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File 1990-0013 Name: State Repository – Flood Plain Permit

	Scanned	
		A few items are denoted with an asterisk (*), which means they are to be scanned for permanent record on the in some instances, not all entries designated to be scanned by the department are present in the file. There are also documents specific to certain files, not found on the standard list. For this reason, a checklist has been provided. **Remaining items, (not selected for scanning), will be marked present on the checklist. This index can serve as a quick guide for the contents of each file.** **Files denoted with (**) are to be located using the ISYS Query System. Planning Clearance will need to be typed in full, as well as other entries such as Ordinances, Resolutions, Board of Appeals, and etc.**
X	X	**Table of Contents**
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DOCUMENTS SPECIFIC TO THIS DEVELOPMENT FILE:

X	X	Letter from Karl G. Metzner to Michael K. Tucker, Grand Junction Projects Office, D.O.E. re: letter serves as approval of the Flood Plain Dev. Permit – 3/6/90			
X	X	Letter from Michael Tucker, Dept. of Energy to Karl Metzner re: to notify of nonconformance and enumerate what steps have been taken to correct situation – 11/19/90			
X	X	Letter from Michael Tucker, to Karl Metzner re: proposal for expansion of temporary repository – 1/24/90			
X	X	Letter from Karl Metzner to Tom Meyer, MK Ferguson Company re: all conditions of the original permit continue to apply – 9/20/91			
X	X	Letter from Mark A. (illegible) for J.G. Oldham to Karl Metzner re: transfer ownership of City Floodplain Permit # 13-90 currently issued to the US Dept. of Energy to MK-Ferguson Company maintaining all present stipulations – 8/1/91			
X	X	Floodplain Permit Application – Appendix A - 1/90			
X	X	Appendix B - Preliminary Expansion Plan			
X	X	Appendix D – Water Surface Profiles - CDH Repository Expansion Maps			
X		Appendix F – Output Data Descriptions			
X	X	Figure 1-C and Figure 2C			
X	X	Appendix H - Rip Rap Size Determination			
X	X	Appendix G – Army Corps of Engineers – Peak Flows and Stages			

Rec'd V. 3454

Department of Energy
Grand Junction Projects Office
Post Office Box 2567
Grand Junction, Colorado 81502-2567
January 24, 1990

Mr. Karl Metzner
Floodplain Administrator, City of Grand Junction
City Planning Department
250 North Fifth Street
Grand Junction, Colorado 81501

SUBJECT: Floodplain Permit Application for the Expansion of the State-Owned Temporary Repository

Dear Mr. Metzner:

We are submitting a Floodplain Permit Application for Expansion of the State-owned Tailings Repository. We have also included $100.00 for the permit fee.

Our proposal is to expand the existing repository tailings pile east to 27.5 Road in the area north of the rendering plant property. Analysis of the proposed expansion area considering potential impact on the floodplain is included within the application. This analysis suggests that the proposed expansion will not adversely impact people or property within the floodplain.

Please review the application and do not hesitate to contact Bennett Young of my staff at 248-6010 if you have any questions.

Sincerely,

Michael K Tucker

Michael K. Tucker, Manager
Grand Junction Projects Office

1 Enclosure

cc: C Nichols - DOE/ID, w/o enc.
J Virgona - GJPO, w/o enc.
M Madson - UNC, w/o enc.

#13 90

Grand Junction Planning Department
250 North Fifth Street
Grand Junction, Colorado 81501-2668
(303) 244-1430

March 6, 1990

Mr. Michael K. Tucker, Manager
Grand Junction Projects Office, D.O.E.
PO Box 2567
Grand Junction, Colorado 81502

RE: State Repository Floodplain Permit, #13-90

Dear Mr. Tucker:

We have reviewed your application for a floodplain permit to expand the state owned temporary tailings repository. Your application complies with all requirements and restrictions of the City's adopted floodplain management regulations. You may consider this letter approval of the Flood Plain Development Permit under the conditions and standards contained in your application. Start of construction must occur within six months from the date of issue of the permit, or the permit shall become invalid.

