

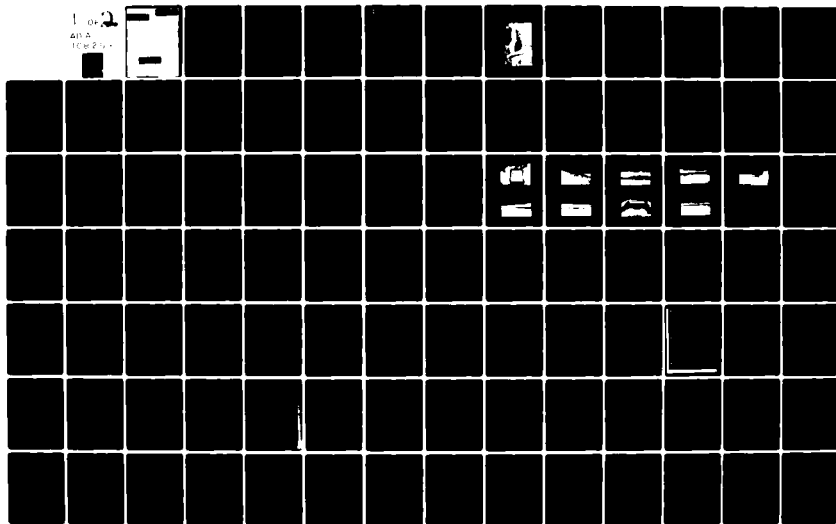
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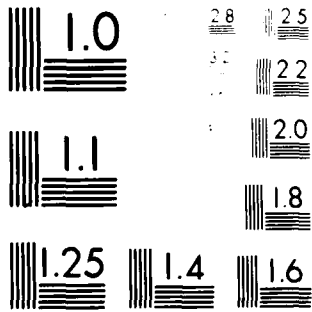
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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
	PD-A108259	
4. TITLE (and Subtitle) National Program of Inspection of Non-Federal Dams Tennessee. Sweetwater Creek Watershed Dam No. 15 (Inventory Number TN 12314) near Sweetwater, TN, Monroe County, TN, Tennessee River Basin		5. TYPE OF REPORT & PERIOD COVERED Phase 1 Investigation Report
7. AUTHOR(s)		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Tennessee Department of Conservation Division of Water Resources 4721 Trousdale Dr., Nashville, TN 37220		8. CONTRACT OR GRANT NUMBER(s) DACW-62-81-C-0056
11. CONTROLLING OFFICE NAME AND ADDRESS U.S. Army Engineer District, Nashville P.O. Box 1070 Nashville, TN 37202		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE September, 1981
		13. NUMBER OF PAGES
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18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
Dams Dam Safety National Dam Safety Program Sweetwater Creek Watershed Dam No. 15, TN Sweetwater, TN	Monroe County, TN Embankments Visual Inspection Structural Analysis	
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The Dam is located in Monroe County about 0.7 miles southwest of Sweetwater, Tennessee and is an earthfill embankment 46 feet high and 1100 feet long. The crest width is 19 feet. The embankment slopes are 1V:3H and berms are located on both the upstream and downstream slopes. The dam controls a 1005 acre drainage area and is intended to impound the 9.4 acre Sherman F. Owen Lake. The service spillway is a 2 stage standard SCS cast in place concrete riser leading leading to a 30-inch diameter reinforced concrete pipe. The service spillway outlet has an SCS standard baffled impact basin. The drawdown drain is a 24-		

inch diameter orifice controlled by a slide gate at the base of the riser. The emergency spillway is an uncontrolled earth saddle on the left abutment. The channel has a trapezoidal cross-section with a 200 foot base and 1V:3H side slopes. The reservoir has a leak which has prevented filling of the lake and is apparently due to an open solution channel that is draining into another watershed. The leak is not expected to affect the structural stability of the dam. No indications of instability were observed. The Dam is in the intermediate size category and has a downstream hazard potential classification of high under Corps of Engineers criteria and 1 under State criteria. On the basis of hydraulic analysis, the dam has adequate storage/spillway capacity to pass the probable maximum flood (PMF) under antecedent moisture condition II (AMC II). Under OCE guidelines, a dam in the intermediate size and high hazard potential classification is required to pass the PMF.

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DEPARTMENT OF THE ARMY
NASHVILLE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1070
NASHVILLE, TENNESSEE 37202

25 SEP 1981

IN REPLY REFER TO

ORNED-G

Honorable Lamar Alexander
Governor of Tennessee
Nashville, TN 37219

Dear Governor Alexander:

Furnished herewith is the Phase I Investigation Report on Sweetwater Creek Watershed Dam No. 15 near Sweetwater, Tennessee. The report was prepared under the authority and provisions of PL 92-367, the National Dam Inspection Act, dated 8 August 1972.

The report presents details of the field inspection, background information, technical analyses, findings, and recommendations for improving the condition of the dam.

Based upon the inspection and subsequent evaluation, this dam is classified as not deficient at this time. The dam is judged stable, with a good grass cover on the embankment. Only minor erosion exists on the upstream slope due to fluctuating water levels.

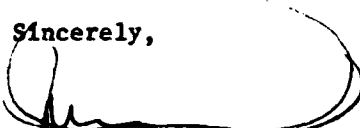
As required for a dam such as this in the intermediate size and high hazard category, this dam is capable of safely passing the full probable maximum flood.

The present maintenance program should be continued and protection against erosion of the upstream slope should be provided.

Public release of the report and initiation of public statements fall within your prerogative. However, under provisions of the Freedom of Information Act, the Corps of Engineers is required to respond fully to inquiries on information contained in the report and to make it accessible for review on request.

Your assistance in keeping me informed of any further developments will be appreciated.

Sincerely,


LEE W. TUCKER
Colonel, Corps of Engineers
Commander

1 Incl
As stated

CF:
Mr. Robert A. Hunt, Director
Division of Water Resources
4721 Trousdale Drive
Nashville, TN 37220

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

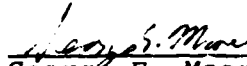
Name of Dam Sweetwater Creek
Watershed Dam #15

County Monroe

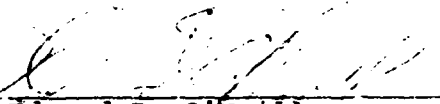
Stream Tributary of
Sweetwater Creek

Date of Inspection May 19, 1981


Prepared By:


George E. Moore
Regional Engineer

Approved By:


Edmond B. O'Neill
Chief Engineer
Safe Dams Section

Approved By:


Robert A. Hunt, P.E.
Director, Division of
Water Resources
Tennessee Department
of Conservation



OVERVIEW PHOTOGRAPH

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

Name of Dam Sweetwater Creek
Watershed Dam #15

County Monroe

Stream Tributary of
Sweetwater Creek

Date of Inspection May 19, 1981

ABSTRACT

Sweetwater Creek Dam #15 is located in Monroe County about 0.7 miles southwest of Sweetwater, Tennessee. The dam is an earthfill embankment 46 feet high and 1100 feet long. The crest width is 19 feet. The embankment slopes are 1V:3H and berms are located on both the upstream and downstream slopes. The dam controls a 1005 acre drainage area and is intended to impound the 9.4 acre Sherman F. Owen Lake. The service spillway is a 2 stage standard SCS cast in place concrete riser leading to a 30-inch diameter reinforced concrete pipe. The service spillway outlet has an SCS standard baffled impact basin. The drawdown drain is a 24-inch diameter orifice controlled by a slide gate at the base of the riser. The emergency spillway is an uncontrolled earth saddle on the left abutment. The channel has a trapezoidal cross-section with a 200 foot base and 1V:3H side slopes.

The reservoir has a leak which has prevented filling of the lake. The leak is apparently due to an open solution channel that is draining into another watershed. The leak is not expected to affect the structural stability of the dam. No indications of instability were observed.

Sweetwater Creek Dam #15 is in the intermediate size category and has a downstream hazard potential classification of high under Corps of Engineers criteria and 1 under State criteria.

On the basis of hydraulic analysis, the dam has adequate storage/spillway capacity to pass the probable maximum flood (PMF) under antecedent moisture condition II (AMC II). Under OCE guidelines, a dam in the intermediate size and high hazard potential classification is required to pass the PMF.

At this time, the dam is considered "not deficient". It is recommended that slope protection be provided on the upstream slope, an emergency action plan be developed, and a program of routine maintenance and periodic inspection be established.

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B	SKETCHES AND LOCATION MAPS
C	PHOTOGRAPHIC RECORD
D	HYDRAULIC AND HYDROLOGIC DATA
E	CHECKLIST AND DESIGN PLANS
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PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

SECTION 1 - GENERAL

- 1.1 Authority - The Phase I inspection of this dam was carried out under the authority of Tennessee Code Annotated, Sections 70-2501 to 70-2530, The Safe Dams Act of 1973, and in cooperation with the U. S. Army Corps of Engineers under the authority of Public Law 92-367, The National Dam Inspection Act.
- 1.2 Purpose and Scope - The purpose of a Phase I investigation is to develop an engineering assessment of the general condition of a dam with respect to safety and stability. This is accomplished by conducting a visual inspection, reviewing any available design and construction data, and performing appropriate hydraulic, hydrologic, and other analyses. A comprehensive description of the Phase I investigation program is given in Recommended Guidelines for Safety Inspection of Dams, Department of the Army, Chief of Engineers, Washington, D. C. 20314.
- 1.3 Past Inspections - No previous inspections have been made by this office. Annual inspections are made by representatives of the watershed district and the SCS. A copy of their latest inspection report is included in Appendix
- 1.4 Miscellaneous Details - The day of the inspection was cloudy with light winds and an ambient temperature of about 65°F. Some rain fell during the inspection. The pool elevation was 945.1' msl, 40.3 feet below the effective crest of the dam.
- 1.5 Inspection Team Members - The inspection was conducted by the following State personnel:

Ed O'Neill, Chief Engineer
Troy Wedekind, Regional Engineer
George Moore, Regional Engineer

SECTION 2 - PROJECT DESCRIPTION

2.1 Location - The dam is located in Monroe County, Tennessee, about 0.2 miles northwest of U. S. Highway 11 and 0.7 miles southwest of the city of Sweetwater. It is situated on a tributary of Sweetwater Creek 0.3 miles from its confluence with Sweetwater Creek. The dam can be located on the USGS topographic quadrangle, Sweetwater, Tennessee (131SW), at $84^{\circ}29'57''$ west longitude and $35^{\circ}34'28''$ north latitude.

2.2 Description - (The following data was obtained from a review of SCS furnished documents. See Section 3.2 for further description.)

2.2.1 Embankment - The dam is a linearly aligned earthfill embankment with a maximum height of 46 feet and a length of 1100 feet. The crest width is 14 feet. The side slopes of the dam are 1V:3H. The upstream slope has a 35 foot berm 23.3 feet below the crest. A 30 foot berm is located on the downstream slope 19.1 feet below the crest. The dam is formed of a core of CH and MH materials (Unified Classification System) with a 5 foot blanket of SC material covering the entire embankment. The cutoff trench and the area around the pipe are filled with CL and SC materials.

The dam has a graded sand and gravel embankment drainage system. A chimney drain starts at elevation 975' msl, 25 feet downstream of the centerline of the dam. The chimney has a horizontal width of 10 feet and slopes downstream at 1V:2H to the natural ground line. A 10 foot wide trench drain extends from the natural ground line to the rock line. A blanket drain extends from the trench to the toe. The drain is graded to rock at the downstream toe.

The dam is located on the Newalla formation of the Ordovician Period. The Newalla formation is formed in unseparated areas of the Kingsport and Mascot formations. The formation is a soluble dolomite which weathers into clay with massive chert fragments. The area has numerous springs. Contact between formations in this area generally lies in a northeast to southwest orientation.

2.2.2 Service Spillway - The service spillway has a two stage cast in place covered concrete riser of standard SCS design. The low stage inlet is a 1.8' x 2.5' rectangular orifice on the upstream side of the riser with an invert elevation of 964.0' msl. The high stage inlets are 7.5' x 1.25' rectangular openings on either side of the riser at elevation 976.7' msl. The riser leads to a 30" ID AWWA Spec C-301 reinforced concrete pipe. The pipe has ten 11.33' x 7.75' concrete anti-seep collars on 16' centers. The outlet of the pipe leads to an SCS standard baffled impact basin. The maximum capacity of the service spillway is 124 cfs.

2.2.3 Drawdown Drain - The drawdown drain is a 24" diameter thimble orifice with a rectangular slide gate at the base of the riser. The invert elevation is 947.0' msl.

2.2.4 Emergency Spillway - The emergency spillway is an uncontrolled vegetated earth saddle on the left abutment. The spillway has a trapezoidal cross-section with a 200' base and 1V:3H side slopes. The control section is 30 feet long. The entrance slope is 2% and the exit slope is 3.5%. The maximum head is 7.9 feet. The maximum capacity of the spillway is 12560 cfs.

2.2.5 Downstream Hazard Potential - The downstream channel is heavily vegetated but no obstructions to flow were noted. The stream passes under U. S. Hwy 11 about 1000 feet downstream. One house is located adjacent to the channel on the downstream side of the road. About 1500 feet downstream of the dam the stream enters Sweetwater Creek which flows beside a Southern Railway line, across State Highway 68, and into the city of Sweetwater. The dam has a downstream hazard potential classification of high.

2.2.6 Reservoir and Drainage Area - The reservoir has a surface area of 9.4 acres at normal pool elevation with a fetch of 1000 feet. The normal impounding capacity of the reservoir is estimated to be 82 acre-feet. At the top of the dam, the surface area of the lake is estimated to be 30 acres with total storage of 492 acre-feet. The

drainage area is 1005 acres and the predominant soils are Dewey and Fullerton. The watershed land use is estimated to be 20% woods, 79% pasture, and 1% water.

2.2.7 Miscellaneous - The dam is located on the property of Charles O. Browder under an easement to the Sweetwater Creek Watershed District. The dam was built as a floodwater detention facility under PL-566. The dam was designed by the USDA Soil Conservation Service and Inman Moss & Sons of Sweetwater was the contractor. Work was completed in 1978.

SECTION 3 - INSPECTION FINDINGS

3.1 Visual Inspection

3.1.1 Embankment - The dam appeared to be in good condition with no evidence of sloughs, cracks, heaving, or differential settlement. The dam has a dense cover of crown vetch, red clover, and sericea. The upstream slope below the intended normal pool elevation has no protective cover. No seepage was seen below the dam, but the lake level was too low to provide sufficient head to establish normal saturation patterns.

3.1.2 Service Spillway - The service spillway riser and impact basin appear to be in good condition with no visible cracks or spalling. The condition of the pipe appeared good at the outlet.

3.1.3 Drawdown Drain - The drain was closed at the time of inspection. The lift crank was in place, but the drain was not operated during the inspection.

3.1.4 Emergency Spillway - The entrance channel is crossed by a fence and a road embankment. The road embankment is primarily a build up at the side slopes but it is sufficient to cause some disruption of flow. The fence could cause an accumulation of debris in the inlet channel. The spillway has no other obstructions. The channel has a dense grass cover. No indications of sloughing or erosion were seen on the slopes or in the base of the channel.

3.1.5 Downstream Channel - The downstream channel has no obstructions and a dense cover of grass.

3.1.6 Reservoir - The reservoir has a leak which prevents impoundment of a sediment pool. James Sims of the Soil Conservation Service stated that the leak is caused by the underlying cavernous limestone and the leak is believed to be draining through the right abutment into another drainage basin and should, therefore, have no adverse affects on the structural stability of the dam.

3.1.7 Drainage Area - No significant clearing, reforestation, or construction has occurred in the drainage area.

- 3.2 Review of Data - Design plans for the Sweetwater Creek Dam #15 were provided by the Soil Conservation Service. Review of the boring logs indicates that the underlying rock has numerous large cavities with the largest having a depth of more than 12 feet. The design plans were compared to the field measurements assuming the same elevation for the top of the impact basin on each. Field measurements indicate that the elevations of the top of the riser and the emergency spillway crest are about 0.6 feet above the design's elevation and the top of the dam is about 1.2 feet above design elevation. The crest was measured to be about 5 feet wider than called for. The dam otherwise appears to be in accordance with the design plans. None of the differences from the plans appear to be such that the hydraulic adequacy or structural stability of the dam would be significantly affected.
- 3.3 Static and Seismic Stability Assessment - No sloughs, cracks, or other indication of instability were observed on the dam. The dam is located in seismic zone 2. No analysis of the embankment stability was available, but an extensive foundation treatment including grouting of the cavernous dolomite was undertaken to help assure the structural stability of the dam. Under this program, dams in seismic zone 2 are considered adequate under seismic loads if judged adequate to meet static stability requirements.
- 3.4 Hydraulic and Hydrologic Analysis - Under OCE guidelines, dams in the intermediate size and high hazard potential categories are required to pass the PMF. The PMF (AMC II) was used as the freeboard design storm with the pool elevation 2.5 feet above normal pool elevation at the onset of the storm. With the 200 foot base width of the emergency spillway, the storm passes with no remaining freeboard. The 10-day, 100-year storm was used as the emergency spillway design storm. The storm was routed through the service spillway to set the emergency spillway crest at 981' msl. The 6-hour, 100-year storm (AMC III) produced flow through the emergency spillway for about 2.9 hours with a maximum depth of 0.6 feet.

3.5 Conclusions and Recommendations

3.5.1 Conclusions

- a. The dam is considered adequate with respect to hydraulic and hydrologic considerations.
- b. Based on visual observation and engineering judgment, the dam is considered statically stable and, since the dam is in seismic zone 2, the dam is considered adequate to meet seismic stability requirements.
- c. The leak which prevents the lake from filling is apparently caused by an open solution channel in the underlying dolomite. The leak should have no direct effect on the dam.
- d. The unprotected lower portion of the upstream slope could be damaged by surface runoff and fluctuations of the water surface.
- e. Based on the above conclusions, the dam is considered to be "not deficient".

3.5.2 Recommendations

- a. The lower portion of the upstream slope should have some type of protection such as a vegetative cover.
- b. An emergency action plan should be developed to alert downstream residents in the event a potentially hazardous situation arises.
- c. A program of routine maintenance and periodic inspection should be established.

SECTION 4 REVIEW BOARD FINDINGS

The Interagency Review Board for the National Program of Inspection of Non-Federal Dams met in Nashville on 3 September 1981 to examine the technical data contained in the Phase I investigation report for Sweetwater Creek Watershed Dam No. 15. The Review Board considered the information and agreed with the report conclusions and recommendations. A copy of the letter report presented by the Review Board is included in Appendix F.

APPENDIX A
DATA SUMMARY

APPENDIX A
DATA SUMMARY

A.1 Dam

A.1.1 Type - Earthfill linear alignment dam with a concrete pipe service spillway and draw-down drain and a vegetated earth emergency spillway.

A.1.2 Dimensions and Elevations - (Elevations are referenced to design elevation of impact basin, 947.5'. Design measurements are shown parenthetically if different from field measurements.)

- a. Crest length - 1100'
- b. Crest width - 19' (14')
- c. Height - 48.2' (46')
- d. Crest elevation - 990.1' msl (988.9' msl)
- e. Emergency spillway elevation - 981.6' msl (981.0' msl)
- f. Service spillway elevation - 964' msl
- g. Embankment slope, U/S - 1V:2.9H (1V:3H)
- h. Berm elevation, U/S - 966.9' msl
- i. Berm width, U/S - 36'
- j. Embankment slope, D/S - 1V:2.9H (1V:3H)
- k. Berm elevation, D/S - 972.1' msl
- l. Berm width, D/S - 30'
- m. Size classification - Intermediate

A.1.3 Zones - (Homogeneous core covered with impervious blanket)

- a. Core material - CH and MH
- b. Blanket material - SC
- c. Blanket depth, vertical - 5'

A.1.4 Cutoff Trench

- a. Fill material - CL and SC
- b. Base width - 20'
- c. Side slopes - 1V:2.5H
- d. Bottom elevation (min.) - 934' msl (approx.)

A.1.5 Grout Curtains

- a. Bottom elevation - 895-920' msl

A.1.6 Instrumentation - None

A.1.7 Drainage Filter - Chimney, trench, and blanket drain of sand graded to gravel.

a. Top elevation (chimney drain) - 925' msl

A.1.8 Operation and Maintenance - Section 70-1801 through 70-1849 of the Tennessee Code Annotated (Watershed District Act of 1955) provides for the establishment of the Watershed Districts and the Watershed District Boards. Easement rights for the construction of the Sweetwater Creek Dam were obtained by the Board from the local property owners. The extent of ownership retained by the individuals is being negotiated, with the stipulation (Section 70-1847) that the Board has full operation and maintenance authority.

According to the SCS District Conservationist, the Watershed District is to make periodic inspections of the dams as needed and at least annually to determine any remedial measures needed.

A record of the inspections and maintenance operations is to be kept on file and will be available for use by representatives of the SCS. Specific maintenance agreements are to be executed prior to the construction of structural works of improvement.

A.2 Reservoir and Drainage Area

A.2.1 Reservoir - (Normal pool elevation 964' msl, 12.9' below the crest of the dam)

- a. Surface area (normal) - 9.4 acres
- b. Surface area (top of dam) - 30 acres
- c. Fetch - 1000'
- d. Capacity (normal) - 82 acre-feet
- e. Capacity (top of dam) - 492 acre-feet

A.2.2 Drainage Area

- a. Size - 1005 acres
- b. Maximum relief - 250'
- c. Reach - 8000'
- d. Soils - Fullerton (HSG B), Dewey (HSG B)
- e. Cover - Woods 20%, pasture 80%
- f. Runoff, 6-hr PMP (AMC II) - 2068 acre-feet
- g. Runoff, 6-hr P₁₀₀ (AMC III) - 302 acre-feet

A.3 Outlet Structures

A.3.1 Service Spillway - (SCS standard covered two stage riser leading to an AWWA Spec C-301 RC pipe, with standard impact basin)

- a. Low stage elevation - 964.0' msl
- b. Low stage inlet size - 1.8' x 2.5'
- c. High stage elevation - 967.7' msl
- d. High stage inlet size - 2 @ 1.25' x 7.5'
- e. Pipe diameter - 30" ID
- f. Pipe slope - 2%
- g. Antiseep collars (size) - 11.3' x 7.7' x 0.6'
- h. Antiseep collars (numbers & spacing) - 10 @ 16'
- i. Capacity - 124 cfs

A.3.2 Drawdown Drain - (Slide gate at base of service spillway riser)

- a. Inlet diameter - 24"
- b. Invert elevation - 947.0' msl

A.3.3 Emergency Spillway - (Uncontrolled vegetated trapezoidal earth saddle on the left abutment)

- a. Base width - 200'
- b. Control section length - 30'
- c. Control section elevation - 981.6' msl (981.0')
- d. Side slopes - 1V:3.6H lt., 1V:4.6H rt. (1V:3H)
- e. Maximum head - 8.5' (7.9')
- f. Capacity - 12560

A.4 Historical Data

- A.4.1 Construction Date - 1978
- A.4.2 Designer - Soil Conservation Service
- A.4.3 Builder - Inman Moss & Son, Sweetwater, TN
- A.4.4 Property Owner - Charles O. Browder
- A.4.5 Previous Inspections - SCS annual inspection
- A.4.6 Seismic Zone - 2

A.5 Downstream Hazard Data

A.5.1 Downstream Hazard Potential Classification

- a. Corps of Engineers - High
- b. State of Tennessee - 1

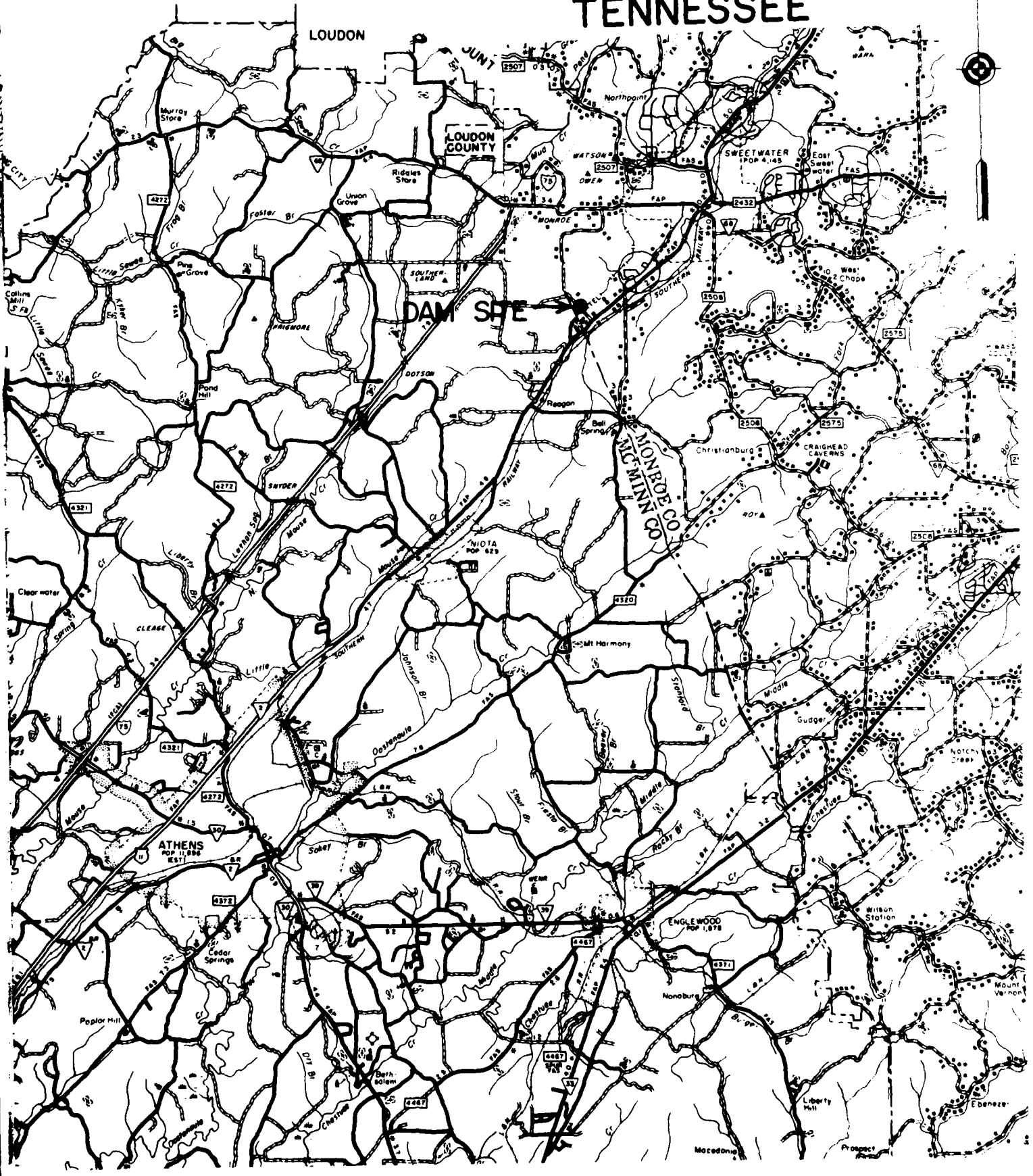
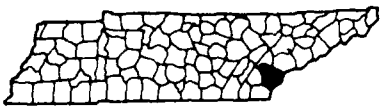
A.5.2 Persons in Probable Flood Path - 4

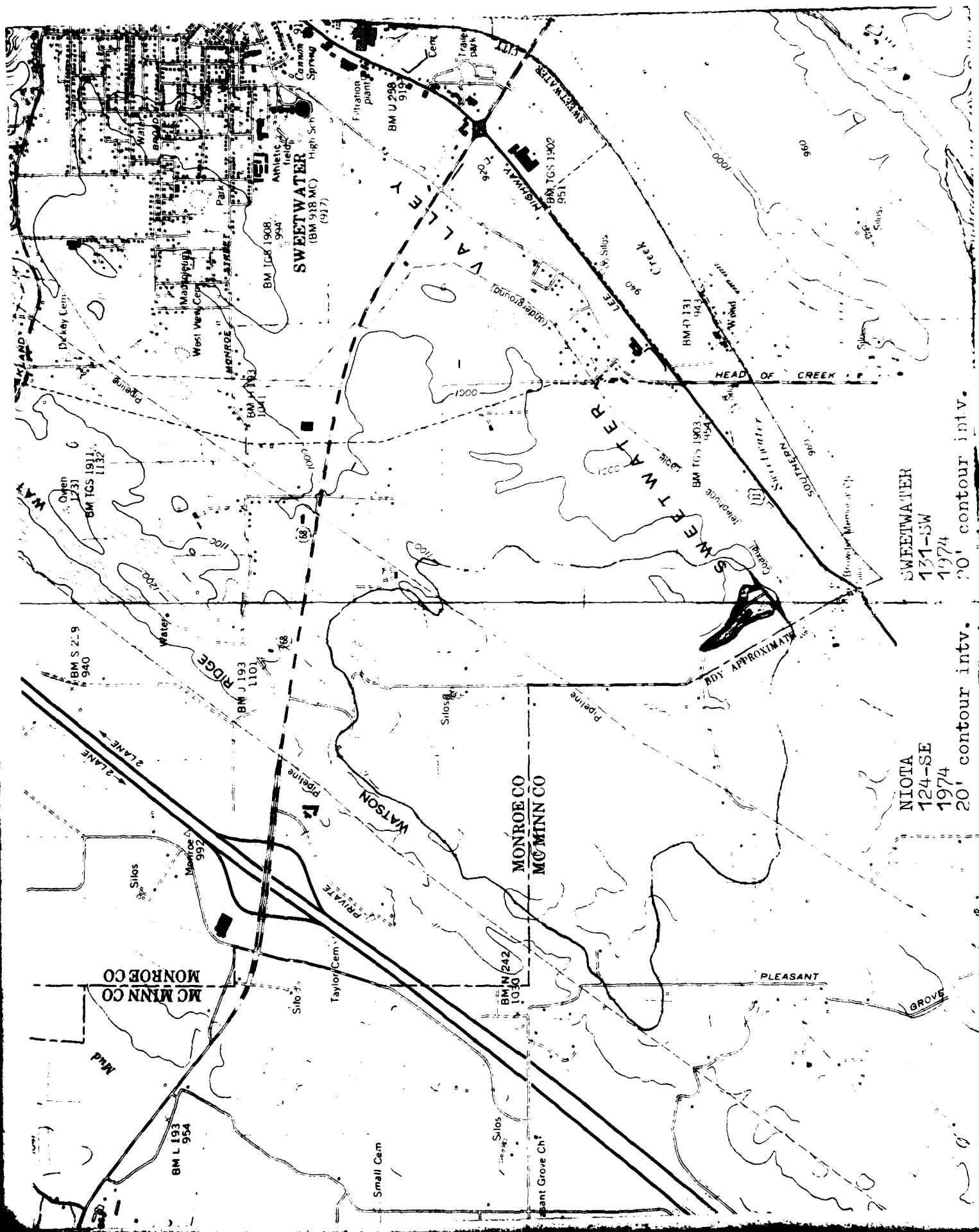
A.5.3 Downstream Property - U. S. Hwy 11, Southern
Railway

A.5.4 Warning Systems - None

APPENDIX B
SKETCHES AND LOCATION MAPS

GENERAL HIGHWAY MAP MONROE COUNTY TENNESSEE





SWEETWATER
131-SW
1974
20' contour intv.

NIOTA
124-SE
1974
20' contour intv.

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MONROE CO

MONROE CO
MC MINN CO

PLEASANT

GROVE

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BM N 242
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BM J 193
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BM S 229
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BM TCS 1911
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BM J 68
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BM J 68
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BM U 296
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BM D 121
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BM TCS 1950
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BM TCS 1951
1004

BM TCS 1952
1005

BM TCS 1953
1006

BM TCS 1954
1007

BM TCS 1955
1008

BM TCS 1956
1009

BM TCS 1957
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BM TCS 1958
1011

BM TCS 1959
1012

BM TCS 1960
1013

BM TCS 1961
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BM TCS 1962
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BM TCS 1963
1016

BM TCS 1964
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BM TCS 1965
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BM TCS 1966
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BM TCS 1967
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BM TCS 1968
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BM TCS 1969
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BM TCS 1970
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BM TCS 1971
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BM TCS 1972
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BM TCS 1973
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BM TCS 1974
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BM TCS 1975
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BM TCS 1976
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BM TCS 1977
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BM TCS 1978
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BM TCS 1979
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BM TCS 1980
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BM TCS 1981
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BM TCS 1982
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BM TCS 1983
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BM TCS 1984
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BM TCS 1985
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BM TCS 1986
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BM TCS 1987
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BM TCS 1988
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BM TCS 1989
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BM TCS 1990
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BM TCS 1991
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BM TCS 1992
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BM TCS 1993
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BM TCS 1994
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BM TCS 1995
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BM TCS 1996
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BM TCS 1997
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BM TCS 1998
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BM TCS 2000
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BM TCS 2002
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BM TCS 2003
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BM TCS 2004
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BM TCS 2005
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BM TCS 2006
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BM TCS 2007
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BM TCS 2008
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BM TCS 2009
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BM TCS 2010
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BM TCS 2011
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BM TCS 2012
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BM TCS 2013
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BM TCS 2014
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BM TCS 2015
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BM TCS 2016
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BM TCS 2017
1070

BM TCS 2018
1071

BM TCS 2019
1072

BM TCS 2020
1073

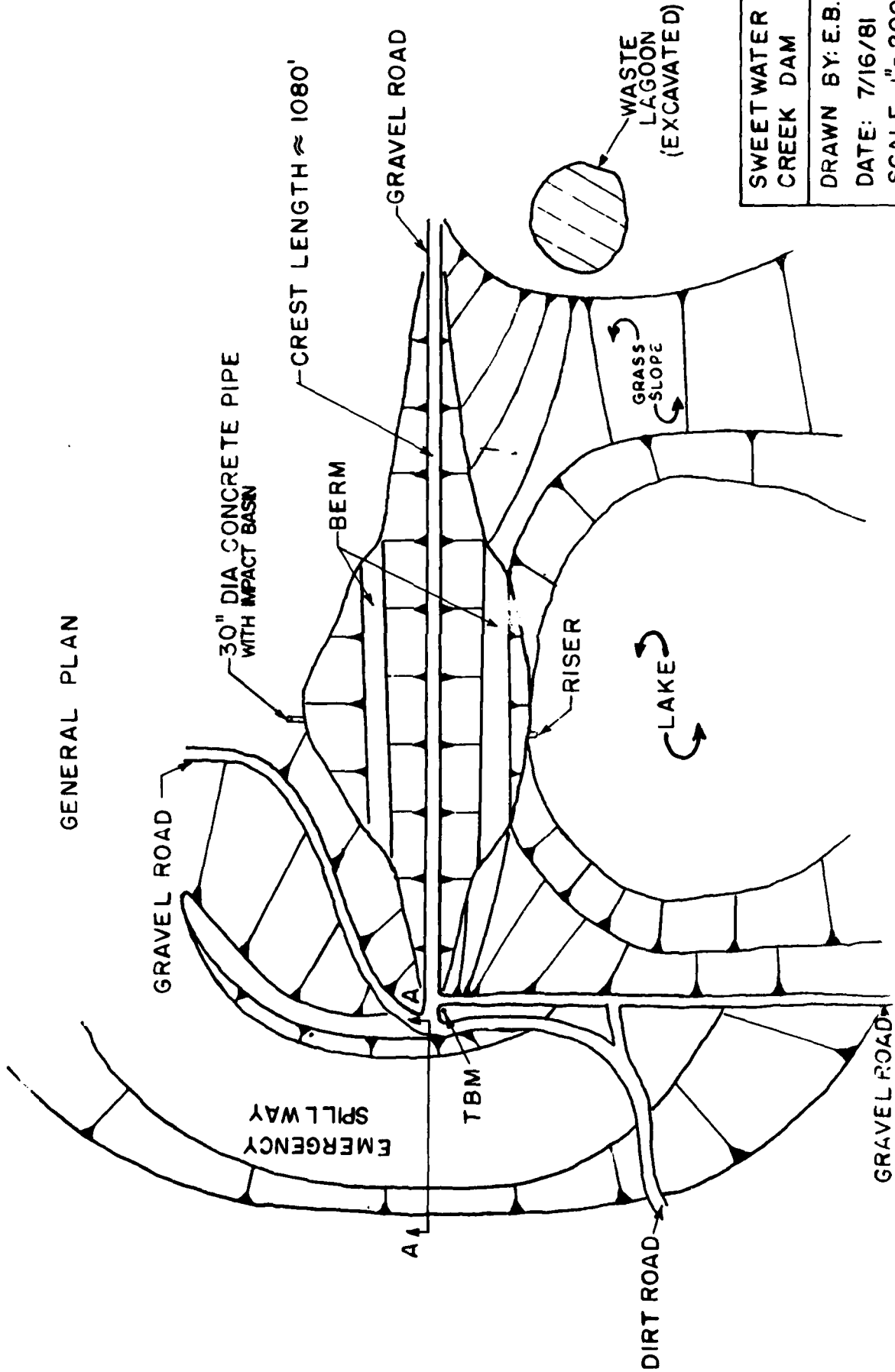
BM TCS 2021
1074

BM TCS 2022
1075

BM TCS 2023
1076

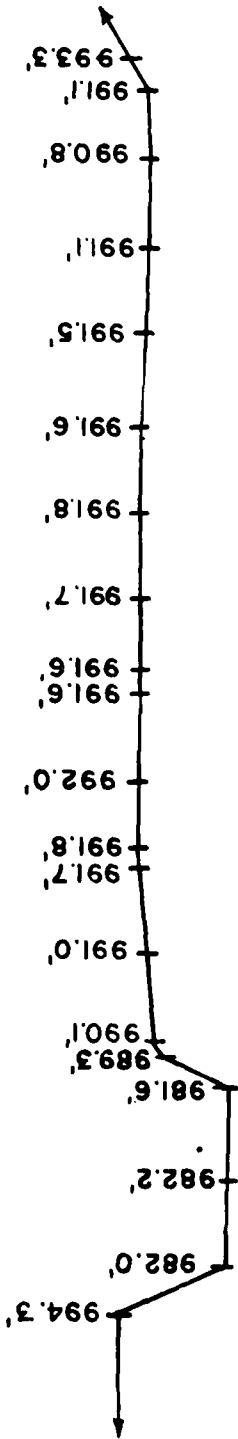
BM TCS 2024
1077

GENERAL PLAN

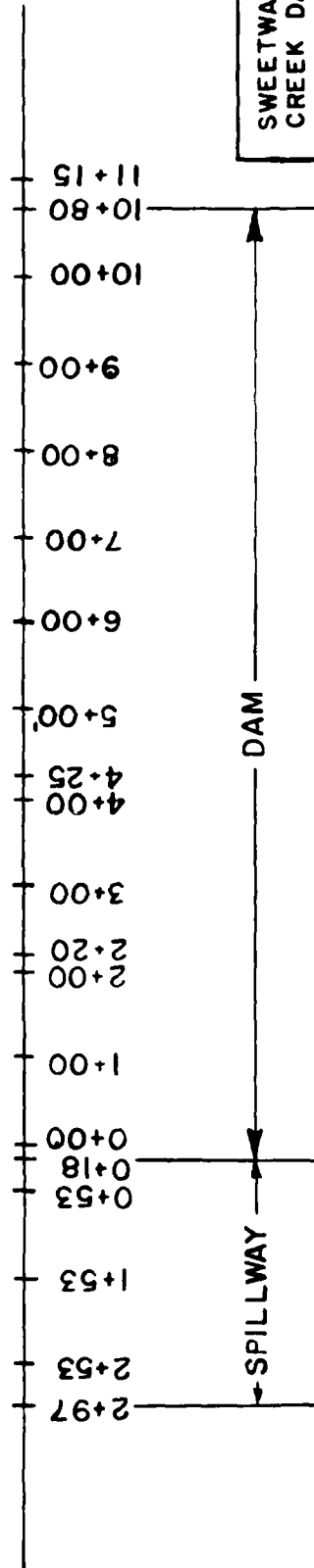


SWEETWATER CREEK DAM
DRAWN BY: E.B.P.
DATE: 7/16/81
SCALE 1" = 200'

DAM PROFILE



NORMAL POOL 965.4'



