      6.2
  DEPTH=       .2      2.3

1490 NH CARD USED
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 1.640
    1.640     5.85  1507.55      .00      .00  1508.03      .49     7.06      .01  1512.70
    3000.       0.    3000.       0.       0.     535.       0.     103.      57.   1511.30
      .41      .00     5.61      .00     .000     .040     .000     .000  1501.70  9888.68
  .006665    1090.    1098.     930.        5        0        0      .00   211.46 10100.13


FLOW DISTRIBUTION FOR SECNO=      1.64         CWSEL=   1507.55

STA=    9889.   10116.
  PER Q=    100.0
   AREA=    534.8
    VEL=      5.6
  DEPTH=      2.5

1490 NH CARD USED
*SECNO 1.800
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

    1.800     6.37  1512.77      .00      .00  1513.18      .40     5.14      .01  1516.90
    3000.       0.    3000.       0.       0.     588.       0.     114.      61.   1520.20
      .46      .00     5.10      .00     .000     .042     .000     .000  1506.40  9965.60
  .005563     815.     845.     850.        2        0        0      .00   215.66 10183.60


FLOW DISTRIBUTION FOR SECNO=      1.80         CWSEL=   1512.77

STA=    9966.   10207.
  PER Q=    100.0
   AREA=    588.2
    VEL=      5.1
  DEPTH=      2.7

1490 NH CARD USED
*SECNO 1.999

3265 DIVIDED FLOW

    1.999     6.60  1519.70      .00      .00  1520.25      .55     7.03      .04  1529.60
    3000.       0.    3000.       0.       0.     504.       0.     127.      66.   1525.90
      .51      .00     5.95      .00     .000     .040     .000     .000  1513.10  9770.99
  .008135    1110.    1051.     990.        4        0        0      .00   212.06 10050.15
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       DLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      2.00         CWSEL=   1519.70

STA=    9771.   10055.
  PER Q=    100.0
   AREA=    504.2
    VEL=      6.0
  DEPTH=      2.4

1490 NH CARD USED
*SECNO 2.182
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    2.182     5.10  1526.20      .00      .00  1526.69      .48     6.43      .01  1533.10
    3000.       0.    2778.     222.       0.     484.      75.     139.      71.   1524.60
      .56      .00     5.74     2.97     .000     .041     .040     .000  1521.10  9966.99
  .005560     830.     966.     870.        4        0        0      .00   231.96 10198.95


FLOW DISTRIBUTION FOR SECNO=      2.18         CWSEL=   1526.20

STA=    9967.   10121.   10154.   10184.   10199.
  PER Q=     92.6      5.1      2.1       .2
   AREA=    483.9     44.7     25.6      4.5
    VEL=      5.7      3.4      2.5      1.4
  DEPTH=      3.1      1.4       .9       .3

1490 NH CARD USED
*SECNO 2.356
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    2.356     5.15  1533.55  1533.55      .00  1534.46      .91     6.66      .13  1534.00
    3000.     983.    2017.       0.     160.     243.       0.     149.      75.   1543.50
      .59     6.14     8.29      .00     .035     .040     .000     .000  1528.40  9819.23
  .011217     650.     919.     790.        5        5        0      .00   193.74 10037.42


FLOW DISTRIBUTION FOR SECNO=      2.36         CWSEL=   1533.55
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    9819.    9844.    9870.    9919.    9936.   10042.
  PER Q=      2.2     12.3     17.7       .6     67.2
   AREA=     17.9     51.9     83.1      7.1    243.2
    VEL=      3.6      7.1      6.4      2.5      8.3
  DEPTH=       .7      2.0      1.7       .4      3.2

1490 NH CARD USED
*SECNO 2.550
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

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

   2.550     5.95  1541.15      .00      .00  1541.74      .59     7.25      .03  1546.40
   3000.       0.    2233.     767.       0.     338.     169.     159.      79.   1540.30
     .64      .00     6.60     4.53     .000     .039     .038     .000  1535.20  9960.12
 .005149     800.    1024.    1050.        5        0        0      .00   181.07 10141.18


FLOW DISTRIBUTION FOR SECNO=      2.55          CWSEL=   1541.15

STA=    9960.   10049.   10069.   10093.   10104.   10131.   10141.
  PER Q=     74.4      4.7      8.3      4.7      7.7       .2
   AREA=    338.3     33.2     54.3     28.2     50.2      3.4
    VEL=      6.6      4.3      4.6      5.0      4.6      1.5
  DEPTH=      3.8      1.7      2.3      2.6      1.9       .3

1490 NH CARD USED
*SECNO 2.728
   2.728     5.64  1546.64      .00      .00  1547.35      .71     5.58      .04  1550.20
   3000.       0.    3000.       0.       0.     444.       0.     169.      83.   1548.90
     .65      .00     6.76      .00     .000     .035     .000     .000  1541.00  9906.35
 .007137    1040.     940.     830.        4        0        0      .00   170.76 10077.11


FLOW DISTRIBUTION FOR SECNO=      2.73          CWSEL=   1546.64

STA=    9906.   10099.
  PER Q=    100.0
   AREA=    444.0
    VEL=      6.8
  DEPTH=      2.6
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IOC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 2.916
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    2.916     4.75  1553.45      .00      .00  1554.00      .55     6.63      .02  1557.20
    3000.       0.    3000.       0.       0.     505.       0.     180.      87.   1558.10
      .72      .00     5.94      .00     .000     .040     .000     .000  1548.70  9864.80
  .006269     970.     993.    1000.        4        0        0      .00   176.77 10041.57


FLOW DISTRIBUTION FOR SECNO=      2.92          CWSEL=   1553.45

STA=    9865.   10050.
  PER Q=    100.0
   AREA=    504.9
    VEL=      5.9
  DEPTH=      2.9

1490 NH CARD USED
*SECNO 3.108
    3.108     5.10  1560.00      .00      .00  1560.57      .57     6.56      .01  1566.40
    3000.       0.    3000.       0.       0.     495.       0.     191.      91.   1563.70
      .77      .00     6.06      .00     .000     .038     .000     .000  1554.90  9918.38
  .006682     900.    1014.    1070.        3        0        0      .00   188.69 10107.07


FLOW DISTRIBUTION FOR SECNO=      3.11          CWSEL=   1560.00

STA=    9918.   10110.
  PER Q=    100.0
   AREA=    494.8
    VEL=      6.1
  DEPTH=      2.6

1490 NH CARD USED
*SECNO 3.288
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    3.288     4.05  1565.95      .00      .00  1566.55      .59     5.97      .01  1571.70
    3000.       0.    3000.       0.       0.     485.       0.     202.      95.   1569.00
      .81      .00     6.19      .00     .000     .036     .000     .000  1561.90  9857.49
  .005925    1010.     950.     820.        2        0        0      .00   178.51 10036.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      3.29         CWSEL=   1565.95

STA=    9857.   10042.
  PER Q=    100.0
   AREA=    484.8
    VEL=      6.2
  DEPTH=      2.7

*SECNO 3.513
    3.513     5.14  1573.44      .00      .00  1574.06      .62     7.50      .01  1583.00
    3000.       0.    3000.       0.       0.     473.       0.     215.     100.   1583.80
      .86      .00     6.34      .00     .000     .035     .000     .000  1568.30  9881.75
  .006745    1110.    1188.    1260.        2        0        0      .00   192.36 10074.12


FLOW DISTRIBUTION FOR SECNO=      3.51         CWSEL=   1573.44

STA=    9882.   10136.
  PER Q=    100.0
   AREA=    473.4
    VEL=      6.3
  DEPTH=      2.5

1490 NH CARD USED
*SECNO 3.680

3265 DIVIDED FLOW

    3.680     4.29  1579.69      .00      .00  1580.60      .91     6.45      .09  1580.30
    3000.       1.    2999.       0.       1.     391.       0.     224.     103.   1580.50
      .90      .79     7.67      .00     .035     .036     .000     .000  1575.40  9873.91
  .007964     860.     882.     860.        3        0        0      .00   142.36 10059.78


FLOW DISTRIBUTION FOR SECNO=      3.68         CWSEL=   1579.69

STA=    9874.    9885.   10064.
  PER Q=       .0    100.0
   AREA=      1.0    391.1
    VEL=       .8      7.7
  DEPTH=       .1      3.0
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       DLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 3.875
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    3.875     5.10  1587.00      .00      .00  1587.36      .36     6.70      .06  1586.30
    3000.     118.    2820.      62.      49.     572.      28.     236.     109.   1587.30
      .96     2.40     4.93     2.23     .035     .039     .035     .000  1581.90  9901.26
  .005430     975.    1030.    1025.        3        0        0      .00   365.51 10277.11