Thank you for your and your staff's cooperation in this matter.

Sincerely,

Karl G. Metzner
Director of Planning

xc: Mr. Bennett H. Young
File 13-90

KGM/bd

file

Department of Energy

Grand Junction Projects Office
Post Office Box 2567
Grand Junction, Colorado 81502-2567

November 19, 1990

Karl Metzner
City Planning Department
250 North Fifth Street
Grand Junction, Colorado 81501

SUBJECT: Temporary Repository Floodplain Permit

Dear Mr. Metzner:

It has come to my attention that recent work at the repository has altered the flood protection berm for the repository expansion such that it no longer conforms to the condition described in our floodplain permit application. This letter is to formally notify you of this nonconformance and enumerate what steps have been taken to correct the situation.

On or about October 15, 1990, ICC (subcontractor for construction), under the direction of MK-Ferguson, diverted water from a drainage ditch that flows along the east side of the rail transfer area into the ditch at the base of the flood protection berm. To complete the diversion, the ditch at the base of the berm had to be deepened. The excavation to deepen the ditch removed the clean pit run cover material, exposing mill tailings in the core of the berm, and left the exterior slope considerably steeper than the 3:1 slope, as outlined in our floodplain permit application.

We have discussed the situation with our contractor, Geotech, Inc. and MK-Ferguson. MK-Ferguson decided, with our concurrence, to remedy their oversight by installing a culvert where the berm had been impacted to carry the diverted water off-site and return the berm slope to the condition called for in the original floodplain permit application. Installation of the pipe began on November 2, 1990. Once the pipe was installed, ICC was directed to reslope the berm to a 3:1 grade and replace the 18" of clean gravel that serves as a cap for the underlying tailings. This work has been completed and was verified on November 8, 1990.

It is obvious that better communication between contractors at the repository is necessary. This has been discussed with Geotech and MK-Ferguson. Lines of communication have been established and contact persons have been designated.

I believe the actions taken by MK-Ferguson have returned the site to conformance with our floodplain permit.

Should you require any additional information, please contact Michael Madson at 248-6026.

Sincerely,

Michael K Tucker

Michael K. Tucker, Manager
Grand Junction Projects Office

cc: GA Franz, CDH/GJ
JL Lyle - DOE/ID, MS-1117

ENGINEERS
AND
CONSTRUCTORS

MK-FERGUSON COMPANY
A MORRISON KNUDSEN COMPANY

HEADQUARTERS OFFICE
ONE ERIEVIEW PLAZA
CLEVELAND, OHIO U.S.A. 44114
PHONE: (216) 523-5600/TELEX: 985542

REPLY TO: MK-FERGUSON COMPANY
REMEDIAL ACTIONS
CONTRACTOR-UMTRA PROJECT
P.O. BOX 9136
ALBUQUERQUE, NEW MEXICO U.S.A. 87119

VIA FEDERAL EXPRESS

August 1, 1991

Mr. Carl G. Metzner
Planner
250 North 5th Street
Grand Junction, Colorado 81501

SUBJECT: Permit 13-90 City Floodplain Permit (State Repository)
Transfer of Ownership
UMTRA Project - Grand Junction

Dear Mr. Metzner:

As requested of MK Ferguson Company by the US Department of Energy in their letter dated July 9, 1991, attached, please transfer ownership of City Floodplain Permit #13-90 currently issued to the US Department of Energy Grand Junction Office, to MK-Ferguson Company maintaining all present stipulations.

Should you have any questions, please contact Rob Cooney of my staff at 1-800-443-4379.

Sincerely,

MK-Ferguson Company

Mark Alberta
for J.G.