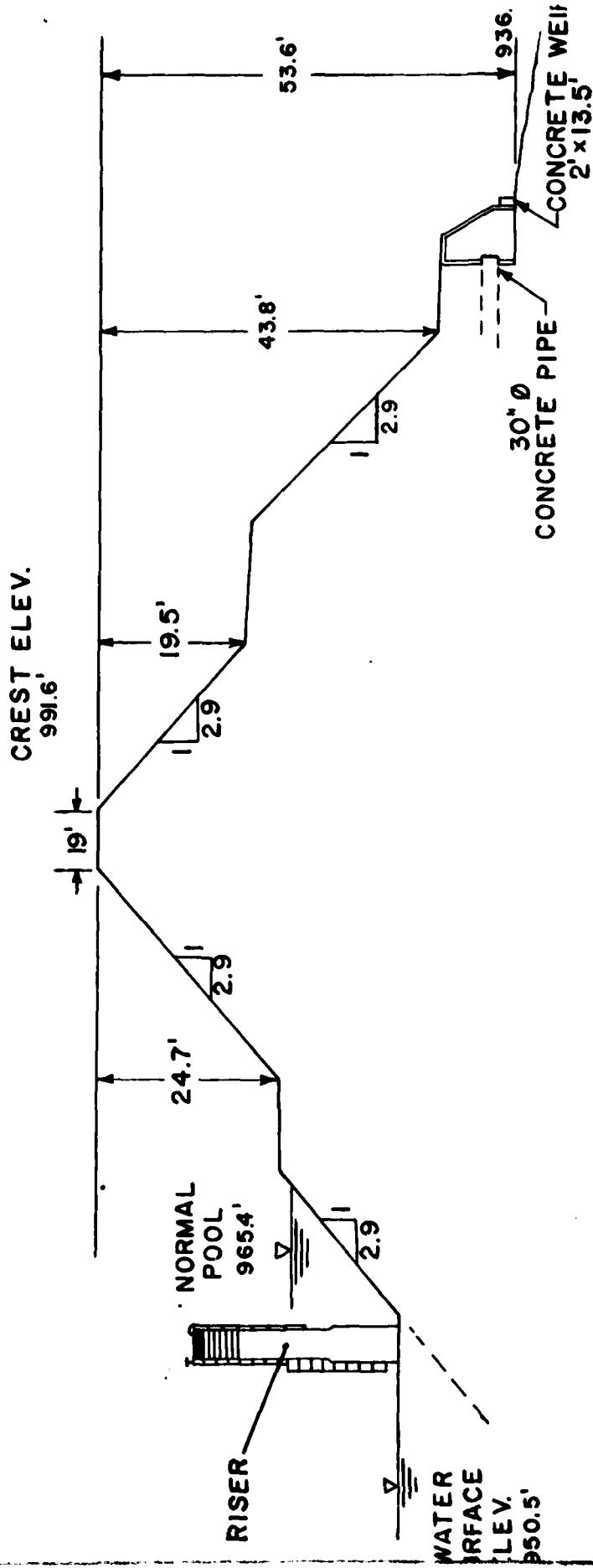
SWEETWATER
CREEK DAM

DRAWN BY: E.B.F.
DATE: 7/13/81
HOR. SCALE 1"=20'
VERT. SCALE 1"=2'

DAM

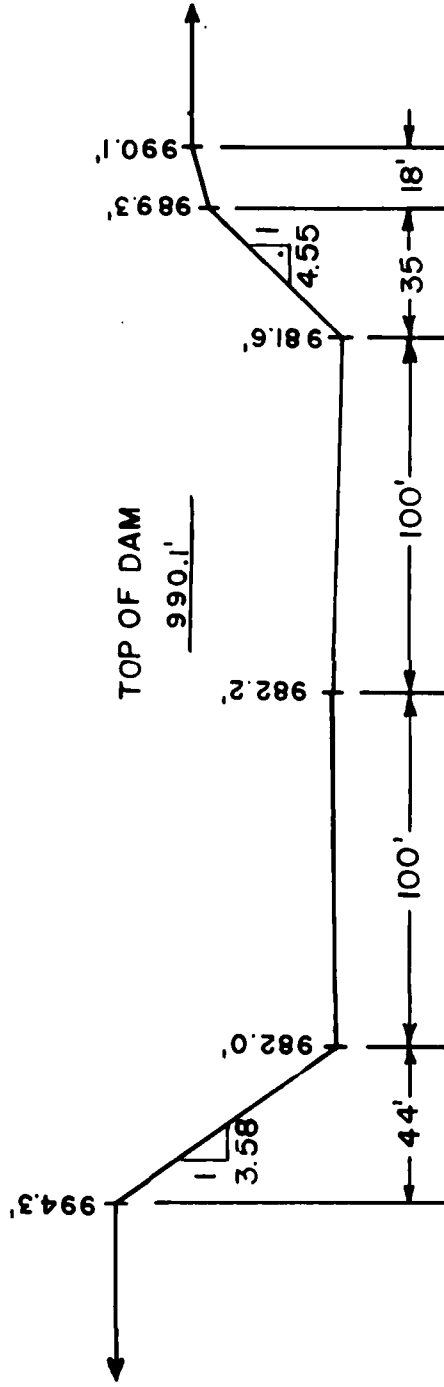
SPILLWAY

MAXIMUM SECTION AT 4+25



SWEETWATER CREEK DAM
DRAWN BY: E.B.P.
DATE: 7/17/81
HOR. SCALE 1"=50'
VERT. SCALE 1"=2'

SPILLWAY CROSS-SECTION A-A



SWEETWATER
CREEK DAM

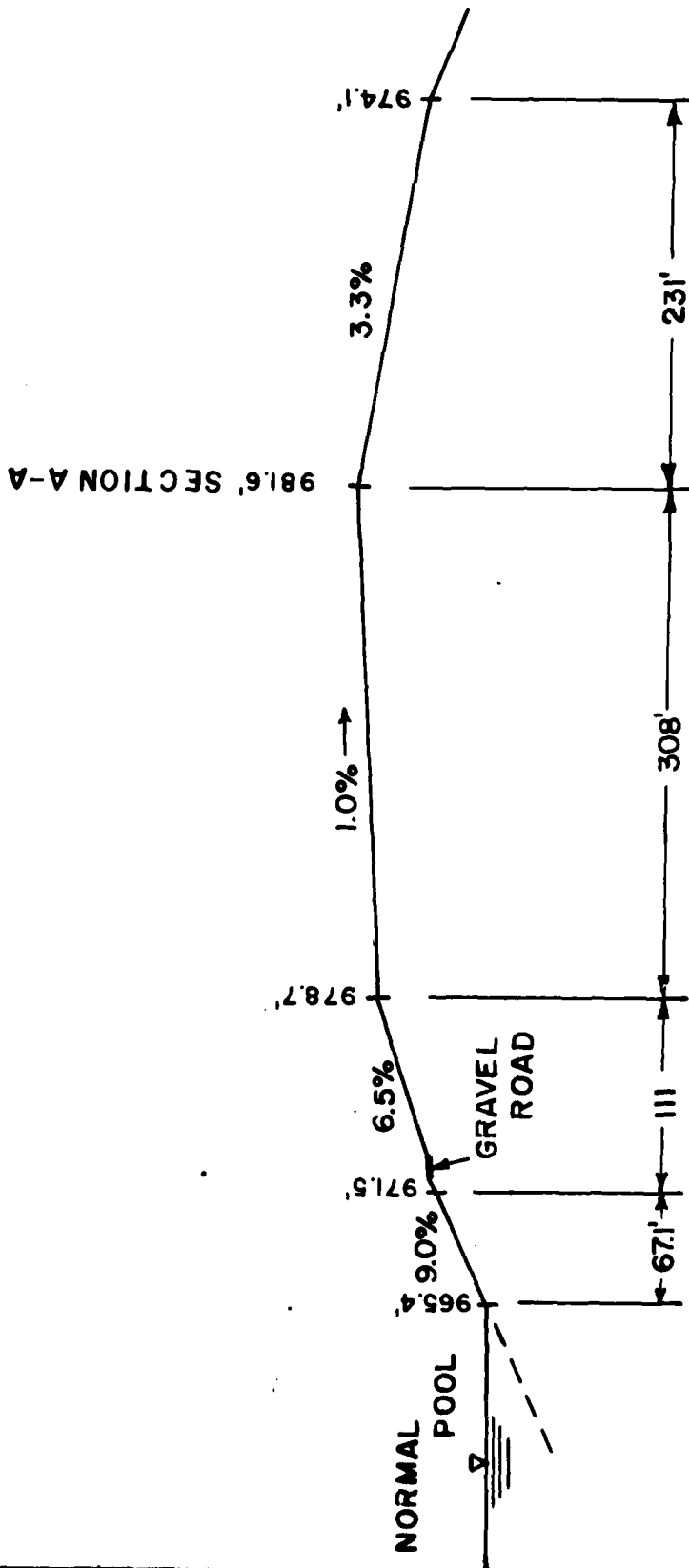
DRAWN BY: E.B.P.

DATE: 7/15/81

VERT. SCALE 1"=10'

HOR. SCALE 1"=50'

SPELLWAY PROFILE



SWEETWATER CREEK DAM
DRAWN BY: E.B.P.
DATE: 7/15/81
HOR. SCALE 1"=10'
VERT. SCALE 1"=2'

APPENDIX C
PHOTOGRAPHIC RECORD

APPENDIX C
PHOTOGRAPHIC RECORD

Photo No. 1 - The information plaque for the dam.

Photo No. 2 - The upstream slope of the dam from the left abutment.

Photo No. 3 - The downstream slope of the dam from the right end of the downstream berm.

Photo No. 4 - Looking up at the downstream slope from a point below the toe.

Photo No. 5 - The service spillway riser and the lake area from the crest. Note the low water level.

Photo No. 6 - The service spillway impact basin.

Photo No. 7 - The entrance to the emergency spillway channel.

Photo No. 8 - The emergency spillway exit channel.

Photo No. 9 - The downstream area from the crest of the dam.

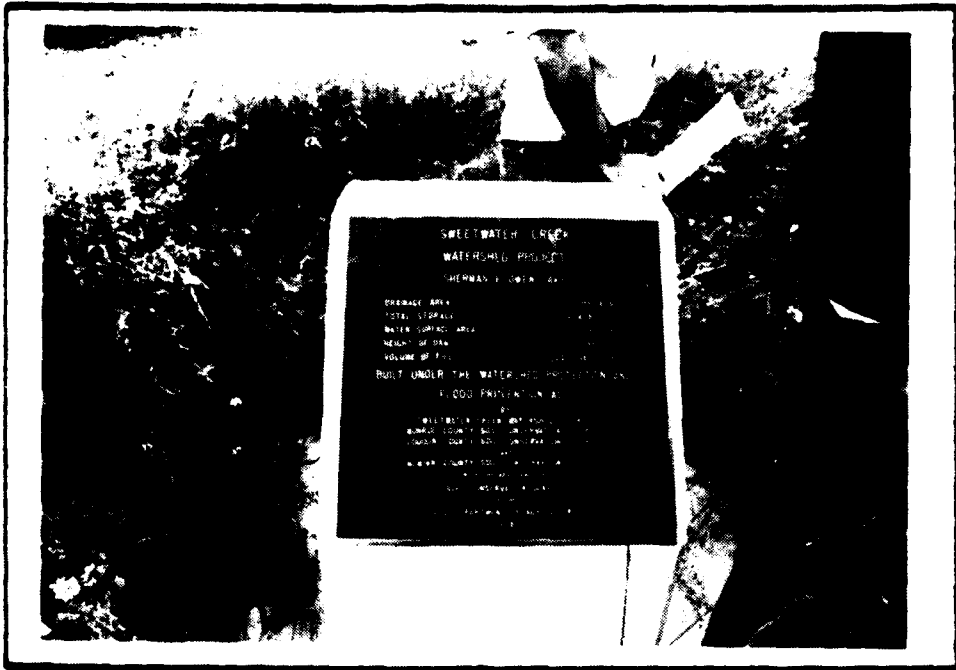


PHOTO NO.1

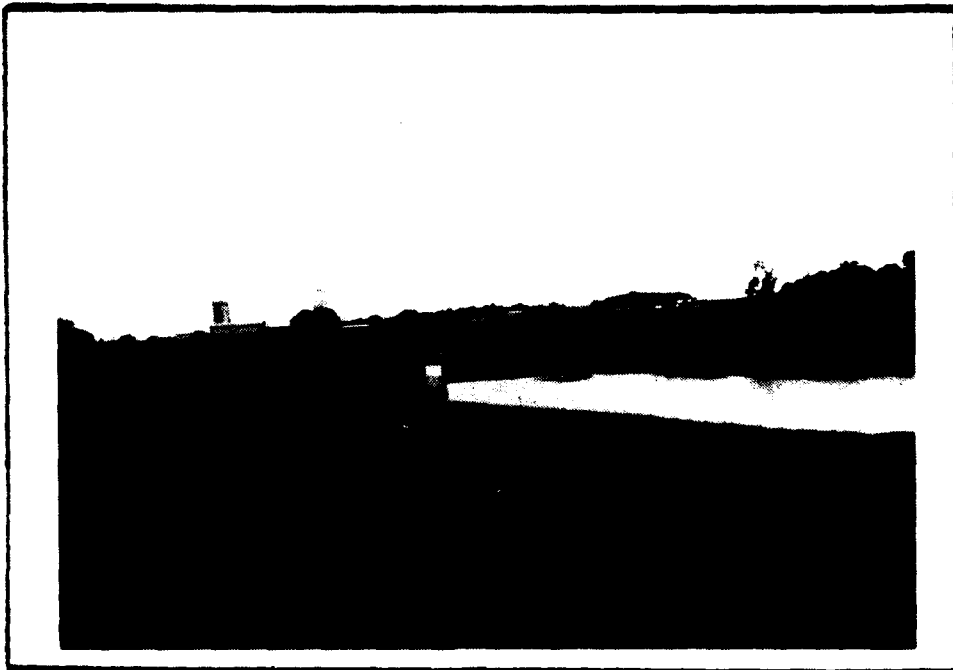


PHOTO NO.2



PHOTO NO.3

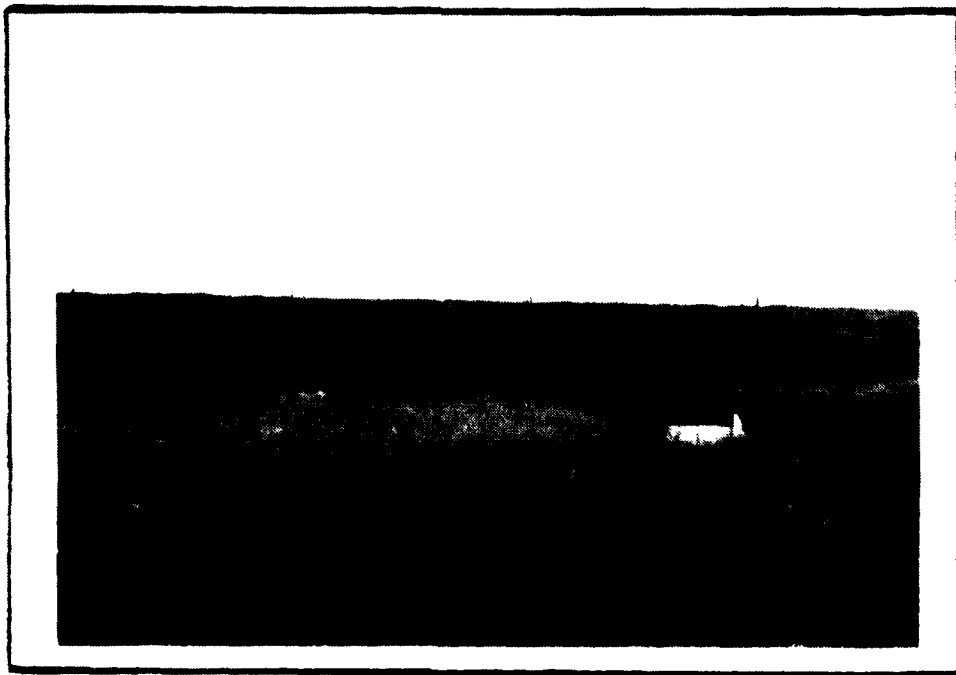


PHOTO NO.4

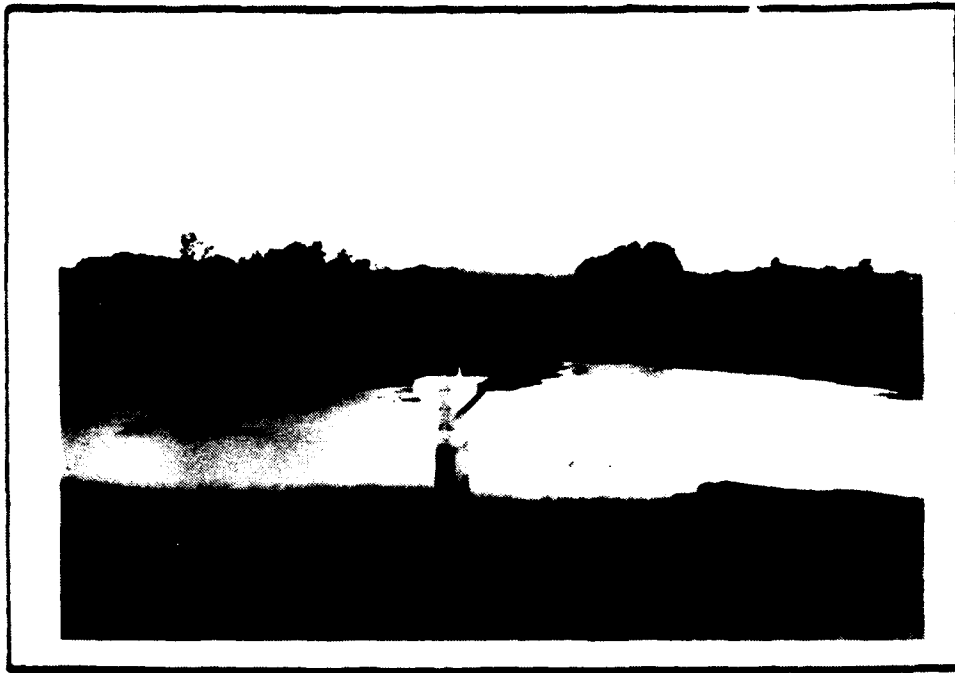


PHOTO NO.5

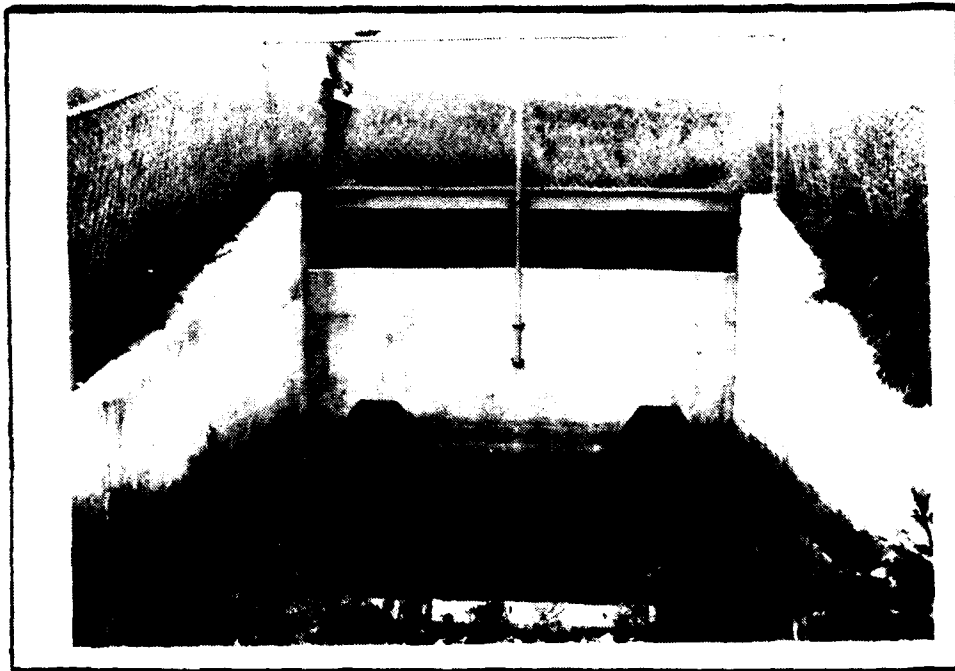


PHOTO NO.6



PHOTO NO.7

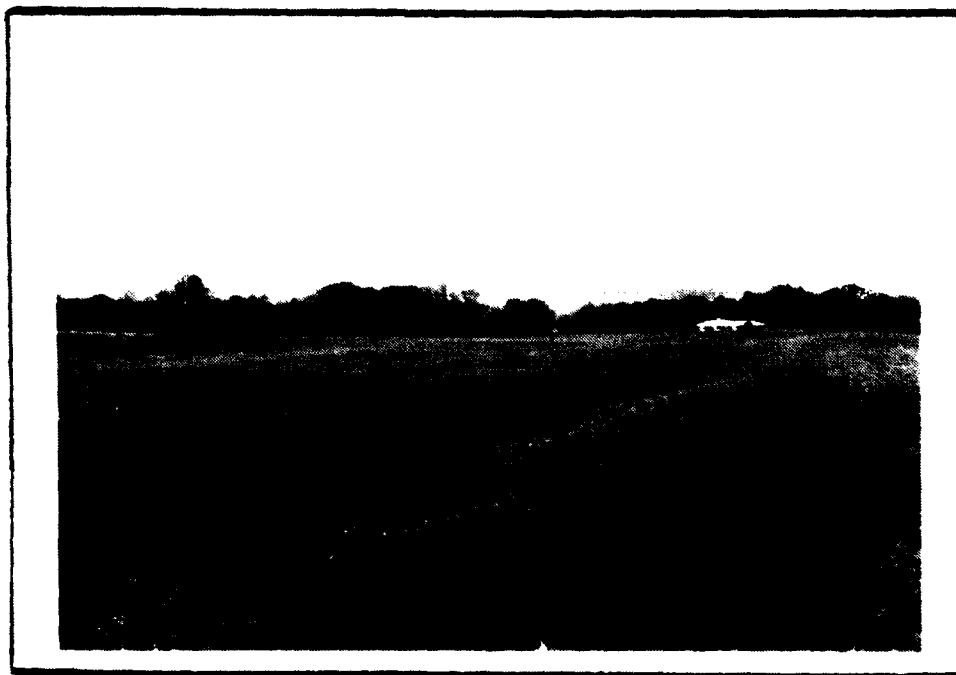


PHOTO NO.8



PHOTO NO. 9

PHOTO NO.

APPENDIX D
HYDRAULICS AND HYDROLOGY

HYDRAULICS AND HYDROLOGY

Sweetwater Creek Dam #15 is located in Monroe County, Tennessee. The watershed land use is about 20% woods and 80% pasture. Dewey and Fullerton are the predominant soil groups and both are classified as hydrologic soil group "B". The runoff curve number was calculated to be 72 AMC II.

The Sweetwater Creek Dam #15 is classified as an intermediate size, high hazard potential dam. As such, it is required to pass the probable maximum flood (PMF) without overtopping. The PMF is derived from the probable maximum precipitation (PMP). Using the U. S. Weather Service TP-40, the 6-hour PMP was estimated to be 28.9 inches yielding 24.7 inches of runoff (RCN 72, AMC II).

The total inflow into the reservoir during the PMF is about 2068 acre-feet with a peak rate of 13119 cfs. The reservoir has a maximum storage above normal pool of 452 acre-feet. The PMF was used as the freeboard design storm and it passes the dam with no remaining freeboard. The PMF routing started with a pool elevation of 966.5 (2.5 feet above normal pool elevation). This elevation was obtained after a ten day drawdown with the starting elevation of 981.0 (the crest of the emergency spillway).

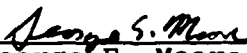
The 10-day, 100-year flood produces 545 acre-feet of inflow. Routing of the storm requires 231 acre-feet of storage. This routing was used to set the crest of the emergency spillway at elevation 981 feet msl.

The 6-hour, 100-year flood containing 5.15 inches of precipitation was routed through the reservoir using a RCN of 86 (AMC III). This produces a runoff of 3.61 inches and a peak discharge of 1161 cfs. This storm produced a peak discharge of 280 cfs. Flow through the emergency spillway lasted about 2.9 hours reaching a maximum depth of about 0.6 feet.

Except for the 6-hour P_{100} , all information is from calculations performed by the SCS design engineers using the DAMS 2 program. Check calculations indicate that the design data are more conservative than the figures which would have been used if the design calculation were not available.

The 6-hour, 100-year flood hydrograph was developed using the methods in Section 4, Chapter 21 of the SCS National Engineering Handbook. The routing equation used was:

$$I_1 + I_2 + \left(\frac{2S}{\Delta t} - O_1\right) = \frac{2S}{\Delta t} + O_2$$



George E. Moore
Regional Engineer

SWEETWATER CREEK #15

EVENT	ANTECEDENT MOISTURE CONDITION	
	II	III
6 hr. PMF	Passes with 0' of freeboard	Overtopped with max. depth of 1' and a duration of .48 hrs.
6 hr. 1/2 PMF	Not routed Assumed to pass	Passes with 2.4' of freeboard
6 hr. 100 - YEAR	Not routed	Passes with flow in emergency spillway for 2.9 hrs; maximum depth 0.7'
1-10 day P ₁₀₀	Passes at crest of emergency spillway	Not routed

SWEETWATER CREEK #15 HYDRAULICS + HYDROLOGY

JOML

3 JUNE 91

VALUES TAKEN FROM DESIGN CALCULATIONS

6 hr P_{100} = 5.15 IN
6 hr PMP = 28.9 IN
1 DAY P_{100} = 6.8 IN
10 DAY P_{100} = 13.0 IN

T_c = .79 hr
RCN = 72 AMC II

Q_{ES} = 12875 cfs.
 Q_{PS} = 125 cfs

VALUES COMPUTED AS CHECK

6 hr P_{100} = 5.0 IN
6 hr PMP = 28.9 IN
1 DAY P_{100} = 6.8 IN
10 DAY P_{100} = 13.2 IN

T_c = 1.12 hr
RCN = 69 AMC II

Q_{ES} = 14820 cfs
 Q_{PS} = 133 cfs

SWEETWATER CREEK DAM #15 PMF (AMCIII) HYDROGRAPH AND ROUTING

RCN = 86 (AMCIII)

PMF = 28.9 IN

Q = 270 IN

L = .307 hr

ADJUSTED FOR AMCIII CALCULATIONS USING

$L = \frac{2.9(541)^{0.7}}{1900 \sqrt{S}}$
 WITH $S = (\frac{1000}{CN} - 10)$

$T_c = .512$ hr

$T_p = .358$ hr

HYDROGRAPH FAMILY #1

$T_0 = 5.85$ hr

$T_{1/2} = 16.3$

REV $T_{1/2} = 16$

REV $T_p = .366$ hr .365 hr

$g_p = 2079$ cfs/in

$Q_{gp} = 56125$ cfs

$g_{max} = 17343$ cfs @ 2.41 hr

TIME (hr)	INFLOW (cfs)	$\frac{2^S}{\Delta t} - 0$	$\frac{2^S}{\Delta t} + 0$	OUTFLOW (cfs)	
0	0	0	0	0	
.21	56	52	56	2	
.48	337	419	445	13	
.72	842	1542	1598	28	
.97	1515	3815	3899	42	
1.21	2077	7303	7407	52	
1.45	2638	11872	12018	73	
1.69	3480	17772	17990	109	
1.93	5169	25376	26416	520	
2.17	12516	29656	43056	6700	
2.41	17343	28296	59516	15610	OVERTOPS
2.65	12638	28377	59277	15450	
2.90	9597		51612	10900	BELOW TOP OF DAM
3.14	6960				
3.38	5444				
3.62	4546				
3.86	3929				
4.10	3424				
4.34	3087				
4.58	2806				
4.83	2638				
5.07	2526				

SWEET WATER CREEK DAM #15 1/2 PMF ROUTING 9am

TIME (HR)	INFLOW (cfs)	2 1/2 Δt - 0	2 1/2 Δt + 0	OUTFLOW (cfs)
0	0	0	0	0
.24	28	26	28	1
.48	168	214	222	4
.73	421	767	803	18
.97	758	1882	1946	32
1.21	1038	3594	3678	42
1.45	1319	5855	5951	48
1.69	1740	8800	8914	57
1.94	2581	12963	13121	79
2.18	6257	21581	21801	110
2.42	8670	28089	36501	3910
2.66	6818	29676	44176	7250
2.90	4798		41292	5900
3.15	3479			
3.39	2722			
3.63	2273			
3.87	1964			
4.11	1711			
4.36	1543			

PERMISSIBLE EL 930.0 FEET

SWEET WATER CREEK #15 AMC III P100 INFLOW HYDROGRAPH AND ROUTING

RCN = 86 AMC III

P100 = 5.15 IN

Q = 3.61 IN

L = .307 hr

T_c = .512 hr

T_p = .350 hr

HYDROGRAPH FAMILY # 2

T₀ = 5.2 IN

T₀/T_p = 14.5

REV T₀/T_p = 16

REV T_p = .325 hr

q_p = 2339 cfs/in

Q_{gp} = 8442 cfs

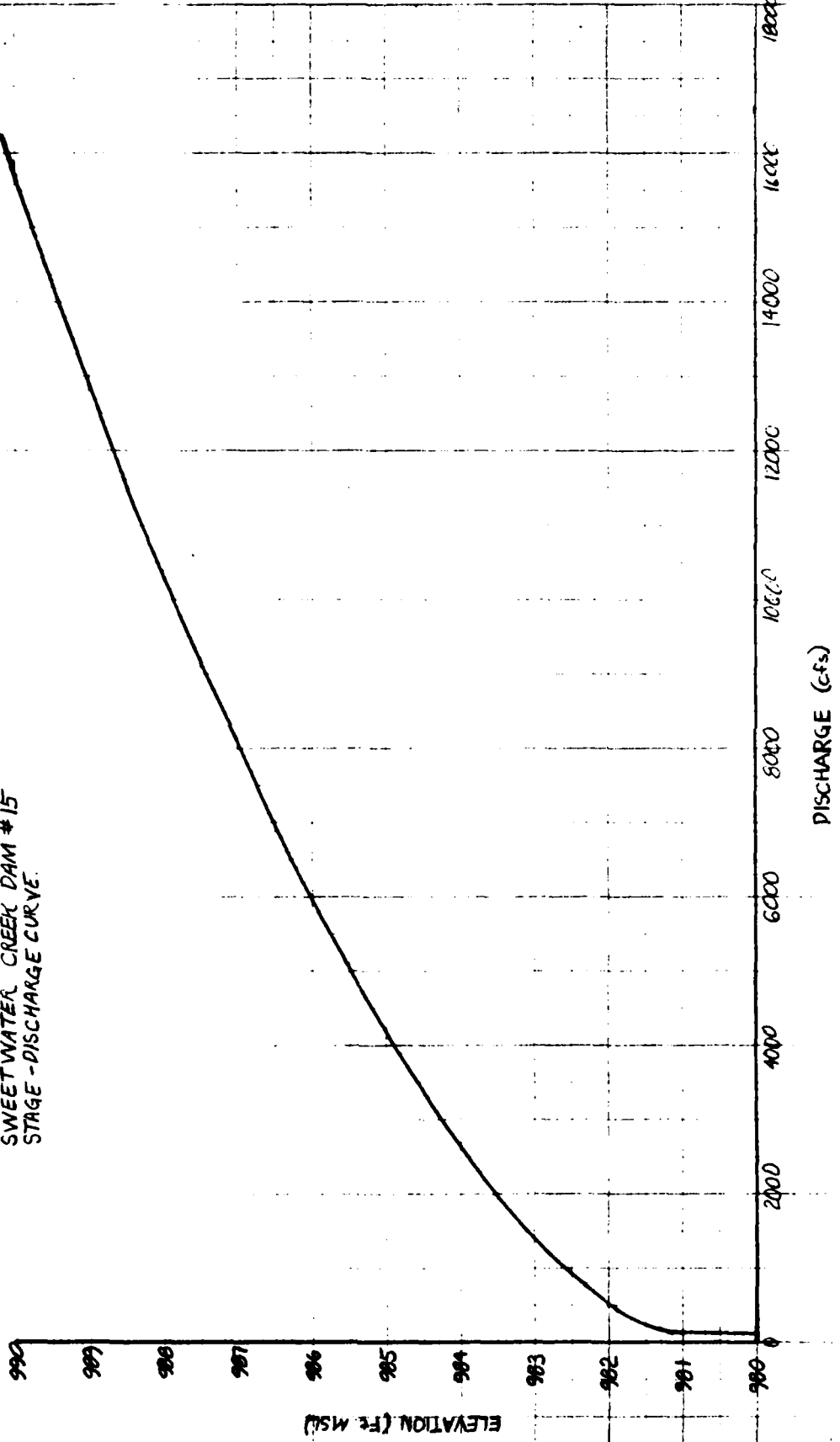
g_{max} = 2339 cfs @ 1.76 hr

TIME (hr)	INFLOW (cfs)	$\frac{2.5}{\Delta t} - 0$	$\frac{2.5}{\Delta t} + 0$	OUTFLOW (cfs)	
0	0	0	0	0	
.29	17	17	17	0	
.59	59	87	93	3	
.88	169	295	315	10	
1.17	312	736	776	20	
1.46	1249	2223	2297	37	
1.76	2339	5709	5811	51	
2.05	1807	9713	9855	71	
2.34	1258	12588	12778	95	
2.63	946	14574	14792	109	
2.93	743	16043	16263	110	
3.22	616	17180	17402	111	
3.51	532	18106	18328	111	
3.80	473	18887	19111	112	
4.10	439	19445	19799	177	PASSES ES CREST
4.39	405	19799	20289	245	
4.69	380	20004	20584	290	
4.97	371	20115	20755	320	
5.27	355	20171	20841	335	
5.56	194	20096	20720	312	PEAK PASSES.
5.85	51	19841	20341	250	
6.14	25	19529	19917	194	
6.44	8	19262	19562	150	
6.73	0	19022	19254	116	
			19022		BELOWES CREST

46 1240

W.E. ...

SWEETWATER CREEK DAM #15
STAGE - DISCHARGE CURVE

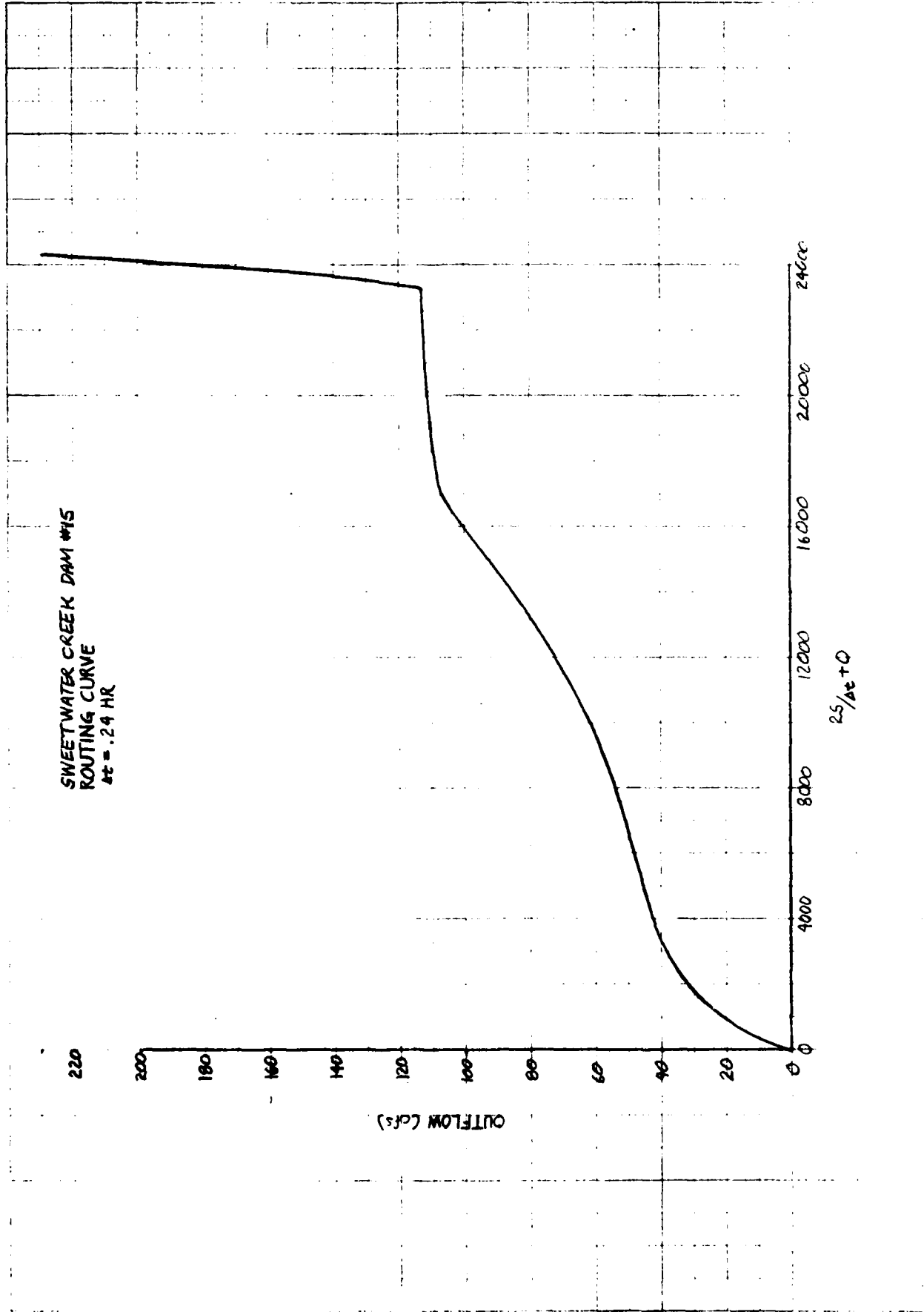


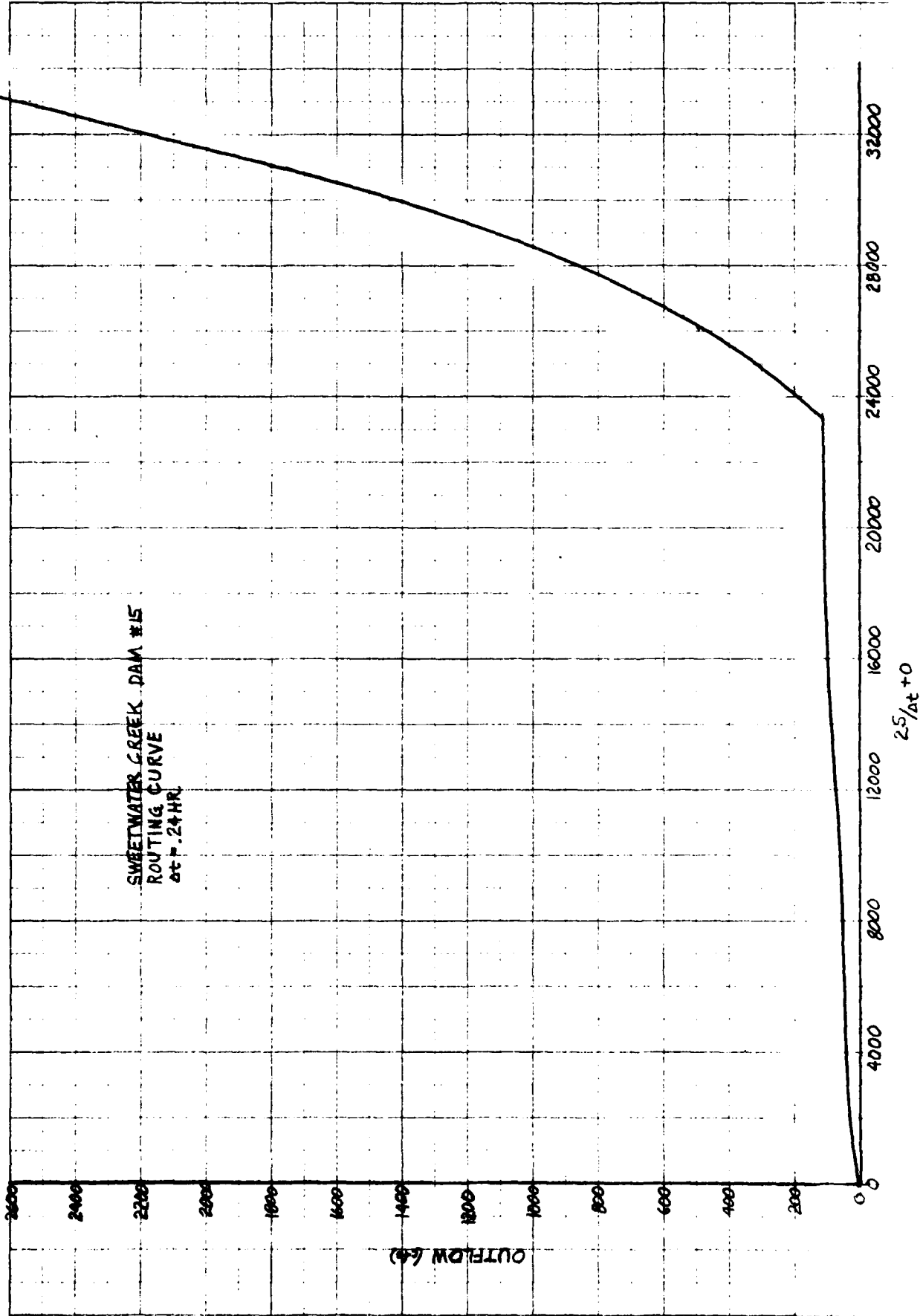
SWEETWATER CREEK DAM #15 ROUTING CURVE CALCULATIONS

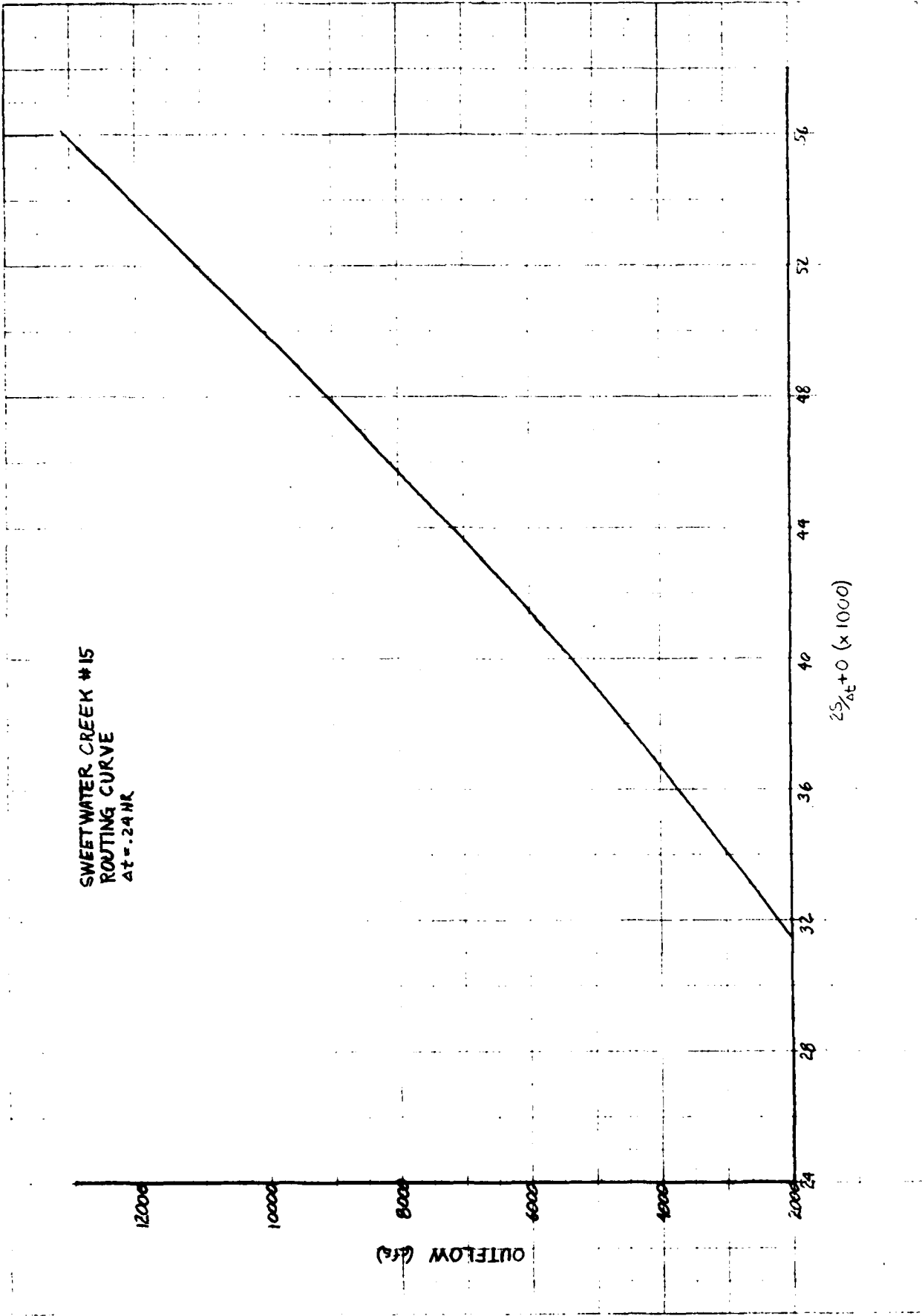
ELEVATION (FT MSL)	STORAGE (A.C.F.)	STORAGE (D.S.F.)	$\frac{S}{\Delta t}$ (.24 hr cfs)	OUTFLOW (cfs)	$\frac{2S}{\Delta t} + O$
965	0	0	0	0	
	1				
968	161	8.12	807.3	29.1	1647
970	41.1	20.72	2061	42.6	4164
974	98.1	49.46	4919	61.3	9899
978	168.1	84.75	8429	107.5	16965
980	208	104.87	10429	110.8	20970
981	230.9	116.41	11578	112.4	23268
981.5	241.0	121.50	12084	229.1	24290
982	255	128.56	12786	497.7	26070
984	304	153.26	15293	2630.2	33116
986	353	172.97	17700	5955.3	41355
989	426	214.77	21360	12875.2	55596
989.5	438	220.99	21916	15500	59322
990	451	227.21	22530	19200	64266