FLOW DISTRIBUTION FOR SECNO=      3.88          CWSEL=   1587.00

STA=    9901.    9978.   10222.   10277.
  PER Q=      3.9     94.0      2.1
   AREA=     49.2    571.7     27.9
    VEL=      2.4      4.9      2.2
  DEPTH=       .6      2.4       .5

1490 NH CARD USED
*SECNO 4.066

3265 DIVIDED FLOW

    4.066     3.24  1594.34      .00      .00  1594.74      .40     7.37      .01  1596.80
    3000.       0.    3000.       0.       0.     589.       0.     251.     118.   1596.20
     1.01      .00     5.09      .00     .000     .038     .000     .000  1591.10  9645.29
  .010382    1020.    1008.     940.        4        0        0      .00   406.78 10112.41


FLOW DISTRIBUTION FOR SECNO=      4.07          CWSEL=   1594.34

STA=    9645.   10135.
  PER Q=    100.0
   AREA=    589.1
    VEL=      5.1
  DEPTH=      1.4
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```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 Nn CARD USED
*SECNO 4.260
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

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

    4.260     4.48  1600.48      .00      .00  1600.95      .46     6.19      .02  1606.10
    3000.       0.    2687.     313.       0.     477.      85.     264.     125.   1600.20
     1.06      .00     5.63     3.69     .000     .035     .034     .000  1596.00  9897.67
  .003970    1060.    1024.     960.        5        0        0      .00   217.04 10114.71


FLOW DISTRIBUTION FOR SECNO=      4.26          CWSEL=   1600.48

STA=    9898.   10055.   10077.   10094.   10115.
  PER Q=     89.6      1.3      6.3      2.8
   AREA=    477.2     21.7     36.3     26.8
    VEL=      5.6      1.9      5.2      3.2
  DEPTH=      3.0      1.0      2.1      1.3

1490 Nn CARD USED
*SECNO 4.452
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    4.452     5.05  1606.45  1606.45      .00  1607.21      .76     6.00      .09  1605.80
    3000.     479.    2274.     247.     107.     296.      77.     276.     131.   1606.40
     1.10     4.49     7.68     3.21     .035     .042     .038     .000  1601.40  9816.75
  .009934    1120.    1014.     840.        4        8        0      .00   315.18 10131.93


FLOW DISTRIBUTION FOR SECNO=      4.45          CWSEL=   1606.45

STA=    9817.    9869.    9902.    9928.   10018.   10091.   10132.
  PER Q=      6.8      7.2      2.0     75.8      5.8      2.5
   AREA=     45.9     42.8     18.2    296.0     53.5     23.4
    VEL=      4.4      5.0      3.3      7.7      3.2      3.1
  DEPTH=       .9      1.3       .7      3.3       .7       .6

1490 Nn CARD USED
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 4.671

3265 DIVIDED FLOW

    4.671     5.61  1615.31       .00       .00  1615.68       .38      8.44       .04  1615.50
    3000.      69.     2931.       0.       32.      590.       0.      290.      140.   1621.00
     1.17     2.17      4.96      .00      .035      .036      .000      .000  1609.70  9854.54
  .005712     930.     1156.    1320.         6         0         0       .00   355.08 10219.79


FLOW DISTRIBUTION FOR SECNO=      4.67          CWSEL=   1615.31

STA=    9855.    9916.   10261.
  PER Q=      2.3      97.7
   AREA=     31.9     590.3
    VEL=      2.2       5.0
  DEPTH=       .5       2.0

1490 NH CARD USED
*SECNO 4.844
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    4.844     4.62  1621.22       .00       .00  1621.85       .62      6.09       .07  1627.90
    3000.       0.     2152.     848.        0.      308.      199.      302.      147.   1620.20
     1.21      .00      6.98     4.25      .000      .040      .035      .000  1616.60  9934.94
  .007695     750.      913.    1000.         4         0         0       .00   268.39 10203.32


FLOW DISTRIBUTION FOR SECNO=      4.84          CWSEL=   1621.22

STA=    9935.   10034.   10096.   10172.   10203.
  PER Q=     71.7     10.1     16.0      2.2
   AREA=    308.3     72.8    104.4     22.3
    VEL=      7.0      4.1      4.6      3.0
  DEPTH=      3.1      1.2      1.4       .7

1490 NH CARD USED
*SECNO 5.036
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    5.036     5.24  1628.94       .00       .00  1629.40       .46      7.53       .02  1628.00
    3000.    1283.     1717.       0.      288.      284.       0.      315.      154.   1631.10
     1.26     4.45      6.05      .00      .035      .037      .000      .000  1623.70  9731.49
  .006934    1250.     1014.     775.         5         0         0       .00   325.28 10056.77
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      5.04          CWSEL=   1628.94

STA=    9731.    9765.    9794.    9811.    9842.    9903.    9942.   10090.
  PER Q=      3.9      7.5      4.4      7.2     14.1      5.8     57.2
   AREA=     32.4     46.3     27.1     46.4     91.3     44.7    283.6
    VEL=      3.6      4.8      4.8      4.6      4.6      3.9      6.1
  DEPTH=      1.0      1.6      1.6      1.5      1.5      1.1      2.5

1490 NH CARD USED
*SECNO 5.228
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

    5.228     3.79  1636.69      .00      .00  1637.31      .62     7.87      .05  1637.00
    3000.     166.    2834.       0.      50.     438.       0.     327.     161.   1642.00
     1.31     3.30     6.47      .00     .035     .033     .000     .000  1632.90  9851.87
  .008909     970.     1014.    1025.        4        0        0      .00   302.02 10174.03


FLOW DISTRIBUTION FOR SECNO=      5.23          CWSEL=   1636.69

STA=    9852.    9872.    9919.   10197.
  PER Q=      1.6      3.9     94.5
   AREA=     15.0     35.3    438.3
    VEL=      3.3      3.3      6.5
  DEPTH=       .7       .7      1.9

1490 NH CARD USED
*SECNO 5.415

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66

    5.415     6.01  1641.91      .00      .00  1642.31      .40     4.97      .02  1641.90
    3000.       0.    3000.       0.       0.     595.       0.     340.     167.   1648.10
     1.36      .02     5.04      .00     .000     .034     .000     .000  1635.90  9930.30
  .003233     995.     987.    1020.        5        0        0      .00   204.59 10134.89


FLOW DISTRIBUTION FOR SECNO=      5.41          CWSEL=   1641.91
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    9930.   10160.
  PER Q=    100.0
   AREA=    594.7
    VEL=      5.0
  DEPTH=      2.9

1490 NM CARD USED
*SECNO 5.607
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   5.607     5.88  1649.38  1649.38      .00  1650.30      .92     4.90      .16  1651.40
   3000.       0.    2242.     758.       0.     264.     163.     352.     171.   1647.30
    1.40      .00     8.49     4.65     .000     .041     .035     .000  1643.50  9969.66
  .007821     990.    1014.    1080.       20        6        0      .00   192.36 10162.02


FLOW DISTRIBUTION FOR SECNO=      5.61          CWSEL=   1649.38

STA=    9970.   10028.   10066.   10105.   10140.   10162.
  PER Q=     74.7     11.9      8.4      4.6       .5
   AREA=    264.1     65.8     53.8     36.1      7.5
    VEL=      8.5      5.4      4.7      3.8      1.8
  DEPTH=      4.5      1.7      1.4      1.0       .3

1490 NM CARD USED
*SECNO 5.815

3265 DIVIDED FLOW

   5.815     4.09  1656.59      .00      .00  1657.12      .53     6.78      .04  1659.80
   3000.       0.    3000.       0.       0.     512.       0.     363.     176.   1663.80
    1.45      .00     5.86      .00     .000     .034     .000     .000  1652.50  9953.03
  .005360    1060.    1098.    1040.        5        0        0      .00   198.46 10381.58
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      5.82         CWSEL=   1656.59

STA=    9953.   10387.
  PER Q=    100.0
   AREA=    511.7
    VEL=      5.9
  DEPTH=      2.6

1490 NH CARD USED
*SECNO 6.022

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

    6.022     4.05  1664.85      .00      .00  1665.51      .66     8.35      .04  1669.00
    3000.       0.    3000.       0.       0.     461.       1.     376.     182.   1664.80
     1.50      .00     6.51      .42     .000     .037     .035     .000  1660.80  9899.16
  .012835    1070.    1093.    1090.        3        0        0      .00   288.44 10187.60


FLOW DISTRIBUTION FOR SECNO=      6.02         CWSEL=   1664.85

STA=    9899.   10168.   10188.
  PER Q=    100.0       .0
   AREA=    460.6       .5
    VEL=      6.5       .4
  DEPTH=      1.7       .0