J. G. Oldham
Project Director

JGO/REC/mno

Enclosure:
cc: w/enclosure:
D. Leske - DOE/UMTRA/GRJ
J. McBee - TAC/UMTRA
B. Glover - TAC/UMTRA
P. Martinek - CDH

5414K

3050-91-930

REP	INFO	DIST	REP	INFO	DIST
	✓	JGO			PDC
	✓	WAZ		✓	MWH
	✓	REC		✓	RAP
		WTD			MFP
		JBH			DRS/MKE
		WWJ			GG/PD
		MDT			JEJ
		JGP			TBS
		RSW			DEW
		SJS/DC			JWS
	✓	MFA		✓	JM
				✓	CMB
ORIG FILE		10-1			
WORK FILE		GRJ			

Department of Energy
Albuquerque Operations Office
P.O. Box 5400
Albuquerque, New Mexico 87115

JUL 09 1991

MK-FERGUSON CO.
ALBUQUERQUE

JUL 10 1991

RECEIVED

Mr. James G. Oldham
Project Director
MK-Ferguson Company
P.O. Box 9136
Albuquerque, NM 87119

Dear Mr. Oldham:

As one of the steps to reduce noise impacts to the Grand Junction residents at Ninth Street and Kimball Avenue, the Uranium Mill Tailings Remedial Action (UMTRA) Project Office is directing MK-Ferguson (MK-F) to relocate access control from its current location to Fifteenth Street and Winters Avenue. With this relocation of access control, MK-F in effect will take over all Chem-Nuclear Geotech, Inc., (C-NG) access control and State Repository responsibilities except for the following:

- The C-NG will maintain management of all commingled waste including but not limited to the four lead and one arsenic commingled waste piles at the State Repository until their respective issues are resolved and the wastes are properly disposed. In order to facilitate the expeditious excavation and haulage of vicinity property and Grand Junction Projects Office Remedial Action Project (GJPORAP) material, C-NG is being requested to relocate all commingled waste piles to an area of the State Repository to be designated by MK-F.

- Until further notice, vicinity property material and GJPORAP material transported to the State Repository by C-NG will continue to be stockpiled in the north area as is currently being done. Material stockpiled in the north area will be periodically loaded into the containers for transport to the Cheney Disposal Site to allow continued vicinity property stockpiling in the north area. In the near future, vicinity property and GJPORAP material may need to be stockpiled in segregated areas elsewhere at the State Repository or Climax Mill as directed by MK-F to ensure that higher radioactive material is eventually disposed of deeper in the disposal cell and that the lesser radioactive material is available for the top ten feet of tailings placement as is stipulated in the current cover design. In light of this, C-NG will be required to inform the MK-F representative at access control of GJPORAP shipments in order to facilitate stockpiling of materials with similar radioactivity levels.

- All vicinity property vehicles entering the facility will be required to carry the appropriate Department of Transportation (DOT) insurance and liability insurance, per the enclosure, naming MK-F and the U. S. Department of Energy as additional insureds. Also, the vehicles will be required to carry verification of vehicular inspections which demonstrate the vehicles are in compliance with DOT and the Occupational Safety and Health Administration regulations.

- Regarding the asbestos contaminated tailings in barrels, C-NG will be required to submit documentation on all the barrels currently stockpiled at the State Repository. This documentation must include the contents and radioactivity of each barrel. As for barrels of asbestos contaminated with tailings yet to be brought to the State Repository, barrels will be accepted at access control only when proper manifestation is presented.

- The C-NG will maintain the weigh scale at the State Repository for the duration of the vicinity property and GJPORAP material haul.

The following responsibilities will belong to MK-F:

- The MK-F will be responsible for dust control over the entire Climax Mill and the State Repository with the exception of the four lead and one arsenic commingled waste piles. Currently, C-NG has an Air Pollution Emission Permit with the Colorado Department of Health (CDH) for tailings placement. This permit will need to be either transferred to or applied for by MK-F. The Mesa County Conditional Use Permit (CUP) requires implementation of dust control measures to ensure no occurrences of off-site dust. In order for MK-F to have total control over the potential impacts to the CUP, MK-F must be in total control of activities which affect the CUP. This transfer to or application by MK-F for this permit will release C-NG of any dust control measures except for the four lead and one arsenic commingled piles.