TOP OF DAM

$$Q = 3.087 L H_m^{3/2} \quad L = 1100 \text{ ft}$$



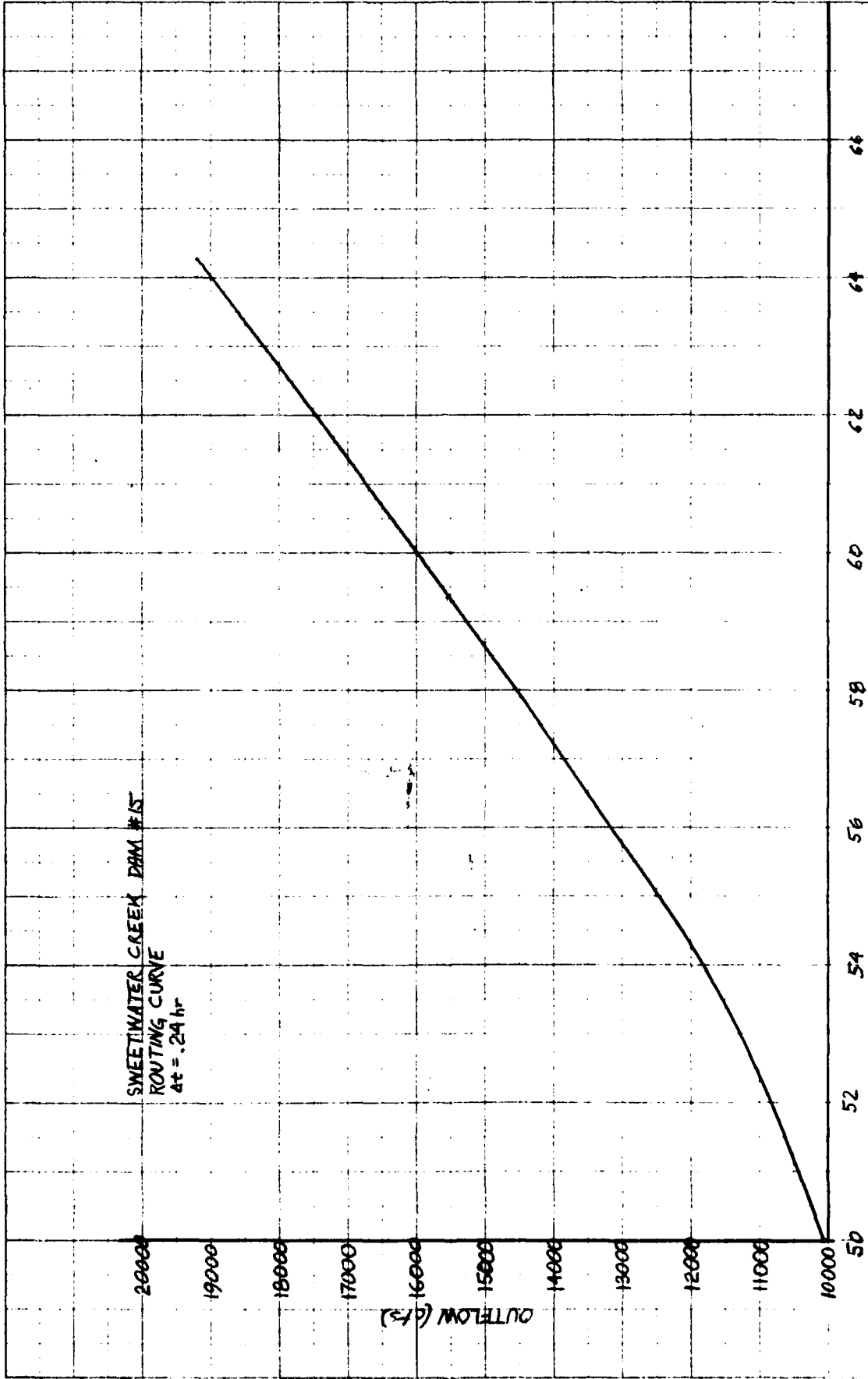




SWEETWATER CREEK #15 ROUTING CURVE CALC. *gpm.*

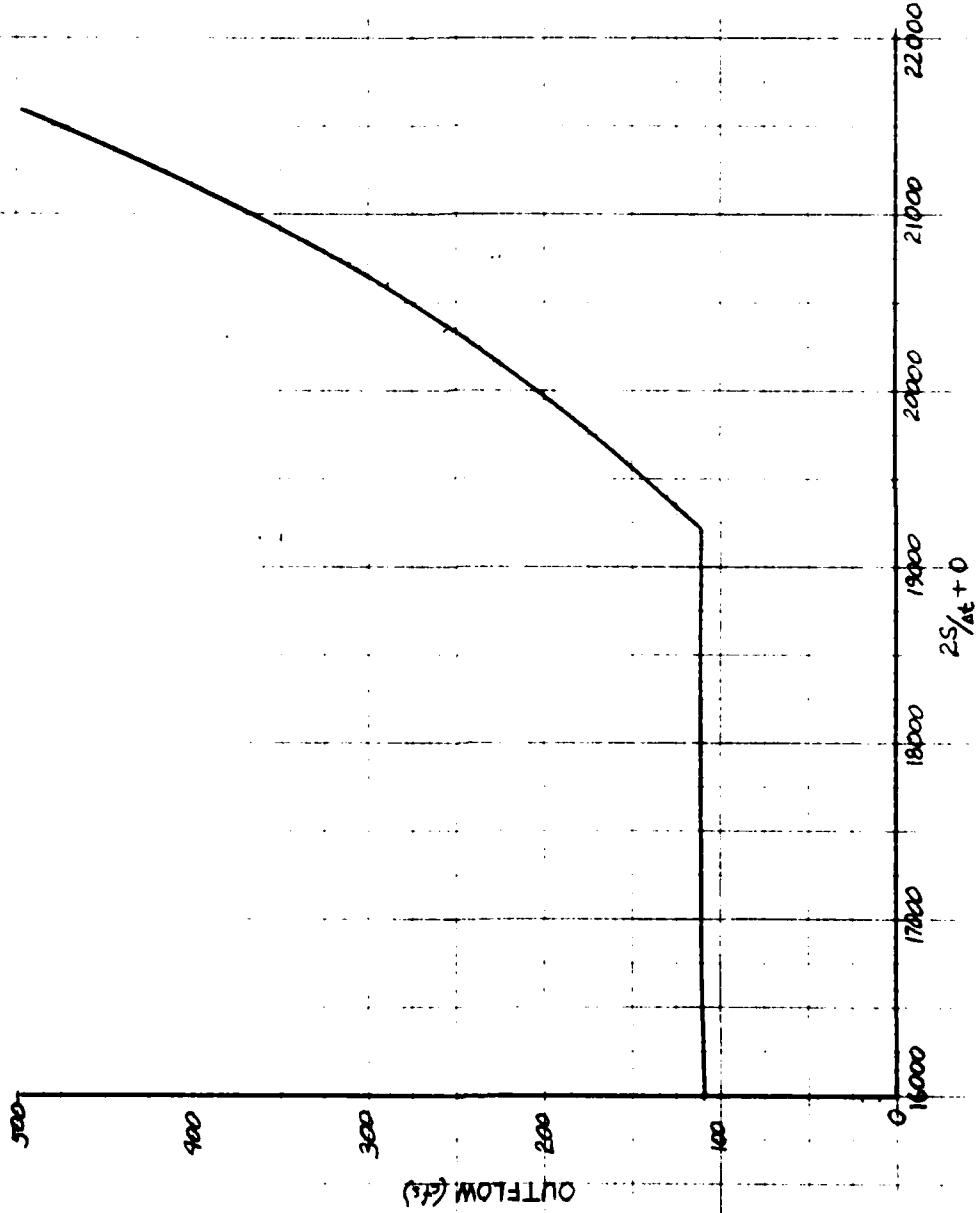
4 JUN 64

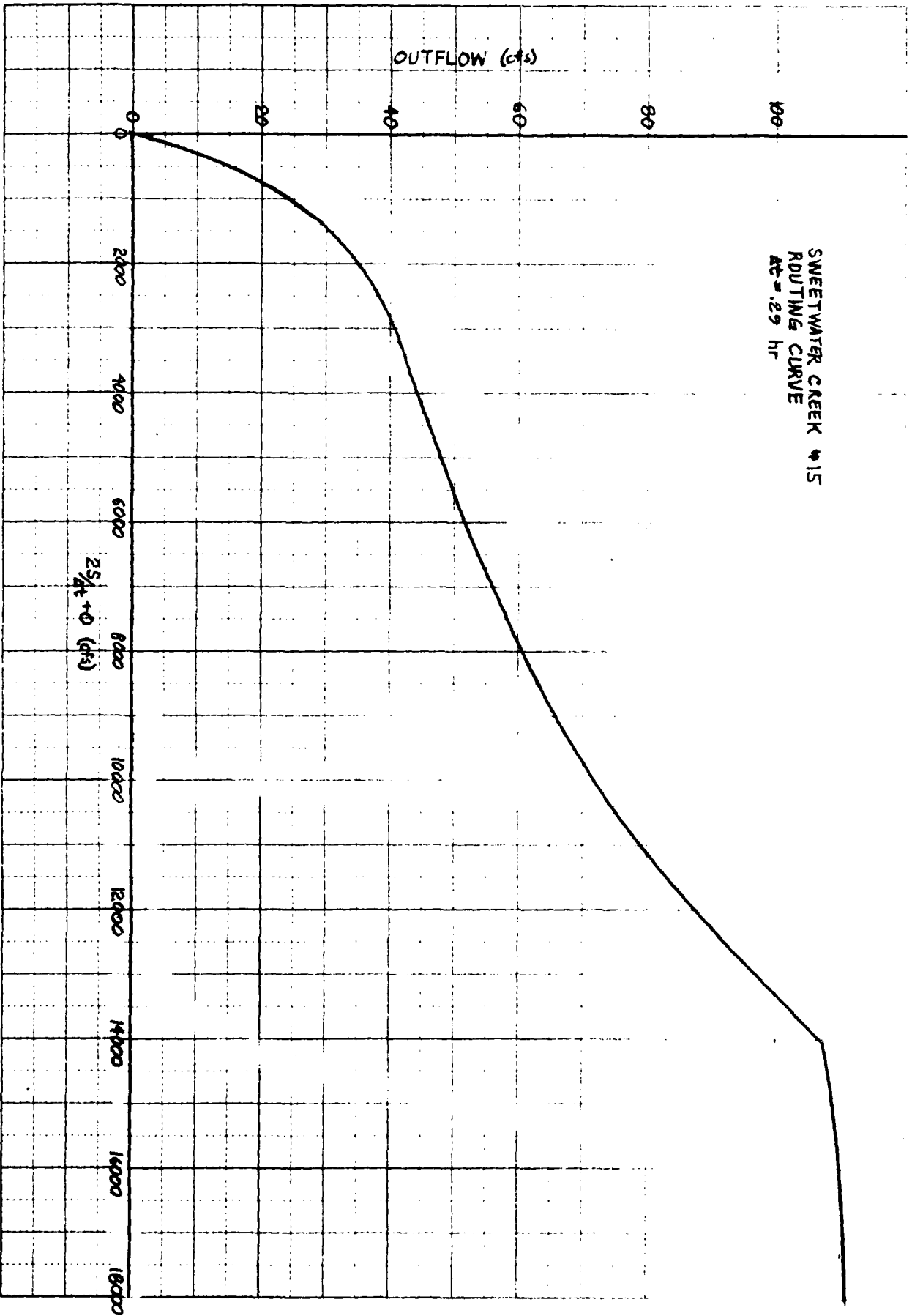
ELEVATION FL MSL	STORAGE ACRE FEET	STORAGE DSP	S/ Δt .29 hr	OUTFLOW cfs	$2^5 \Delta t T O$ cfs
965	0	0	0	0	0
968	16.1	8.12	666	29.1	1361
970	41.1	20.72	1700	42.6	3443
974	98.1	49.46	4058	61.3	8177
978	168.1	84.75	6954	107.5	14015
980	208	104.87	8604	110.9	17319
981	230.9	116.41	9552	112.4	19216
981.5	241.0	121.50	9969	229.1	20168
982.0	255.0	128.56	10549	497.7	21595



$2S/\Delta t + 10 (x1000)$

SWEETWATER CREEK DAM #15
ROUTING CURVE
 $\Delta t = .29$ HR





PRINCIPAL SPILLWAY HYDROGRAPH ROUTING
FORMIC DATA SHEET NO. 1

ADP Unit
Fort Worth, Texas
Trial Form

CONTROL WORDS		SITE Dam No. 15-100 Year		STRUCTURE CLASS 0.		CARD NUMBER 23.	
TITLE1	W/S Sweetwater Creek	STATE Tennessee	DATE 6-26-74				
TITLE2							

HYDRO	CURVE NUMBER	72	IC OR W/S LENGTH IN FT.	720	W/S ELEV. DIFF S(-Z)	1/	AREAL 1-DAY	6.0	RAINFALL 10-DAY	13.0	DRAINAGE AREA SQ.MI.	1.57	CARD NUMBER	25.
	BASE FLOW 2/ ON CHANNEL LOSS(-)	7.26	INVERT ELEV TAILWATER (-)	765.0	LOW STAGE CREST ELEV.	765.0	CONDUIT LENGTH (FT.)	288.	MANNINGS "N"	0.012	SUM COEF. EXCEPT KP	2.0	CARD NUMBER	26.

ROUTING CODE 3/	0.	VELOCITY FT./SEC.	—	LENGTH IN FEET	—	COEF. "C"	—	STREAM CODE 5/	0.	CARD NUMBER	27.
-----------------	----	-------------------	---	----------------	---	-----------	---	----------------	----	-------------	-----

LOW WEIR	WIDTH FT. 6/	—	HEIGHT FT.	—	WIDTH FT.	1.83	HEIGHT FT.	2.25	WIDTH FT.	1.83	HEIGHT FT.	2.5	CARD NUMBER	4.
----------	--------------	---	------------	---	-----------	------	------------	------	-----------	------	------------	-----	-------------	----

HIGH WEIR	CREST ELEVATION	746.0	WIDTH FT.	12.	HEIGHT FT.	1.0	CREST ELEVATION	746.7	WIDTH FT.	15.	HEIGHT FT.	1.25	CARD NUMBER	29.
-----------	-----------------	-------	-----------	-----	------------	-----	-----------------	-------	-----------	-----	------------	------	-------------	-----

	CREST ELEVATION	776.7	WIDTH FT.	15.	HEIGHT FT.	1.25							CARD NUMBER	30.
--	-----------------	-------	-----------	-----	------------	------	--	--	--	--	--	--	-------------	-----

CONDUIT	DIA-WIDTH	24.	HEIGHT	—	DIA-WIDTH	24.	HEIGHT	—	DIA-WIDTH	24.	HEIGHT	—	CARD NUMBER	31.
---------	-----------	-----	--------	---	-----------	-----	--------	---	-----------	-----	--------	---	-------------	-----

FOOTNOTES ON BACK

HYDRO 72.00 0.79 0.00 6.80 13.00 1.57

PS INFO 7,260 945,000 965,000 288,000 0.012 2,000

GENERAL 0.0 0.0 0.000 0.0 0.000 0.0

LOW WEIR 0.00 0.00 1.83 2.25 1.83 2.50

HIGH WEIR 965.00 12.00 1.00 976.70 15.00 1.25
 976.70 15.00 1.25

CONDUIT 24. 30. 30.

STAGE-CFS 965.00 107.90 0.00 0.00 0.00

STAGE-CFS 966.70 108.00 0.00 0.00 0.00

STAGE-CFS 968.00 124.00 0.00 0.00 0.00

STAGE-CFS 970.00 149.00 0.00 0.00 0.00

STAGE-CFS 972.00 175.70 0.00 0.00 0.00

STAGE-CFS 974.00 206.00 0.00 0.00 0.00

STAGE-CFS 976.00 238.50 0.00 0.00 0.00

STAGE-CFS 976.70 250.00 0.00 0.00 0.00

STAGE-CFS 978.00 276.00 0.00 0.00 0.00

STAGE-CFS 980.00 316.10 0.00 0.00 0.00

STAGE-CFS 982.00 362.00 0.00 0.00 0.00

STAGE-CFS 984.00 411.40 0.00 0.00 0.00

END TABLE

PRINCIPAL SPILLWAY HYDROGRAPH ROUTING
INPUT DATA SHEET NO. 1

App Unit
Fort Worth, Texas
Print Form

FILE#	SITE DEM. NO. 15	50 YEAR	STRUCTURE CLASS	6.	CARD NUMBER	1.
TITLE#	W/S Sweetwater Creek	STATE	Tennessee	DATE	7-26-74	2.

CONTR.	72.	TO OR FROM	W/S ELEV. DIFF.	AREAL	RAINFALL	DRAINAGE	CARD NUMBER
		L. GTH IN FT.	S(-Z)	1/	10-DAY	AREA SQ. MI.	3.
ADURO	72.			6.5	11.8	1.57	

BASE FLOW	2/	INVERT ELEV	LOW STAGE	CONDUIT	MANNINGS	SUM COEF.	CARD NUMBER
CHARGE LOSS	3/	OR TAILWATER (-)	CREST ELEV.	LENGTH (FT.)	"N"	EXCEPT KP	4.
		745.	965.0	288.	0.012	2.0	

ROUTING	CODE 3/	PLOTTING	VELOCITY	LENGTH	COEF.	STREAM	CARD NUMBER
		CODE 4/	FT./SEC.	IN FEET	"C"	CODE 5/	5.
GENERAL	0.	0.				0.	

LOW WEIR	WIDTH FT. 6/	HEIGHT FT.	WIDTH FT.	HEIGHT FT.	WIDTH FT.	HEIGHT FT.	CARD NUMBER
			1.83	2.25	1.83	2.5	6.

HIGH WEIR	CREST ELEVATION	WIDTH FT.	HEIGHT FT.	CREST ELEVATION	WIDTH FT.	HEIGHT FT.	CARD NUMBER
	976.0	12.	1.0	976.7	15.	1.25	7.

	CREST ELEVATION	WIDTH FT.	HEIGHT FT.	CREST ELEVATION	WIDTH FT.	HEIGHT FT.	CARD NUMBER
	776.7	15.	2.5				8.

	CONDUIT DIAMETER (INCHES) OR WIDTH & HEIGHT (FEET)						CARD NUMBER
CONDUIT	DIA-WIDTH	HEIGHT	DIA-WIDTH	HEIGHT	DIA-WIDTH	HEIGHT	7.
	24.		30.				

FOOTNOTES ON BACK

ELEVATION	STORAGE	DISCHARGE
965.00	107.90	0.00
966.00	107.95	5.67
968.00	123.99	29.12
969.99	148.99	42.63
971.99	175.69	52.79
973.99	205.99	61.29
976.70	250.00	71.18
977.20	259.99	89.30
977.49	265.93	106.59
978.00	276.00	107.45
978.99	295.97	109.12
979.99	315.94	110.77
980.98	338.78	112.39
981.98	361.65	113.99
982.98	386.23	115.57
983.97	410.83	117.13
984.97	435.44	118.67
985.96	460.05	120.18
986.96	484.65	121.68
987.96	509.26	123.16
988.95	533.87	124.62
989.95	558.47	126.07
990.95	583.08	127.50
991.94	607.69	128.91
992.94	632.29	130.31
993.93	656.90	131.69

524
108
110

TIME	INFLOW	AVE IN	OUTFLOW	ELEV.	STORAGE
6.00	18.51	18.49	12.01	966.54	112.29
12.00	18.80	18.78	15.45	966.83	114.64
18.00	19.13	19.10	17.27	966.98	115.89
24.00	19.49	19.46	18.33	967.07	116.61
30.00	19.89	19.85	19.04	967.14	117.10
36.00	20.34	20.30	19.60	967.18	117.48
42.00	20.84	20.80	20.13	967.23	117.84
48.00	21.43	21.37	20.66	967.27	118.21
54.00	22.10	22.04	21.24	967.32	118.61
60.00	22.89	22.81	21.91	967.38	119.06
66.00	23.82	23.74	22.67	967.45	119.58
72.00	24.96	24.86	23.59	967.52	120.21
78.00	26.38	26.25	24.69	967.62	120.96
84.00	28.19	28.02	26.06	967.73	121.90
90.00	30.62	30.39	27.83	967.88	123.11
96.00	34.07	33.73	29.56	968.06	124.81
102.00	39.42	38.87	31.23	968.31	127.89
108.00	49.07	48.01	34.21	968.75	133.41
114.00	73.34	70.14	40.15	969.63	144.39
120.00	1458.60	835.19	68.29	975.91	237.14
124.00	107.96	122.27	112.41	980.99	339.01
MAXIMUM STORAGE OBTAINED. DRAW-DOWN BEGINS.					
1.00	11.39	11.39	58.28	973.29	195.25
2.00	11.39	11.39	31.67	968.37	128.70
3.00	11.39	11.39	12.79	966.60	112.82
4.00	11.39	11.39	11.47	966.49	111.92
5.00	11.39	11.39	11.40	966.48	111.87
6.00	11.39	11.39	11.39	966.48	111.87
7.00	11.39	11.39	11.39	966.48	111.87
7.41	11.39	11.39	11.39	966.48	111.87
OUTFLOW = INFLOW-ROUTING COMPLETE					

MAXIMUM STORAGE IS 339.0 ACRE FEET (4.048 INCHES) AT ELEV. 980.99 (CREST, EMER. SPW.).

NET DETENTION STORAGE REQUIRED IS 231.2 ACRE FEET (2.761 INCHES).

GROSS STORAGE REMAINING AFTER 10 DAYS IS 111.8 ACRE FEET (1.336 INCHES)
 AT ELEV. 966.48 (START EMER. SPW. AND FREEBOARD ROUTINGS).

NET REMAINING STORAGE IS 4.0 ACRE FEET (0.048 INCHES).

PRINCIPAL SPILLWAY ROUTING SUMMARY

DAM NO. 15 - 50 YEAR SWEETWATER CREEK TENNESSEE
 STRUCTURE CLASS B 08-01-74

GAMETER	MAXIMUM STORAGE		NET DETENTION		GROSS REMAINING STORAGE		NET REMAINING STORAGE	
	ELEV.	INCHES	STORAGE	INCHES	ELEV.	STORAGE	INCHES	INCHES
24.	979.71	310.3	202.5	2.418	965.00	107.8	1.287	0.0
30.	980.54	328.4	220.6	2.635	966.53	112.2	1.340	0.05
30.	980.36	324.5	216.7	2.589	966.48	111.8	1.336	0.04

DAM NO. 15 - 100 YEAR SWEETWATER CREEK TENNESSEE
 STRUCTURE CLASS B 08-01-74

GAMETER	MAXIMUM STORAGE		NET DETENTION		GROSS REMAINING STORAGE		NET REMAINING STORAGE	
	ELEV.	INCHES	STORAGE	INCHES	ELEV.	STORAGE	INCHES	INCHES
24.	980.38	325.1	217.3	2.595	965.00	107.8	1.287	0.0
30.	981.22	344.1	236.3	2.822	966.53	112.2	1.340	0.05
30.	980.99	339.0	231.2	2.761	966.48	111.8	1.336	0.04

APP. Unit
 State of Texas, Texas
 COUNTY OF TARRANT COUNTY, TEXAS
 HYDROGRAPHIC DESIGN

Dam No. 15, Sweetwater Creek W/S
 Monroe County, Tennessee

STRUCTURE CLASS b DATE 8/8/74

CURVE NUMBER	72	TIME OF RAINFALL DURATION	1/	AREAL RAINFALL	2/	DRAINAGE AREA	1.57
CONCENTRATION	0.79	FILL PRINT	4/	FM. SPM.	28.9	AREA Sq. MI.	
CASE NUMBER	2	VELOCITY	5/	SIDE SLOPE RATIO, 2:1	3		
ELEVATION	981.0	PLOTTING CODE	3/	STREAM ROUTING INFORMATION SERIES SITES ONLY			
ROUTING CODE	200	Bo 1	L 1	LENGTH Ft.	400	COEFF. "C"	400
		Bo 2	L 2	STREAM CODE	300	7/	
		Bo 3	L 3				

STAGE-CFS	ELEVATION	STORAGE AC. FT.	Q, cfs No. 1	Q, cfs No. 2	Q, cfs No. 3
765.00	111.8	0	0	0	0
766.48	111.9	11	11	11	11
768	124	29	29	29	29
772	175.7	53	53	53	53
776.7	250	71	71	71	71
777.49	265.93	102	102	102	102
778	276	108	108	108	108
780	316.1	111	111	111	111
781.0	338.8	112	112	112	112
781.5	348	113	113	113	113
782.0	362	114	114	114	114
782.5	373	115	115	115	115
783.0	386.3	116	116	116	116
784.0	411.4	117	117	117	117
785.96	460.05	120	120	120	120
787.76	509.26	123	123	123	123
788.75	533.87	125	125	125	125

COORDINATES ON REVERSE SIDE
 KEYWORD NOTE: In Form 10 column fields, punch the 1, 0, 5, and control words.

FREEBOARD UNCONTROLLED AREA HYDROGRAPH.

RUNOFF = 24.70 IN., VOL. = 2068. AC.FT.

TIME +	0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75
+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +
0.00 +	0.00	0.00	1.56	43.90	219.03	566.90	1114.35	1796.35
2.00 +	2841.24	5273.36	9804.22	13118.75	12166.48	9234.99	7088.27	5641.35
4.00 +	4663.92	3947.94	3479.24	3228.42	2882.89	2654.15	2483.22	2228.15
6.00 +	2091.83	1965.21	1379.19	746.67	380.82	189.78	92.45	42.83
8.00 +	19.01	6.40	0.75					

FREEBORD ROUTING BOTTOM WIDTH= 200.0 ENTRANCE LENGTH= 400.0

TIME	INFLOW	AVE INFLOW	OUTFLOW	STORAGE	ELEVATION	V/C (ES 3 ONLY)
0.25	0.00	0.00	0.00	111.80	965.00	
0.50	1.56	0.78	0.83	111.80	965.11	
0.75	43.90	22.73	11.37	112.15	966.51	
1.00	219.03	131.46	15.00	114.59	966.81	
1.25	566.90	392.96	26.44	122.28	967.78	
1.50	1114.35	840.62	35.96	139.00	969.16	
1.75	1796.33	1455.34	49.51	168.19	971.41	
2.00	2841.24	2318.79	62.50	214.94	974.48	
2.25	5273.36	4057.30	109.57	296.98	979.04	
2.50	9804.22	7538.79	3153.18	419.03	984.30	7.79
2.75	13118.75	11461.49	10690.58	512.82	988.10	11.67
3.00	12166.48	12642.62	12711.74	532.27	988.68	12.34
3.25	9234.99	10700.73	10629.52	512.23	988.08	11.65
7.25	189.78	285.30	570.31	364.03	982.09	4.17

VOLUME CHECK AT HP= 1.06. COMPUTED HP= 7.88 AT ELEV. 988.88 (STORAGE IS 532.2 AC.FT.= 6.35 IN.)
 TIME= 3.00 HOURS CRITICAL VELOCITY= 12.34 CRITICAL DEPTH= 4.74 CRITICAL SLOPE= 1.38.

IK INFLOW = 13118. CFS
 TOTAL VOL. THRU EMER SPILLWAY = 1800. AC-FT.
 PENDING VOL. THRU EMER SPILLWAY = 541. AC-FT.
 PAK OUTFLOW = 12711. CFS
 PBACK = 9.004 AC-FT PER FT. WIDTH DURATION OF FLOW= 6.00

HYDRO CURVE= 72. TC= 0.79 DURATION= 6.00 ES RAIN= 8.00 FB RAIN=28.90 AREA= 1.57
 SPILLWAY CREST= 981.0 CASE= 2. PRINT OPTION=2. SIDE SLOPES= 3.000 EXIT CHANNEL SLOPE = 0.00
 GENERAL ROUTE=0. PLOT CODE=0. VELOCITY= 0.00 LENGTH= 0. 'C'=0.000 CODE=0.
 SPW. SIZE 1ST 80= 200., E. LENGTH= 400. 2ND 80= 250., E. LENGTH= 400. 3RD 80= 300., E. LENGTH= 400.
 STAGE-CFS ELEV= 965.00 STORAGE= 111.8 1ST DISCH= 0. 2ND DISCH= 0. 3RD DISCH= 0.
 STAGE-CFS ELEV= 966.48 STORAGE= 111.9 1ST DISCH= 11. 2ND DISCH= 11. 3RD DISCH= 11.
 STAGE-CFS ELEV= 968.00 STORAGE= 124.0 1ST DISCH= 29. 2ND DISCH= 29. 3RD DISCH= 29.
 STAGE-CFS ELEV= 972.00 STORAGE= 175.7 1ST DISCH= 53. 2ND DISCH= 53. 3RD DISCH= 53.
 STAGE-CFS ELEV= 976.70 STORAGE= 250.0 1ST DISCH= 71. 2ND DISCH= 71. 3RD DISCH= 71.
 STAGE-CFS ELEV= 977.49 STORAGE= 265.9 1ST DISCH= 107. 2ND DISCH= 107. 3RD DISCH= 107.
 STAGE-CFS ELEV= 978.00 STORAGE= 276.0 1ST DISCH= 108. 2ND DISCH= 108. 3RD DISCH= 108.
 STAGE-CFS ELEV= 980.00 STORAGE= 316.1 1ST DISCH= 111. 2ND DISCH= 111. 3RD DISCH= 111.
 STAGE-CFS ELEV= 981.00 STORAGE= 336.8 1ST DISCH= 112. 2ND DISCH= 112. 3RD DISCH= 112.
 STAGE-CFS ELEV= 981.50 STORAGE= 348.0 1ST DISCH= 113. 2ND DISCH= 113. 3RD DISCH= 113.
 STAGE-CFS ELEV= 982.00 STORAGE= 362.0 1ST DISCH= 114. 2ND DISCH= 114. 3RD DISCH= 114.
 STAGE-CFS ELEV= 982.50 STORAGE= 373.0 1ST DISCH= 115. 2ND DISCH= 115. 3RD DISCH= 115.
 STAGE-CFS ELEV= 983.00 STORAGE= 386.3 1ST DISCH= 116. 2ND DISCH= 116. 3RD DISCH= 116.
 STAGE-CFS ELEV= 984.00 STORAGE= 411.4 1ST DISCH= 117. 2ND DISCH= 117. 3RD DISCH= 117.
 STAGE-CFS ELEV= 985.96 STORAGE= 460.0 1ST DISCH= 120. 2ND DISCH= 120. 3RD DISCH= 120.
 STAGE-CFS ELEV= 987.96 STORAGE= 509.2 1ST DISCH= 123. 2ND DISCH= 123. 3RD DISCH= 123.
 STAGE-CFS ELEV= 988.95 STORAGE= 533.8 1ST DISCH= 125. 2ND DISCH= 125. 3RD DISCH= 125.

COMPUTED DISCHARGE FOR CASE 2.

ELEV= 965.00	STORAGE=	111.8	1ST DISCH=	0.0	2ND DISCH=	0.0	3RD DISCH=	0.0
ELEV= 966.48	STORAGE=	111.9	1ST DISCH=	11.0	2ND DISCH=	11.0	3RD DISCH=	11.0
ELEV= 968.00	STORAGE=	124.0	1ST DISCH=	29.0	2ND DISCH=	29.0	3RD DISCH=	29.0
ELEV= 972.00	STORAGE=	175.7	1ST DISCH=	53.0	2ND DISCH=	53.0	3RD DISCH=	53.0
ELEV= 976.70	STORAGE=	250.0	1ST DISCH=	71.0	2ND DISCH=	71.0	3RD DISCH=	71.0
ELEV= 977.49	STORAGE=	265.9	1ST DISCH=	107.0	2ND DISCH=	107.0	3RD DISCH=	107.0
ELEV= 978.00	STORAGE=	276.0	1ST DISCH=	108.0	2ND DISCH=	108.0	3RD DISCH=	108.0
ELEV= 980.00	STORAGE=	316.1	1ST DISCH=	111.0	2ND DISCH=	111.0	3RD DISCH=	111.0
ELEV= 981.00	STORAGE=	338.8	1ST DISCH=	112.0	2ND DISCH=	112.0	3RD DISCH=	112.0
ELEV= 981.50	STORAGE=	348.0	1ST DISCH=	229.1	2ND DISCH=	258.0	3RD DISCH=	286.9
ELEV= 982.00	STORAGE=	362.0	1ST DISCH=	497.7	2ND DISCH=	592.8	3RD DISCH=	687.8
ELEV= 982.50	STORAGE=	373.0	1ST DISCH=	886.4	2ND DISCH=	1076.4	3RD DISCH=	1266.4
ELEV= 983.00	STORAGE=	386.3	1ST DISCH=	1360.8	2ND DISCH=	1690.8	3RD DISCH=	2000.8
ELEV= 984.00	STORAGE=	411.4	1ST DISCH=	2630.2	2ND DISCH=	3240.2	3RD DISCH=	3650.1
ELEV= 985.96	STORAGE=	460.0	1ST DISCH=	5955.3	2ND DISCH=	7345.2	3RD DISCH=	8735.1
ELEV= 987.96	STORAGE=	509.2	1ST DISCH=	10318.0	2ND DISCH=	12700.9	3RD DISCH=	15083.8
ELEV= 988.75	STORAGE=	533.8	1ST DISCH=	12875.2	2ND DISCH=	15928.0	3RD DISCH=	18780.8

EMER. SPW. UNCONTROLLED AREA HYDROGRAPH.

RUNOFF = 4.69 IN., VOL. = 393. AC.FT.

TIME	0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75
0.00	0.00	0.00	0.00	0.00	0.00	0.27	7.10	50.01
2.00	180.31	584.32	1484.12	2321.46	2340.20	1869.86	1497.33	1234.18
4.00	1049.54	907.60	813.90	765.66	689.59	638.94	600.94	541.50
6.00	510.50	481.22	338.24	183.19	93.46	46.58	22.70	10.52
R.CC	4.67	1.57	0.18					

EMER. SPW. ROUTING BOTTOM WIDTH= 200.0 ENTRANCE LENGTH= 400.0

TIME	INFLW	AVE INFLW	OUTFLW	STORAGE	ELEVATION	V/C (ES Q ONLY)
0.25	0.00	0.00	0.00	111.80	965.00	
0.50	0.00	0.00	0.00	111.80	965.00	
0.75	0.00	0.00	0.00	111.80	965.00	
1.00	0.00	0.00	0.00	111.80	965.00	
1.25	0.27	0.13	0.14	111.80	965.01	
1.50	7.10	3.68	3.91	111.83	965.52	
1.75	50.01	28.56	11.54	112.26	966.52	
2.00	180.31	115.16	14.68	114.37	966.79	
2.25	584.32	382.31	25.80	121.85	967.73	
2.50	1484.12	1034.22	37.61	142.56	969.43	
2.75	2321.46	1902.79	54.26	180.92	972.33	
3.00	2340.20	2330.83	65.63	227.84	975.29	
3.25	1869.86	2105.03	107.36	269.54	977.67	
3.50	1497.33	1683.59	109.95	302.08	979.30	
3.75	1234.18	1365.75	111.52	328.01	980.52	
4.00	1049.54	1141.86	230.74	348.07	981.50	
4.25	907.60	978.57	478.20	360.96	981.96	2.66
4.50	813.90	860.75	670.69	366.87	982.22	3.87
4.75	765.66	789.78	734.37	368.68	982.30	4.45
5.00	689.59	727.62	730.76	368.58	982.29	4.62

VOLUME CHECK AT HP= 0.08. COMPUTED HP= 1.30 AT ELEV. 982.30 (STORAGE IS 368.6 AC.FT.= 4.40 IN.)
TIME= 4.75 HOURS CRITICAL VELOCITY= 4.62 CRITICAL DEPTH= 0.66 CRITICAL SLOPE= 2.67.