1490 NH CARD USED
*SECNO 6.223

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.79

    6.223     4.98  1671.88      .00      .00  1672.18      .30     6.64      .04  1671.90
    3000.     571.    1337.    1092.     172.     256.     301.     389.     191.   1670.70
     1.56     3.33     5.22     3.63     .035     .036     .035     .000  1666.90  9762.05
  .004012    1090.    1061.     740.        4        0        0      .00   463.42 10227.19
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      6.22          CWSEL=   1671.88

STA=    9762.    9800.    9819.    9847.    9935.   10027.   10065.   10116.   10161.   10188.   10203.   10227.
  PER Q=      4.5      4.7      7.6      2.2     44.6      3.3      7.8     10.5      5.7      5.3      3.7
   AREA=     43.0     34.7     54.5     39.3    256.1     37.2     70.3     80.0     45.3     34.2     33.6
    VEL=      3.1      4.0      4.2      1.7      5.2      2.7      3.3      3.9      3.8      4.7      3.3
  DEPTH=      1.1      1.8      1.9       .4      2.8      1.0      1.4      1.8      1.7      2.3      1.4

1490 NH CARD USED
*SECNO 6.424
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    6.424     4.29  1679.19  1679.19      .00  1679.91      .72     5.81      .13  1680.40
    3000.       7.    2065.     928.       5.     273.     192.     403.     199.   1678.40
     1.61     1.55     7.57     4.83     .035     .038     .033     .000  1674.90  9877.81
  .008745     980.    1061.     960.        8       10        0      .00   309.61 10244.47


FLOW DISTRIBUTION FOR SECNO=      6.42          CWSEL=   1679.19

STA=    9878.    9885.    9897.   10045.   10090.   10118.   10160.   10207.   10241.   10244.
  PER Q=       .1       .2     68.8      2.8     10.9     14.8      1.6       .9       .0
   AREA=      1.8      3.0    272.8     35.5     48.7     68.8     25.3     13.2       .5
    VEL=      1.6      1.6      7.6      2.4      6.7      6.4      1.8      2.1      1.1
  DEPTH=       .2       .2      3.0       .8      1.7      1.6       .5       .4       .1

1490 NH CARD USED
*SECNO 6.628
    6.628     4.81  1686.31      .00      .00  1686.93      .62     7.01      .01  1685.10
    3000.      13.    2656.     331.       6.     404.      83.     414.     206.   1685.90
     1.65     2.18     6.58     3.98     .035     .031     .035     .000  1681.50  9904.28
  .005169    1080.    1077.    1000.        5        0        0      .00   233.99 10138.27


FLOW DISTRIBUTION FOR SECNO=      6.63          CWSEL=   1686.31
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    9904.    9914.    9943.    9972.   10021.   10045.   10069.   10086.   10112.   10138.
  PER Q=      .4      6.6     10.9     62.5      7.1      1.4      3.6      6.8       .6
   AREA=     5.9     46.8     78.8    204.0     56.8     17.2     26.6     45.9     10.7
    VEL=     2.2      4.2      4.2      9.2      3.8      2.4      4.1      4.5      1.7
  DEPTH=      .6      1.6      2.7      4.2      2.4       .7      1.6      1.8       .4

1490 NH CARD USED
*SECNO 6.853
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    6.853     5.50  1694.40  1694.40      .00  1695.05      .64     8.06      .01  1694.40
    3000.     134.    2394.     472.      50.     344.     119.     428.     214.  1693.90
     1.70     2.69     6.96     3.95     .035     .037     .035     .000  1688.90  9805.57
  .009598    1210.    1188.    1060.        3        8        0      .00   412.75 10286.18


FLOW DISTRIBUTION FOR SECNO=      6.85         CWSEL=   1694.40

STA=    9806.    9884.    9942.   10087.   10141.   10187.   10286.
  PER Q=     3.8       .6     79.8      4.2      8.7      2.9
   AREA=    40.3      9.4    343.8     38.0     55.4     26.0
    VEL=     2.8      2.1      7.0      3.3      4.7      3.3
  DEPTH=      .5       .2      2.4       .7      1.2       .3

1490 NH CARD USED
*SECNO 7.074
    7.074     5.60  1702.70      .00      .00  1703.52      .82     8.42      .05  1704.90
    3000.       0.    2934.      66.       0.     400.      29.     440.     222.  1702.00
     1.75      .00     7.34     2.23     .000     .033     .035     .000  1697.10  9918.89
  .005663    1070.    1167.    1140.        5        0        0      .00   175.59 10094.49


FLOW DISTRIBUTION FOR SECNO=      7.07         CWSEL=   1702.70

STA=    9919.    9973.    9991.   10017.   10042.   10088.   10094.
  PER Q=    19.6     15.5     52.5     10.3      2.1       .1
   AREA=   112.8     78.4    138.5     70.1     27.8      1.6
    VEL=     5.2      5.9     11.4      4.4      2.3      1.3
  DEPTH=     2.1      4.4      5.3      2.8       .6       .3
```

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		5							1448.31	

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

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


*PROF 2
0

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .060
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9868.0   10168.0  TYPE=      1  TARGET=      300.000
     .060     5.41  1448.31      .00  1447.31  1448.47      .16      .00      .00100000.00
    2900.       0.    2900.       0.       0.     893.       0.       0.       0. 100000.00
      .00      .00     3.25      .00     .000     .045     .000     .000  1442.90  9868.00
  .002266     850.     966.    1080.        0        0        0      .00   300.00 10168.00


FLOW DISTRIBUTION FOR SECNO=       .06         CWSEL=   1448.31

STA=    9868.   10168.
  PER Q=    100.0
   AREA=    893.5
    VEL=      3.2
  DEPTH=      3.0

1490 NH CARD USED
*SECNO  .292

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS=     9950.0   10150.0  TYPE=      1  TARGET=      200.000
     .292     3.70  1457.90  1457.90  1457.88  1458.90     1.01     5.90      .25100000.00
    2900.       0.    2900.       0.       0.     360.       0.      18.       7. 100000.00
      .04      .00     8.05      .00     .000     .037     .000     .000  1454.20  9950.00
  .016373    1250.    1225.    1215.       20       19        0      .00   183.36 10150.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=       .29          CWSEL=   1457.90

STA=    9950.   10150.
  PER Q=    100.0
   AREA=    360.4
    VEL=      8.0
  DEPTH=      2.0

1490 NH CARD USED
*SECNO  .460
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


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


3470 ENCROACHMENT STATIONS=     9900.0   10085.0  TYPE=      1  TARGET=      185.000
     .460     4.30  1465.90      .00  1464.94  1466.37      .47     7.41      .05100000.00
    2900.       0.    2900.       0.       0.     528.       0.      27.      11. 100000.00
      .69      .00     5.50      .00     .000     .038     .000     .000  1461.60  9900.00
  .005055     900.     887.     850.        6        0        0      .00   185.00 10085.00


FLOW DISTRIBUTION FOR SECNO=       .46          CWSEL=   1465.90

STA=    9900.   10085.
  PER Q=    100.0
   AREA=    527.6
    VEL=      5.5
  DEPTH=      2.9

1490 NH CARD USED
*SECNO  .667

3470 ENCROACHMENT STATIONS=     9900.0   10040.0  TYPE=      1  TARGET=      140.000
     .667     5.43  1472.03      .00  1471.56  1472.73      .70     6.30      .07100000.00
    2900.       0.    2900.       0.       0.     431.       0.      39.      15. 100000.00
      .13      .00     6.73      .00     .000     .037     .000     .000  1466.60  9900.00
  .006650    1100.    1093.     985.        4        0        0      .00   140.00 10040.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=       .67          CWSEL=   1472.03

STA=    9900.   10040.
  PER Q=    100.0
   AREA=    430.9
    VEL=      6.7
  DEPTH=      3.1

1490 NH CARD USED
*SECNO  .865
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9980.0   10080.0  TYPE=      1  TARGET=      100.000
     .865     6.00  1481.00  1480.70  1480.36  1482.26     1.26     9.36      .17100000.00
    2900.       0.    2900.       0.       0.     322.       0.      48.      18. 100000.00
      .16      .00     9.00      .00     .000     .039     .000     .000  1475.00  9980.00
  .012761     860.    1045.    1125.       12        8        0      .00   100.00 10080.00


FLOW DISTRIBUTION FOR SECNO=       .87          CWSEL=   1481.00

STA=    9980.   10080.
  PER Q=    100.0
   AREA=    322.2
    VEL=      9.0
  DEPTH=      3.2

1490 NH CARD USED
*SECNO 1.064
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.70


3470 ENCROACHMENT STATIONS=     9925.0   10075.0  TYPE=      1  TARGET=      150.000
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```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


    1.064     5.91  1489.21      .00  1488.37  1489.70      .50     7.37      .08100000.00
    2900.       0.    2900.       0.       0.     512.       0.      58.      21. 100000.00
      .22      .00     5.67      .00     .000     .039     .000     .000  1483.30  9925.00
  .004422    1150.    1051.     860.        5        0        0      .00   150.00 10075.00


FLOW DISTRIBUTION FOR SECNO=      1.06          CWSEL=   1489.21

STA=    9925.   10075.
  PER Q=    100.0
   AREA=    511.8
    VEL=      5.7
  DEPTH=      3.4

1490 NH CARD USED
*SECNO 1.241
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66


3470 ENCROACHMENT STATIONS=     9925.0   10025.0  TYPE=      1  TARGET=      100.000
    1.241     6.33  1494.73      .00  1494.54  1495.90     1.17     6.00      .20100000.00
    2900.       0.    2900.       0.       0.     334.       0.      67.      23. 100000.00
      .15      .00     8.69      .00     .000     .037     .000     .000  1488.40  9925.00
  .010126     900.     935.     965.        3        0        0      .00   100.00 10025.00


FLOW DISTRIBUTION FOR SECNO=      1.24          CWSEL=   1494.73

STA=    9925.   10025.
  PER Q=    100.0
   AREA=    333.6
    VEL=      8.7
  DEPTH=      3.3

1490 NH CARD USED
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```
SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 1.432

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.57


3470 ENCROACHMENT STATIONS=     9955.0   10055.0  TYPE=      1  TARGET=      100.000
   1.432     5.45  1501.35      .00  1500.39  1502.12      .78     6.18      .04100000.00
   2900.       0.    2900.       0.       0.     410.       0.      75.      26. 100000.00
     .29      .00     7.07      .00     .000     .033     .000     .000  1495.90  9955.00
 .004134    1000.    1008.    1000.        4        0        0      .00   100.00 10055.00


FLOW DISTRIBUTION FOR SECNO=      1.43          CWSEL=   1501.35

STA=    9955.   10055.
  PER Q=    100.0
   AREA=    409.9
    VEL=      7.1
  DEPTH=      4.1

1490 NH CARD USED
*SECNO 1.640

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69


3470 ENCROACHMENT STATIONS=     9960.0   10050.0  TYPE=      1  TARGET=       90.000
   1.640     5.97  1507.67      .00  1507.55  1508.80     1.13     6.57      .11100000.00
   3000.       0.    3000.       0.       0.     351.       0.      85.      28. 100000.00
     .32      .00     8.54      .00     .000     .040     .000     .000  1501.70  9960.00
 .009559    1090.    1098.     930.        3        0        0      .00    90.00 10050.00


FLOW DISTRIBUTION FOR SECNO=      1.64          CWSEL=   1507.67

STA=    9960.   10050.
  PER Q=    100.0
   AREA=    351.1
    VEL=      8.5
  DEPTH=      3.9
```