- The MK-F will be responsible for management of the two decontamination facilities (existing decontamination facility for the train/truck haul and the facility for the vicinity property program). All controlled area requirements will be under the direction of the UMTRA Project Office.

- The MK-F is to apply for a storm water discharge permit with CDH by November 1, 1991.

- The Mesa County State Repository floodplain permit, No. 13-90, is to be transferred from C-NG to MK-F and compliance with this permit, therefore, becomes the responsibility of MK-F.

The UMTRA Project Office expects the physical relocation of access control to take approximately three weeks to complete. As for the transfer or application of permits and responsibilities as identified above, these items are to be pursued by all parties in a cooperative and timely manner. Barring MK-F's need to acquire a new Air Pollution Emission Permit to replace C-NG's current permit, all transitions are to be in place as soon as possible after the existing maintenance agreement between CDH and C-NG terminates.

As for access control at Ninth Street and Kimball Avenue, all associated activities are to cease upon the completion of the relocation.

Please submit a plan to address the required changes along with a cost estimate prior to relocation.

Should you have any questions, please contact Don Leske of my staff at (303) 248-6008 or FTS 326-6008.

Sincerely,

for Mark L. Matthews
Project Manager
Uranium Mill Tailings Remedial Action
Project Office

Enclosure

cc w/enclosure:
M. Tucker, GJPO
J. Virgona, GJPO
G. Rael, UMTRA
F. Bosiljevac, UMTRA
C. Smythe, UMTRA
N. Lindas, UMTRA
D. Leske, UMTRA, GJPO
S. Arp, UMTRA
C. Bull, MK-F/GRJ
R. Portillo, TSC
J. Deckler, CDH
B. Franz, CDH
P. Oliver, CDH

Grand Junction Community Development Department
Planning • Zoning • Code Enforcement
250 North Fifth Street
Grand Junction, Colorado 81501-2668
(303) 244-1430 FAX (303) 244-1599

Sept. 20, 1991

Mr. Tom Meyer
MK Ferguson Co.
P.O. Box 2737
Grand Junction, Co.
81502

Re; City Floodplain Permit # 13-90

Dear Mr. Meyer:

We have recieved your request to transfer the above floodplain permit from the Department of Energy to MK Ferguson Co. No official action is necessary on this request since all land use permits, including floodplain permits, run with the land regardless of changes of ownership or management of the land. All conditions of the original permit continue to apply. We have noted this change in our file.

Sincerely

Karl G. Metzner
Planner

#13 90

FLOODPLAIN PERMIT APPLICATION

FOR

THE PROPOSED EXPANSION OF THE
COLORADO DEPARTMENT OF HEALTH
STATE URANIUM MILL TAILINGS REPOSITORY

JANUARY 1990

FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE

ALBUQUERQUE OPERATIONS OFFICE

DEPARTMENT OF ENERGY

BY

UNC GEOTECH
P.O. Box 14000
Grand Junction, Colorado 81502-5504

APPROVED BY Michael K Tucker
M.K. TUCKER
MANAGER
GRAND JUNCTION PROJECTS OFFICE

DATE January 25, 1990

SUBMITTED BY Richard P. Rose
RICHARD P. ROSE #16354
COLORADO REGISTERED PE

DATE 1/11/90

RICHARD P. ROSE
REGISTERED
16354
PROFESSIONAL ENGINEER
STATE OF COLORADO

TABLE OF CONTENTS

1.0 HISTORICAL DATA

1.1 Purpose of Permit Application

This application is being made to allow the temporary placement of fill materials in the floodplain. The intent of this application is to ensure protection of people and property within the floodplain and to avoid unnecessary public expenditures during a flood event for the protection of public property. The proposed encroachment will be examined and the hydrological changes caused by the encroachment will be determined.