PEAK INFLOW = 2340. CFS
 TOTAL VOL. THRU EMER SPILLWAY = 120. AC-FT.
 DISCHARGING VOL. THRU EMER SPILLWAY = 34. AC-FT.
 YEAR OUTFLOW = 734. CFS
 ATTACK = 0.604 AC-FI PER FT. WIDTH DURATION OF FLOW= 4.00

SUMMARY - RESERVOIR ROUTING PROGRAM

DAM NO. 15, SWEETWATER CREEK W/S
 MONROE COUNTY, TENNESSEE STRUCTURE CLASS B 08

TYPE	BO	L	ELFV.	HP	STORAGE	Q-TOTAL	Q-EM.SP	V
FSH	200.	400.	982.30	1.30	368.6	734.3	619.7	4.
	250.	400.	982.17	1.17	365.7	760.0	645.7	4.
	300.	400.	982.07	1.07	363.6	772.7	658.5	4.
SH	200.	400.	988.88	7.88	532.2	12711.7	12586.8	12.
	250.	400.	987.96	6.96	509.3	12715.9	12592.9	11.
	300.	400.	987.22	6.22	491.0	12741.3	12619.4	10.

NOTE - IN ABOVE SUMMARY VC, DC, AND SC WERE COMPUTED FROM (Q-EM.SP) PER FOOT USIN

RESERVOIR ROUTING PROGRAM

CREEK W/S
 EE STRUCTURE CLASS B 08-14-74

Q-TOTAL	Q-EM.SP	V/C	D/C	S/C	S/C.25	DJR-HR
6 734.3	619.7	4.62	0.66	2.67	3.63	4.00
7 760.0	645.7	4.35	0.58	2.77	3.78	3.75
6 772.7	658.5	4.12	0.52	2.87	3.91	3.50
2 12711.7	12586.8	12.34	4.74	1.38	1.88	6.00
3 12715.9	12592.9	11.54	4.14	1.44	1.97	5.75
0 12741.3	12619.4	10.92	3.70	1.50	2.04	5.75

D FROM (Q-EM.SP) PER FOOT USING FORMULAS IN T.R.-2 AND T.R.-39.

APPENDIX E
CHECKLIST AND DESIGN PLANS

Check List
Visual Inspection of Earth Dams
Department of Conservation
Division of Water Resources

Name of Dam Sweetwater Creek Dam #15 (Sherman F. Owen Lake)

County Monroe Date of Inspection 5/19/81

ID # - State 62-7014 Federal TN-12314

Type of Dam Earth

Hazard Category-Federal High State 1

Weather Cloudy, light rain Temperature 65°F

Pool at Time of Inspection about 30' (distance from crest)

Tailwater at Time of Inspection 0 (distance from stream bed)

Design/As Built Drawings Available: Yes X No

Location: SCS

Copy Obtained: Yes X No

Reviewed: Yes X No

Construction History Available: Yes No

Location:

Copy Obtained: Yes No

Reviewed: Yes No

Other Records and Reports Available: Yes No

Location:

Copy Obtained: Yes No

Reviewed: Yes No

Prior Incidents or Failures: Yes X No

Inspection Personnel and Affiliation:

Troy Wedekind - TDWR

Ed O'Neill - TDWR

George Moore - TDWR

I. Embankment

A. Crest

Description (1st inspection) Roadway across top
of dam.

1. Longitudinal Alignment Straight

2. Longitudinal Surface Cracks None

3. Transverse Surface Cracks None

4. General Condition of Surface Good

5. Miscellaneous Berm roadway o.k.

B. Upstream Slope

1. Undesirable Growth or Debris Good grass cover

2. Sloughing, Subsidence, or Depressions None

3. Slope Protection Vegetation only on upper 1/2; none
on lower half

a. Condition of Riprap None

b. Durability of Individual Stones N/A

c. Adequacy of Slope Protection Against Waves
and Runoff O.K.

d. Gradation of Slope Protection - Localized Areas
of Fine Material N/A

4. Surface Cracks None seen

C. Downstream Slope

1. Undesirable Growth or Debris Good grass cover

2. Sloughing, Subsidence, or Depressions; Abnormal

Bulges or Non-Uniformity None seen

3. Surface Cracks on Face of Slope None seen

4. Surface Cracks or Evidence of Heaving at

Embankment Toe None seen

5. Wet or Saturated Areas or Other Evidence of Seepage
on Face of Slope; Evidence of "Piping" or "Boils"

None seen

6. Drainage System O.K.

7. Fill Contact with Outlet Structure Good

8. Condition of Grass Slope Protection A few minor

bare spots generally good cover.

D. Abutments

1. Erosion of Contact of Embankment with Abutment from
Surface Water Runoff, Upstream or Downstream _____

None seen

2. Springs or Indications of Seepage Along Contact of
Embankment with the Abutments _____ None seen

3. Springs or Indications of Seepage in Areas a Short
Distance Downstream of Embankment - Abutment Tie-in

None seen

II. Area Downstream of Embankment, Including Channel

A. Localized Subsidence, Depressions, Sinkholes, Etc. _____

None seen

B. Evidence of "Piping", "Boils", or "Seepage" _____

None seen

C. Unusual Presence of Lush Growth, such as Swamp
Grass, etc. None seen

D. Unusual Muddy Water in Downstream Channel None seen

E. Sloughing or Erosion None seen

F. Surface Cracks or Evidence of Heaving Beyond
Embankment Toe None seen

G. Stability of Channel Sideslopes Good; channel
apparently has little use.

H. Condition of Channel Slope Protection Good

I. Adequacy of Slope Protection Against Waves, Currents,
and Surface Runoff Good

J. Miscellaneous SCS standard impact basin.

K. Condition of Relief Wells, Drains, and Other
Appurtenances Wingwall drains good condition.

L. Unusual Increase or Decrease in Discharge from
Relief Wells N/A

III. Instrumentation

A. Monumentation/Surveys Information plaque

B. Observation Wells None

C. Weirs None

D. Piezometers None

E. Other None

IV. Spillways

A. Service Spillway (Service/Emergency Combination Yes ___ No X)

1. Intake Structure Condition Good

2. Outlet Structure Condition Good

3. Pipe Condition Good; observed from D/S end.

4. Evidence of Leakage or Piping None seen

5. General Remarks _____

B. Emergency Spillway

1. General Condition Good

2. Entrance Channel Fence and roadway cross channel.

3. Control Section Good

3. Exit Channel _____ Good _____

4. Vegetative/Woody Cover _____ Good _____

5. Other Observations _____

V. Emergency Drawdown Facilities (if part of service spillway
so state) Slide gate at base of service spillway riser.

Are Facilities Operable: Yes No Unknown

Were Facilities Operated During Inspection: Yes No

Date Facilities Were Last Used Unknown

VI. Reservoir

A. Slopes O.K.

B. Sedimentation Minor

C. Turbidity High

VII. Drainage Area

Description (for hydrologic analysis) 20% woods,

80% pasture

A. Changes in Land Use None known

Reservoir has never filled apparently due to an open solution channel in the underlying dolomite. Highest known lake level is about 1 foot below low stage orifice after a 5.2 inch rain as per SCS.

VIII. Downstream Area (Stream)

A. Condition (obstructions, debris, etc.) Good; no
obstruction

B. Slopes Good

C. Approximate No. Homes, Population, and Distance D/S

D. Other Hazards

ANNUAL MAINTENANCE INSPECTIONS - FLOODWATER RETARDING STRUCTURES

WATERSHED Sweetwater Creek, SITE NO. 15

LOCATION Sweetwater, TN. 37874 INSPECTION DATE 1-28-81

A. EMBANKMENT

1. Type and condition of vegetation tall fescue, crown vetch; fair
2. Is woody growth present? no
3. Are cracks present? no
4. Has sliding occurred? no
5. Are irregularities caused by settlement evident? minor irregularities in both front and back berm.
6. Are eroded areas or gullies present? no
7. Is toe or area below dam wet? none presently; but pool area is dry
8. Are concentrated leaks present? no
9. If wetness or leaks are present, explain changes since last inspection N/A
10. Are sinks present in vicinity of dam? two (2) sunken holes at waterfall approx 30' apart on right side
11. Condition of berm and areas subject to wave erosion no
12. Is dispersion (jugging) evident? no
13. Floating debris from reservoir no

B. PRINCIPAL SPILLWAY

1. Condition of trash racks Very good-No evidence of any problems
2. Debris lodged in openings No
3. Indications of cracks in riser or conduit no

4. Condition of concrete (riser, bent & impact basin) Good

5. Is manhole cover in place? yes

6. Condition of gates good

C. STILLING BASIN AND OUTLET CHANNEL

1. Type and condition of vegetation tall fescue; dense veg growth

2. Is stilling basin eroding? no

3. Are banks of outlet channel stable? yes

4. Is outlet channel degrading? no

5. Is channel free of obstructions? yes

6. Boils in stilling basin or outlet channel? no

7. If boils are present, is there an accumulation of soil or sand around
boil? N/A

8. If leakage is evident, is it clear? N/A

9. Condition of riprap needs repair-excess surface water from dry side
been has eroded the riprap in two (2) locations

D. FOUNDATION DRAIN

1. Iron oxide deposits on pipe? no

2. Other blockages in pipe? no

3. Condition of animal guards good

4. Flow from pipe (none, trickle, moderate or strong) none

5. Sand or silt in discharge? no

E. EMERGENCY SPILLWAY

1. Type and condition of vegetation Tall fescue and clover; excellent

2. Erosion? none

3. Do roads cross or go through spillway which will concentrate flow or contribute to erosion? Mr. Browder has fenced a cattle lane across the top of the dam & through the spillway; see attachment
4. Are fences present which will obstruct flow? yes; see attachment
5. Has spillway been altered? no
6. Woody growth that could obstruct flow? no

F. BORROW AREA

1. Type and condition of vegetation No borrow area at this site
2. Erosion? N/A

G. RESERVOIR

1. Shoreline wave erosion? no
2. Woody growth? no
3. Floating debris? no
4. Sinks or holes? see A. 10

H. FENCES

1. Condition of fences good

I. MISCELLANEOUS

1. Has land use in watershed changed enough since structure was designed to alter runoff significantly? No
2. Has land use in the flood plain below the dam changed enough since design to alter hazard classification? no

J. CONCLUSIONS AND RECOMMENDATIONS

Vegetation needs to be fertilized-vegetation on the dry side and wet side beam is small; this may be due in part to the lack of rainfall during the summer and fall of 1980. Fertilize should be applied between March 15 and April 15.
Stilling Basin-Small size riprap (2-3 inches) has washed in two locations

TN-WS-6 (Rev. 1)
(Continued)

around stilling basin; needs to be repaired with larger riprap
(6-9 inches in size).

Inspected by: Sam H. Thomas Date: 1-28-81
Sponsor Representative

Inspected by: James D. Farkle, DC Date: 1-28-81
SCS Representative

Name and title of others assisting with inspection:

Willie Neal-- Engineering Specialists
Gail Payne-- Engineering Technican

DAM NO. 15
SWEETWATER CREEK WATERSHED
MONROE, LOUDON AND McMINN COUNTIES, TENNESSEE

U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

COOPERATING WITH

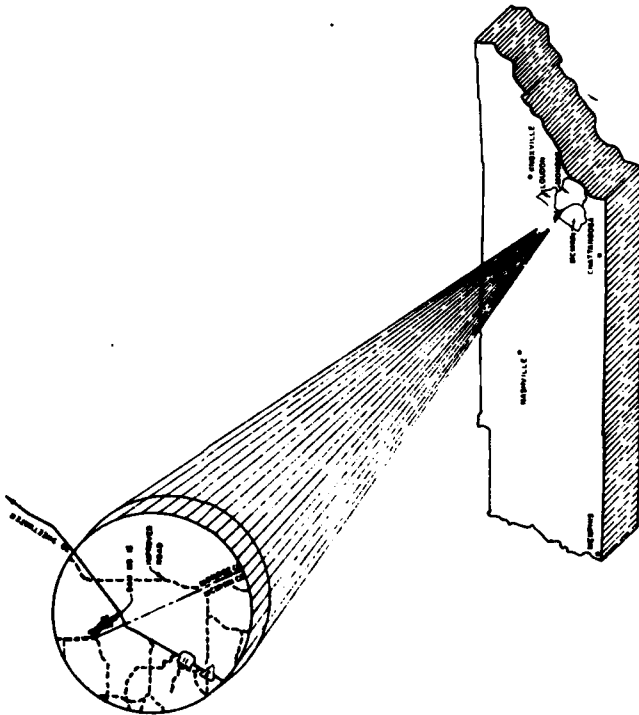
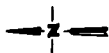
SWEETWATER CREEK WATERSHED DISTRICT
 MONROE COUNTY SOIL CONSERVATION DISTRICT
 LOUDON COUNTY SOIL CONSERVATION DISTRICT
 McMINN COUNTY SOIL CONSERVATION DISTRICT

AND

U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE

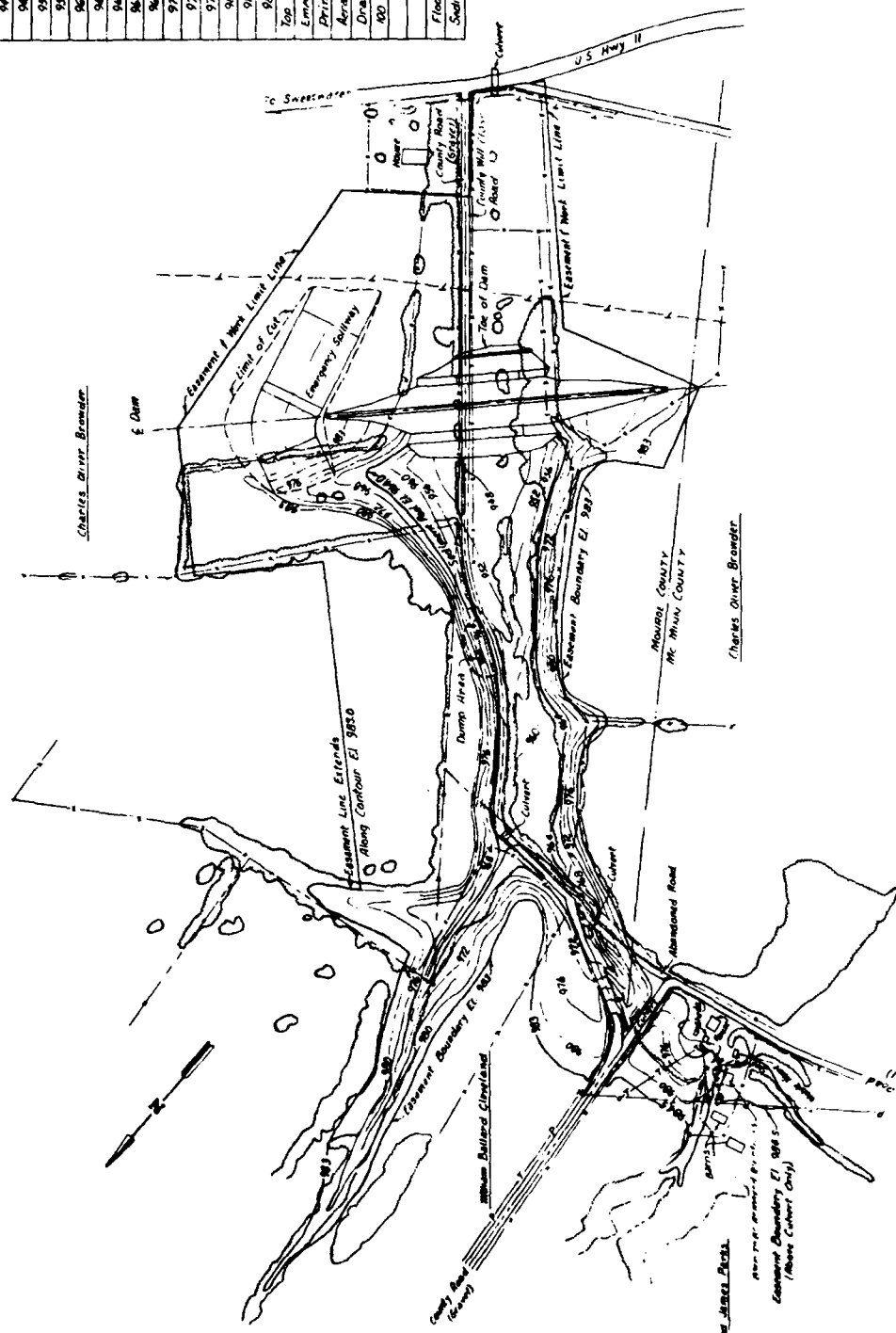
INDEX TO DRAWINGS

- 1 LOCATION MAP
- 2 SITE LOCATION MAP
- 3 SLOPE, SWELL AND GROUND
- 4 PLAN - BORROW AREA
- 5 SITE LOCATION MAP
- 6 PRINCIPAL SPILLWAY
- 7-8 DAM DETAILS
- 9-10 RISE DETAILS
- 11-14 DETAILS OF TRUSS RACK HEADGATE AND MANHOUS COVER
- 15 DEEP WATER RELEASE DEVICE
- 16 LADDER DETAILS
- 17-21 DETAILS - TRUSS RACK
- 22 STEEL SCHEDULE - IMPACT BEAM
- 23 IMPACT BEAM - IMPACT BEAM
- 24 IMPACT BEAM - IMPACT BEAM
- 25 TYPICAL SECTIONS - EMBANKMENT
- 26 TYPICAL SECTIONS - EMBANKMENT
- 27 TYPICAL SECTIONS
- 28 PLAN - FOUNDATION TREATMENT
- 29 DETAILS - FOUNDATION TREATMENT
- 30 DETAILS - FOUNDATION TREATMENT
- 31 DETAILS - FOUNDATION TREATMENT
- 32-35 VALLEY SECTIONS - FOUNDATION INVESTIGATION
- 36 VALLEY SECTION - 700 (50, 75 FEET UPSTREAM
- 37 VALLEY SECTION - 100 FEET UPSTREAM
- 38 VALLEY SECTION - 50 FEET UPSTREAM
- 39 PROFILE & DAM
- 40 VALLEY SECTION - 50 FEET DOWNSTREAM
- 41 VALLEY SECTION - 100 FEET DOWNSTREAM
- 42 SECTIONS - DAM
- 43-45 PROFILE & PRINCIPAL SPILLWAY
- 46 PLAN AND PROFILE - OUTLET CHANNEL
- 47 PROFILE & EMERGENCY SPILLWAY
- 48-50 VALLEY SECTION - EMERGENCY SPILLWAY AREA
- 51-54 STRUCTURE MONUMENT
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- 1 OF 1

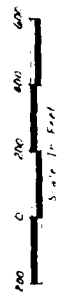


CONSTRUCTION DRAWINGS APPROVED
 DATE: 4-28-76
 BY: J. W. Adair, District Engineer
 APPROVED BY: J. W. Adair, District Engineer
 TITLE: DAM NO. 15
 PROJECT: SWEETWATER CREEK WATERSHED
 COUNTY: MONROE, LOUDON AND McMINN, TENNESSEE

ELEVATION	SURFACE AREA	STORAGE
945.0	0	0
948.0	1.3	1.9
952.0	3.1	40.7
956.0	4.9	24.8
960.0	6.6	49.9
964.0	9.4	82.0
968.0	12.2	119.7
972.0	17.2	236.5
976.0	21.6	340.8
980.0	23.8	398.9
984.0	24.1	411.5
Top of dam (reflecting) El.		988.9
Emergency Spillway Crest El.		997.0
Principal Spillway Crest El.		976.7
Aerial Sediment Pool El.		946.7
Drainage Area - Acres		1005
100 Year Sediment Yield		
Sub Area Feet		91.7
Annular Area Feet		14.3
Flood water Storage Area Feet		230.8
Sediment Pool El.		948.0



DAM NO 15
 SWEETWATER CREEK WATERSHED-MORRIS CO., TENN
 RESERVOIR AREA MAP
 U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 CHARLES R. SANDERS
 CONSULTING ENGINEER
 TENN. 2034-15

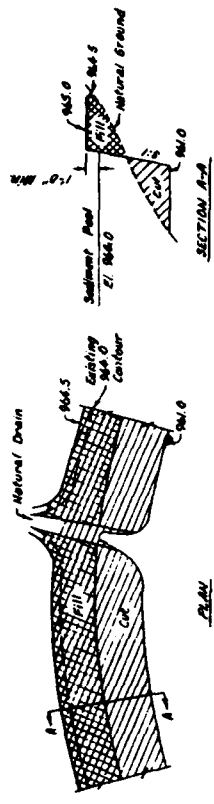


PLAN OF SEDIMENT POOL & STORAGE AREA

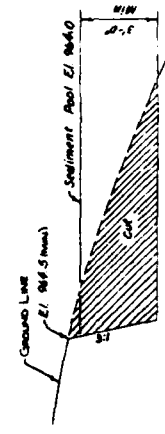
- LEGEND**
- Fence
 - - - - - Apparent Property Line
 - - - - - Apparent Property Line Fence
 - - - - - T South Central Bell Telephone Co
 - - - - - P Sweetwater Board of Public Utilities
 - - - - - Telephone Line - Power Line
 - - - - - T American Tel & Tel Co. Purged Federal Cable
 - - - - - County Line
 - - - - - Trees

Notes:

1. The shoreline area between existing ground contour N45.0 and N45.5 shall be shaped and graded so that all cuts shall be 50% from N45.0 or lower and all finished cuts shall be 50% above N45.5. The existing N45.0 contour shall be maintained, but the cut shall extend outside the existing N45.0 contour.
2. Openings shall be provided in the fill for drainage. All natural drains shall remain open.
3. The details above depict different methods of performing the work. The contractor will select the method or methods shown on the plans best adapted to his construction conditions and the configuration of the ground.
4. Excavation will not be required in channels near the sediment pool if confined within natural channel banks.
5. Shoreline shaping and grading within the sediment pool shall be determined by the engineer. The location shall be determined as shown.
6. Shoreline shaping and grading for the upper and lower limits will be determined by the engineer. This material may be used as fill or fill as directed by the engineer.

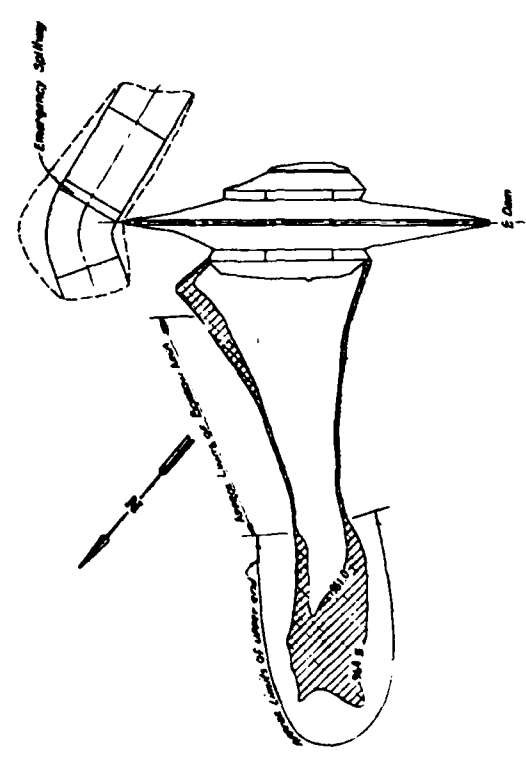


METHOD I



METHOD II

DETAILS SHORELINE SHAPING & GRADING
Not To Scale

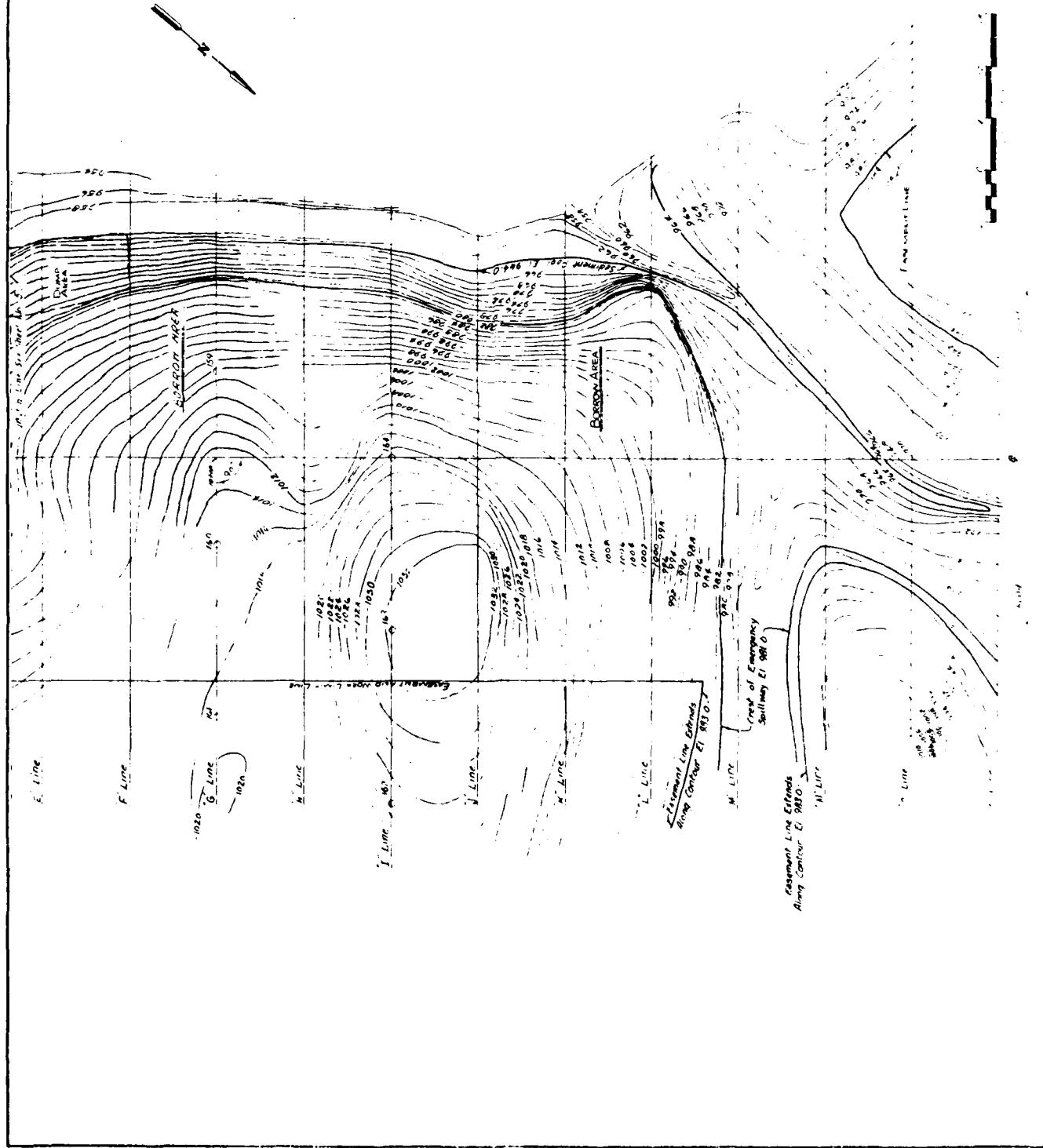


DAM NO 15
SWEETWATER CREEK WATERSHED-MORRIS CO. TENN
SHORELINE SHAPING & GRADING
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Prepared by: CHASTREE & SCOTT
Drawn by: BIRNS

TN-2034-15

DAM NO 15
 SWEETWATER CREEK WATERSHED-MORRIS CO. TENN
 PLAN - BORROW AREA
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 WASHINGTON, D. C.
 SULLIVAN
 V. C.



AD-A108 259

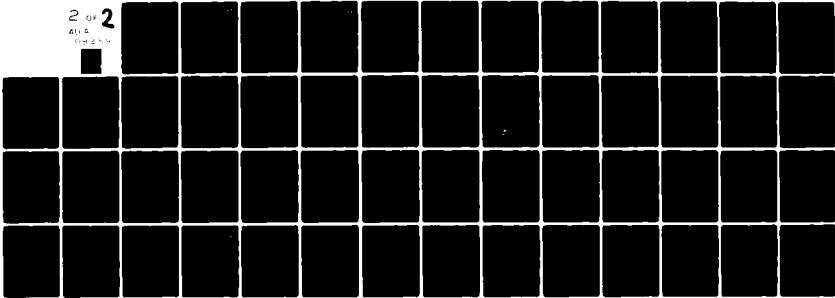
TENNESSEE STATE DEPT OF CONSERVATION NASHVILLE DIV 0--ETC F/G 13/13
NATIONAL PROGRAM OF INSPECTION OF NON-FEDERAL DAMS, TENNESSEE, --ETC(U)
SEP 81 G E MOORE DACW62-81-C-0056

UNCLASSIFIED

NL

2 of 2

ALL INFORMATION CONTAINED



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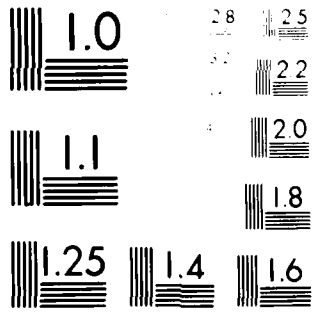
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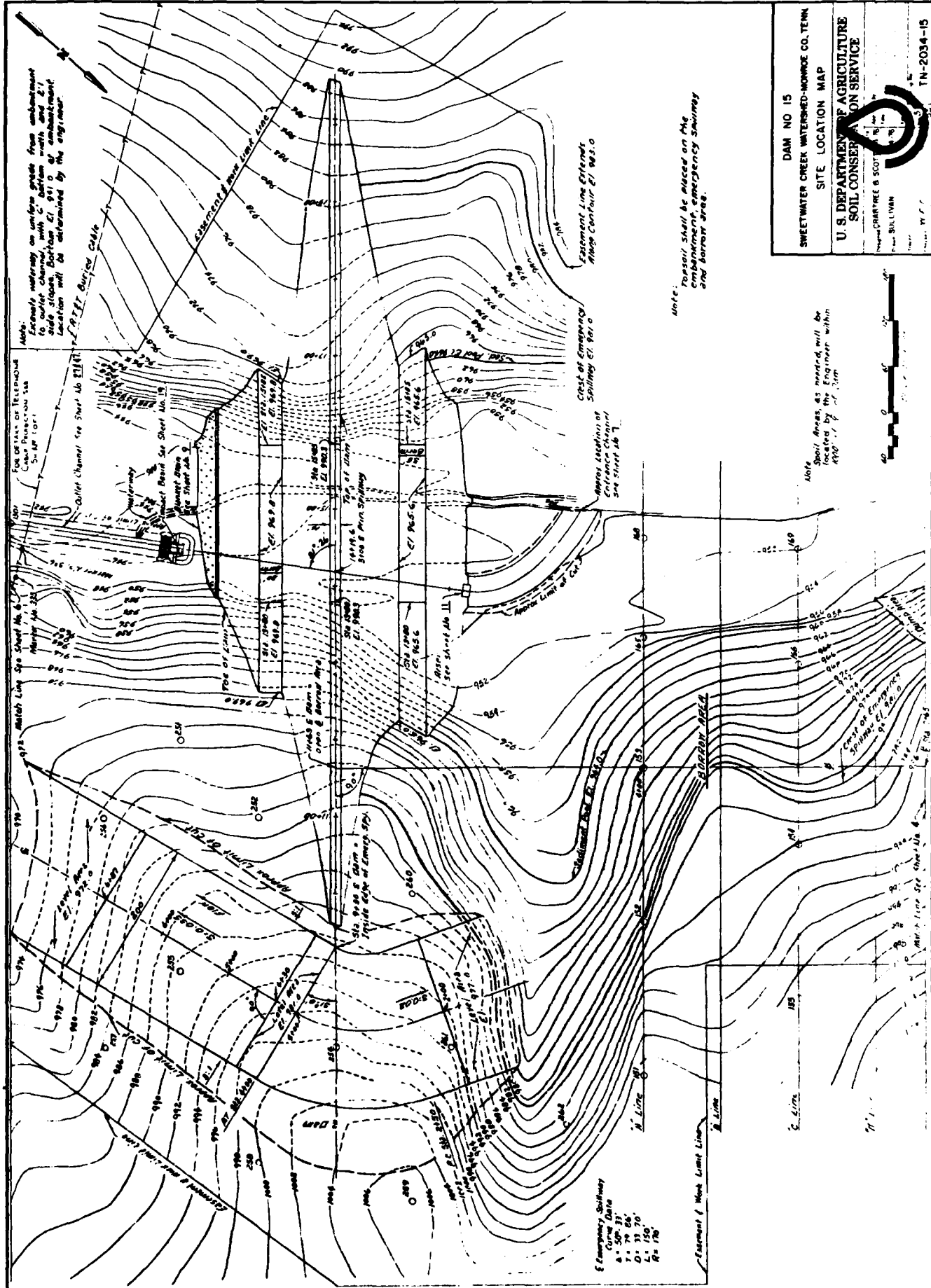
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DTIC

8 2 5



MILITARY RESEARCH LABORATORY
WASHINGTON, D.C.



Exclusively necessary on uniform grade from embankment to center of dam with a minimum width of 100 feet. Location will be determined by the engineer.

For details on Telephone Case Projection see Sheet No. 101.

Outlet Channel see Sheet No. 101.

Match Line see Sheet No. 101.

Match Line see Sheet No. 101.

Match Line see Sheet No. 101.

Match Line see Sheet No. 101.

Outlet Channel see Sheet No. 101.

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Outlet Channel see Sheet No. 101.

DAM NO 15
SWEETWATER CREEK WATERSHED-MORRIS CO. TENN.
SITE LOCATION MAP
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Prepared by CHARTREUSE & SCOTT
By S. L. LINDEN
Date: 10/1/54
TN-2034-15

Note: Possor shall be placed on the embankment, emergency spillway and borrow area.

Note: Spoil Areas, as needed, will be located by the Engineer within 400' of the dam.



Emergency Spillway
Curve Data
R = 50' 33"
T = 74' 66"
C = 150'
S = 170'

Embankment & Hook Limit Lines

1/2 Line

1/4 Line

3/4 Line

1/2 Line

1/4 Line

3/4 Line

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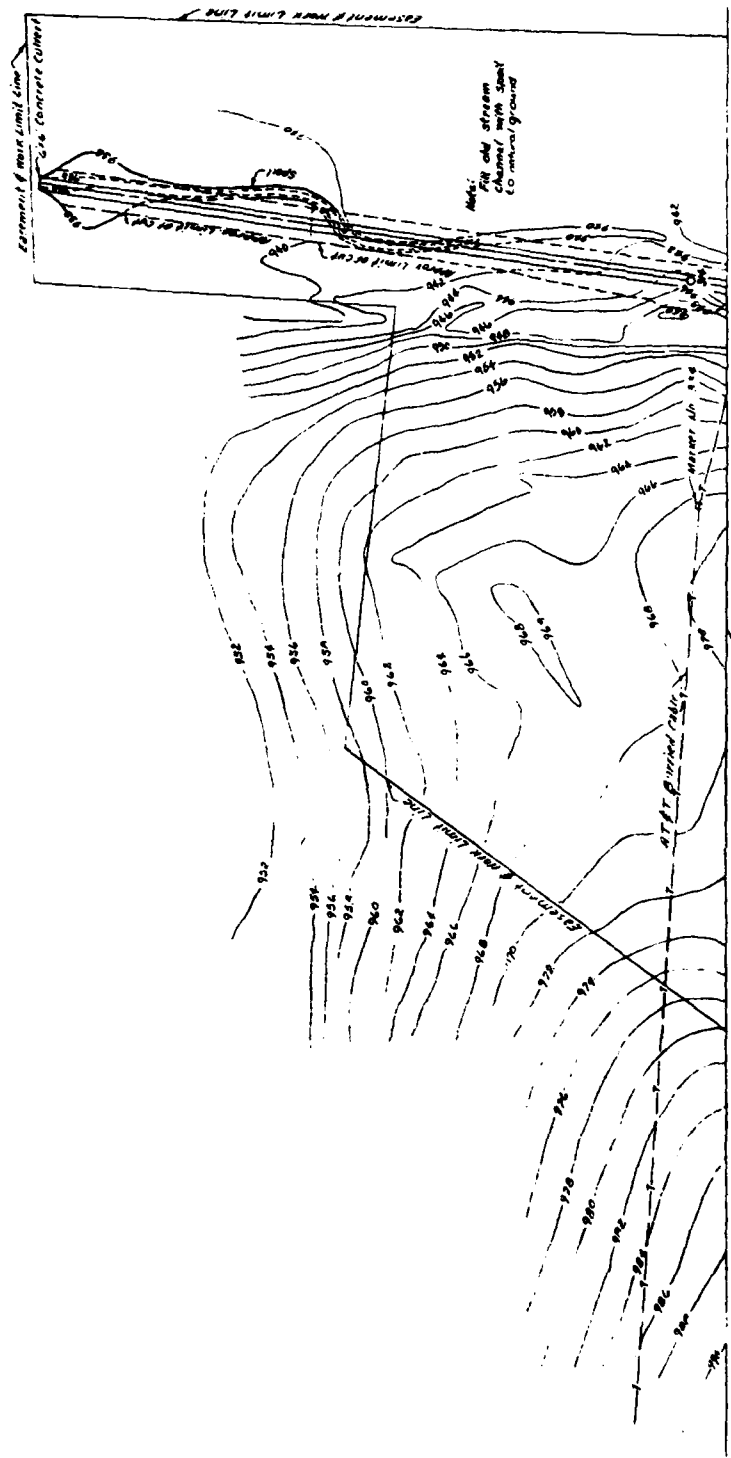
1/4 Line

3/4 Line

1/2 Line

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3/4 Line

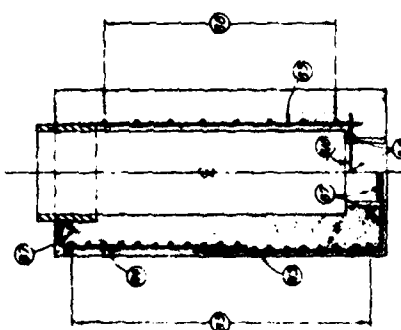


DAM NO 15
SWEETWATER CREEK WATERSHED-MORRIS CO, TENN
SITE LOCATION MAP
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

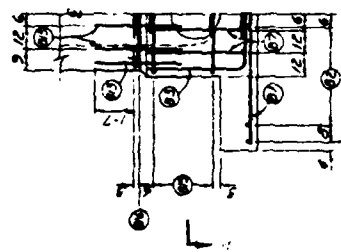
CHARLES B. SCOTT
SULLIVAN

TN-2034-B

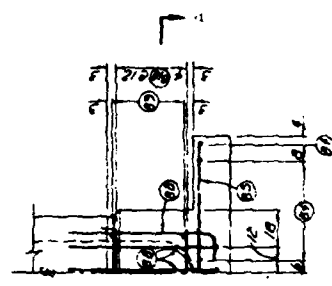




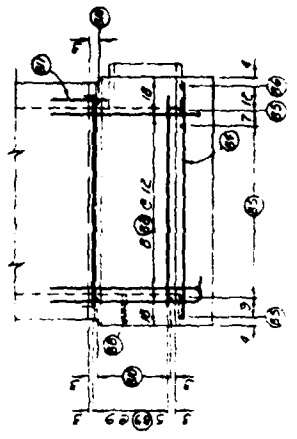
Outside Steel Inside Steel
SECTION A-A
0 1/2" = 1'
Scale 1/2" = 1'



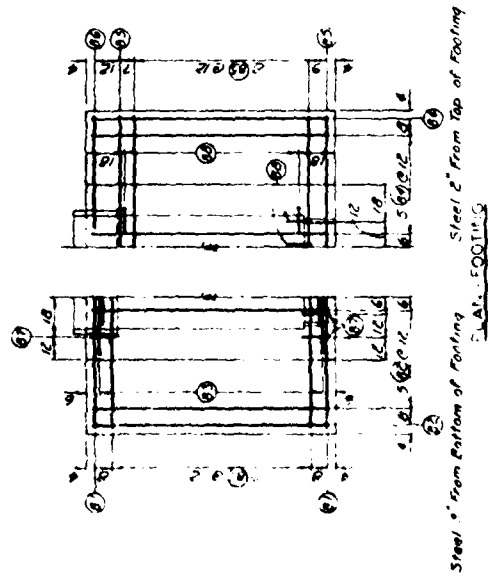
Steel 2" From Outside Face
UPSTREAM ELEVATION



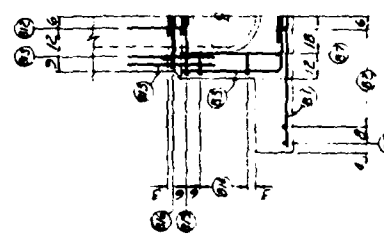
Steel 2" From Inside Face



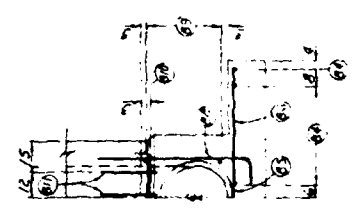
Steel 2" From Inside Face
and 2" From Top of Footing
SIDEWALL ELEVATION



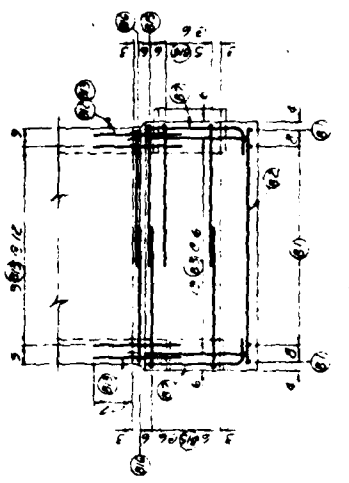
Steel 2" From Bottom of Footing
WALL FOOTING



Steel 2" From Outside Face
DOWNSTREAM ELEVATION



Steel 2" From Inside Face



Steel 2" From Outside Face
and 2" From Bottom of Footing
SIDEWALL ELEVATION

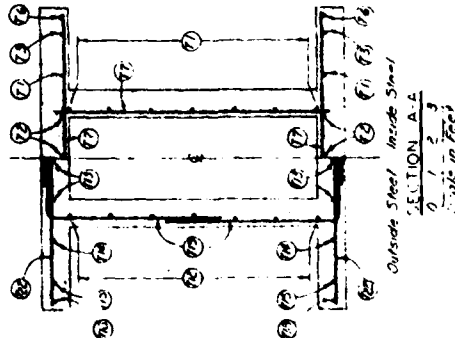
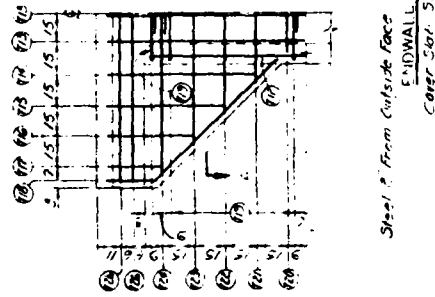
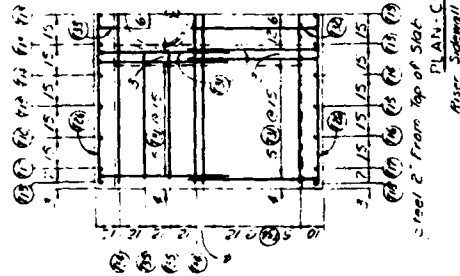
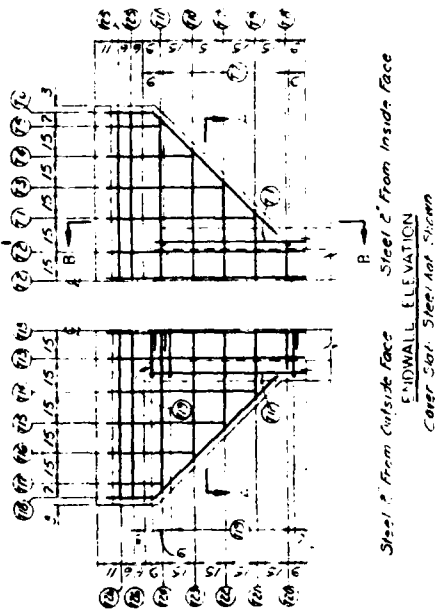
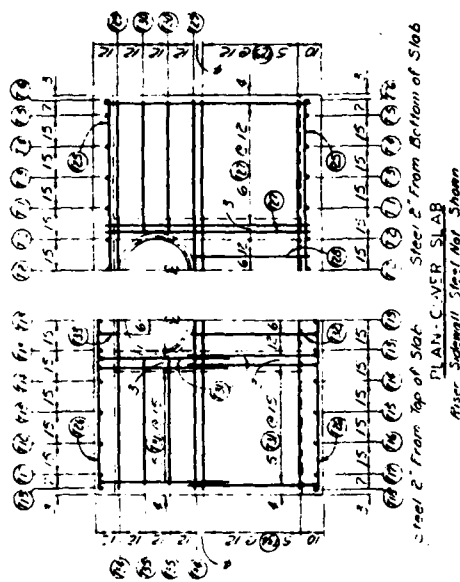
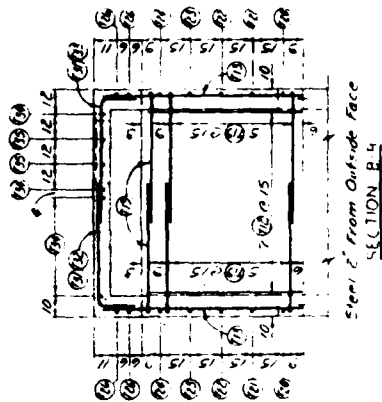
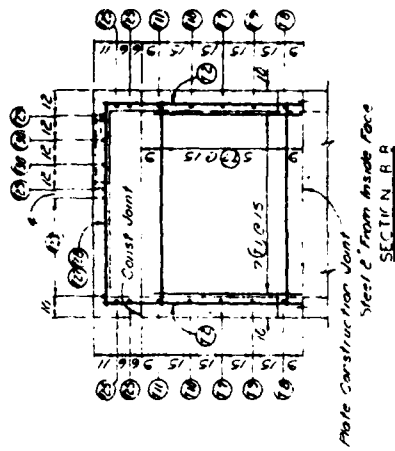
If in field bend or cut steel as needed to install wall flange.