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


1490 NH CARD USED
*SECNO 1.800
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9970.0   10060.0  TYPE=      1  TARGET=       90.000
    1.800     7.31  1513.71      .00  1512.77  1514.39      .68     5.55      .05100000.00
    3000.       0.    3000.       0.       0.     452.       0.      93.      30. 100000.00
      .36      .00     6.63      .00     .000     .044     .000     .000  1506.40  9970.00
  .004856     815.     845.     850.        3        0        0      .00    90.00 10060.00


FLOW DISTRIBUTION FOR SECNO=      1.80          CWSEL=   1513.71

STA=    9970.   10060.
  PER Q=    100.0
   AREA=    452.4
    VEL=      6.6
  DEPTH=      5.0

1490 NH CARD USED
*SECNO 1.999

3470 ENCROACHMENT STATIONS=     9960.0   10040.0  TYPE=      1  TARGET=       80.000
    1.999     6.62  1519.72      .00  1519.70  1520.83     1.12     6.31      .13100000.00
    3000.       0.    3000.       0.       0.     354.       0.     103.      32. 100000.00
      .39      .00     8.48      .00     .000     .040     .000     .000  1513.10  9960.00
  .007623    1110.    1051.     990.        3        0        0      .00    80.00 10040.00


FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=   1519.72

STA=    9960.   10040.
  PER Q=    100.0
   AREA=    353.9
    VEL=      8.5
  DEPTH=      4.4

1490 NH CARD USED
*SECNO 2.182
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```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9970.0   10080.0  TYPE=      1  TARGET=      110.000
    2.182     5.82  1526.92      .00  1526.20  1527.65      .73     6.78      .04100000.00
    3000.       0.    3000.       0.       0.     438.       0.     111.      34. 100000.00
      .43      .00     6.86      .00     .000     .042     .000     .000  1521.10  9970.00
  .006465     830.     966.     870.        4        0        0      .00   110.00 10080.00


FLOW DISTRIBUTION FOR SECNO=      2.18          CWSEL=   1526.92

STA=    9970.   10080.
  PER Q=    100.0
   AREA=    437.6
    VEL=      6.9
  DEPTH=      4.0

1490 NH CARD USED
*SECNO 2.356
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9915.0   10030.0  TYPE=      1  TARGET=      115.000
    2.356     6.08  1534.48      .00  1533.55  1535.70     1.22     7.90      .15  1534.00
    3000.     190.    2810.       0.      37.     310.       0.     120.      36. 100000.00
      .46     5.16     9.06      .00     .035     .042     .000     .000  1528.40  9915.00
  .012285     650.     919.     790.        3        0        0      .00   115.00 10030.00


FLOW DISTRIBUTION FOR SECNO=      2.36          CWSEL=   1534.48

STA=    9915.    9919.    9945.   10030.
  PER Q=      1.3      5.0     93.7
   AREA=      7.4     29.4    310.2
    VEL=      5.4      5.1      9.1
  DEPTH=      1.9      1.1      3.6

1490 NH CARD USED
*SECNO 2.550
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.68


3470 ENCROACHMENT STATIONS=     9970.0   10070.0  TYPE=      1  TARGET=      100.000
    2.550     6.75  1541.95      .00  1541.15  1542.69      .74     6.94      .05100000.00
    3000.       0.    2745.     255.       0.     390.      52.     129.      39.   1540.30
      .53      .00     7.04     4.89     .000     .039     .035     .000  1535.20  9970.00
  .004344     800.    1024.    1050.        4        0        0      .00   100.00 10070.00


FLOW DISTRIBUTION FOR SECNO=      2.55          CWSEL=   1541.95

STA=    9970.   10049.   10069.   10070.
  PER Q=     91.5      8.3       .2
   AREA=    389.6     49.0      3.2
    VEL=      7.0      5.1      2.0
  DEPTH=      4.9      2.4      3.2

1490 NH CARD USED
*SECNO 2.728

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9965.0   10045.0  TYPE=      1  TARGET=       80.000
    2.728     5.95  1546.95      .00  1546.64  1548.30     1.36     5.43      .19100000.00
    3000.       0.    3000.       0.       0.     321.       0.     137.      40. 100000.00
      .53      .00     9.35      .00     .000     .035     .000     .000  1541.00  9965.00
  .008146    1040.     940.     830.        3        0        0      .00    80.00 10045.00


FLOW DISTRIBUTION FOR SECNO=      2.73          CWSEL=   1546.95

STA=    9965.   10045.
  PER Q=    100.0
   AREA=    320.9
    VEL=      9.3
  DEPTH=      4.0
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 2.916
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9960.0   10040.0  TYPE=      1  TARGET=       80.000
    2.916     5.71  1554.41      .00  1553.45  1555.35      .94     7.01      .04100000.00
    3000.       0.    3000.       0.       0.     386.       0.     145.      42. 100000.00
      .56      .00     7.78      .00     .000     .041     .000     .000  1548.70  9960.00
  .006173     970.     993.    1000.        4        0        0      .00    80.00 10040.00


FLOW DISTRIBUTION FOR SECNO=      2.92          CWSEL=   1554.41

STA=    9960.   10040.
  PER Q=    100.0
   AREA=    385.5
    VEL=      7.8
  DEPTH=      4.8

1490 NH CARD USED
*SECNO 3.108

3470 ENCROACHMENT STATIONS=     9960.0   10035.0  TYPE=      1  TARGET=       75.000
    3.108     5.52  1560.42      .00  1560.00  1561.45     1.03     6.07      .03100000.00
    3000.       0.    3000.       0.       0.     369.       0.     154.      44. 100000.00
      .60      .00     8.13      .00     .000     .038     .000     .000  1554.90  9960.00
  .005810     900.    1014.    1070.        3        0        0      .00    75.00 10035.00