Through this application, the United States Department of Energy (USDOE) serves notice of its intent to maintain a temporary repository for materials generated under the Uranium Mill Tailings Radiation Control Act (UMTRCA; PL 95-604). This repository is temporary in nature, serving as a storage and loading facility for final removal of tailings to an authorized and permitted permanent repository, in accordance with State and Federal guidelines. The application is specific to planned expansion of the State Owned Temporary Repository (Repository).

1.2 Location and Adjacent Land Uses

The proposed location for expansion of the Repository is immediately west of 27.5 Road and approximately 500 feet north of the Colorado River. Several industrial buildings are located to the south (adjacent to the river), and agricultural land exists east of 27.5 Road. Industrial and residential areas are located north of the proposed expansion area, outside the 100 year floodplain. The existing Repository for uranium mill tailings is located immediately west of the described expansion area. Additional tailings piles are located at the adjacent Climax Uranium Mill Site (Mill Site). Both of these tailings piles abut the Colorado River. Access to the proposed expansion area is available from 27.5 Road or from the corner of 15th Street and Winters Avenue.

1.3 Ownership and Use

The property is owned by the State of Colorado and is managed under the authority of the Colorado Department of Health (CDH). Under an existing cooperative agreement, direct management of this facility has been assigned to the USDOE, through its Contractor UNC Geotech. The facility is managed with the cooperation and authority of CDH Hazardous Material and Waste Management Division.

1.4 Current Status

There has been some encroachment onto the west edge of the proposed expansion area from the existing Repository. This encroachment consists of contaminated material brought to the Repository from vicinity properties which have undergone remedial action under the Uranium Mill Tailings Remedial Action (UMTRA) Program.

1.5 Repository Expansion Plans

Plans for expansion of the temporary Repository are included in this application (see Appendix B). Plans include construction of a containment berm around the perimeter of the expansion for the Repository for control of project specific run-off and sedimentation and to protect the pile from flood water.

2.0 ANALYSIS

2.1 Available Data

Data used for this study was derived from a number of pre-existing sources; including, but not limited to, United States Army Corps of Engineers (COE) Flood Hazard data and Federal Emergency Management Agency (FEMA) studies and aerial photography and mapping.

2.1.1 1976 and 1983 COE Flood Hazard Data

Attempts were made to obtain copies of COE Flood Hazard studies prepared for this reach of the Colorado River. It was determined that this data was available only in the form of water surface profiles, flood insurance rate mapping, and tabular data. Cross sectional data nor the computer model input files are unavailable.

2.1.2 Current FEMA Study

The COE has revised the hydrology for the Colorado River and has significantly reduced the flows for any given flood event. The FEMA has contracted with J.F. Sato and Associates to revise the 1976/1983 floodplain data to concur with the new COE hydrology. FEMA was contacted and the mapping and preliminary computer model input files for the floodplain revision work was obtained from J.F. Sato and Associates. The data provided by J.F. Sato and Associates contained the revised COE hydrology, cross sectional data, and other hydraulic flow parameters.

2.2 Data Modifications

2.2.1 Additional Cross Sections

Examination of the preliminary data provided by J.F. Sato and Associates determined that some modification of the cross sectional data was necessary to accurately model the area near the Repository. The given cross sections did not model the encroachment of the existing tailings pile at the Repository and allowed a much smoother flow transition than would actually be possible from the open floodplain east of the Repository to the restricted floodplain at the Mill Site tailings pile.

Three cross sections were added at River Miles 388.04, 388.09, and 388.18 to allow examination of conditions with the existing historical Repository configuration without the proposed expansion and conditions which would exist with the proposed expansion of the Repository east to 27.5 Road.