0 1/2" = 1'
Scale in Feet
Unless Otherwise Shown

DAM NO. 15
SWEETWATER CREEK WATERED-MORROCK CO. TENN.
RISER DETAILS
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

DATE: 12-12-55
DRAWN BY: J. C. SANDERS
CHECKED BY: J. C. SANDERS
SCALE: 1/2" = 1'
SHEET: 2 OF 2
PROJECT: TN-2034-B

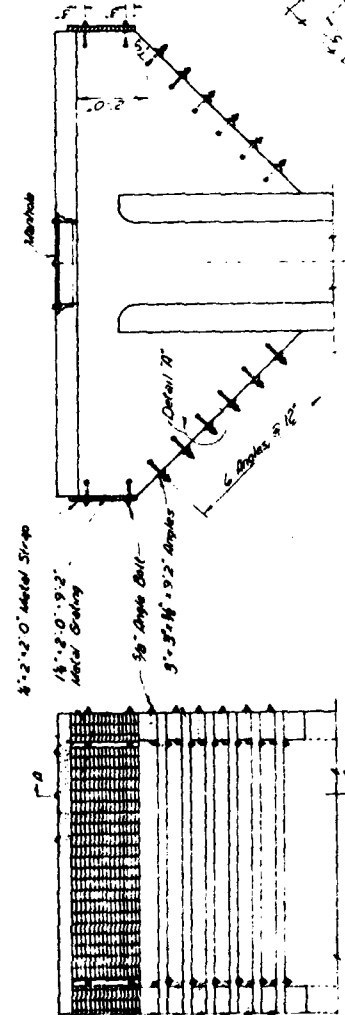
STAINLESS STEEL COVERED RISER
RISER HEIGHT: 12'-0" (12'-0")
RISER WIDTH: 12'-0" (12'-0")
RISER LENGTH: 12'-0" (12'-0")
RISER WEIGHT: 12'-0" (12'-0")



0 2 4
Scale in Feet
Unless Otherwise Shown

DAM NO 15
SWIFTEATER CREEK INTERMED-MORDE CO. TERN
RISER DETAILS
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
RUMBLE
1957
TN-2034-15

STANDARD CIVIL ENGINE	1-1-1958
DESIGNED BY	1-1-1958
CHECKED BY	1-1-1958
APPROVED BY	1-1-1958
DATE	1-1-1958

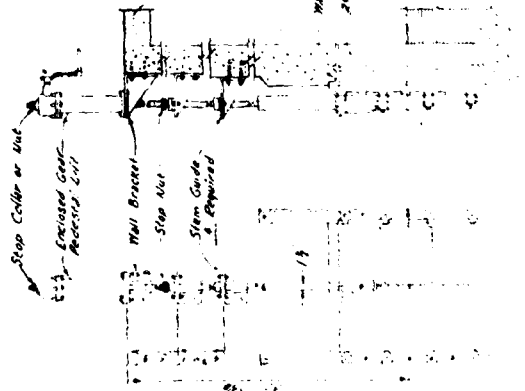


SIDE ELEVATION

DETAILS OF HIGH STAGE TRASH RACK

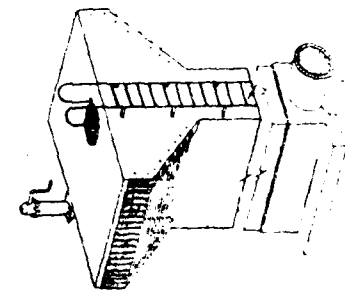
THE GATE ASSEMBLY SHALL INCLUDE THE FOLLOWING:

1. 24" x 24" slide gate class 35-48 Pin box, type MMS-1
2. 1 1/2" x 1 1/2" x 1 1/2" square flange, round opening, type 1
3. Stem guide, fully adjustable compatible with gate stem
4. Gate stem shall be 1 1/2" stainless steel, threaded section
5. All components shall be stainless steel and fitting device shall be compatible with assembly shall be compatible with 304L stainless steel

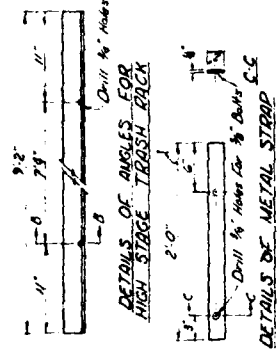


ISOMETRIC VIEW

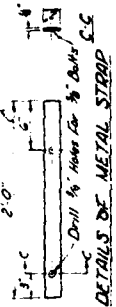
Note: All exposed metal surfaces shall be painted with the best quality commercial paint. The paint shall be applied to all surfaces of stainless steel items.



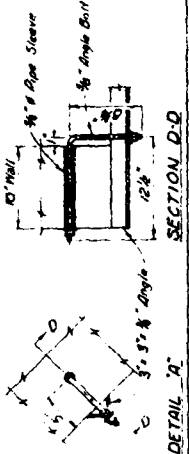
ISOMETRIC VIEW



DETAILS OF ANGLES FOR HIGH STAGE TRASH RACK

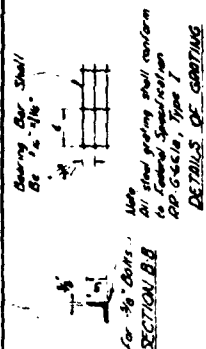


DETAILS OF METAL STRAP

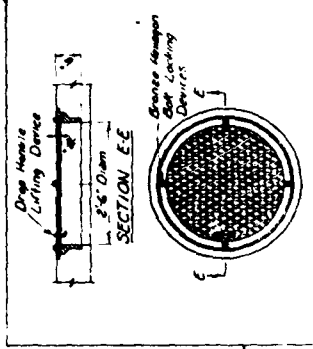


DETAIL A

Note: All trash rack grates, angles, straps, bolts and nuts shall be galvanized. All nuts shall be hexagonal.



DETAILS OF GRATING



PLAN

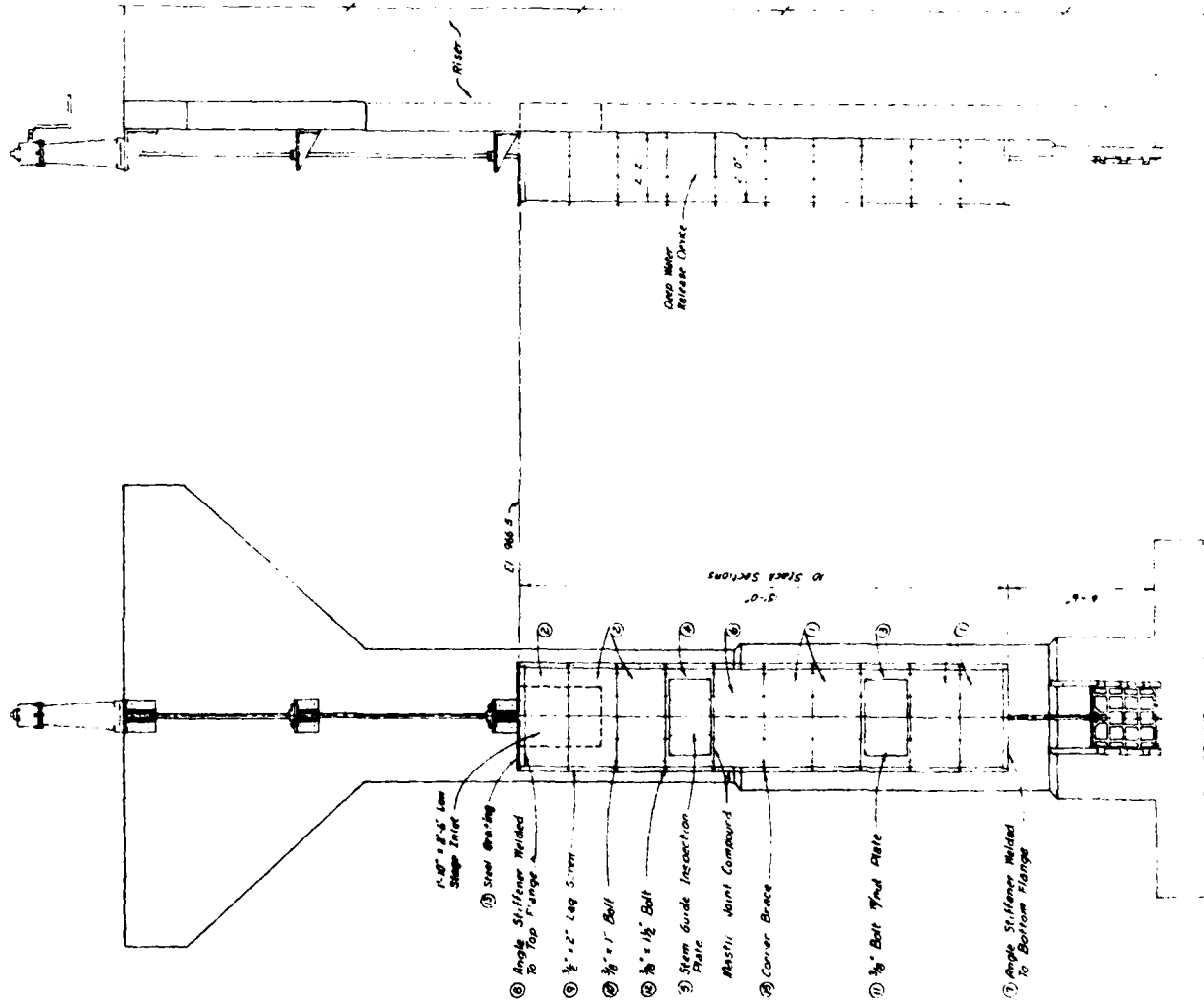
DETAILS OF MANHOLE COVER

Note: Manhole cover shall be Model No. D-4077 with Type C drop handle lift and Type Z bronze hexagon bolt locking device, manufactured by American Foundry Company, American Brasscast, or equal.

BILL OF MATERIAL FOR HIGH STAGE TRASH RACK

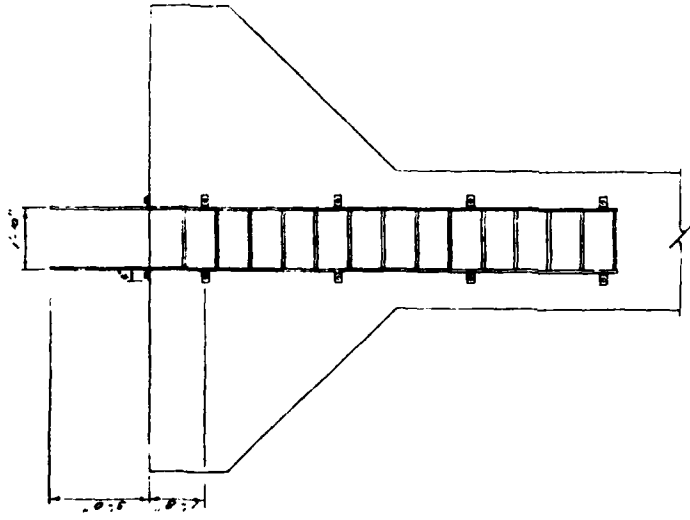
Item	Qty	Unit	Material
1	1	Each	Manhole Cover
2	1	Each	Manhole Cover
3	1	Each	Manhole Cover
4	1	Each	Manhole Cover
5	1	Each	Manhole Cover
6	1	Each	Manhole Cover
7	1	Each	Manhole Cover
8	1	Each	Manhole Cover
9	1	Each	Manhole Cover
10	1	Each	Manhole Cover
11	1	Each	Manhole Cover
12	1	Each	Manhole Cover
13	1	Each	Manhole Cover
14	1	Each	Manhole Cover
15	1	Each	Manhole Cover
16	1	Each	Manhole Cover
17	1	Each	Manhole Cover
18	1	Each	Manhole Cover
19	1	Each	Manhole Cover
20	1	Each	Manhole Cover
21	1	Each	Manhole Cover
22	1	Each	Manhole Cover
23	1	Each	Manhole Cover
24	1	Each	Manhole Cover
25	1	Each	Manhole Cover
26	1	Each	Manhole Cover
27	1	Each	Manhole Cover
28	1	Each	Manhole Cover
29	1	Each	Manhole Cover
30	1	Each	Manhole Cover
31	1	Each	Manhole Cover
32	1	Each	Manhole Cover
33	1	Each	Manhole Cover
34	1	Each	Manhole Cover
35	1	Each	Manhole Cover
36	1	Each	Manhole Cover
37	1	Each	Manhole Cover
38	1	Each	Manhole Cover
39	1	Each	Manhole Cover
40	1	Each	Manhole Cover
41	1	Each	Manhole Cover
42	1	Each	Manhole Cover
43	1	Each	Manhole Cover
44	1	Each	Manhole Cover
45	1	Each	Manhole Cover
46	1	Each	Manhole Cover
47	1	Each	Manhole Cover
48	1	Each	Manhole Cover
49	1	Each	Manhole Cover
50	1	Each	Manhole Cover
51	1	Each	Manhole Cover
52	1	Each	Manhole Cover
53	1	Each	Manhole Cover
54	1	Each	Manhole Cover
55	1	Each	Manhole Cover
56	1	Each	Manhole Cover
57	1	Each	Manhole Cover
58	1	Each	Manhole Cover
59	1	Each	Manhole Cover
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88	1	Each	Manhole Cover
89	1	Each	Manhole Cover
90	1	Each	Manhole Cover
91	1	Each	Manhole Cover
92	1	Each	Manhole Cover
93	1	Each	Manhole Cover
94	1	Each	Manhole Cover
95	1	Each	Manhole Cover
96	1	Each	Manhole Cover
97	1	Each	Manhole Cover
98	1	Each	Manhole Cover
99	1	Each	Manhole Cover
100	1	Each	Manhole Cover

DAM NO 15
SWEETWATER CREEK WATERSHED-MONROE CO. TENN
DETAILS OF TRASH RACK, HEADGATE & MANHOLE COVER
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
CRAFTS & SCOTT
SULLIVAN
TN-2034-15

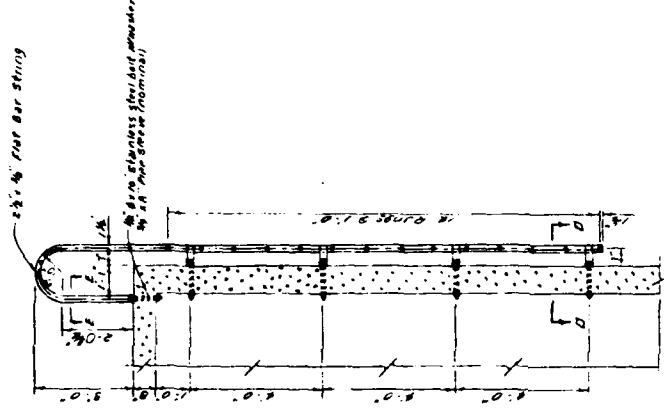


DAM NO 15
 SWEETWATER CREEK WATERSHED-MONROE CO, TENN
 DEEP WATER RELEASE DEVICE
 U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 CHARLES B. SCOTT 4 7
 SANDERS 4 7
 BURNS 4 7
 5 24 45
 TN-2034-B

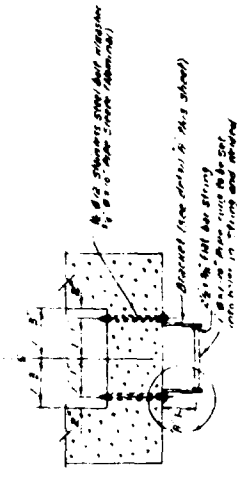
NOT TO SCALE



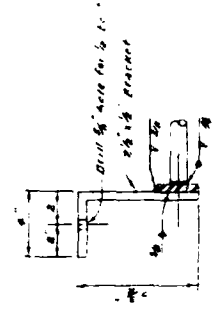
DOWNSTREAM ELEVATION



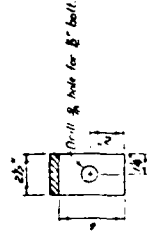
SIDE ELEVATION



SECTION D-D



DETAIL A



SECTION C-C

BILL OF MATERIAL FOR LADDER

ITEM	QUANTITY	UNIT	PRICE	TOTAL
1. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
2. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
3. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
4. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
5. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
6. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
7. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
8. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
9. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
10. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
11. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
12. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
13. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
14. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
15. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
16. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
17. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
18. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
19. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40
20. 2" x 4" x 1/2" PLATE	4	sq. ft.	1.10	4.40

DAM NO 15
SWEETWATER CREEK WATERSHED-HOWARD CO. TENN.
LADDER DETAILS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

CHARLES E. SCOTT
SULLIVAN

TN-2034-B

Mark	Item	Size	Quantity
1	Steel Section	See Details	1
2	Steel Section	See Details	1
3	Steel Section	See Details	1
4	Steel Section	See Details	1
5	Steel Section	See Details	1
6	Steel Section	See Details	1
7	Steel Section	See Details	1
8	Steel Section	See Details	1
9	Steel Section	See Details	1
10	Steel Section	See Details	1
11	Steel Section	See Details	1
12	Steel Section	See Details	1
13	Corner Brace	See Details	1

1 Steel sections, including plates and corner braces to be fabricated from a single hot rolled carbon steel sheet, commercial quality, A-36 Specification A 563.

2 Plates shall meet ASTM Specification A 36.

3 Steel sections shall meet Specification A 36.

4 Steel sections shall meet Specification A 36.

5 All steel shall be galvanized after fabrication.

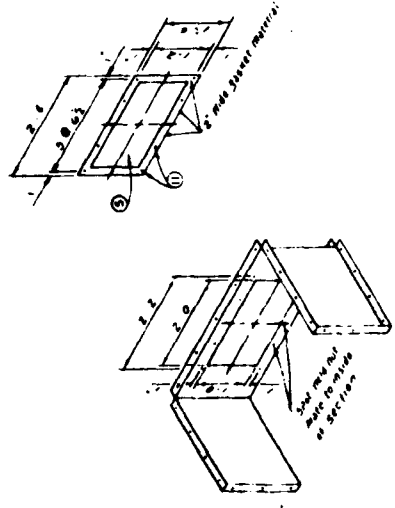
6 All steel shall be galvanized after fabrication.

7 All steel shall be galvanized after fabrication.

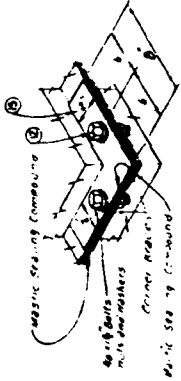
8 All steel shall be galvanized after fabrication.

9 All steel shall be galvanized after fabrication.

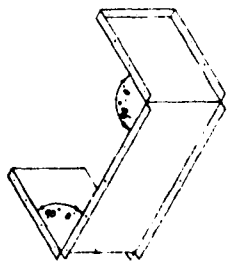
10 All steel shall be galvanized after fabrication.



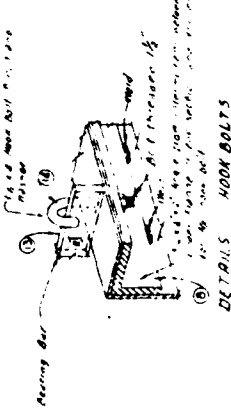
TYPICAL STEM GUIDE INSPECTION SECTION



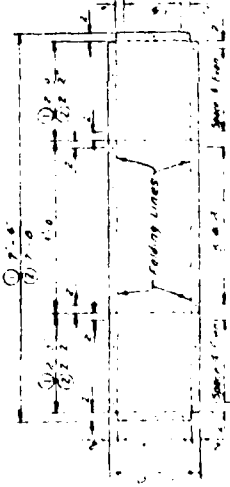
DETAILS CORNER BRACES



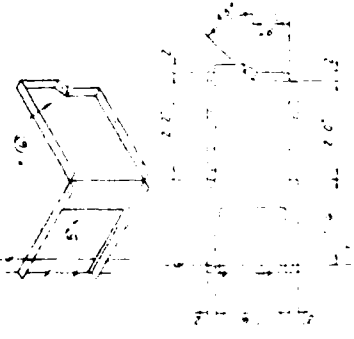
DETAILS BOLT WITH ANCHOR



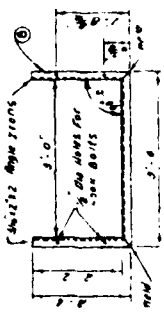
DETAILS HOOK BOLTS



STACK SECTION OF DAM CREST



DETAILS STEEL LINING

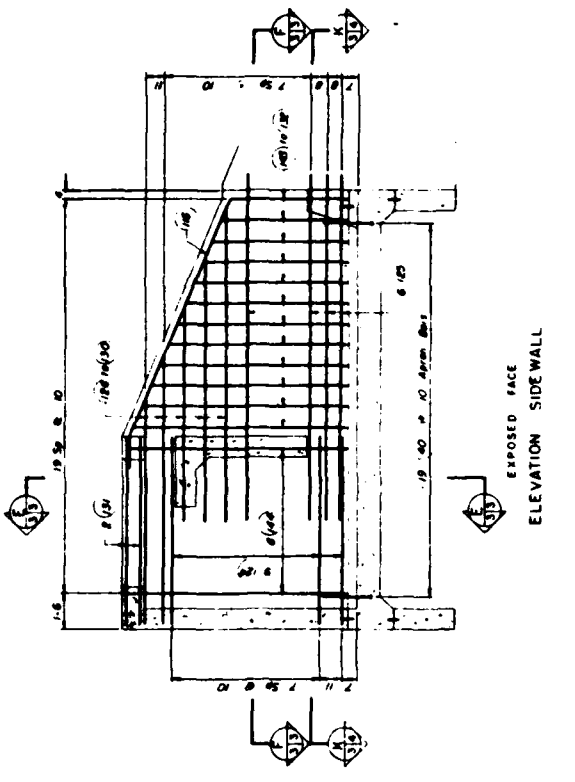


DETAILS ANGLE STIFFENER

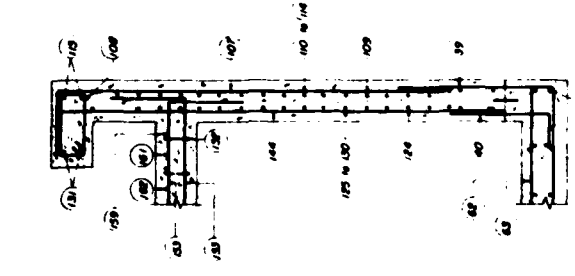


DETAILS ANGLE STIFFENER

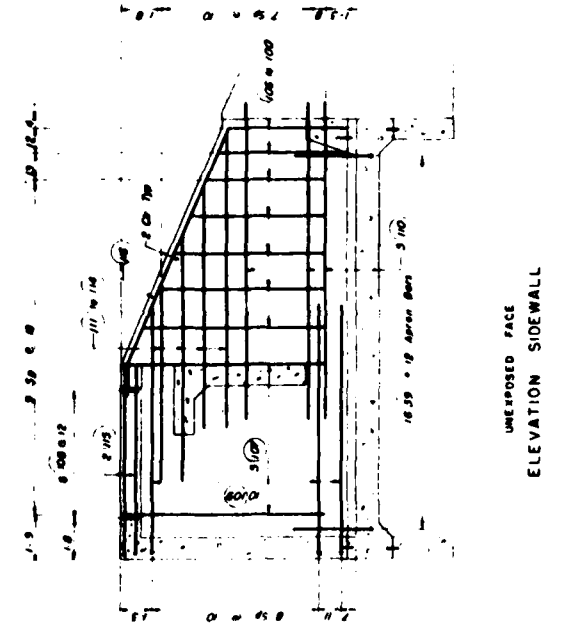
DAM NO 15
 SHEFF-WATER CREEK WATERSHED-MORRIS CO. TENN.
 DEEP WATER RELEASE DEVICE
 U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 CONTRACT NO. 57-1-100-100-100-100
 DRAWING NO. 57-1-100-100-100-100



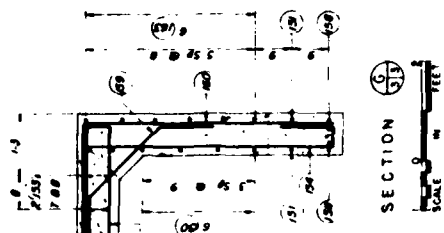
EXPOSED FACE
ELEVATION SIDEWALL



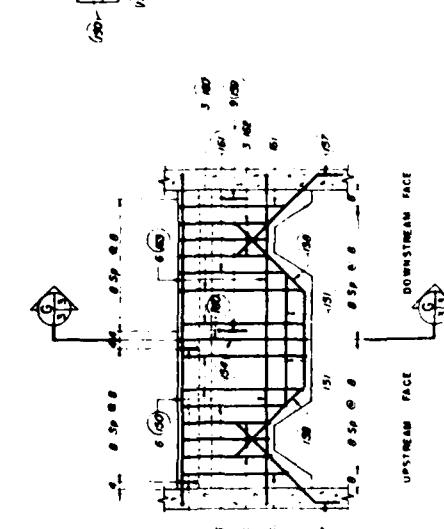
SECTION
SCALE IN FEET



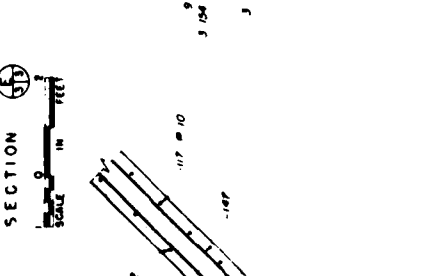
UNEXPOSED FACE
ELEVATION SIDEWALL



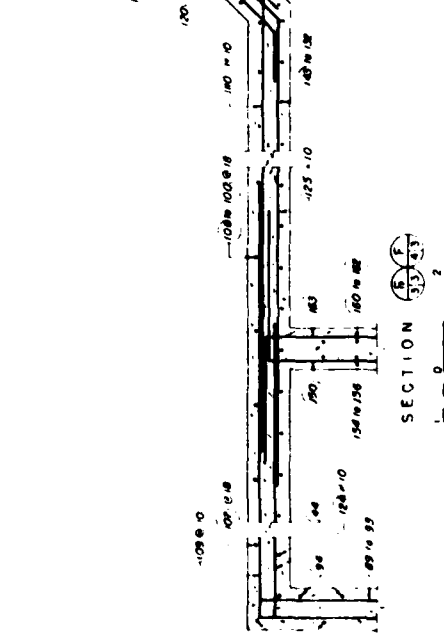
SECTION
SCALE IN FEET



UPSTREAM FACE
DOWNSTREAM FACE
BAFFLE ELEVATION



SECTION
SCALE IN FEET

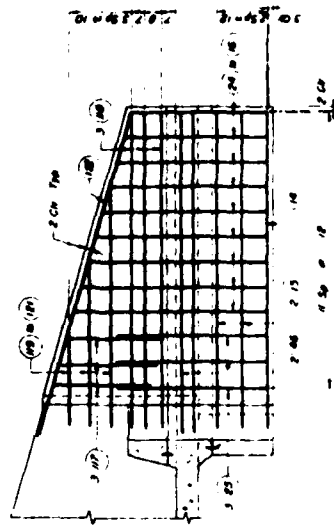


SECTION
SCALE IN FEET

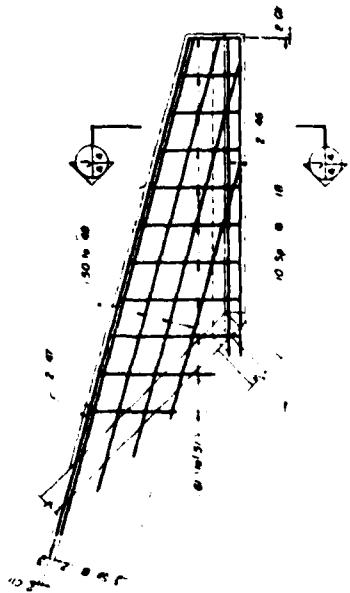
DAM NO 15
SWEETWATER CREEK WATERSHED-MONROE CO, TENN
DETAILS - IMPACT BASIN
DESIGNED BY
SOIL CONSERVATION SERVICE
APPROVED BY
DATE
PROJECT NO. TM-2034-15

SCALE
AS SHOWN

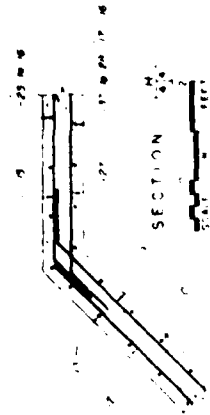
STAYCAMP MPACT BASIN	DATE: 8/20/88
DR: A. S. S. S. S.	DESIGNED BY: S. J. S. S.
STAYCAMP WATERSHED NO. 15, 420	PROJECT NO. 15, 420
DATE: 8/20/88	SCALE: AS SHOWN



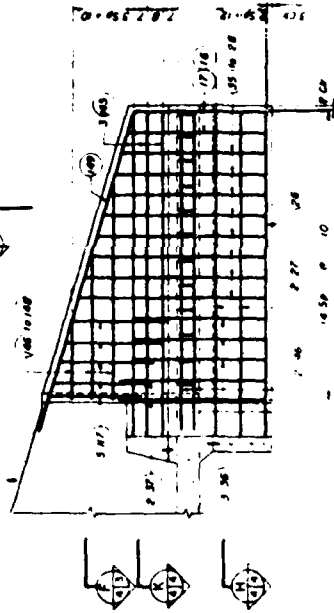
EXPOSED FACE
WINGWALL ELEVATION



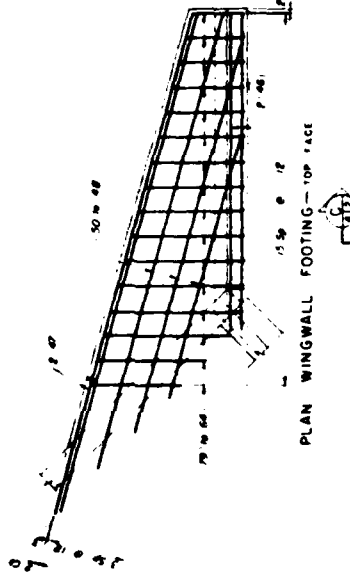
PLAN WINGWALL FOOTING—BOTTOM FACE



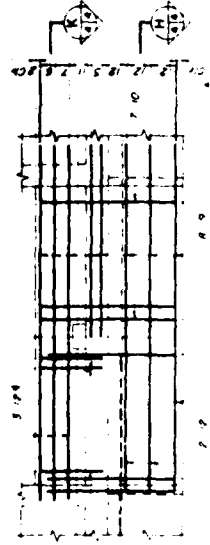
SECTION A-A



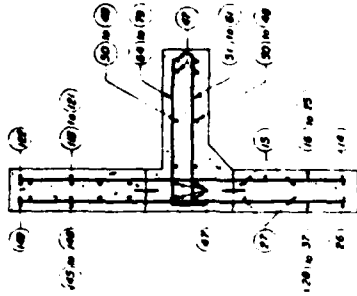
EXPOSED FACE
WINGWALL ELEVATION



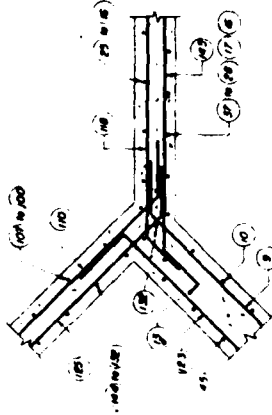
PLAN WINGWALL FOOTING—TOP FACE



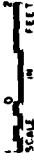
ELEVATION OF END SILL B TOEWALL



SECTION A-A



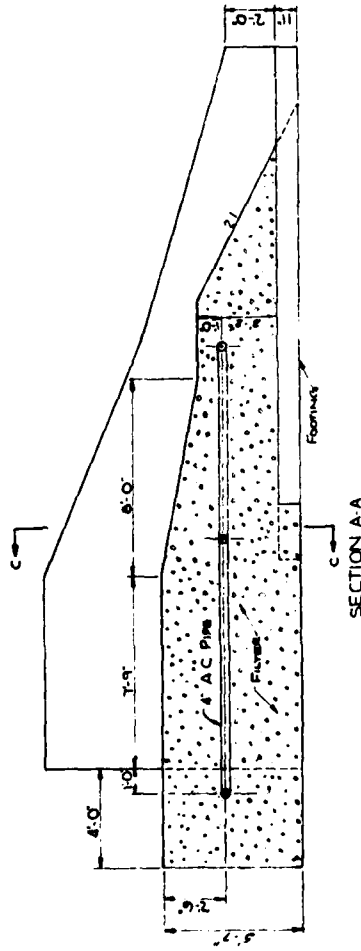
SECTION B-B



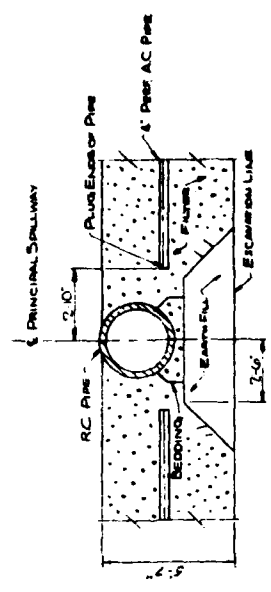
SCALE IN FEET

DAM NO 15
SWEETWATER CREEK WATERSHED-MONROE CO. TENN
DETAILS - IMPACT BASIN
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
PROJECT NO. 476
SHEET NO. 22
TN-2034-15

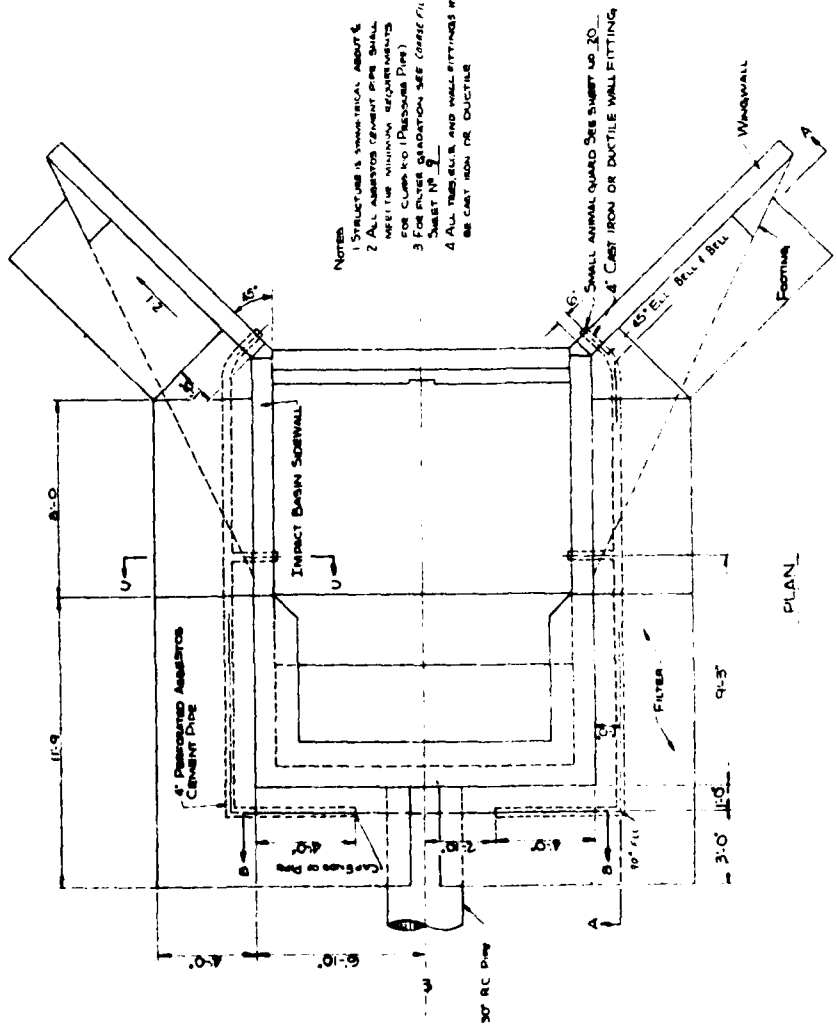
STANDARD IMPACT BASIN	DATE	SHEET 4 OF 5
DESIGNED BY	DATE	BY
CHECKED BY	DATE	BY
APPROVED BY	DATE	BY
STANDARD DRAWING NO. ES-4120	DATE	BY
SCALE	DATE	BY