FLOW DISTRIBUTION FOR SECNO=      3.11          CWSEL=   1560.42

STA=    9960.   10035.
  PER Q=    100.0
   AREA=    369.0
    VEL=      8.1
  DEPTH=      4.9

1490 NH CARD USED
*SECNO 3.288
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9955.0   10030.0  TYPE=      1  TARGET=       75.000
    3.255     4.58  1566.48      .00  1565.95  1567.91     1.43     6.34      .12100000.00
    3000.       0.    3000.       0.       0.     312.       0.     161.      46. 100000.00
      .03      .00     9.61      .00     .000     .033     .000     .000  1561.90  9955.00
  .007752     1010.     950.     820.        3        0        0      .00    75.00 10030.00


FLOW DISTRIBUTION FOR SECNO=      3.29          CWSEL=   1566.48

STA=    9955.   10030.
  PER Q=    100.0
   AREA=    312.1
    VEL=      9.6
  DEPTH=      4.2

*SECNO 3.513

3470 ENCROACHMENT STATIONS=     9960.0   10035.0  TYPE=      1  TARGET=       75.000
    3.513     6.03  1574.33      .00  1573.44  1575.38     1.05     7.42      .04100000.00
    3000.       0.    3000.       0.       0.     365.       0.     170.      48. 100000.00
      .07      .00     8.22      .00     .000     .035     .000     .000  1568.30  9960.00
  .005140     1110.    1188.    1260.        2        0        0      .00    75.00 10035.00


FLOW DISTRIBUTION FOR SECNO=      3.51          CWSEL=   1574.33

STA=    9960.   10136.
  PER Q=    100.0
   AREA=    365.0
    VEL=      8.2
  DEPTH=      4.9

1490 NH CARD USED
*SECNO 3.680

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9960.0   10035.0  TYPE=      1  TARGET=       75.000
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


    3.680     4.32  1579.72  1579.64  1579.69  1581.50     1.78     5.90      .22100000.00
    3000.       0.    3000.       0.       0.     280.       0.     177.      49. 100000.00
      .69      .00    10.71      .00     .000     .030     .000     .000  1575.40  9960.00
  .009086     860.     882.     860.        4       19        0      .00    75.00 10035.00


FLOW DISTRIBUTION FOR SECNO=      3.68          CWSEL=   1579.72

STA=    9960.   10035.
  PER Q=    100.0
   AREA=    280.1
    VEL=     10.7
  DEPTH=      3.7

1490 NH CARD USED
*SECNO 3.875
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9950.0   10125.0  TYPE=      1  TARGET=      175.000
    3.875     6.08  1587.98      .00  1587.00  1588.48      .50     6.86      .13  1586.30
    3000.     196.    2804.       0.      47.     485.       0.     186.      52. 100000.00
      .74     4.16     5.78      .00     .035     .040     .000     .000  1581.90  9950.00
  .005110     975.    1030.    1025.        5        0        0      .00   175.00 10125.00


FLOW DISTRIBUTION FOR SECNO=      3.88          CWSEL=   1587.98

STA=    9950.    9955.    9978.   10125.
  PER Q=      1.0      5.5     93.5
   AREA=      8.5     38.7    485.3
    VEL=      3.6      4.3      5.8
  DEPTH=      1.7      1.7      3.3

1490 NH CARD USED
*SECNO 4.066

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .65
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     9900.0   10050.0  TYPE=      1  TARGET=      150.000
    4.000     4.11  1595.21      .00  1594.34  1596.16      .96     7.55      .14100000.00
    3000.       0.    3000.       0.       0.     382.       0.     197.      56. 100000.00
      .77      .00     7.84      .00     .000     .038     .000     .000  1591.10  9900.00
  .011997    1020.    1008.     940.        3        0        0      .00   150.00 10050.00


FLOW DISTRIBUTION FOR SECNO=      4.07          CWSEL=   1595.21

STA=    9900.   10050.
  PER Q=    100.0
   AREA=    382.5
    VEL=      7.8
  DEPTH=      2.5

1490 NH CARD USED
*SECNO 4.260
1930 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.96


3470 ENCROACHMENT STATIONS=     9925.0   10075.0  TYPE=      1  TARGET=      150.000
    4.260     5.29  1601.29      .00  1600.48  1601.80      .51     5.59      .04100000.00
    3000.       0.    2924.      76.       0.     503.      34.     208.      60.  1600.20
      .82      .00     5.82     2.21     .000     .034     .050     .000  1596.00  9925.00
  .003112    1060.    1024.     960.        5        0        0      .00   150.00 10075.00


FLOW DISTRIBUTION FOR SECNO=      4.26          CWSEL=   1601.29

STA=    9925.   10055.   10075.
  PER Q=     97.5      2.5
   AREA=    502.7     34.5
    VEL=      5.8      2.2
  DEPTH=      3.9      1.7

1490 NH CARD USED
*SECNO 4.452
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9925.0   10075.0  TYPE=      1  TARGET=      150.000
    4.452     5.18  1606.58  1606.58  1606.45  1607.83     1.25     5.73      .22  1605.80
    3000.       8.    2830.     162.       2.     308.      45.     218.      63.  1606.40
      .36     3.59     9.19     3.56     .035     .042     .042     .000  1601.40  9925.00
  .013609    1120.    1014.     840.        3        8        0      .00   150.00 10075.00


FLOW DISTRIBUTION FOR SECNO=      4.45          CWSEL=   1606.58

STA=    9925.    9928.   10018.   10061.   10075.
  PER Q=       .3     94.3      2.6      2.8
   AREA=      2.4    307.8     29.2     16.2
    VEL=      3.6      9.2      2.7      5.2
  DEPTH=       .8      3.4       .7      1.2

1490 NH CARD USED
*SECNO 4.671
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


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


3470 ENCROACHMENT STATIONS=     9860.0   10040.0  TYPE=      1  TARGET=      180.000
    4.671     6.65  1616.35      .00  1615.31  1616.93      .58     9.03      .07  1615.50
    3000.     383.    2617.       0.      95.     412.       0.     229.      67. 100000.00
      .91     4.04     6.36      .00     .035     .038     .000     .000  1609.70  9860.00
  .005158     930.    1156.    1320.        6        0        0      .00   180.00 10040.00


FLOW DISTRIBUTION FOR SECNO=      4.67          CWSEL=   1616.35
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       QLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    9860.    9889.    9921.   10040.
  PER Q=      6.4      6.4     87.2
   AREA=     46.8     47.9    411.5
    VEL=      4.1      4.0      6.4
  DEPTH=      1.6      1.5      3.5

1490 NH CARD USED
*SECNO 4.844
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9945.0   10065.0  TYPE=      1  TARGET=      120.000
    4.844     5.14  1621.74      .00  1621.22  1622.66      .92     5.63      .10100000.00
    3001.       0.    2752.     248.       0.     348.      50.     239.      70.   1620.20
      .94      .00     7.91     4.94     .000     .040     .035     .000  1616.60  9945.00
  .007639     750.     913.    1000.        3        0        0      .00   120.00 10065.00


FLOW DISTRIBUTION FOR SECNO=      4.84          CWSEL=   1621.74

STA=    9945.   10034.   10065.
  PER Q=     91.7      8.3
   AREA=    348.0     50.2
    VEL=      7.9      4.9
  DEPTH=      3.9      1.6

1490 NH CARD USED
*SECNO 5.036
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9925.0   10045.0  TYPE=      1  TARGET=      120.000
    5.036     5.97  1629.67      .00  1628.94  1630.65      .97     7.97      .02  1628.00
    3001.      156.    2844.       0.      30.     354.       0.     248.      73. 100000.00
      .98     5.21     8.03      .00     .035     .037     .000     .000  1623.70  9925.00
  .006145    1250.    1014.     775.        5        0        0      .00   120.00 10045.00


FLOW DISTRIBUTION FOR SECNO=      5.04          CWSEL=   1629.67

STA=    9925.    9942.   10045.
  PER Q=      5.2     94.8
   AREA=     29.9    354.0
    VEL=      5.2      8.0
  DEPTH=      1.8      3.4
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 5.228
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9945.0   10065.0  TYPE=      1  TARGET=      120.000
    5.228     4.77  1637.67      .00  1636.69  1638.70     1.02     8.04      .01100000.00
    3000.       0.    3000.       0.       0.     370.       0.     257.      76. 100000.00
     1.02      .00     8.11      .00     .000     .033     .000     .000  1632.90  9945.00
  .007729     970.    1014.    1025.        3        0        0      .00   120.00 10065.00


FLOW DISTRIBUTION FOR SECNO=      5.23          CWSEL=   1637.67

STA=    9945.   10065.
  PER Q=    100.0
   AREA=    369.9
    VEL=      8.1
  DEPTH=      3.1

1490 NH CARD USED
*SECNO 5.415

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.53


3470 ENCROACHMENT STATIONS=     9970.0   10070.0  TYPE=      1  TARGET=      100.000
    5.415     6.94  1642.84      .00  1641.91  1643.51      .67     4.78      .04100000.00
    3000.       0.    3000.       0.       0.     457.       0.     266.      78. 100000.00
     1.05      .00     6.56      .00     .000     .034     .000     .000  1635.90  9970.00
  .003318     995.     987.    1020.        3        0        0      .00   100.00 10070.00