2.2.2 Interpolation of Initial River Stage

J.F. Sato and Associates included an estimate of the river stage at the confluence of the Gunnison and Colorado Rivers at an elevation of 4,560.8 regardless of flow rate. No justification of this estimate was readily available and linear interpolation of the tabular COE Flood Hazard data determined an alternative estimate of the stage at this point. Interpolation of the COE Flood Hazard data determined the river stage at the confluence of the Gunnison and Colorado Rivers to be an elevation of 4,559.60 for a flow rate of 63,000 cfs and an elevation of 4,561.30 for a flow rate of 82,000 cfs. These flow rates correspond to the discharge during 100-year-flood events at this point. Comparative HEC-2 runs indicate that either estimate does not change the water surface profile data obtained near the Repository. The inability to justify the J.F. Sato and Associates estimate of river stage directed that the stage determined by linear interpolation of the COE 1976/1983 Flood Hazard data be used for this analysis.

Flood flows for the 100-year-flood event were obtained from the tabular COE Flood Hazard data and from the computer input files provided by J.F. Sato and Associates. These sources respectively determined the 100-year-flood flow in the Colorado River adjacent to the area of proposed expansion to be 63,000 cfs and 49,300 cfs.

2.3 HEC-2 Runs

Six different HEC-2 runs were made to examine the effects of the proposed expansion of the Repository tailings pile. These models were all based on the preliminary computer input data provided by J.F. Sato and Associates. Two models contained only the original input data but were run using 100-year-flood flows of 63,000 cfs and the 49,300 cfs (see Appendix D). The remaining four models were modified with additional cross section data at river miles 388.04, 388.09, and 388.18. The cross section data in two of these four models describes the conditions prior to any easterly expansion of the Repository and two describe the conditions that would exist if the proposed expansion took place. To ensure completeness of the data provided as a part of this application, each of these "pairs" of models were run, one using a 100-year-flood flow of 63,000 cfs and the other using 49,300 cfs as the 100-year-flood flow.

Although the computer input data is arranged in a manner that would allow examination of flood insurance zones using multiple water surface profile runs, no such examination was made as a part of this application.

2.4 Graphical Output

The results of these HEC-2 runs are presented in this application in a variety of ways. The water surface profiles for selected cases have been plotted and those plots are included in Appendix D. The COE 1976/1983 Flood Hazard data has also been plotted for purposes of comparison. The cross section data, including water surface elevations, have been plotted for the cross sections located at river mile 387.84 through 388.22 and are included in Appendix E. The text input/output files for all of the runs made are included in Appendix F.

3.0 RESULTS

3.1 Comparison to 1983 COE Data

Comparison of water surface profiles from the COE 1976/1983 Flood Hazard data and the results of HEC-2 modeling using the data provided by J.F. Sato and Associates revealed a relatively poor correlation except in the area near river mile 387.25 and upstream from river mile 388.75. The inability to obtain cross section and computer input files for the COE data did not allow resolution of this problem. The data provided by J.F. Sato and Associates permits modeling with present stream channel characteristics and allows a better assurance of accuracy based on known data. Therefore, the old COE data is shown for comparison but is not used for the determination of the effects of the proposed Repository expansion.

3.2 Hydraulic Effects of the Proposed Repository Expansion

3.2.1 Changes in Flood Elevations

Comparison of calculated water surface elevations as determined by the HEC-2 models reveals that the maximum increase in water surface elevation caused by the proposed expansion of the Repository is less than 0.1 feet (see Appendices D and F). This change occurs immediately upstream of the proposed expansion for the Repository site.

3.2.2 Changes in Flood Velocities

Comparison of flow velocities as determined by the HEC-2 models reveals a maximum increase in velocity of approximately 1 ft/sec in the main channel and 0.5 ft/sec in the right overbank area (see Appendix F). These changes occur at the present Repository site.