SECTION A-A

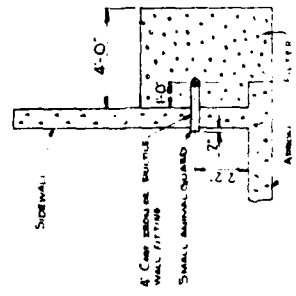


SECTION B-B



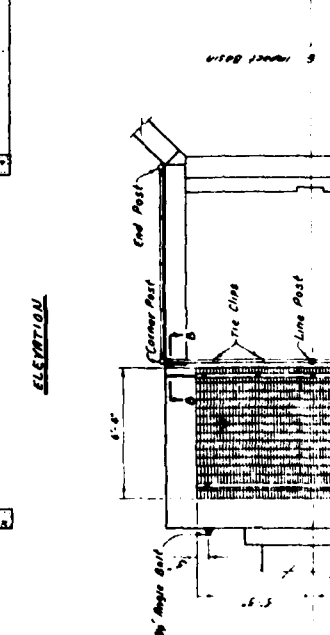
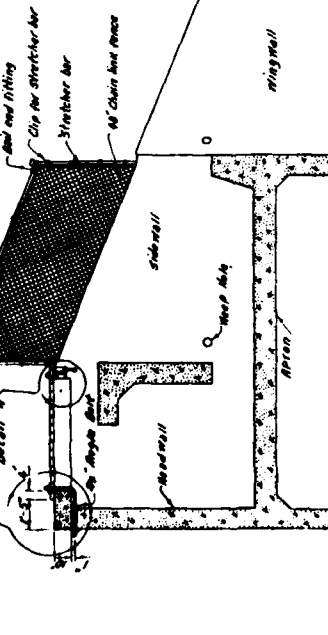
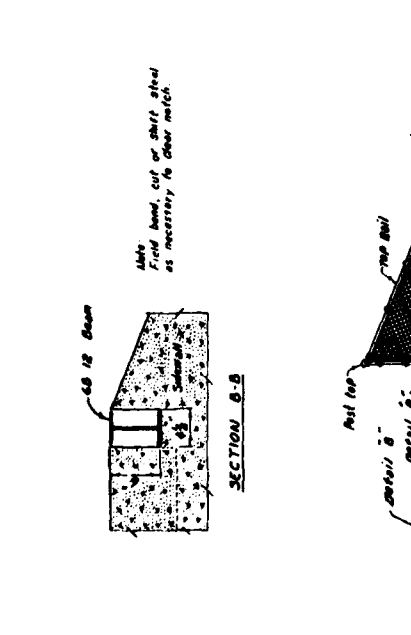
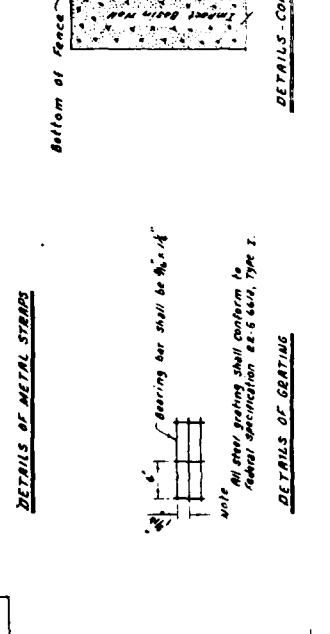
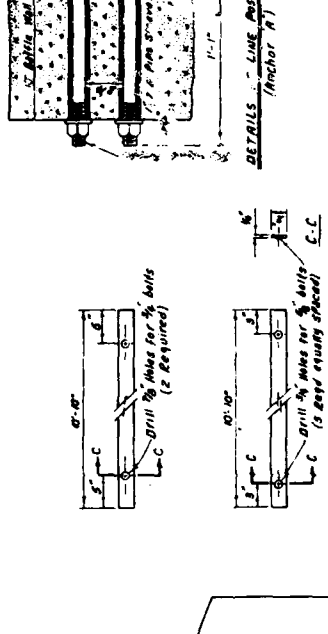
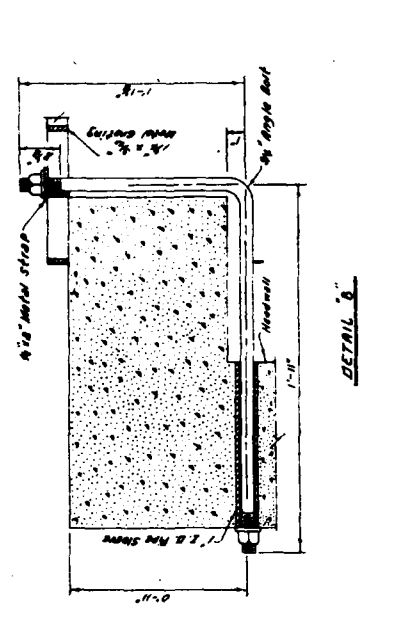
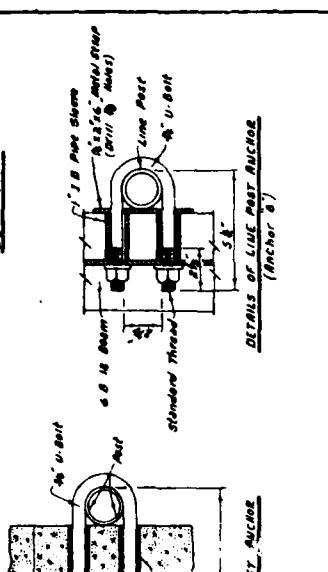
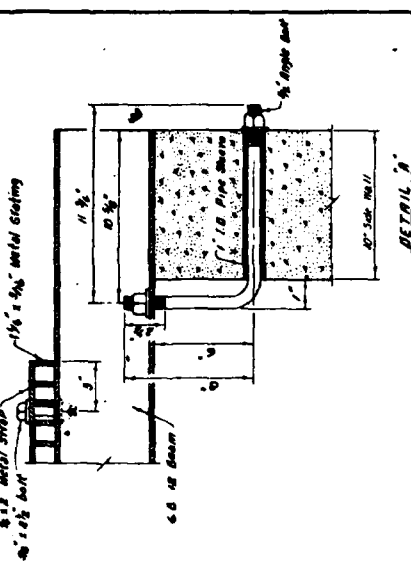
PLAN

- NOTES
- 1 Structure is symmetrical about C.
 - 2 All dimensions given are minimum unless otherwise noted.
 - 3 For cast in place concrete see (cast in place) sheet for foundation.
 - 4 All materials and workmanship will be cast in place.



SECTION C-C

DAM NO 15		SWEETWATER CREEK WATERSHED-NORRIS CO. TENN.	
FILTER DETAILS - IMPACT BASIN		U.S. DEPARTMENT OF AGRICULTURE	
SOIL CONSERVATION SERVICE		CHARLES B. SCOTT 4-28-54	
		SULLIVAN 4-28-54	
		FERREMAN 4-28-54	
		M.C.C. 5-28-54	
		TN-2034-B	



DAM NO 15
SWEETWATER CREEK WATERSHED-MORROW CO, TENN
IMPACT BASIN COVER & FENCE DETAILS
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

BILL OF MATERIALS FOR IMPACT BASIN COVER

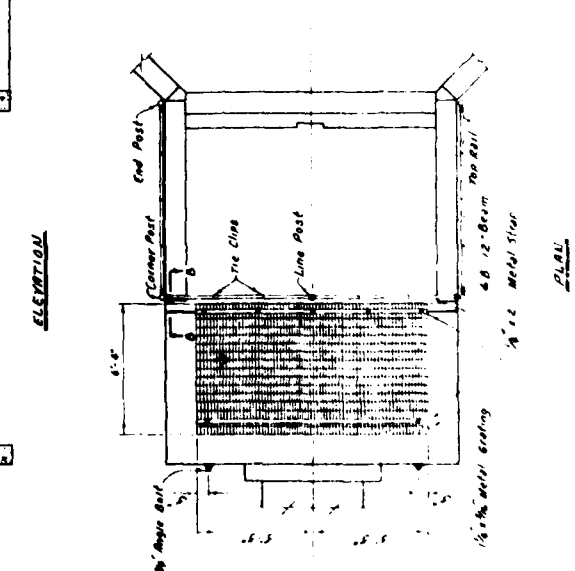
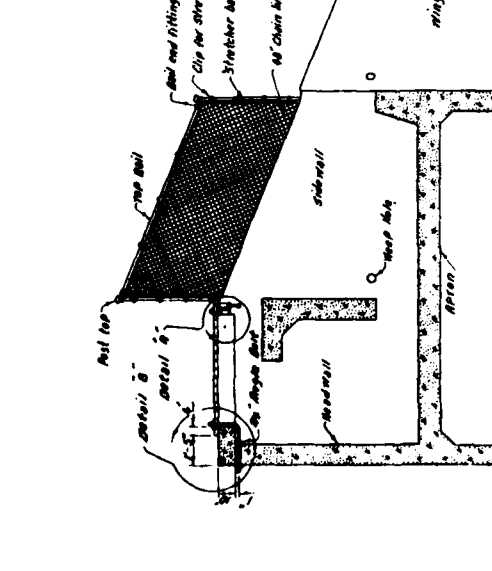
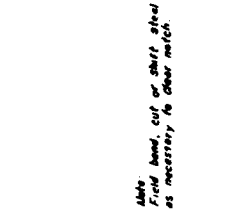
- 4.0 12 beam 2.0 long angle bolts, nuts & washers
- 4.0 12 beam 2.0 long angle bolts, nuts & washers
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long

BILL OF MATERIALS FOR CORNER & END POST

- 4.0 12 beam 2.0 long angle bolts, nuts & washers
- 4.0 12 beam 2.0 long angle bolts, nuts & washers
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long

BILL OF MATERIALS FOR CHAIN LINK FENCE

- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long



NOTES

- All metal grating, beam straps, bolts, nuts, washers, and anchors shall be galvanized.
- After fabrication all nuts shall be hexagonal.
- Galvanizing grade, quality shall be determined by the contractor.

MISC. ITEMS NECESSARY FOR FENCE INSTALLATION

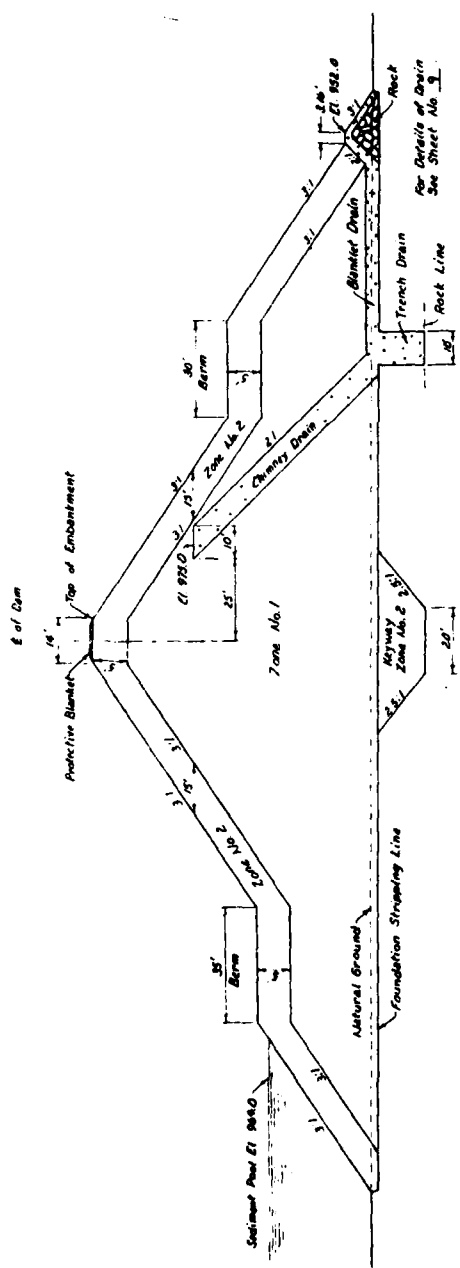
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long
- 1.0 1.0 pipe sleeve 2.0 long

PLBL

CL - SC
 a. rivul bottom of creek
 Pipe and sand

CH - MM
 ROCK

SC SEA RISE SL



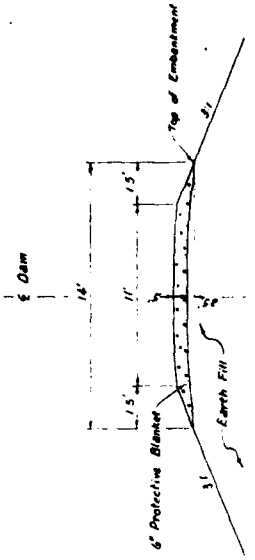
TYPICAL SECTION - EMBANKMENT

REQUIRED USE OF EXCAVATED MATERIAL

EMBRANKMENT ZONE	DESCRIPTION	SOURCE OF FILL MATERIAL	LAB TEST	COMPACTION REQUIREMENTS		Lab Curve No				
				Max Dry Density, lb/cu ft	Min Dry Density, lb/cu ft					
1	Inside	Emergency Spillway	Standard max Dry Density moist	94.5	25.5	26.0	81.7	-3	+1	1
1	Inside	Emergency Spillway	Standard max Dry Density moist	94.5	25.5	26.0	81.7	-3	+1	2
1	Inside	Emergency Spillway	Standard max Dry Density moist	93.0	27.0	28.5	88.5	-3	+3	3
1	Inside	Borrow	Standard max Dry Density moist	93.5	26.5	28.0	88.6	-3	+4	4
1	Inside	Borrow	Standard max Dry Density moist	105.5	20.0	20.0	100.2	-3	+6	6
1	Inside	Borrow	Standard max Dry Density moist	105.5	20.0	20.0	100.2	-3	+6	6
2	Keyway, Principal Spillway and Outside Shell	Borrow	Standard max Dry Density moist	118.0	18.5	18.5	110.2	0	+5	5

Notes:

- The engineer will direct a selective placement of all fill materials in consideration of the preferred uses shown in the table above.
- Zones shown are for guidance in placement only and are not intended to be used as a basis for the extent that materials are available to construct the zones is recommended in the table above.



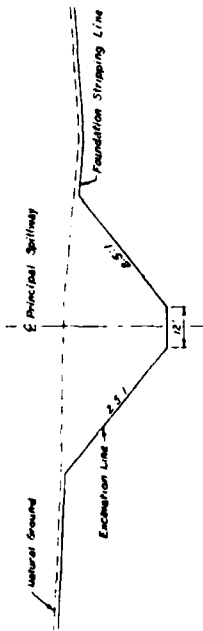
DETAILS OF PROTECTIVE BLANKET
 (From Approx Sta 9+43 To Approx Sta 20+58)

DAM NO 15
 SWEETWATER CREEK WATERED-MONROE CO. TENN
 TYPICAL SECTION - EMBANKMENT

U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

CRABTREE & SCOTT
 ENGINEERS
 MEMPHIS, TENN.

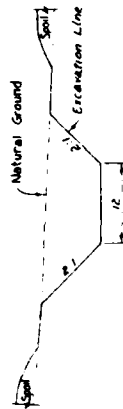
TN-2034-15



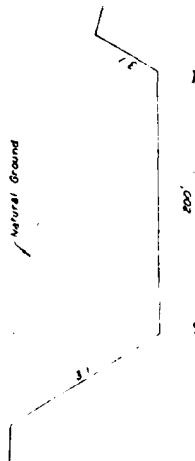
TYPICAL SECTION - PRINCIPAL SPILLWAY TRENCH



TYPICAL SECTION - STREAM CHANNEL CLEARCUT



TYPICAL SECTION - OUTLET CHANNEL



TYPICAL SECTION - EMERGENCY SPILLWAY

Note: Stream Channel under embankment shall be shaped / cleaned of objectionable material.

Not To Scale

DAM NO 15

SWEETWATER CREEK WATERSHED-MONROE CO. TENN

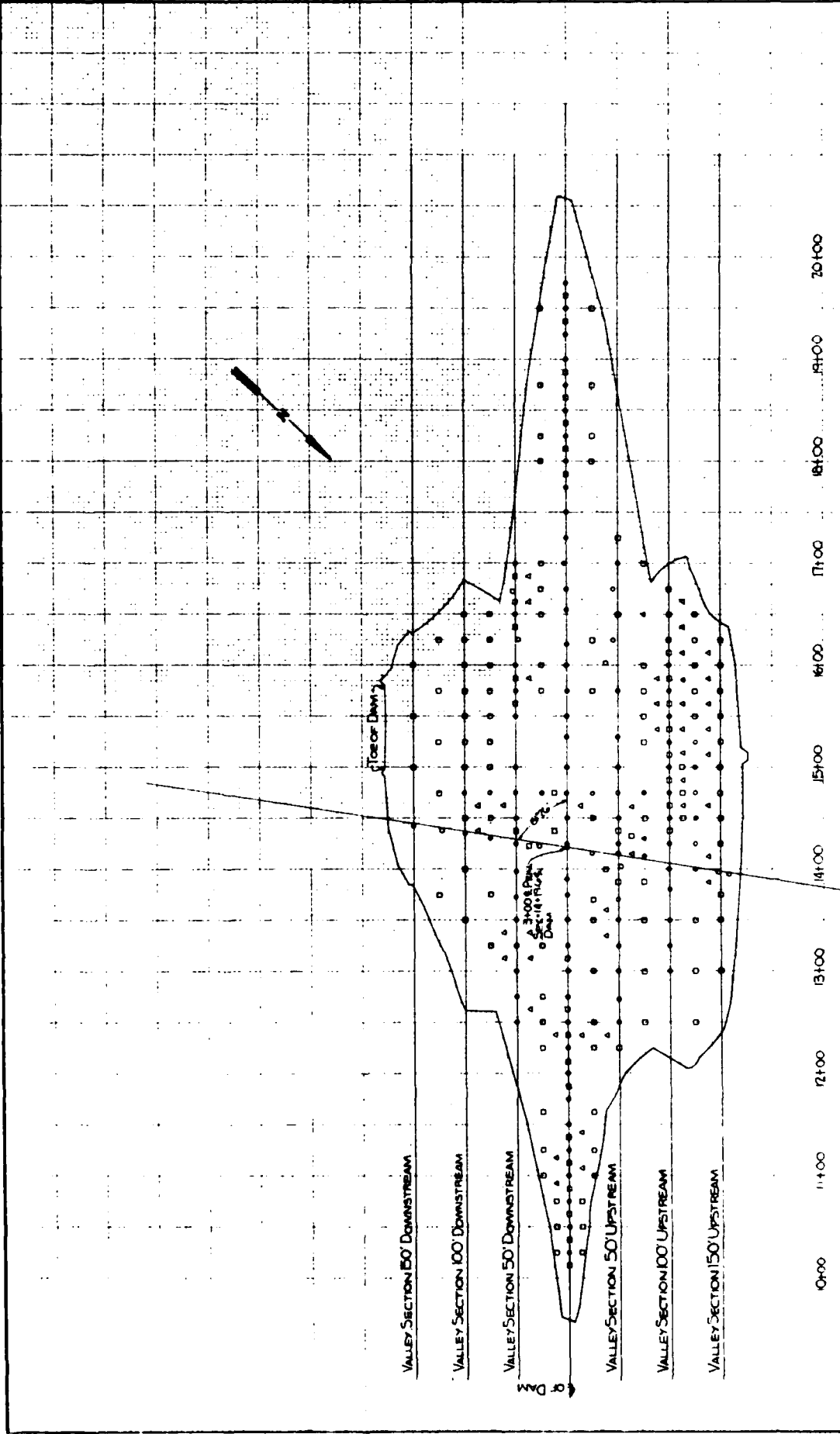
TYPICAL SECTIONS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

CHARTER & SCOTT
ENGINEERS

TN-2034-15

DAM NO 15
 SWEETWATER CREEK WATERSHED-MORRIS CO, TENN
 PLAN-FOUNDATION TREATMENT
 U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 CHARLOTTE, N.C.
 DATE: 11/15/64
 DRAWN BY: W.L.
 TN-2034-B

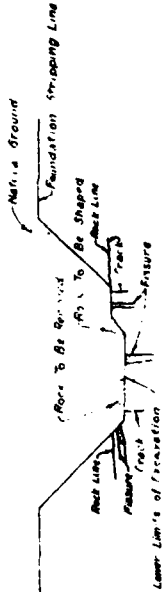


SCALE IN FEET
 0 50 100 150

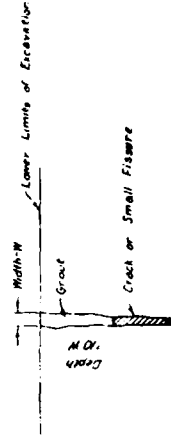
176 000' Principal Structure

TESTING TEST HOLES (PRIMARY GRAIN) IN SIZE
 OF PRIMARY GROUT HOLES
 & TERTIARY POST HEALS
 DATE
 LOCATION OF ATON AND DEPTH OF TERTIARY AND
 TERTIARY POST HEALS ARE NOTED DATE AND WILL
 BE DETERMINED IN THE EXP. REPORT

- Notes:**
- 1 Lower limits of keying from above the 12-16 to above the shaft and principal splicing trench excavation shall be a suitable rock surface that will be satisfactory as a foundation for the depth of embankment.
 - 2 Small cracks and fissures of 2" or less shall be cleaned to a depth of 1/4" with water and air prior to filling with grout.
 - 3 Cracks larger than 2" wide shall be excavated to a 2" wide depth with machine or by hand, then cleaned with water and air prior to filling with concrete.
 - 4 The rock surface shall be smoothed by the removal of small protruding areas and shaping the sides of the large protruding areas to a positive slope. The areas to be smoothed or shaped will be designated by the engineer.

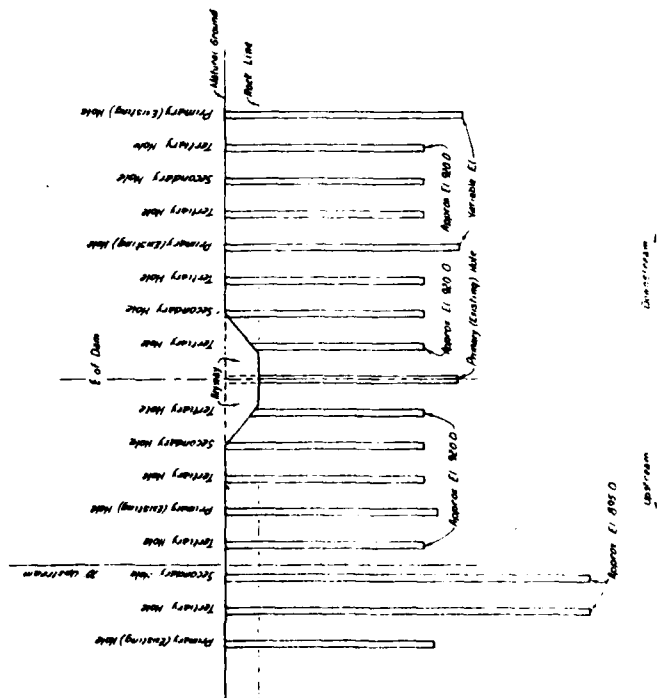


TYPICAL DENTAL FOUNDATION TREATMENT



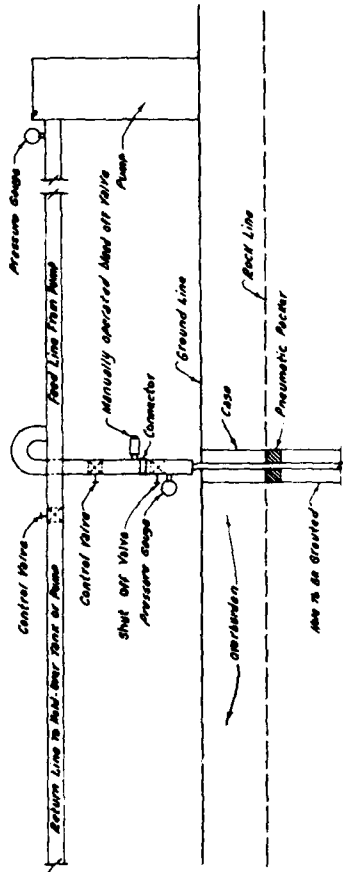
DETAILS OF DENTAL FOUNDATION TREATMENT

Notes:
 1. Foundation excavation will be completed prior to grouting primary holes in keyway and principal splicing trench.
 2. The engineer will determine the final location and depth of secondary and tertiary holes as needed.

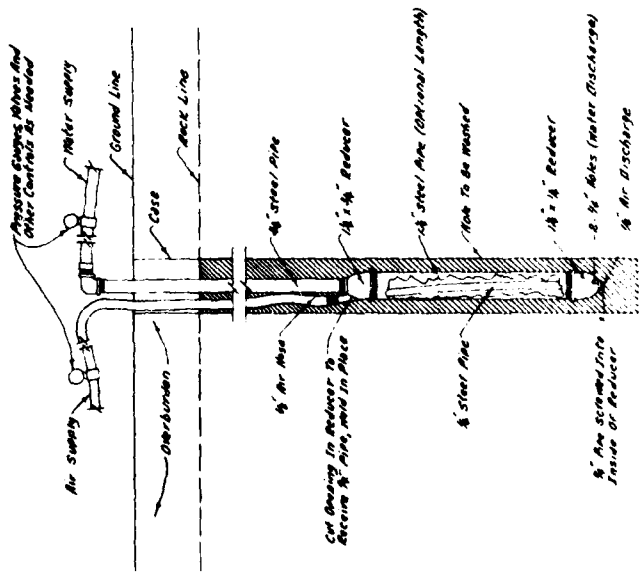


TYPICAL GROUT HOLE PLACEMENT

DAM NO. 15
 SWEETWATER CREEK WATERSHED-MORROCO CO. TENN.
 DETAILS - FOUNDATION TREATMENT
 U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 Prepared by: CRAMER & SCOTT, INC.
 1100 BURNS
 N.Y.C.
 TN-2054-6



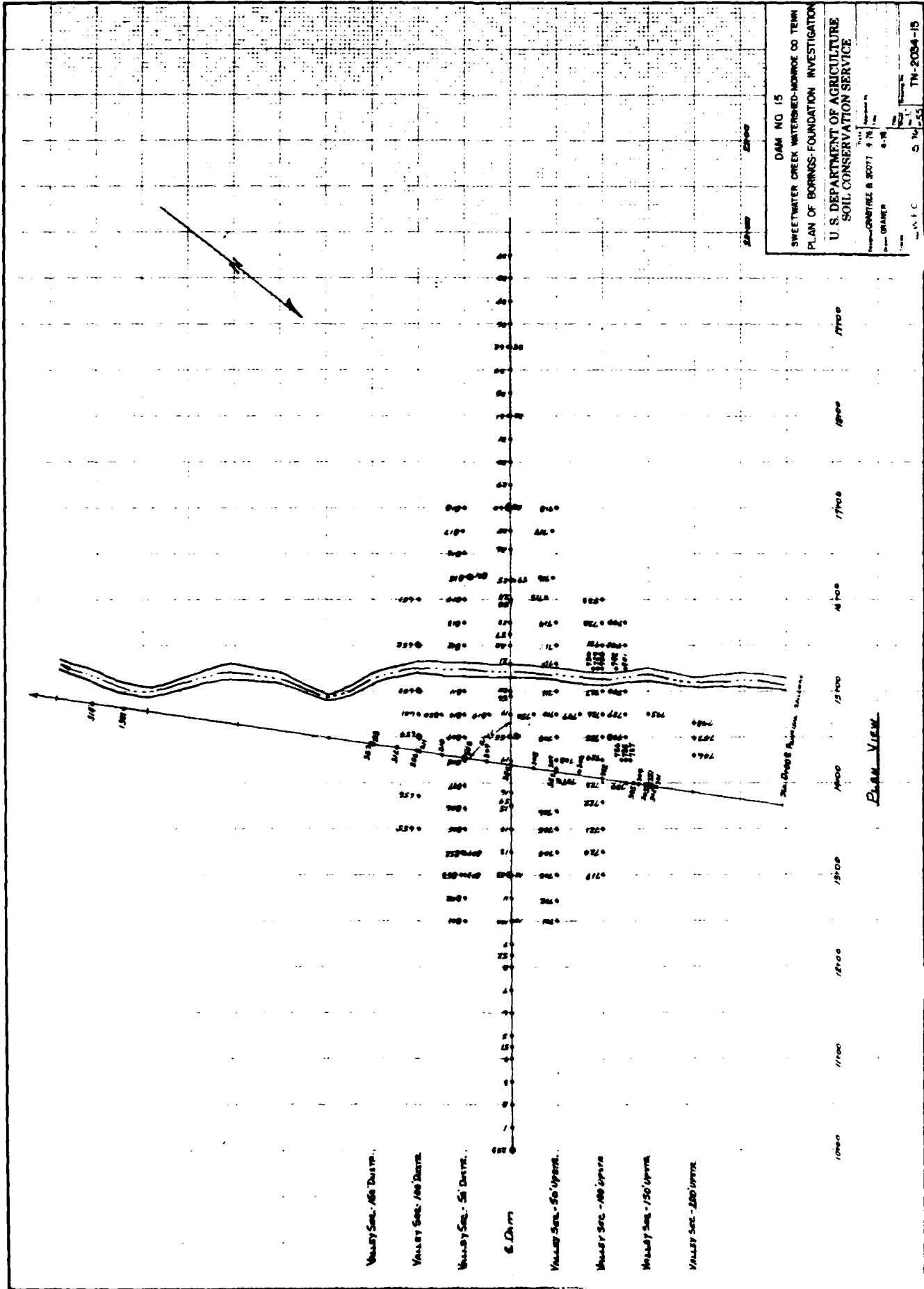
TYPICAL ARRANGEMENT OF GROUTING EQUIPMENT



TYPICAL WASH PIPE

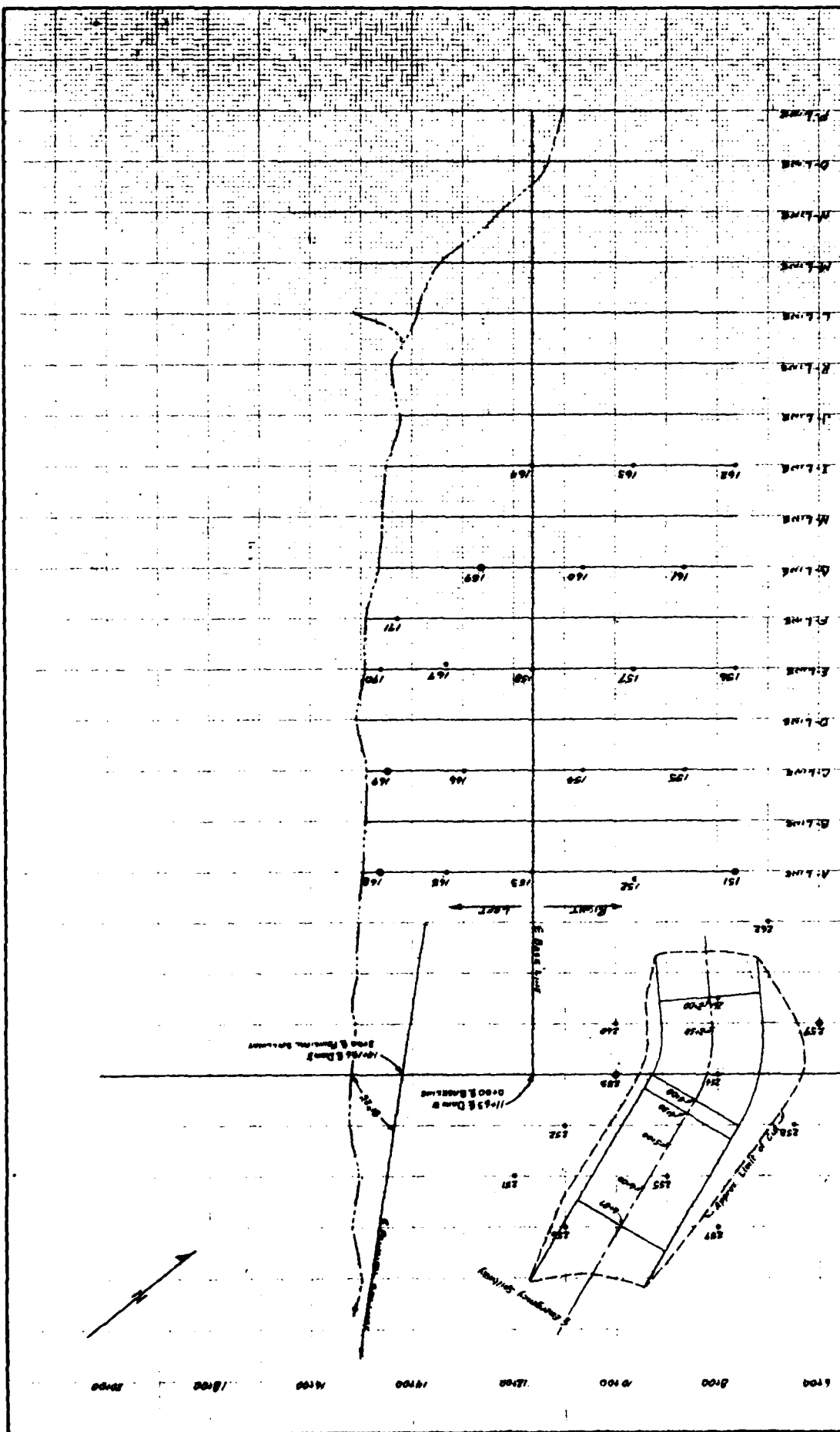
Not To Scale

DAM NO 15
 SWEETWATER CREEK WATERSHED-MORRIS CO. TENN
 TYPICAL WASHING & GROUTING EQUIPMENT
 U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 URBERT B. SCOTT 4 IN.
 SULLIVAN 4 IN.
 10 30
 TN-2034-15



DAM NO 15
 SWEETWATER CREEK WATERSHED—MOORE CO. TENN.
 PLAN OF BORINGS—BORROW INVESTIGATION
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

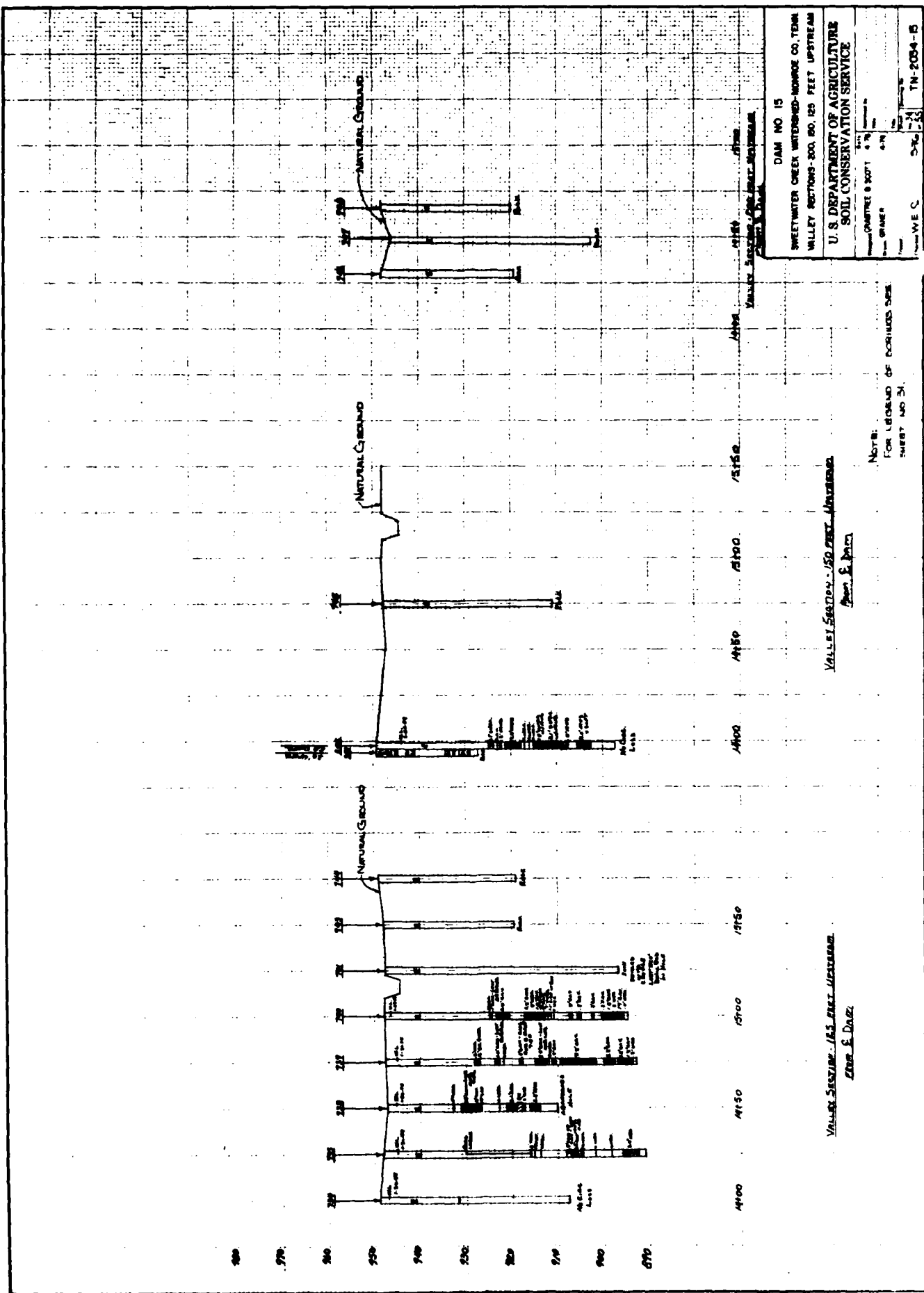
Prepared by CHANTREE & SCOTT 4-78
 Date 4-78
 Project CRANFORD
 Sheet 5 of 5
 Scale 5" = 100'
 Drawing No. TN-2034-15



PLAN VIEW

1800
1700
1600
1500
1400
1300
1200
1100
1000

11 11 11 11 11



DAM NO 15
 SWEETWATER CREEK WINTERSHED-MORRIS CO, TENN
 VALLEY SECTION-300, 80, 100 FEET UPSTREAM
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 DRAWN BY: W. E. C. 5-76
 CHECKED BY: J. H. 4-76
 PROJECT NO. 11-2004-B

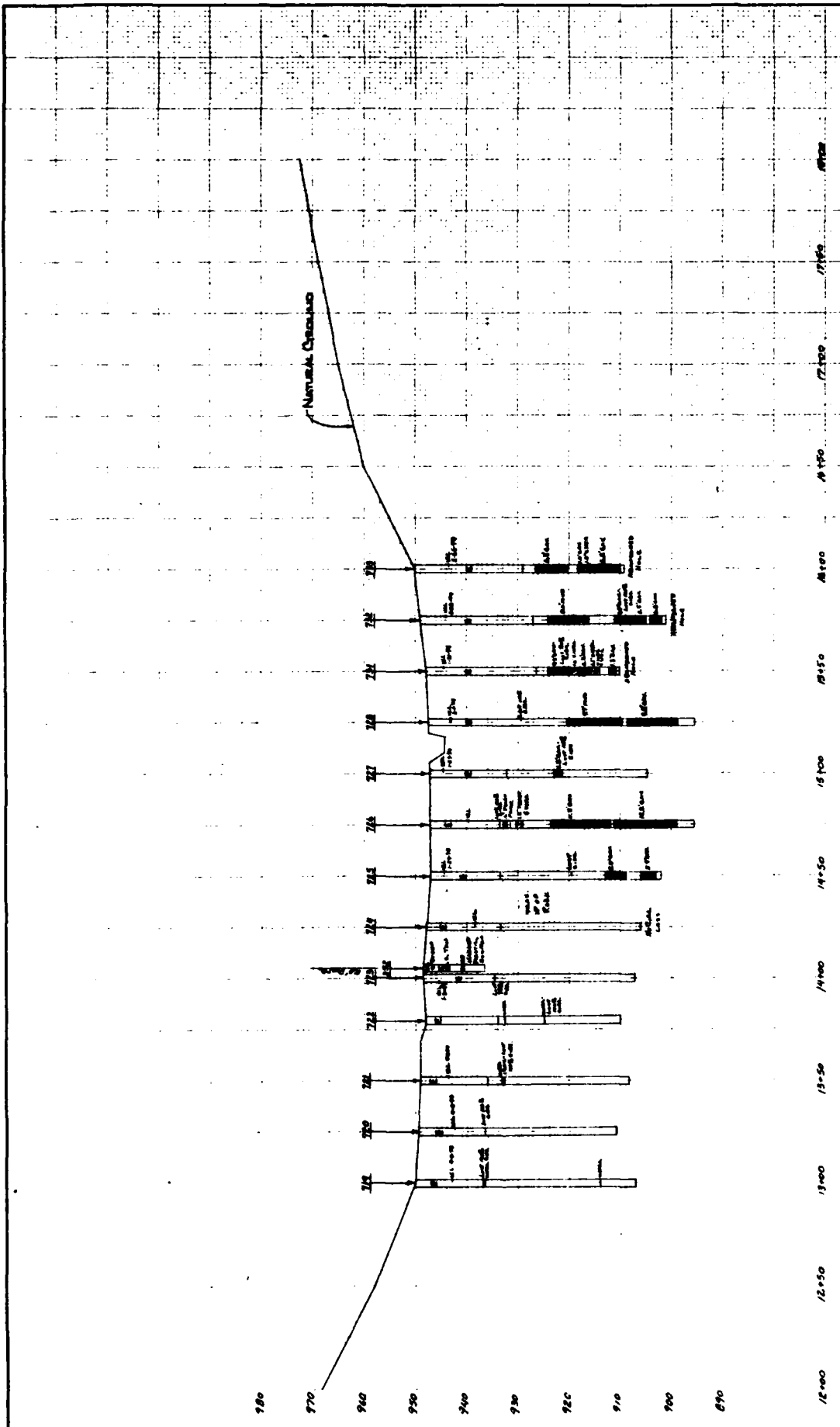
VALLEY SECTION - 150 FEET UPSTREAM
 Zhou & Datz

NOTE:
 FOR LEGEND OF ROCKS SEE
 SHEET NO 31.