FLOW DISTRIBUTION FOR SECNO=      5.41          CWSEL=   1642.84

STA=    9970.   10070.
  PER Q=    100.0
   AREA=    457.2
    VEL=      6.6
  DEPTH=      4.6
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SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       DLOSS   BANK ELEV
Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 5.607
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9980.0   10080.0  TYPE=      1  TARGET=      100.000
   5.607     5.94  1649.44  1649.44  1649.38  1650.96     1.52     5.87      .26100000.00
   3000.      0.    2417.     583.       0.     229.      88.     275.      81.   1647.30
    1.18     .00    10.54     6.63     .000     .041     .035     .000  1643.50  9980.00
 .012306     990.    1014.    1080.        3       15        0      .00   100.00 10080.00


FLOW DISTRIBUTION FOR SECNO=      5.61          CWSEL=   1649.44

STA=     9980.   10028.   10066.   10080.
  PER Q=     80.6     15.7      3.8
   AREA=    229.4     67.8     20.1
    VEL=     10.5      6.9      5.6
  DEPTH=      4.8      1.8      1.4

1490 NH CARD USED
*SECNO 5.815
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.81


3470 ENCROACHMENT STATIONS=     9954.0   10350.0  TYPE=      1  TARGET=      396.000
   5.815     5.14  1657.64      .00  1656.59  1657.89      .25     6.81      .13100000.00
   3000.      0.    3000.       0.       0.     746.       0.     288.      87. 100000.00
    1.18     .00     4.02      .00     .000     .034     .000     .000  1652.50  9954.00
 .003737    1060.    1098.    1040.        5        0        0      .00   396.00 10350.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      5.82         CWSEL=   1657.64

STA=    9954.   10350.
  PER Q=    100.0
   AREA=    746.2
    VEL=      4.0
  DEPTH=      1.9

1490 NH CARD USED
*SECNO 6.022

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9900.0   10060.0  TYPE=      1  TARGET=      160.000
    6.022     4.09  1664.89  1664.89  1664.85  1666.02     1.14     7.51      .27100000.00
    3000.       0.    3000.       0.       0.     350.       0.     302.      94. 100000.00
     1.19      .00     8.56      .00     .000     .037     .000     .000  1660.80  9900.00
  .016403    1070.    1093.    1090.        5       15        0      .00   160.00 10060.00


FLOW DISTRIBUTION FOR SECNO=      6.02         CWSEL=   1664.89

STA=    9900.   10060.
  PER Q=    100.0
   AREA=    350.5
    VEL=      8.6
  DEPTH=      2.2

1490 NH CARD USED
*SECNO 6.223

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.01


3470 ENCROACHMENT STATIONS=     9920.0   10080.0  TYPE=      1  TARGET=      160.000
    6.223     5.96  1672.86      .00  1671.88  1673.60      .74     7.54      .04  1671.90
    3000.      47.    2525.     429.      17.     346.     104.     312.      98.  1670.70
     1.24     2.71     7.31     4.14     .035     .031     .035     .000  1666.90  9920.00
  .004074    1090.    1061.     740.        7        0        0      .00   160.00 10080.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      6.22         CWSEL=   1672.86

STA=    9920.    9936.    9959.    9972.   10000.   10027.   10065.   10080.
  PER Q=      1.6      6.6      6.8     47.9     22.8     10.6      3.7
   AREA=     17.2     46.3     46.3    149.3    103.6     74.5     29.1
    VEL=      2.7      4.3      4.4      9.6      6.6      4.2      3.9
  DEPTH=      1.1      2.0      3.6      5.3      3.8      2.0      1.9

1490 NH CARD USED
*SECNO 6.424
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9955.0   10105.0  TYPE=      1  TARGET=      150.000
    6.424     4.50  1679.40  1679.40  1679.19  1680.63     1.24     6.81      .15100000.00
    3000.       0.    2706.     294.       0.     292.      68.     321.     101.   1678.40
     1.27      .00     9.28     4.35     .000     .038     .040     .000  1674.90  9955.00
  .011967     980.    1061.     960.        7       19        0      .00   150.00 10105.00


FLOW DISTRIBUTION FOR SECNO=      6.42         CWSEL=   1679.40

STA=    9955.   10045.   10090.   10105.
  PER Q=     90.2      4.9      4.9
   AREA=    291.6     44.9     22.6
    VEL=      9.3      3.2      6.5
  DEPTH=      3.2      1.0      1.5

1490 NH CARD USED
*SECNO 6.628
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.68


3470 ENCROACHMENT STATIONS=     9939.0   10079.0  TYPE=      1  TARGET=      140.000
    6.613     5.83  1687.33      .00  1686.31  1687.86      .53     7.16      .07100000.00
    3000.       0.    2919.       81.       0.     497.      21.     332.     105.   1685.90
     1.31      .00     5.87     3.85     .000     .040     .035     .000  1681.50  9939.00
  .004249    1080.    1077.    1000.        5        0        0      .00   140.00 10079.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      6.63          CWSEL=   1687.33

STA=    9959.   10069.   10079.
  PER Q=     97.3      2.7
   AREA=   497.0     21.1
    VEL=     5.9      3.8
  DEPTH=     3.8      2.1

1490 NR CARD USED
*SECNO 6.853
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60


3470 ENCROACHMENT STATIONS=     9950.0   10050.0  TYPE=      1  TARGET=      100.000
    6.853     5.76  1694.66      .00  1694.40  1695.97     1.31     7.87      .23100000.00
    3000.       0.    3000.       0.       0.     327.       0.     344.     108. 100000.00
     1.36      .00     9.17      .00     .000     .038     .000     .000  1688.90  9950.00
  .011789    1210.    1188.    1060.        4        0        0      .00   100.00 10050.00