3.3 Potential for Damage to Other Property

The flow velocities in the overbank areas appear to be approximately 2 or 3 ft/sec while the flow velocities in the main channel are approximately 10 to 15 ft/sec. The velocities in the main channel would suggest a potential for erosion problems in areas adjacent to the main channel; however, the velocities in the overbank areas should not pose any serious problems. While problems with erosion adjacent to the main channel could occur, the data indicates that these problems would exist without the proposed Repository expansion. Therefore the proposed expansion will not adversely affect the floodplain.

3.4 Need for Additional Protective Measures

Increases in flow velocity of approximately 1 ft/sec and increases in water surface elevations of approximately 0.1 feet suggest that no additional protective measures beyond placement of the containment berm around the proposed Repository expansion are necessary.

3.5 Containment of Hazardous Materials

The proposed design for the containment berm includes the use of materials contaminated with uranium mill tailings to form the core of the berm and the placement of clean material (pit run) over the top. This design will ensure that any erosion of the exterior of the berm will not spread contaminated materials into adjacent waterways. The berm containing contaminated material will be removed at the end of the project and transported to the final repository.

The HEC-2 output data indicates velocities in the area of the expanded containment berm of approximately 3 ft/sec (see Appendix F). Calculation of the required rip rap size to resist this flow rate reveals a median size of less than 1" diameter would be adequate (see Appendix H). Compacted pit run materials will be capable of resisting erosion under the suggested flow velocities.

Final design for the proposed Repository expansion has not been completed as of this date. Completion of the design will require concurrence by USDOE and CDH. The completed design will be submitted to the Floodplain Administrator to ensure compliance with the requirements of the Floodplain Permit prior to final construction of the containment berm.

FLOODLTR.DOE:MISC.3:DZ

APPENDIX A

FLOODPLAIN PERMIT APPLICATION

CITY OF GRAND JUNCTION FLOODPLAIN PERMIT

APPLICANT UNC Geotech

MAILING ADDRESS 2597 B 3/4 Road, P.O. Box 14000

Grand Junction, Colorado 81502-5504

TELEPHONE HOME ( ) WORK (303) 248-6000

OWNER (IF DIFFERENT THAN APPLICANT) Colorado Department of Health

MAILING ADDRESS Attn: Ed Bischoff, UMTRA Project Manager Hazardous Materials/ Waste Management Division
4210 E. 11th Avenue, Denver, Colorado 80220

TELEPHONE HOME ( ) N/A WORK (303) 248-7165

COMMON LOCATION OF THE PROJECT SITE: State Repository at 15th & Winters
(STREET ADDRESS)

MESA COUNTY ASSESSOR'S TAX PARCEL NUMBER 294524200921

BRIEF DESCRIPTION OF THE PROPOSED USE OF THE SITE

Temporary repository for mill tailings removed from vicinity properties during the UMTRA Program.