VALLEY SECTION - 145 FEET UPSTREAM
 Zhou & Datz

540
530
520
510
500
490
480
470

4100 4150 4200 4250 4300 4350 4400

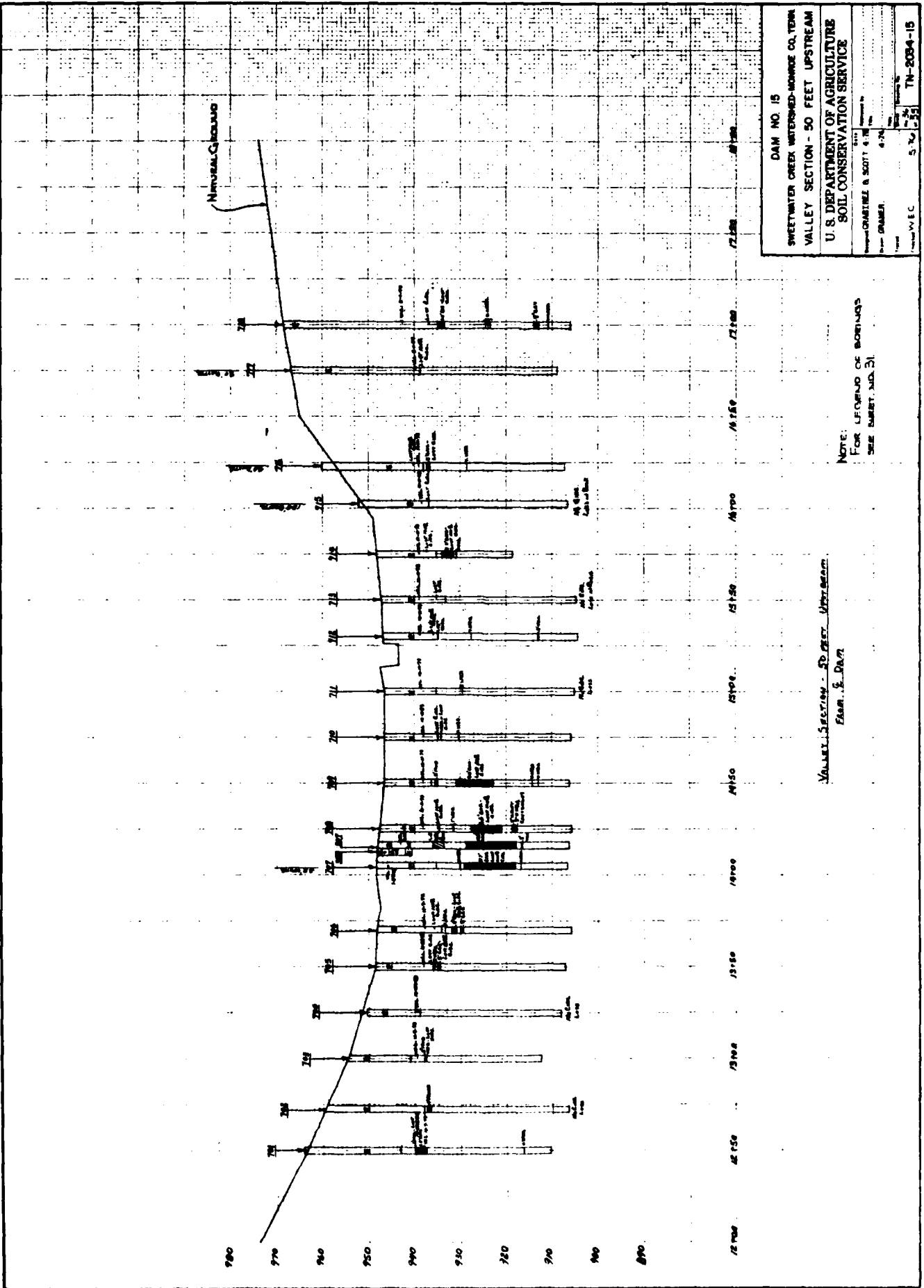


DAM NO 15
 SWEETWATER CREEK WATERSHED-MORDE CO. TENN
 VALLEY SECTION - 100 FEET UPSTREAM
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Project: CRABTREE & SCOTT & SONS
 Date: 6/1/51
 Drawn: GRANGER
 Scale: 1" = 20'
 Sheet: 5 of 35
 Project: W.E.C.
 Job: TN-2034-15

NOTE:
 FOR LEGEND OF BORINGS:
 SEE SHEET NO. 31

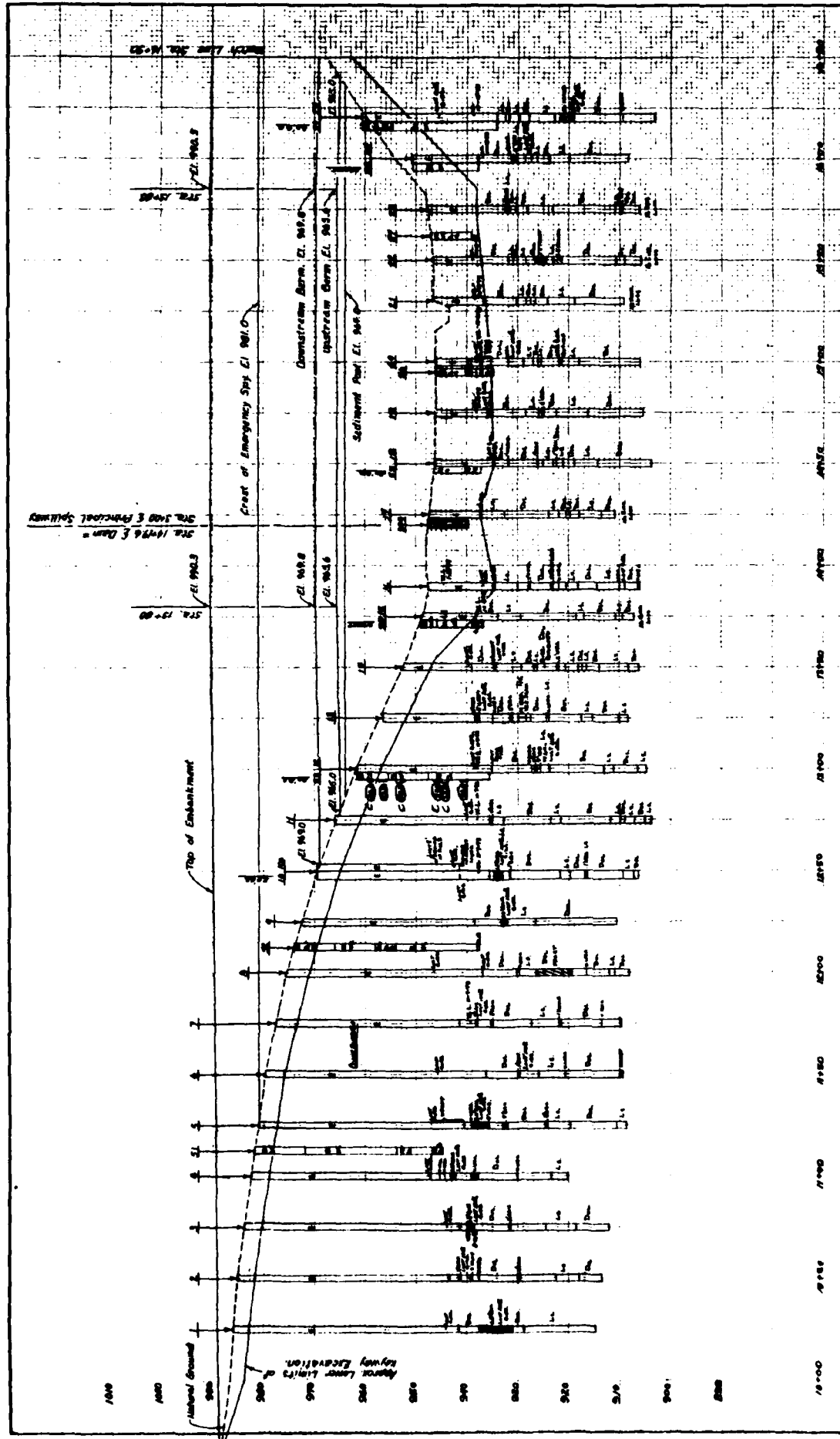
VALLEY SECTION - 100 FEET UPSTREAM
 Plan & Dam



DAM NO. 15
 SWEETWATER CREEK WATERSHED-MORRIS CO. TENN.
 VALLEY SECTION - 50 FEET UPSTREAM
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 DESIGNED BY CHARLES B. SCOTT & CO.
 DRAWN BY GRAMER
 DATE 4-7-55
 SCALE 1/4" = 1'-0"
 SHEET NO. 51
 PROJECT NO. TN-2084-15

NOTE:
 FOR LEGEND OF SYMBOLS
 SEE SHEET NO. 51

VALLEY SECTION - 50 FEET UPSTREAM
 FROM S. DAM



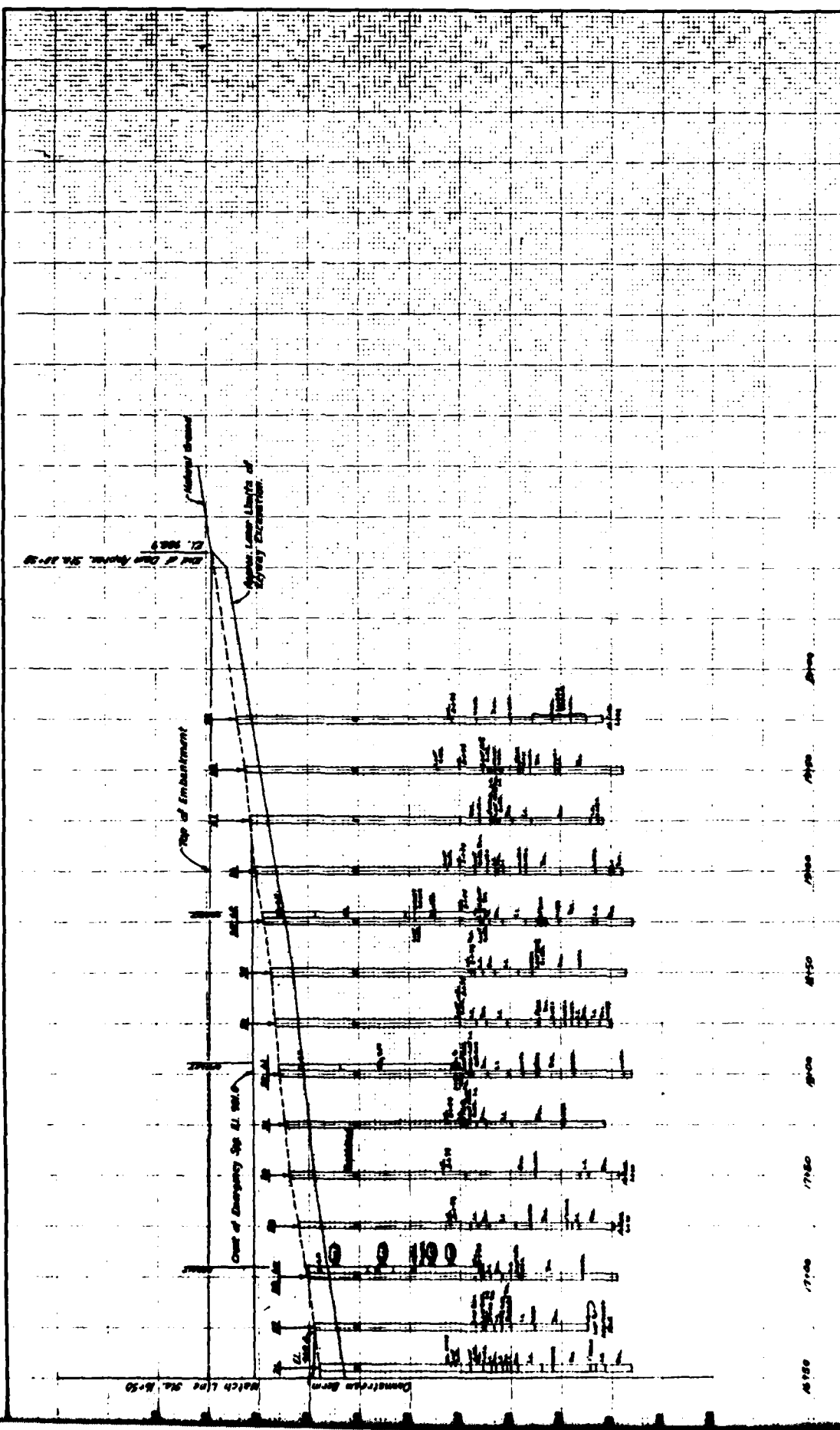
DAM NO 15
 SWEETWATER CREEK WATERSHED-MORRIS CO, TENN
 PROFILE & DAM
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Project Engineer: CRANTREE & SCOTT
 Date: 3/74
 Drawn: GRAHAM
 Checked: W.E.C.
 Scale: 1" = 20'
 Sheet No: 3 of 15
 Project No: TN-2034-15

1. DAM PROFILE

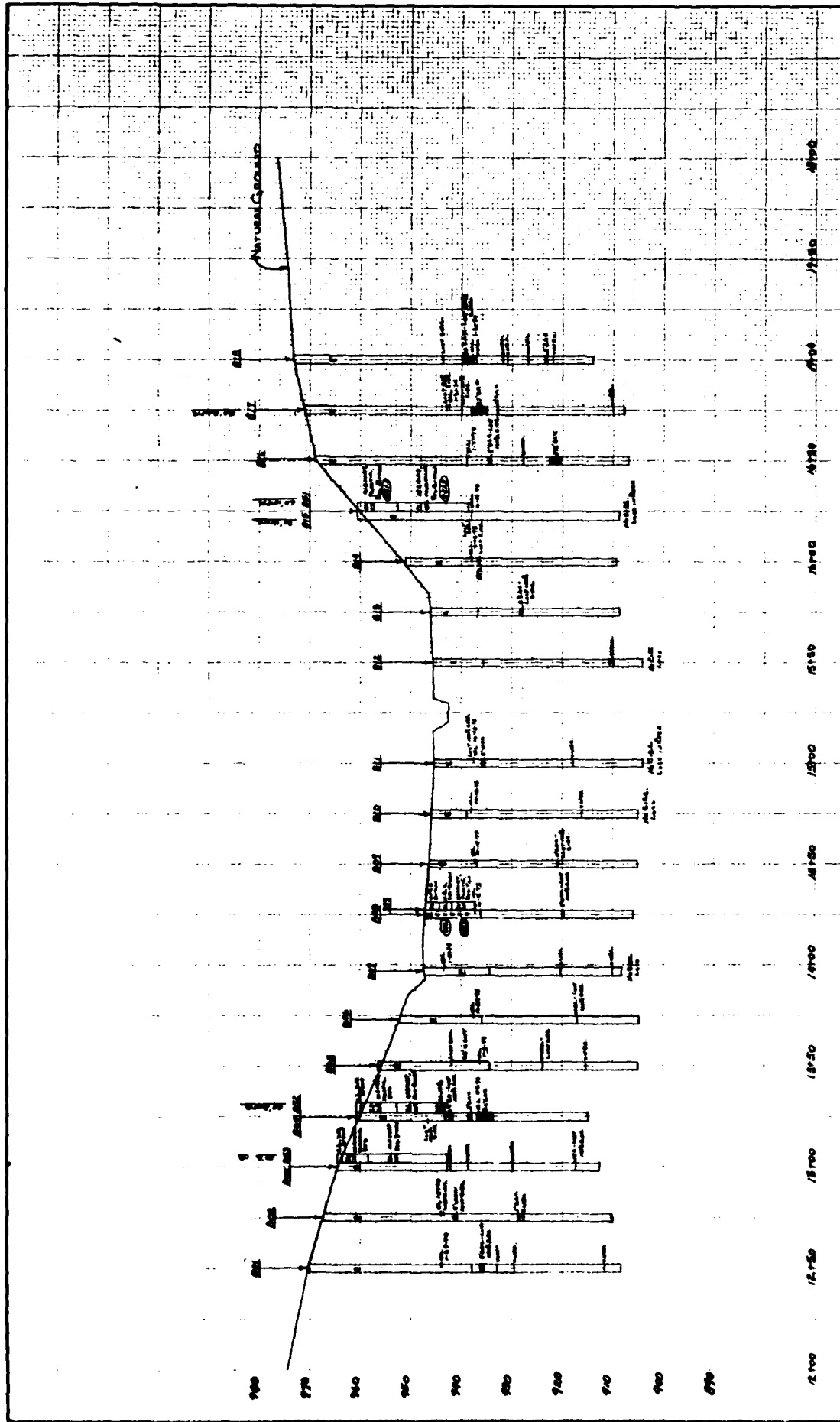
Note:
 FOR LEGEND OF BORINGS SEE
 SHEET NO 3)

DAM NO. 15
 SWELL WATER CREEK WATERSHED-HORRICE CO. TENN.
 PROFILE E DAM
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 DRAWN BY: COMPTON & ROTT 4-78
 CHECKED BY: PRINER 5-78
 DATE: 5-78
 SHEET NO. 31
 TN-2034-15



Note:
 FOR LEGEND OF SYMBOLS SEE
 SHEET NO. 31.

E DAM PROFILE

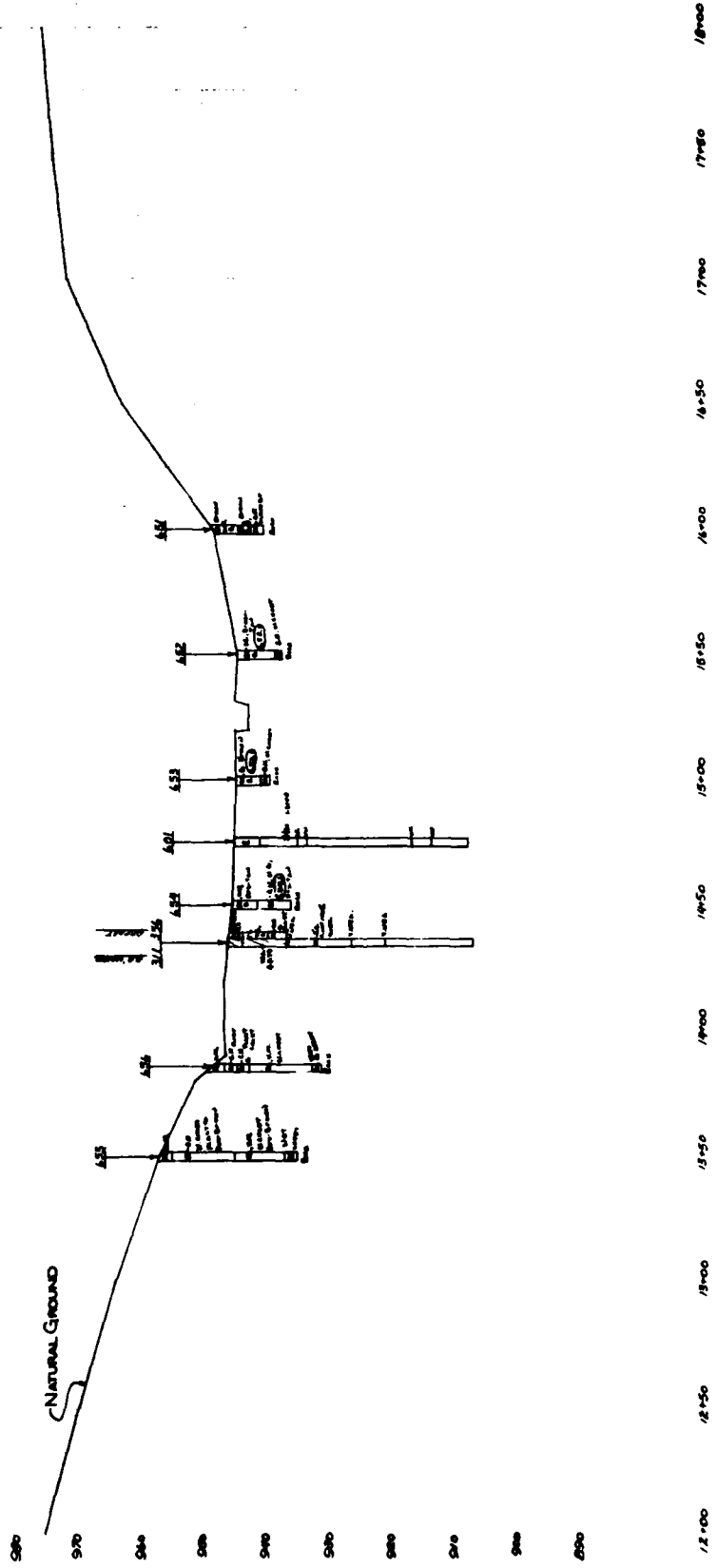


DAM NO. 15
 SWEETWATER CREEK WATERSHED-IBOWNE CO, TENN
 VALLEY SECTION - 50 FEET DOWNSTREAM
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Drawn by: CHARTNER & SCOTT 4/27/55
 Checked by: GRAMER 4/28/55
 Project No. W. E. C. 316-55
 Sheet No. 15 of 15
 TN-2034-15

Valley Section - 50 Feet Downstream
 Sweetwater Creek

NOTE:
 FOR LEGEND OF BORINGS SEE
 SHEET NO. 3)

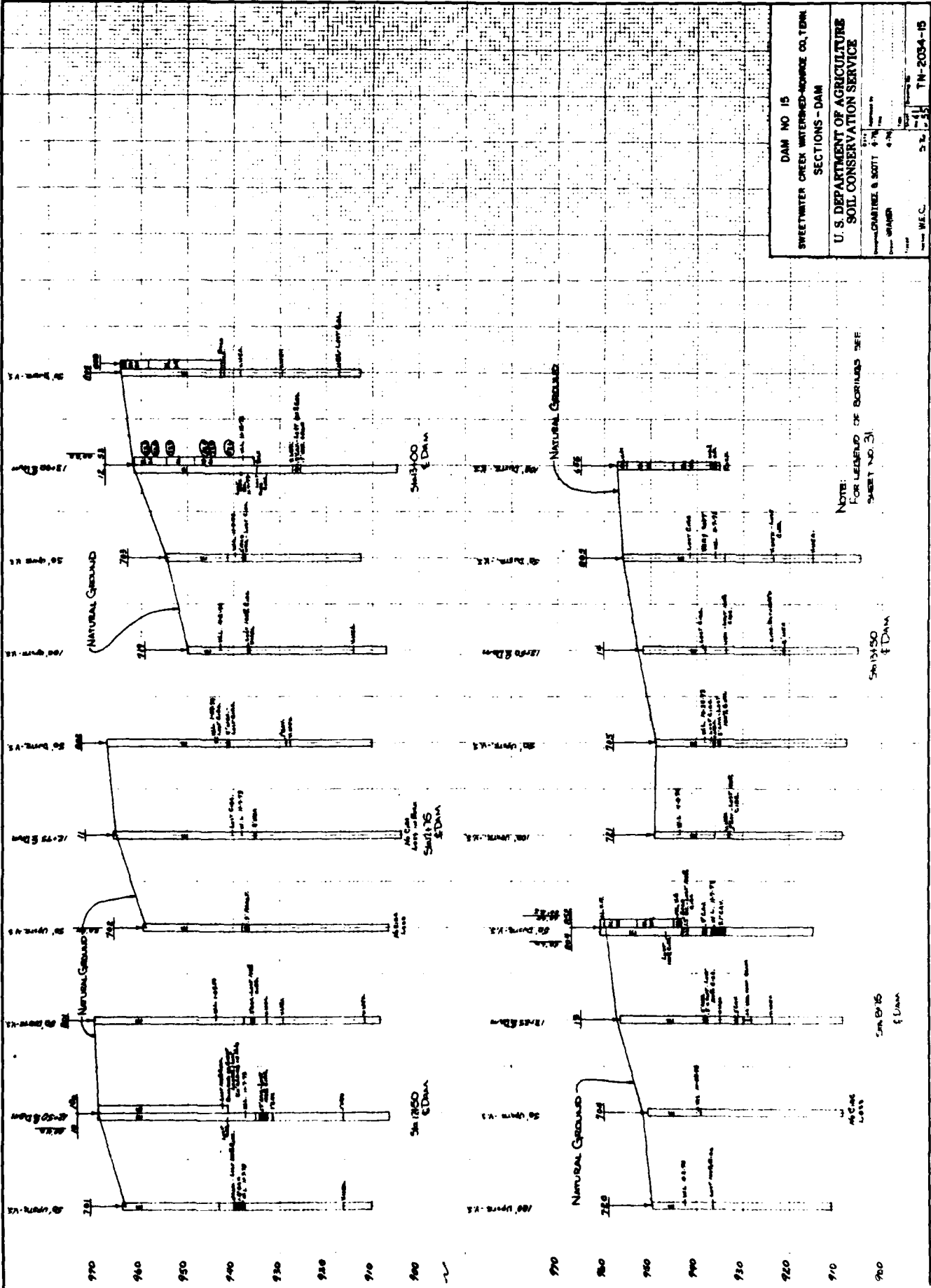


DAM NO 15
 SWEETWATER CREEK WATERSHED-MORRIS CO, TENN
 VALLEY SECTION - 100 FEET DOWNSTREAM
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

DESIGNED BY: CHARLES B. SCOTT 4-19-40
 DRAWN BY: GRANGER 4-19-40
 CHECKED BY: W. E. C. 5-7-40
 PROJECT NO: TN-2034-B

NOTE:
 FOR LEGEND OF BORINGS
 SEE SHEET NO 31.

VALLEY SECTION - 100 FEET DOWNSTREAM
 Exam. & Drawn



DAM NO 15
 SWEETWATER CREEK WATERED-ROCK CO. TENN
 SECTIONS - DAM
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 Prepared by CHARLES E. SCOTT 4-74
 Drawn by W. H. W. 4-74
 Date 4-74
 Sheet 11 of 15
 TN-2034-15

NOTE:
 FOR LEGEND OF SYMBOLS SEE
 SHEET NO. 31

50 ft. Dam
 E. Dam

50 ft. Dam
 E. Dam

50 ft. Dam
 E. Dam

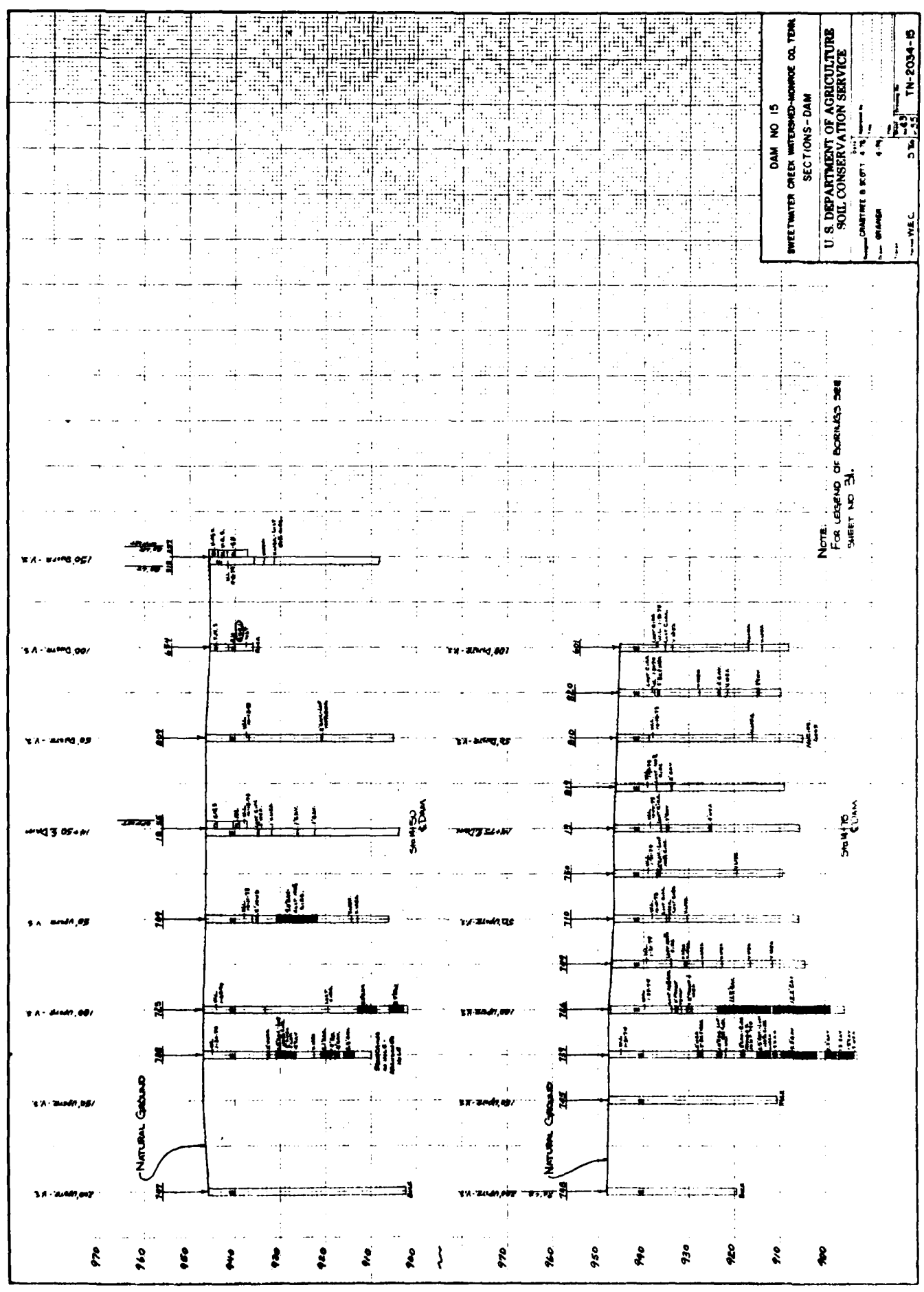
50 ft. Dam
 E. Dam

50 ft. Dam
 E. Dam

50 ft. Dam
 E. Dam

16 4

11



DAM NO 15
SWEETWATER CREEK WATERSHED-MORRIS CO. TENN.
SECTIONS-DAM

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

DATE: 4-15-55
DRAWN BY: J. W. C. W. C.
CHECKED BY: J. W. C. W. C.
SCALE: AS SHOWN

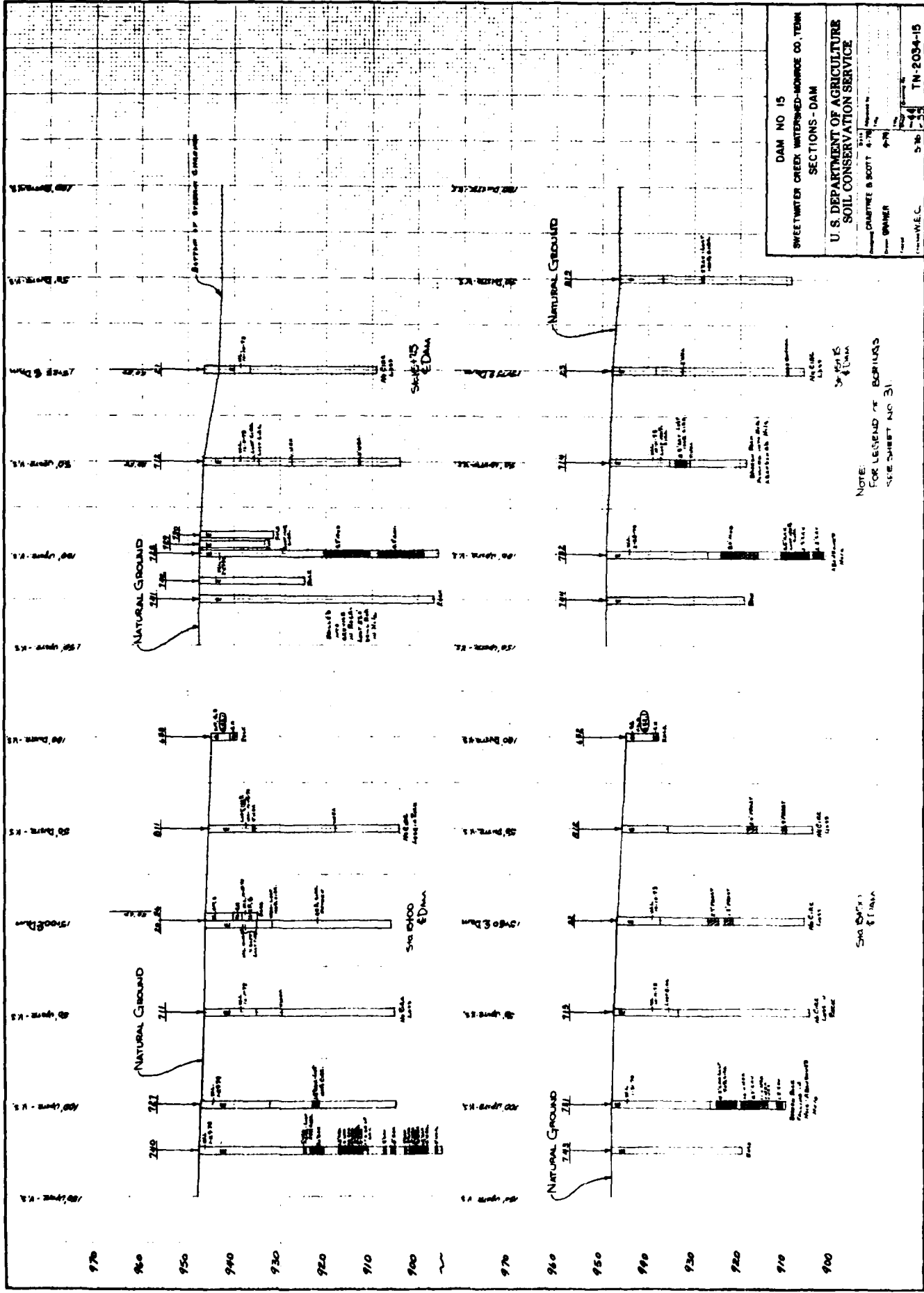
TN-2034-B

NOTE:
FOR LEGEND OF SYMBOLS SEE
SHEET NO 21.