FLOW DISTRIBUTION FOR SECNO=      6.85          CWSEL=   1694.66

STA=    9950.   10050.
  PER Q=    100.0
   AREA=    327.1
    VEL=      9.2
  DEPTH=      3.3

1490 NR CARD USED
*SECNO 7.074
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS
```

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.59

3470 ENCROACHMENT STATIONS= 9925.0 10025.0 TYPE= 1 TARGET= 100.000

7.074	6.40	1703.50	.00	1702.70	1704.22	.72	8.19	.06	100000.00
3000.	0.	3000.	0.	0.	441.	0.	354.	111.	100000.00
1.40	.00	6.80	.00	.000	.038	.000	.000	1697.10	9925.00
.004654	1070.	1167.	1140.	3	0	0	.00	100.00	10025.00

FLOW DISTRIBUTION FOR SECNO= 7.07 CWSEL= 1703.50

STA= 9925. 10025.
PER Q= 100.0
AREA= 441.0
VEL= 6.8
DEPTH= 4.4

THIS RUN EXECUTED 2/15/91 7:49:18

****
HEC2 RELEASE DATED SEP 88 UPDATED SEPT 1989

ERROR CORR - 01,02,03
MODIFICATION -
****

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

UNNAMED WASH 100 YEAR

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
	.060	1442.90	1447.31	2900.00	4.89	.00	300.40	4.41	.37	9868.18	10168.58	.00	.00
	.060	1442.90	1448.31	2900.00	3.25	.00	300.00	5.41	.16	9868.00	10168.00	.00	.00
*	.292	1454.20	1457.88	2900.00	7.68	10.57	212.30	3.68	.92	9948.92	10178.39	.00	.00
*	.292	1454.20	1457.90	2900.00	8.05	9.59	183.36	3.70	1.01	9950.00	10150.00	.00	.00
*	.460	1461.60	1464.94	2900.00	4.75	7.06	394.05	3.34	.35	9827.16	10236.41	.00	29.79
*	.460	1461.60	1465.90	2900.00	5.50	8.00	185.00	4.30	.47	9900.00	10085.00	.00	.00
*	.667	1466.60	1471.56	2900.00	5.69	6.62	314.14	4.96	.50	9734.01	10061.70	.00	.00
	.667	1466.60	1472.03	2900.00	6.73	6.13	140.00	5.43	.70	9900.00	10040.00	.00	.00
	.865	1475.00	1480.36	2900.00	5.37	8.80	241.34	5.36	.45	9929.63	10219.08	.00	.00
	.865	1475.00	1481.00	2900.00	9.00	8.97	100.00	6.00	1.26	9980.00	10080.00	.00	.00
	1.064	1483.30	1488.37	2900.00	4.43	8.01	366.94	5.07	.30	9803.45	10170.39	.00	.00
*	1.064	1483.30	1489.21	2900.00	5.67	8.20	150.00	5.91	.50	9925.00	10075.00	.00	.00
	1.241	1488.40	1494.54	2900.00	5.67	6.17	283.40	6.14	.48	9784.25	10108.75	85.88	85.68
*	1.241	1488.40	1494.73	2900.00	8.69	5.53	100.00	6.33	1.17	9925.00	10025.00	.00	.00
	1.432	1495.90	1500.39	2900.00	6.19	5.85	312.54	4.49	.58	9639.72	10059.42	96.48	.00
*	1.432	1495.90	1501.35	2900.00	7.07	6.61	100.00	5.45	.78	9955.00	10055.00	.00	.00
	1.640	1501.70	1507.55	3000.00	5.61	7.16	211.46	5.85	.49	9888.68	10100.13	.00	.00
*	1.640	1501.70	1507.67	3000.00	8.54	6.32	90.00	5.97	1.13	9960.00	10050.00	.00	.00
	1.800	1506.40	1512.77	3000.00	5.10	5.23	215.66	6.37	.40	9965.60	10183.60	.00	.00
	1.800	1506.40	1513.71	3000.00	6.63	6.04	90.00	7.31	.68	9970.00	10060.00	.00	.00
	1.999	1513.10	1519.70	3000.00	5.95	6.92	212.06	6.60	.55	9770.99	10050.15	.00	.00
	1.999	1513.10	1519.72	3000.00	8.48	6.01	80.00	6.62	1.12	9960.00	10040.00	.00	.00

	ELEND	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
	2.182	1521.10	1526.20	3000.00	5.74	6.50	231.96	5.10	.48	9966.99	10198.95	.00	221.91
	2.182	1521.10	1526.92	3000.00	6.86	7.21	110.00	5.82	.73	9970.00	10080.00	.00	.00
*	2.356	1528.40	1533.55	3000.00	8.29	7.34	193.74	5.15	.91	9819.23	10037.42	983.01	.00
	2.356	1528.40	1534.48	3000.00	9.06	7.56	115.00	6.08	1.22	9915.00	10030.00	190.16	.00
*	2.550	1535.20	1541.15	3000.00	6.60	7.61	181.07	5.95	.59	9960.12	10141.18	.00	766.67
*	2.550	1535.20	1541.95	3000.00	7.04	7.47	100.00	6.75	.74	9970.00	10070.00	.00	255.08
	2.728	1541.00	1546.64	3000.00	6.76	5.49	170.76	5.64	.71	9906.35	10077.11	.00	.00
	2.728	1541.00	1546.95	3000.00	9.35	4.99	80.00	5.95	1.36	9965.00	10045.00	.00	.00
	2.916	1548.70	1553.45	3000.00	5.94	6.81	176.77	4.75	.55	9864.80	10041.57	.00	.00
	2.916	1548.70	1554.41	3000.00	7.78	7.47	80.00	5.71	.94	9960.00	10040.00	.00	.00
	3.108	1554.90	1560.00	3000.00	6.06	6.55	188.69	5.10	.57	9918.38	10107.07	.00	.00
	3.108	1554.90	1560.42	3000.00	8.13	6.01	75.00	5.52	1.03	9960.00	10035.00	.00	.00
	3.288	1561.90	1565.95	3000.00	6.19	5.96	178.51	4.05	.59	9857.49	10036.00	.00	.00
	3.288	1561.90	1566.48	3000.00	9.61	6.06	75.00	4.58	1.43	9955.00	10030.00	.00	.00
	3.513	1568.30	1573.44	3000.00	6.34	7.48	192.36	5.14	.62	9881.75	10074.12	.00	.00
	3.513	1568.30	1574.33	3000.00	8.22	7.85	75.00	6.03	1.05	9960.00	10035.00	.00	.00
	3.680	1575.40	1579.69	3000.00	7.67	6.25	142.36	4.29	.91	9873.91	10059.78	.81	.00
	3.680	1575.40	1579.72	3000.00	10.71	5.39	75.00	4.32	1.78	9960.00	10035.00	.00	.00
	3.875	1581.90	1587.00	3000.00	4.93	7.31	365.51	5.10	.36	9901.26	10277.11	118.20	62.16
	3.875	1581.90	1587.98	3000.00	5.78	8.26	175.00	6.08	.50	9950.00	10125.00	196.31	.00
	4.066	1591.10	1594.34	3000.00	5.09	7.34	406.78	3.24	.40	9645.29	10112.41	.00	.00
*	4.066	1591.10	1595.21	3000.00	7.84	7.23	150.00	4.11	.96	9900.00	10050.00	.00	.00
*	4.260	1596.00	1600.48	3000.00	5.63	6.15	217.04	4.48	.46	9897.67	10114.71	.00	313.12
*	4.260	1596.00	1601.29	3000.00	5.82	6.08	150.00	5.29	.51	9925.00	10075.00	.00	76.27
*	4.452	1601.40	1606.45	3000.00	7.68	5.96	315.18	5.05	.76	9816.75	10131.93	479.45	246.92
*	4.452	1601.40	1606.58	3000.00	9.19	5.29	150.00	5.18	1.25	9925.00	10075.00	8.46	161.52
	4.671	1609.70	1615.31	3000.00	4.96	8.86	355.08	5.61	.38	9854.54	10219.79	69.17	.00
*	4.671	1609.70	1616.35	3000.00	6.36	9.77	180.00	6.65	.58	9860.00	10040.00	382.60	.00
	4.844	1616.60	1621.22	3000.00	6.98	5.92	268.39	4.62	.62	9934.94	10203.32	.00	848.26
	4.844	1616.60	1621.74	3000.00	7.91	5.39	120.00	5.14	.92	9945.00	10065.00	.00	247.93
	5.036	1623.70	1628.94	3000.00	6.05	7.72	325.28	5.24	.46	9731.49	10056.77	1283.07	.00
	5.036	1623.70	1629.67	3000.00	8.03	7.93	120.00	5.97	.97	9925.00	10045.00	156.00	.00
	5.228	1632.90	1636.69	3000.00	6.47	7.75	302.02	3.79	.62	9851.87	10174.03	165.92	.00
	5.228	1632.90	1637.67	3000.00	8.11	8.00	120.00	4.77	1.02	9945.00	10065.00	.00	.00

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
*	5.415	1635.90	1641.91	3000.00	5.04	5.22	204.59	6.01	.40	9930.30	10134.89	.00	.00
*	5.415	1635.90	1642.84	3000.00	6.56	5.17	100.00	6.94	.67	9970.00	10070.00	.00	.00
*	5.607	1643.50	1649.38	3000.00	8.49	7.47	192.36	5.88	.92	9969.66	10162.02	.00	758.45
*	5.607	1643.50	1649.44	3000.00	10.54	6.59	100.00	5.94	1.52	9980.00	10080.00	.00	583.02
	5.815	1652.50	1656.59	3000.00	5.86	7.21	198.46	4.09	.53	9953.03	10381.58	.00	.00
*	5.815	1652.50	1657.64	3000.00	4.02	8.21	396.00	5.14	.25	9954.00	10350.00	.00	.00
*	6.022	1660.80	1664.85	3000.00	6.51	8.26	288.44	4.05	.66	9899.16	10187.60	.00	.22
*	6.022	1660.80	1664.89	3000.00	8.56	7.24	160.00	4.09	1.14	9900.00	10060.00	.00	.00
*	6.223	1666.90	1671.88	3000.00	5.22	7.04	463.42	4.98	.30	9762.05	10227.19	570.60	1092.16
*	6.223	1666.90	1672.86	3000.00	7.31	7.98	160.00	5.96	.74	9920.00	10080.00	46.68	428.66
*	6.424	1674.90	1679.19	3000.00	7.57	7.31	309.61	4.29	.72	9877.81	10244.47	7.42	927.94
*	6.424	1674.90	1679.40	3000.00	9.28	6.54	150.00	4.50	1.24	9955.00	10105.00	.00	293.63
	6.628	1681.50	1686.31	3000.00	6.58	7.12	233.99	4.81	.62	9904.28	10138.27	12.87	331.05
*	6.628	1681.50	1687.33	3000.00	5.87	7.93	140.00	5.83	.53	9939.00	10079.00	.00	81.17
*	6.853	1688.90	1694.40	3000.00	6.96	8.09	412.75	5.50	.64	9805.57	10286.18	133.66	472.15
*	6.853	1688.90	1694.66	3000.00	9.17	7.33	100.00	5.76	1.31	9950.00	10050.00	.00	.00
	7.074	1697.10	1702.70	3000.00	7.34	8.30	175.59	5.60	.82	9918.89	10094.49	.00	65.60
*	7.074	1697.10	1703.50	3000.00	6.80	8.84	100.00	6.40	.72	9925.00	10025.00	.00	.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .292  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .292  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .292  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .292  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .292  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      .460  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .460  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .667  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.064  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.241  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.432  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.640  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     2.356  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.356  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     2.550  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     2.550  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     4.066  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     4.260  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     4.260  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     4.452  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     4.452  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     4.452  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     4.452  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     4.671  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     5.415  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     5.415  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     5.607  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     5.607  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     5.607  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     5.607  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     5.607  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     5.815  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     6.022  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=     6.022  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     6.022  PROFILE=  2  MINIMUM SPECIFIC ENERGY
```

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WARNING SECNO=     6.223  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     6.223  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     6.424  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     6.424  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     6.424  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     6.424  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     6.628  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     6.853  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     6.853  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=     6.853  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     7.074  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

FLOODWAY DATA, UNNAMED WASH 100 YEAR
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.060	300.	893.	3.2	1448.3	1447.3	1.0
.292	200.	360.	8.0	1457.9	1457.9	.0
.460	185.	528.	5.5	1465.9	1464.9	1.0
.667	140.	431.	6.7	1472.0	1471.6	.4
.865	100.	322.	9.0	1481.0	1480.4	.6
1.064	150.	512.	5.7	1489.2	1488.4	.8
1.241	100.	334.	8.7	1494.7	1494.5	.2
1.432	100.	410.	7.1	1501.3	1500.4	.9
1.640	90.	351.	8.5	1507.7	1507.5	.2
1.800	90.	452.	6.6	1513.7	1512.8	.9
1.999	80.	354.	8.5	1519.7	1519.7	.0
2.182	110.	438.	6.9	1526.9	1526.2	.7
2.356	115.	347.	8.6	1534.5	1533.5	1.0
2.550	100.	442.	6.8	1542.0	1541.2	.8
2.728	80.	321.	9.3	1546.9	1546.6	.3
2.916	80.	386.	7.8	1554.4	1553.5	.9
3.108	75.	369.	8.1	1560.4	1560.0	.4
3.288	75.	312.	9.6	1566.5	1566.0	.5
3.513	75.	365.	8.2	1574.3	1573.4	.9
3.680	75.	280.	10.7	1579.7	1579.7	.0
3.875	175.	532.	5.6	1588.0	1587.0	1.0
4.066	150.	382.	7.8	1595.2	1594.3	.9
4.260	150.	537.	5.6	1601.3	1600.5	.8
4.452	150.	356.	8.4	1606.6	1606.4	.2
4.671	180.	506.	5.9	1616.3	1615.3	1.0
4.844	120.	398.	7.5	1621.7	1621.2	.5
5.036	120.	384.	7.8	1629.7	1628.9	.8
5.228	120.	370.	8.1	1637.7	1636.7	1.0
5.415	100.	457.	6.6	1642.8	1641.9	.9
5.607	100.	317.	9.5	1649.4	1649.4	.0
5.815	396.	746.	4.0	1657.6	1656.6	1.0
6.022	160.	350.	8.6	1664.9	1664.8	.1
6.223	160.	466.	6.4	1672.9	1671.9	1.0
6.424	150.	359.	8.4	1679.4	1679.2	.2
6.628	140.	518.	5.8	1687.3	1686.3	1.0
6.853	100.	327.	9.2	1694.7	1694.4	.3
7.074	100.	441.	6.8	1703.5	1702.7	.8

SECTION 4: Hydraulic Analysis

4.8 Project Input Data File on Diskettes

SECTION 6: Reference Materials

SECTION 6: Reference Materials

6.5 Bibliography

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SECTION 7: Cross-Referencing & Labeling Information

SECTION 7: Cross-Referencing & Labeling Information

7.1 Other Studies Impacted

SECTION 7: Other Studies Impacted

The United States Bureau of Reclamation performed hydrologic and hydraulic analyses for design of the CAP Canal, drainage structures, and protective embankment (Reference 23). Flood hazards along the CAP Canal and Jackrabbit Wash have been previously delineated by FEMA using approximate methods.

The Master Drainage Study for Belmont Planned Community (Reference 17) presented hydrology developed for areas south of the CAP Canal. Reference 17 also included a discussion of hydrology previously developed for detailed study of the Hassayampa River by FEMA.

SECTION 7: Cross-Referencing & Labeling Information

7.2 Key to Cross Section Labeling

KEY TO CROSS-SECTION (XS) LABELING

Prepared By:
SC: James Mischler
TEC:

Date Prepared:
SC: February, 1991
TEC:

Community Name: Maricopa County
State: Arizona

Stream Name: Jackrabbit Wash
Run Date: February 16, 1991

Field Survey Section No.	XS Letter Draft FIS	Computer Stationing	XS Letter Final FIS
		7.713	
	A	7.842	
Pts 50-51		7.874	
	B	8.062	
	C	8.279	
	D	8.485	
	E	8.680	
	F	8.870	
	G	9.060	
	H	9.310	
	I	9.492	
	J	9.702	
	K	9.896	
	L	10.095	
	M	10.271	
	N	10.454	
	O	10.644	
	P	10.835	
	Q	11.028	

KEY TO CROSS-SECTION (XS) LABELING

Prepared By:
SC: James Mischler
TEC:

Community Name: Maricopa County
State: Arizona

Date Prepared:
SC: February, 1991
TEC:

Stream Name: Jackrabbit Wash
Run Date: February 16, 1991

Field Survey Section No.	XS Letter Draft FIS	Computer Stationing	XS Letter Final FIS
	R	11.235	
	S	11.425	
	T	11.608	
	U	11.815	
	V	12.032	
	W	12.220	
	X	12.360	
	Y	12.500	
Pts 54-55	Z	12.711	
	AA	12.978	
	AB	13.164	
	AC	13.358	
	AD	13.548	
	AE	13.740	
	AF	13.929	
	AG	14.137	
	AH	14.323	
	AI	14.547	
	AJ	14.743	
	AK	14.943	
	AL	15.128	
	AM	15.304	
	AN	15.507	

KEY TO CROSS-SECTION (XS) LABELING

Prepared By:
SC: James Mischler
TEC:

Community Name: Maricopa County
State: Arizona

Date Prepared:
SC: February, 1991
TEC:

Stream Name: Jackrabbit Wash
Run Date: February 16, 1991

Field Survey Section No.	XS Letter Draft FIS	Computer Stationing	XS Letter Final FIS
	AO	15.715	
	AP	15.923	
	AQ	16.129	
	AR	16.315	
	AS	16.515	
	AT	16.711	
	AU	16.900	
	AV	17.087	
	AW	17.287	
	AX	17.487	
Pts 57-58	AY	17.720	
	AZ	17.840	

KEY TO CROSS-SECTION (XS) LABELING

SC: James Mischler
TEC:

Community Name: Maricopa County
State: Arizona

Date Prepared:
SC: February, 1991
TEC:

Stream Name: Star Wash
Run Date: February 16, 1991

Field Survey Section No.	XS Letter Draft FIS	Computer Stationing	XS Letter Final FIS
Pts 50-51		7.874	
		0.095	
	A	0.321	
	B	0.504	
	C	0.694	
	D	0.885	
Pts 52-53	E	1.100	
	F	1.269	
	G	1.464	
	H	1.660	
	I	1.886	
	J	2.097	

KEY TO CROSS-SECTION (XS) LABELING

SC: James Mischler
TEC:

Community Name: Maricopa County
State: Arizona

Date Prepared:
SC: February, 1991
TEC:

Stream Name: Unnamed Tributary of Jackrabbit Wash
Run Date: February 16, 1991

Field Survey Section No.	XS Letter Draft FIS	Computer Stationing	XS Letter Final FIS
		10.271	
	A	0.060	
	B	0.292	
	C	0.460	
	D	0.667	
	E	0.865	
	F	1.064	
	G	1.241	
	H	1.432	
	I	1.640	
	J	1.800	
	K	1.999	
	L	2.182	
	M	2.356	
	N	2.550	
	O	2.728	
	P	2.916	
	Q	3.108	
	R	3.288	
	S	3.513	
	T	3.680	
	U	3.875	

KEY TO CROSS-SECTION (XS) LABELING

SC: James Mischler
TEC:

Community Name: Maricopa County
State: Arizona

Date Prepared:
SC: February, 1991
TEC:

Stream Name: Unnamed Tributary of Jackrabbit Wash
Run Date: February 16, 1991

Field Survey Section No.	XS Letter Draft FIS	Computer Stationing	XS Letter Final FIS
	V	4.066	
	W	4.260	
	X	4.452	
	Y	4.671	
	Z	4.844	
	AA	5.036	
	AB	5.228	
	AC	5.415	
	AD	5.607	
	AE	5.815	
	AF	6.022	
	AG	6.223	
	AH	6.424	
	AI	6.628	
	AJ	6.853	
Pts 56-57	AK	7.074	