Scale 1/16" = 1' 0"

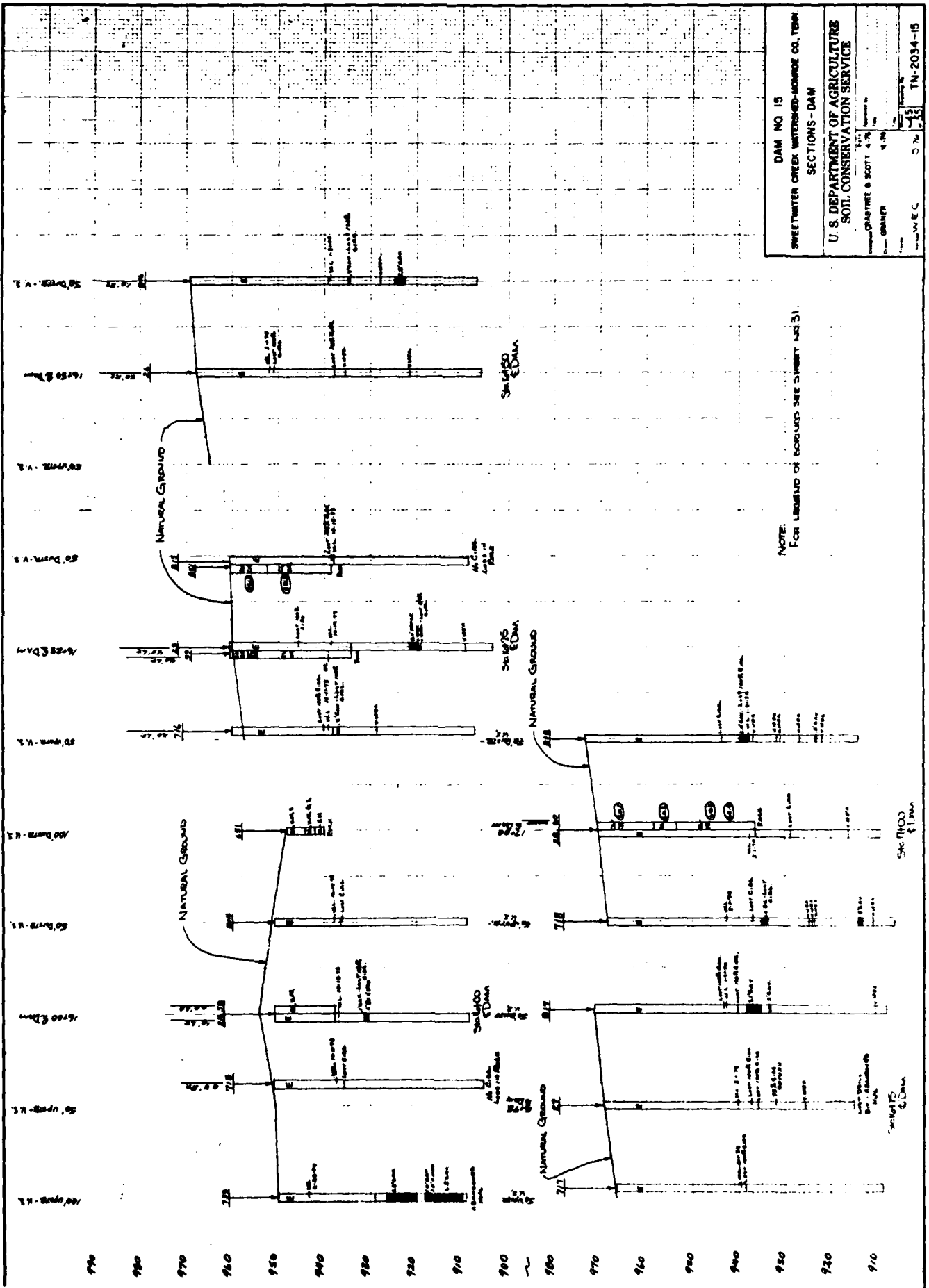
DAM NO 15
 SWEETWATER CREEK WATERSHED-MONROE CO, TENN
 SECTIONS - DAM
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Project: CHAMBERLAIN & SCOTT 4-7-50
 Date: 4-7-50
 Author: GUNNER
 Title: 576
 Drawing No: 15
 Sheet No: 15
 Project No: TN-2094-15



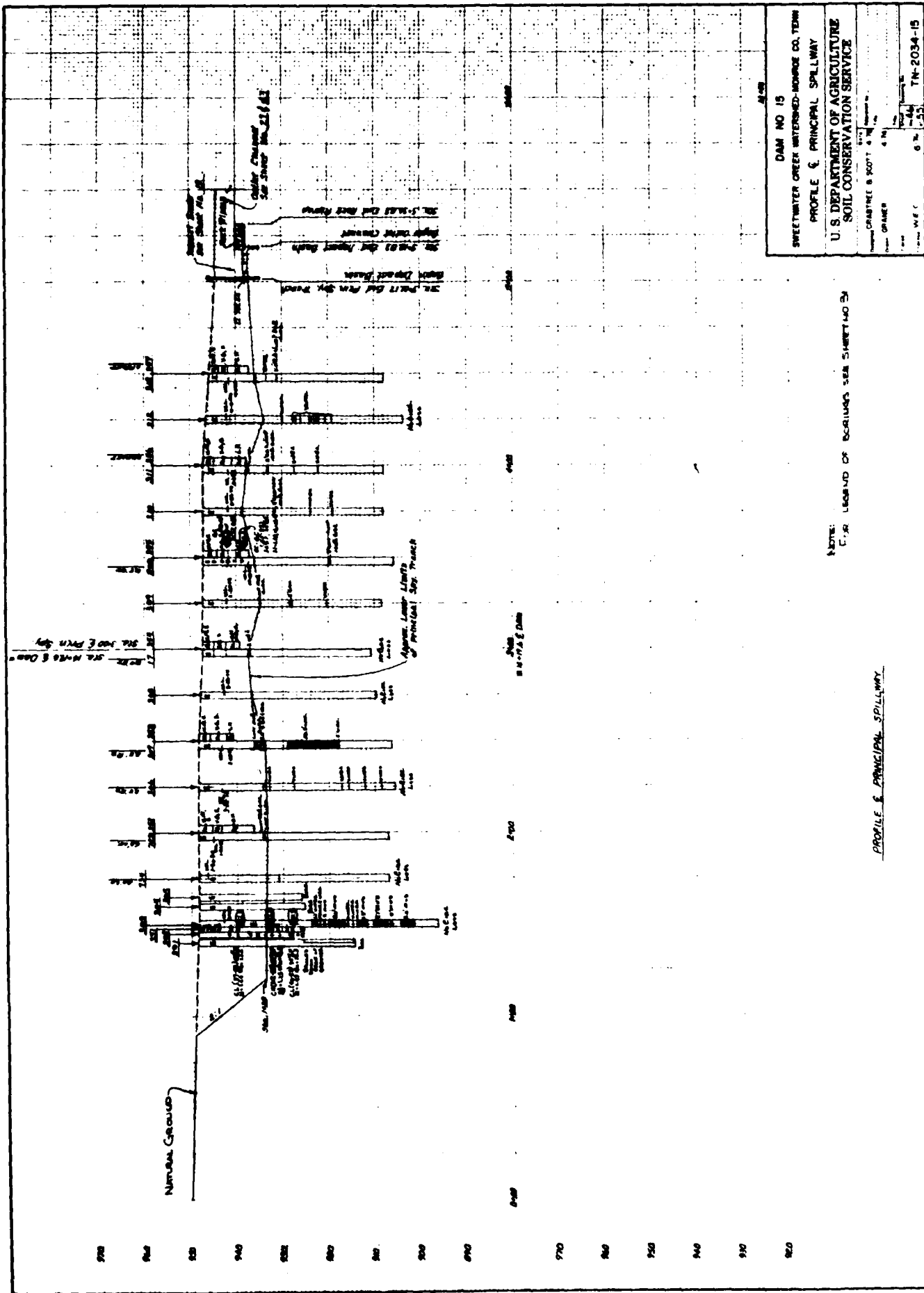
NOTE:
 FOR LEGEND OF BORINGS
 SEE SHEET NO 31

See Sheet 11



DAM NO 15
 SWEETWATER CREEK WATERSHED-MORRIS CO, TENN
 SECTIONS - DAM
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 DRAWN BY: CHARTRE & SCOTT 4/76
 CHECKED BY: J. W. B. 4/76
 DATE: 5/76
 PROJECT NO: 2-76-15
 DRAWING NO: TN-2034-15

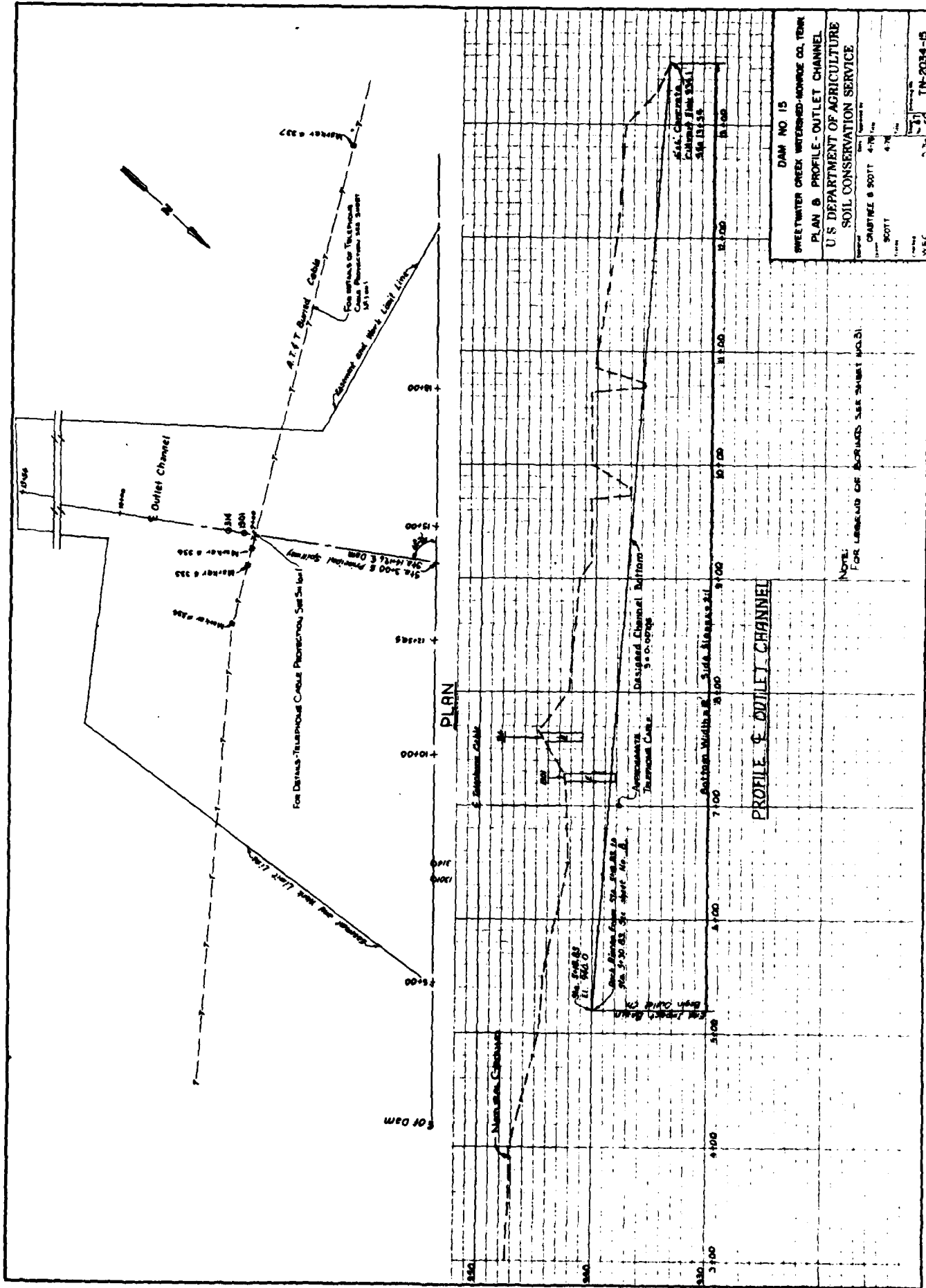
10-10-51

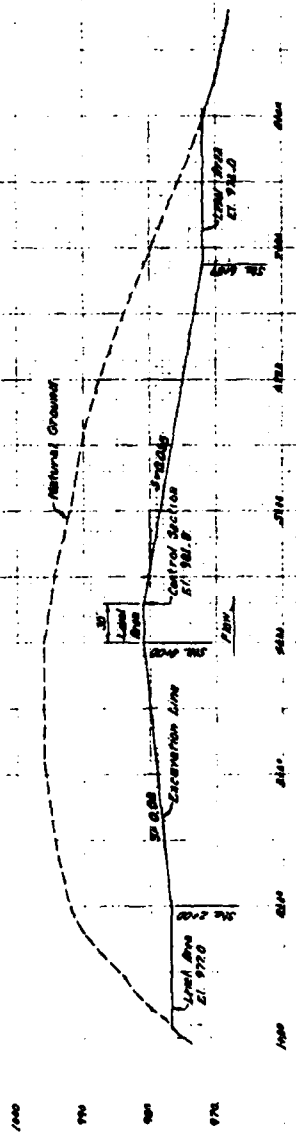


DAM NO 15
 SWEETWATER CREEK WATERSHED-MONROE CO, TENN
 PROFILE & PRINCIPAL SPILLWAY
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 DRAWN BY: CHARTER & SCOTT, INC.
 SCALE: 1" = 40'
 DATE: 10-10-51
 SHEET NO. 67
 PROJECT NO. TN-2034-15

NOTE:
 C.R. LEGEND OF BORINGS SEE SHEET 140 24

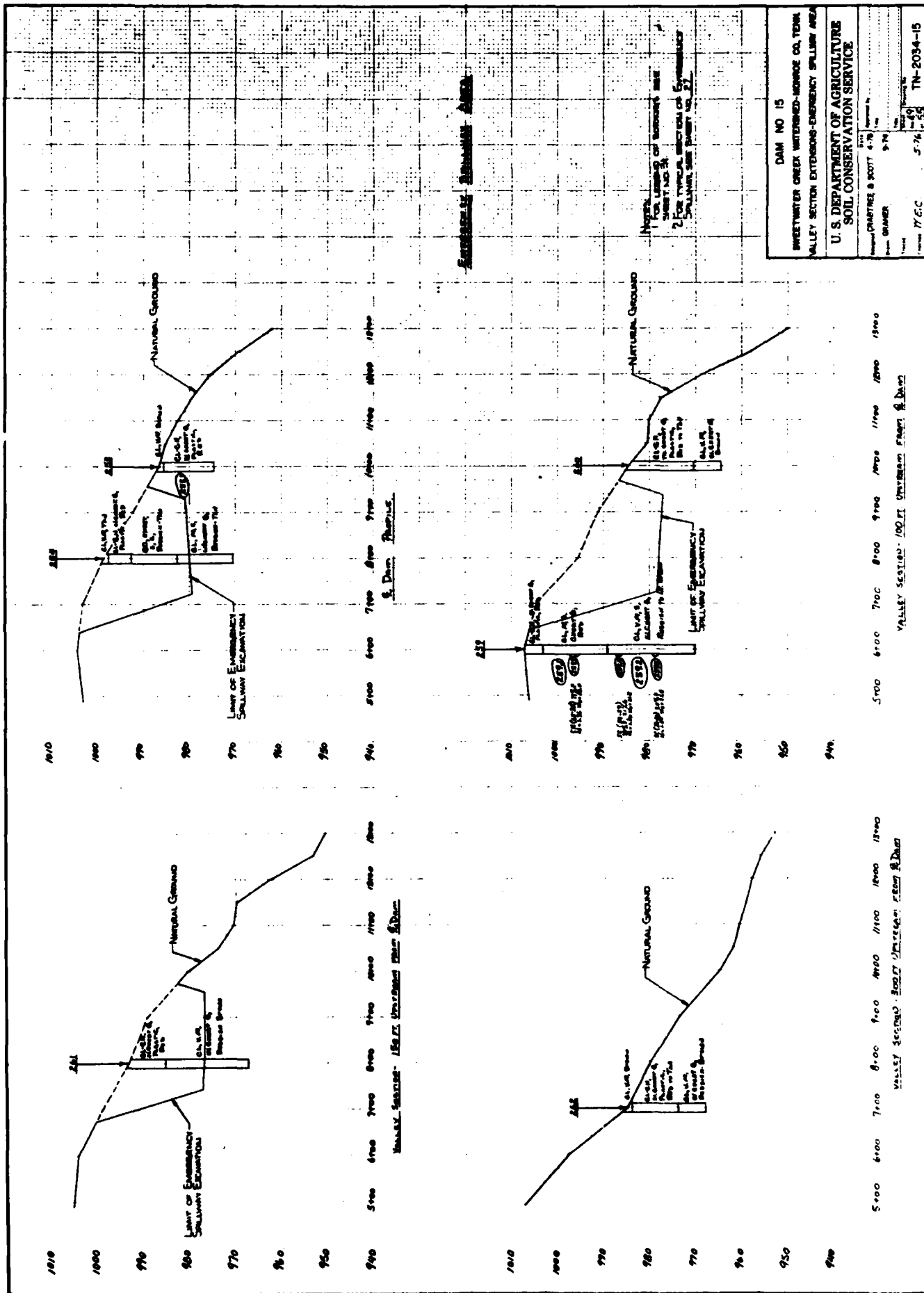
PROFILE & PRINCIPAL SPILLWAY





PROFILE - E EMERGENCY SPILLWAY

DAM NO 15	
SWEETWATER CREEK WATERSHED-MORRIS CO. TENN.	
PROFILE & EMERGENCY SPILLWAY	
U. S. DEPARTMENT OF AGRICULTURE	
SOIL CONSERVATION SERVICE	
Project: CHARTREE & BOTT	Sheet: 15
Drawn: BLUMS	Scale: 1" = 100'
Checked: H. F. C.	Date: 10/15/55
Tennessee TN-2034-15	



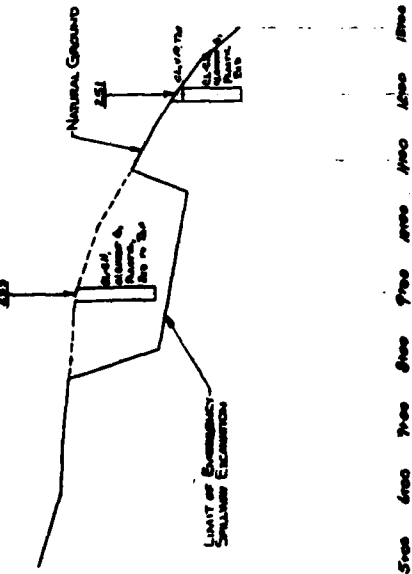
DAM NO 15

SWEETWATER CREEK WITNESSED-MORNING CO. TOWN
VALLEY SECTION EXTENDING-EMERGENCY SPILLWAY AREA

**U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE**

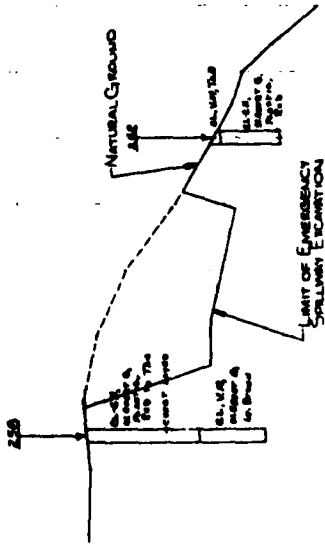
Project: SWEETWATER & SCOTT 4-78
 Date: 5-76
 Scale: 1" = 50'
 Drawing No: TN-2034-15

1010



Valley Section - Spillway Excavation above 5 Dam

1010



Valley Section - Spillway Excavation above 5 Dam

EMERGENCY SPILLWAY AREA

- NOTES:
1. For purpose of design, see SHEET NO. 3A.
 2. For typical section of Emergency Spillway see SHEET NO. 12.

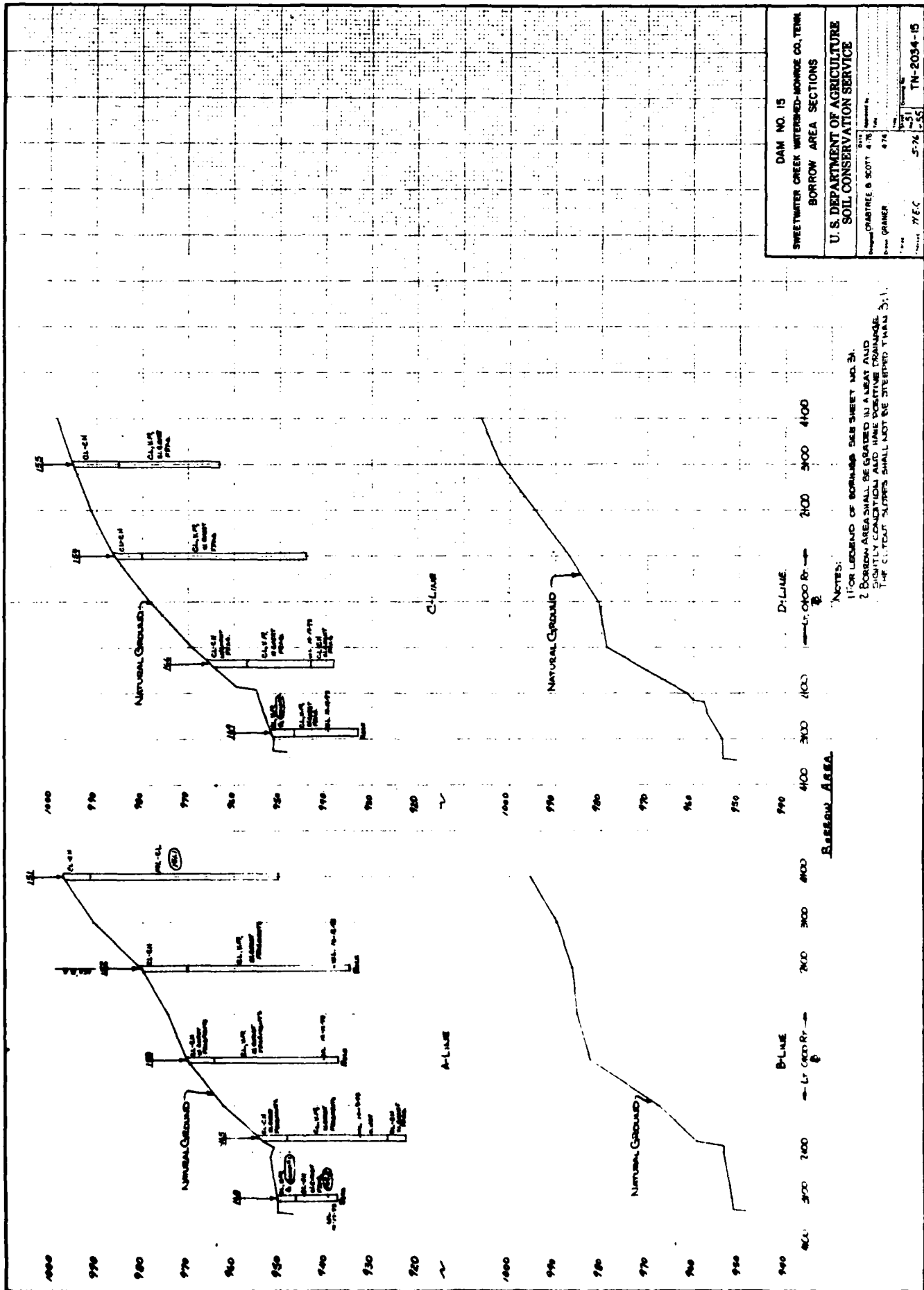
DAM NO 15

SWEETWATER CREEK WATERSHED-MORISE CO. TEXAS
VALLEY SECTION EXTENSION-EMERGENCY SPILLWAY AREA

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PROJECT NO. 15-15-15
DATE: 5-21-55
DRAWN BY: W. E. C.
CHECKED BY: W. E. C.
APPROVED BY: W. E. C.
TITLE: EMERGENCY SPILLWAY AREA

TH-2034-15



DAM NO. 15
SWEETWATER CREEK WATERED-HORSE CO. TENN.
BORROW AREA SECTIONS
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Drawn by: CHARTRE & SCOTT 4/76
 Checked by: GRAMER 4/76
 Date: 5-26-56
 Project: 71-EC
 Sheet: 15
 of: 15
 Drawing No.: TN-2034-15

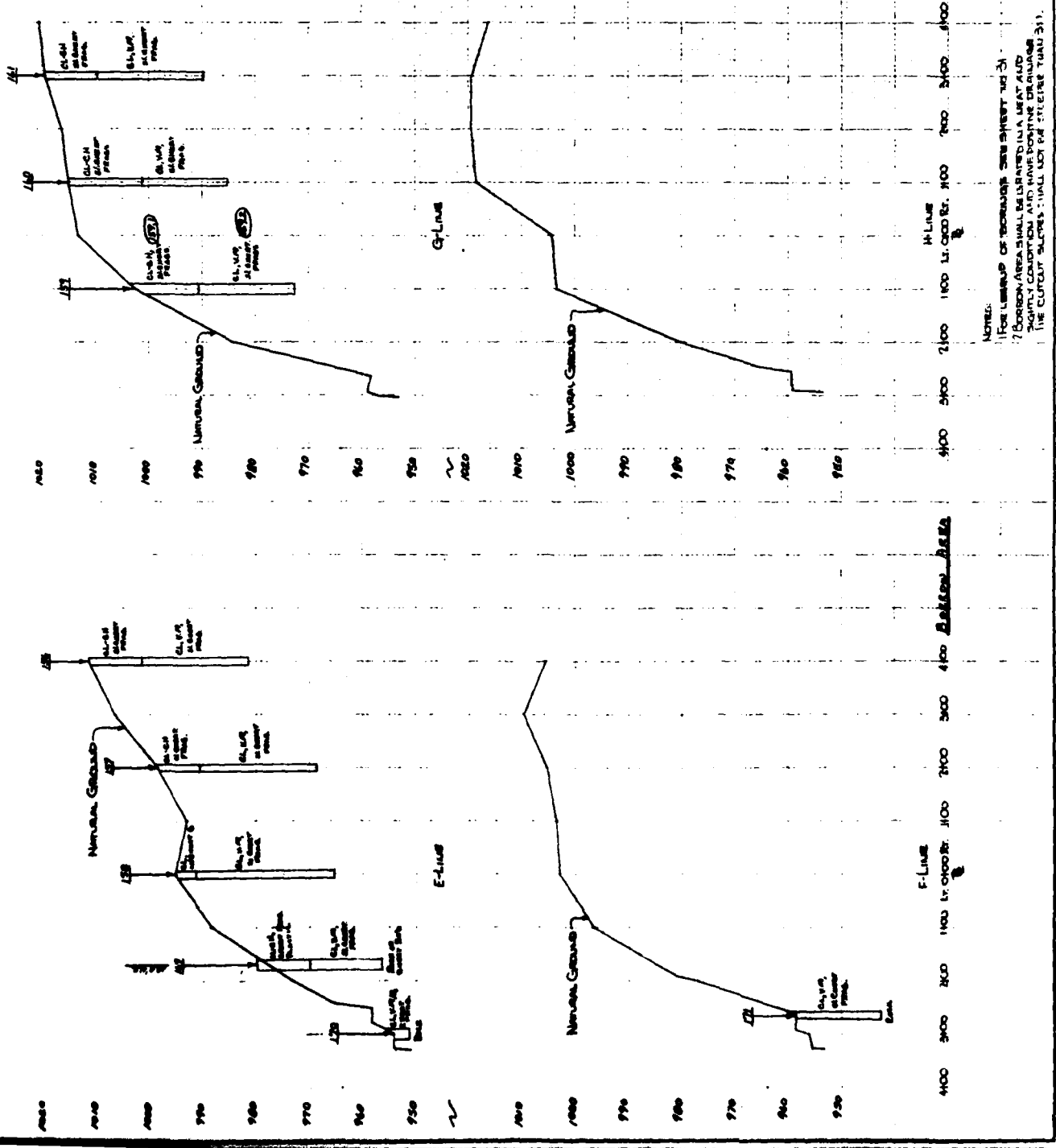
NOTES:
 1. FOR LEGEND OF BORROW PITS SEE SHEET NO. 3.
 2. BORROW AREA SHALL BE GRADED IN A GREAT AID
 SLIGHTLY CONVEX AND HAVE POSITIVE DRAINAGE.
 THE CUTSLOPE SLOPES SHALL NOT BE STEEPER THAN 3:1.

B-BORROW AREA

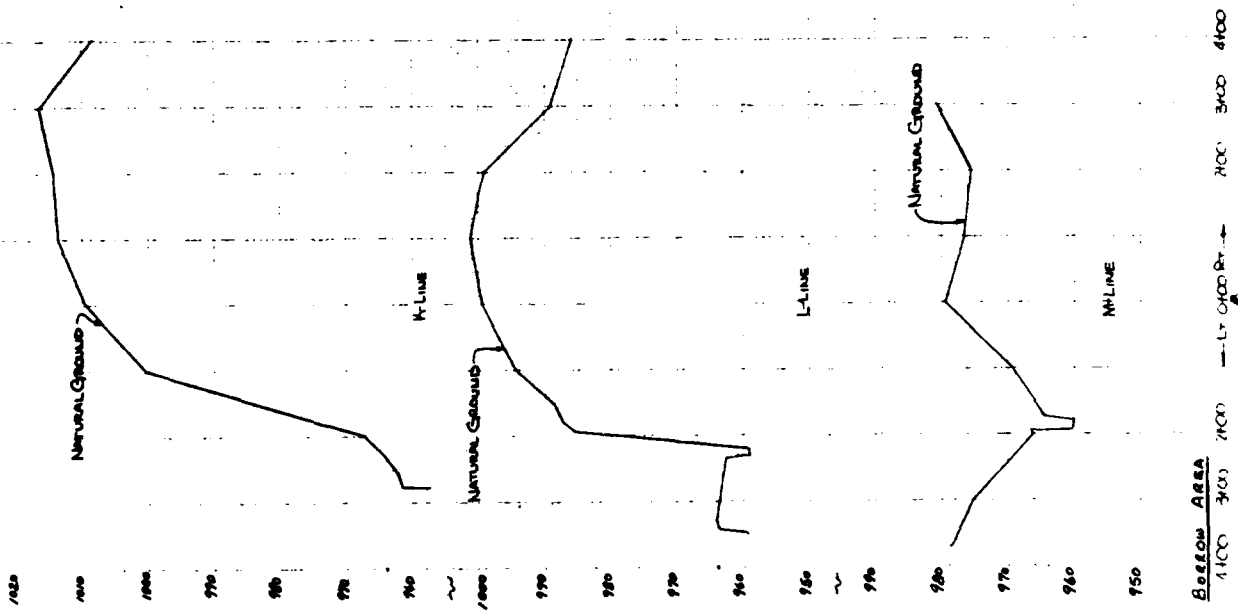
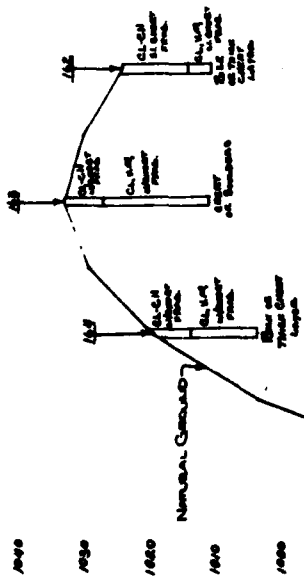
B-LINE D-LINE
 ← L-GR-RT → ← L-GR-RT →

DAM NO. 15
 SWEETWATER CREEK INTERFERED-HORSE CO. TERR.
 BORROW AREA SECTIONS
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Project: SWEETWATER CREEK & SPILLWAY
 District: ORANGE
 State: W. VA.
 Section: 3-24-55
 Sheet: 15
 Total Sheets: 15
 Date: 5-24-55
 Drawing No.: TN-2084-15



Notes:
 1. For purpose of recording see sheet no. 31.
 2. Borrow Areas shall be used in a wet area and shall be used for filling the cutaway slopes. (VALLEY FOR STEELING TANK 31)



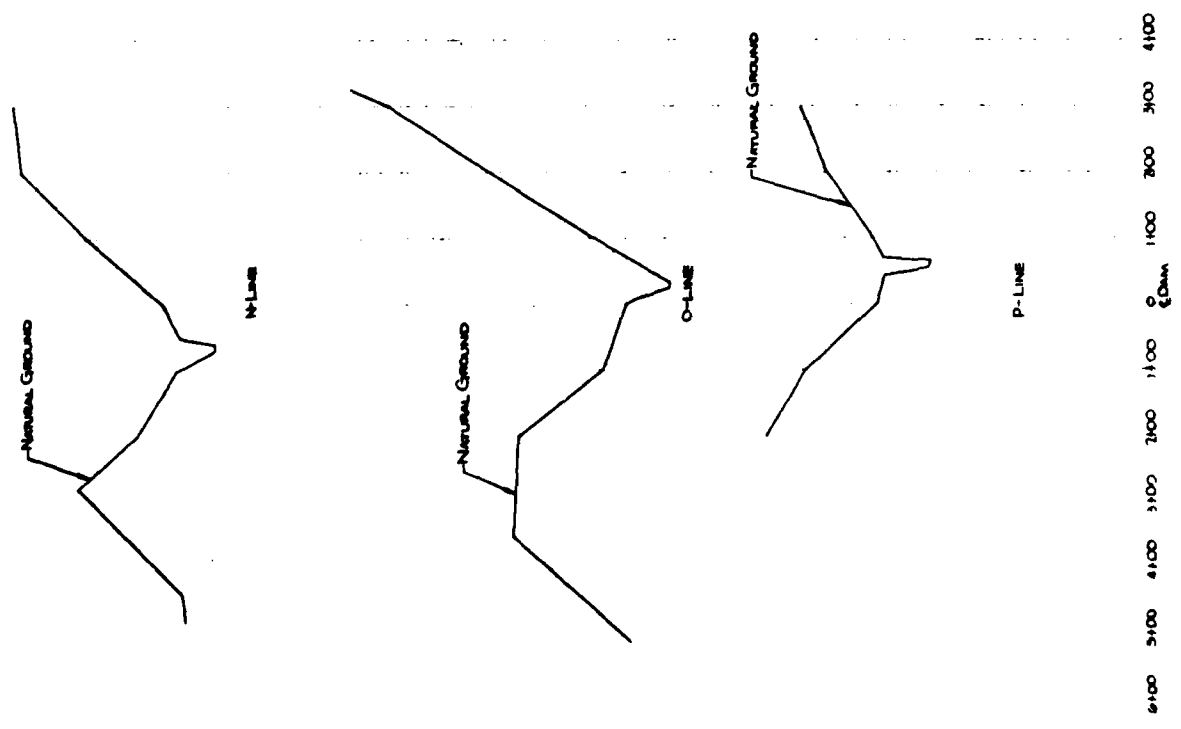
Notes:
 1. For ground of borrow see sheet No. 51.
 2. Borrow Area shall be graded in a way that shall be suitable for use. It shall not be steeper than 3:1.

DAM NO. 15
 SWEETWATER CREEK WATERSHED-HOWARD CO., TENN.
 BORROW AREA SECTIONS

U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Drawn by: GRANTREE & SCOTT 4-76
 Checked by: 4-76
 Date: 4-76
 Scale: 1" = 20' 55'
 Project: W.E.C. 576-255
 TN-2034-15

NOTE:
BORROW AREA SHALL BE GRADED IN A
HEAVY AND SMOOTH QUANTITY AND HAVE
SLOPES OF AT LEAST 3:1. SLOPES
SHALL NOT BE STEEPER THAN 3:1.



DAM NO 15
SWEETWATER CREEK WATERSHED-MORRIS CO. TENN.
BORROW AREA SECTIONS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Project: CHATREE S. SCOTT 4-74
Drawn: FIREMAN 4-74
Scale: AS SHOWN
Sheet: 5-74-55
Project: W.E.C.
Drawing No: TN-2094-B

SWEETWATER CREEK WATERSHED PROJECT SHERMAN F. OWEN LAKE

DRAINAGE AREA 1005 ACRES
 TOTAL STORAGE 339 ACRE FEET
 WATER SURFACE AREA 9.4 ACRES
 HEIGHT OF DAM 46 FEET
 VOLUME OF FILL 131,200 CUBIC YARDS

BUILT UNDER THE WATERSHED PROTECTION AND FLOOD PREVENTION ACT

by
 SWEETWATER CREEK WATERSHED DISTRICT
 MONROE COUNTY SOIL CONSERVATION DISTRICT
 LOUDON COUNTY SOIL CONSERVATION DISTRICT
 and
 McMINN COUNTY SOIL CONSERVATION DISTRICT
 with the assistance of
 SOIL CONSERVATION SERVICE
 of the
 U. S. DEPARTMENT OF AGRICULTURE
 197*

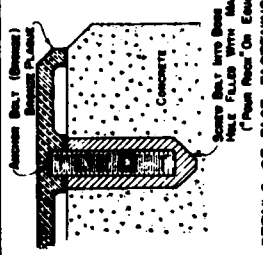
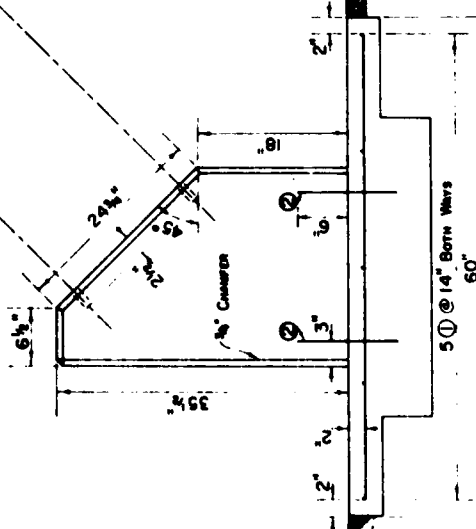
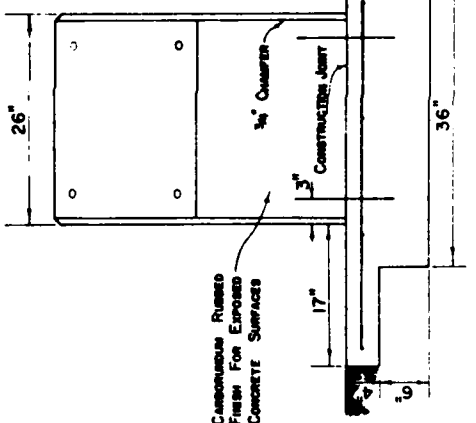
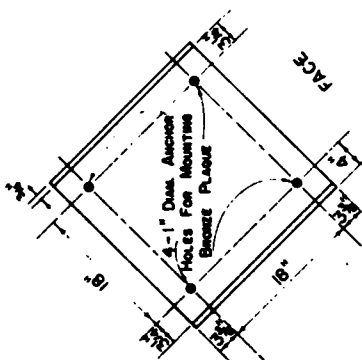
BRONZE PLAQUE

24" x 24"

* NOTE:
 LAST DAY OF YEAR ON PLAQUE SHALL
 BE AGREED UPON BY THE CONTRACTOR
 AND CONTRACTING OFFICER AFTER THE
 CONTRACT IS AWARDED AND PRIOR TO
 THE CONTRACTOR ORDERING THE PLAQUE

DAM NO 15	
SWEETWATER CREEK WATERSHED-MONROE CO., TENN.	
STRUCTURE MONUMENT	
U. S. DEPARTMENT OF AGRICULTURE	
SOIL CONSERVATION SERVICE	
CONTRACTOR & SCOTT	4-17-76
BULLMAN	4-17-76
55	12
TN-2034-15	

Bar No.	Qty.	Length	Total Length	Size	Type
1	10	4'-8"	46'-8"	3	Str.
2	4	1'-0"	4'-0"	4	Str.
TOTAL SIZE NO. 3 STEEL = 46'-8" = 17.13 Lbs.					
TOTAL SIZE NO. 4 STEEL = 4'-0" = 2.67 Lbs.					
VOLUME OF CONCRETE = 0.86 CU. YDS.					



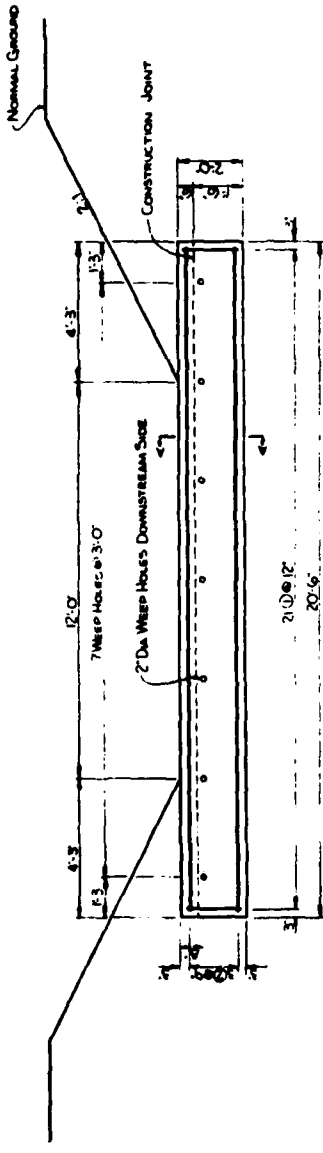
NOTE:
 LOCATION OF THE MONUMENT ON THE SITE
 WILL BE DETERMINED BY THE ENGINEER

CONCRETE MONUMENT

5 @ 14" BARS W/RS 60"

FRONT ELEVATION

LEFT ELEVATION



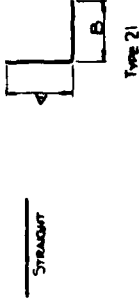
ELEVATION

STEEL SCHEDULE					
Main Size	Quantity	Type	A	B	TOTAL
1	4	42	3'-5"	2'	111' 1/4
2	4	6	20'-0"	5'	160'-0"

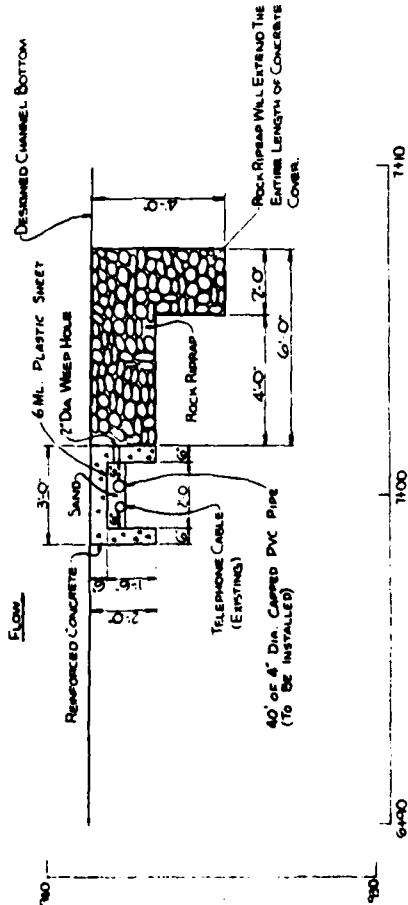
* THIS BAR WILL BE PURCHASED AS A STRAIGHT BAR, THEN FIELD BENT AS TYPE 21 WHEN STEEL IS PLACED FOR TOP BAR.

QUANTITIES

REINFORCING STEEL - 4 Bars - 308.5 Lin Ft 202.750 Lbs
 VOLUME OF CONCRETE = 7.21 cu yds
 VOLUME OF RIPRAP = 12 cu yds
 VOLUME OF SAND = 10.76 cu yds



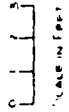
MIN RADIUS OF BENDS = 3 BAR DIA.



PROFILE ALONG & CHANNEL

SECTION A-A

- NOTES
- 1 4" PVC PIPE WILL BE FURNISHED BY SOUTH CENTRAL BELL TELEPHONE CO. AND INSTALLED BY THE CONTRACTOR PRIOR TO PLACING CONCRETE COVER
 - 2 BACKFILL AROUND AND OVER THE CABLE AND PVC PIPE WILL BE NATURAL SAND, WITH A 1/2" MAXIMUM SIZE



DAM NO 15
 SWEETWATER CREEK WATERED-SOURCE CO. TOWN
 DETAILS-TELEPHONE CABLE PROTECTION

U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

DATE: 8-78
 DRAWN BY: FREEMAN
 CHECKED BY: FREEMAN
 SCALE: 5/8" = 1'-0"

TN-2034-15

APPENDIX F
CORRESPONDENCE

NON-FEDERAL DAM INSPECTION REVIEW BOARD
PO BOX 1070
NASHVILLE, TENNESSEE 37202

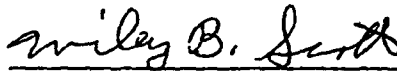
ORNED-G

Commander, Nashville District
US Army, Corps of Engineers
PO Box 1070
Nashville, TN 37202

1. The Interagency Review Board, appointed by the Commander on 19 June 1981, presents the following recommendations after meeting on 3 September 1981, to consider the Phase I investigation report on Sweetwater Creek Watershed Dam No. 15 inspected by the Tennessee Department of Conservation.
2. The Board is in agreement with other report conclusions and recommendations following minor revisions.



FRANK B. COUCH JR.
Chief, Geotechnical Branch
Chairman



WILEY B. SCOTT
Assistant Design Engineer
Alternate, Soil Conservation Service



EDMOND B. O'NEILL
Alternate, Division of Water
Resources
State of Tennessee



THOMAS N. PORTER
Hydraulic Engineer
Alternate, Hydrology and Hydraulics
Branch



EDWARD B. BOYD
Hydrologic Technician
Alternate, US Geological Survey



L. E. LOCKETT
Structural Engineer
Alternate, Design Branch