RIVER, STATION: Colorado River, 388.04 to 388.18

ELEVATION OF THE 100 YEAR FLOOD EVENT: 4576.34

DETERMINED FROM: (X) CORPS OF ENGINEERS, FLOOD HAZARD STUDY, NOVEMBER 1976
( ) HUD FLOOD INSURANCE STUDY, JANUARY 1978

ENGINEER Richard P. Rose

MAILING ADDRESS 2597 B 3/4 Road, P.O. Box 14000

Grand Junction, Colorado 81502-5504

TELEPHONE WORK (303) 248-6146

TO BE COMPLETED BY STAFF

FEE _____

DATE RECEIVED _____ RECEIPT NO. _____ FILE NO. _____

REQUIRED DOCUMENTS: _____ _____

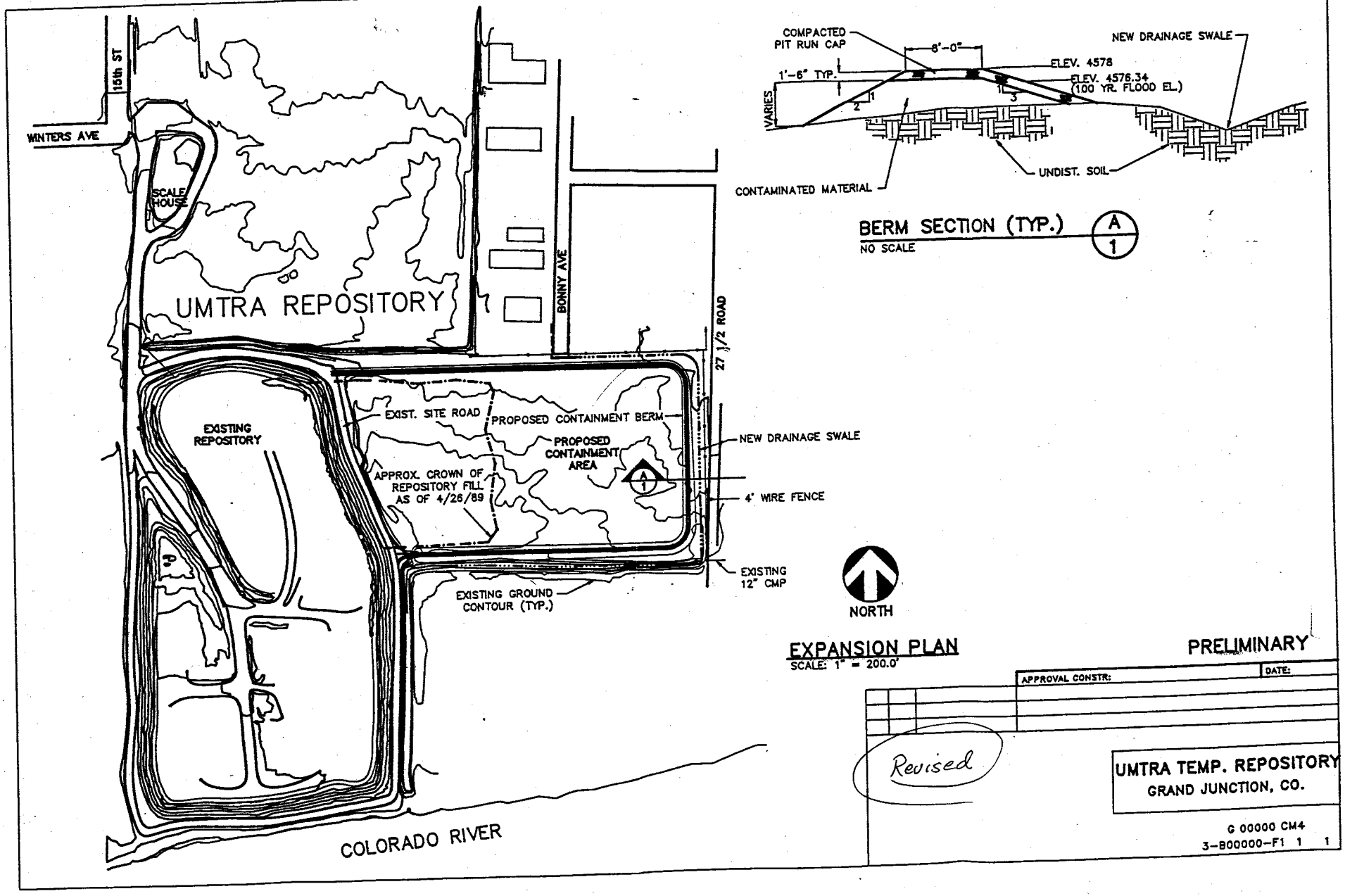
_____ _____

_____ _____

_____ _____

APPENDIX B

PRELIMINARY EXPANSION PLAN



BERM SECTION (TYP.) A/1
NO SCALE

EXPANSION PLAN
SCALE: 1" = 200.0'

PRELIMINARY

APPROVAL CONSTR:	DATE:

Revised

UMTRA TEMP. REPOSITORY
GRAND JUNCTION, CO.

G 00000 CM4
3-B00000-F1 1 1

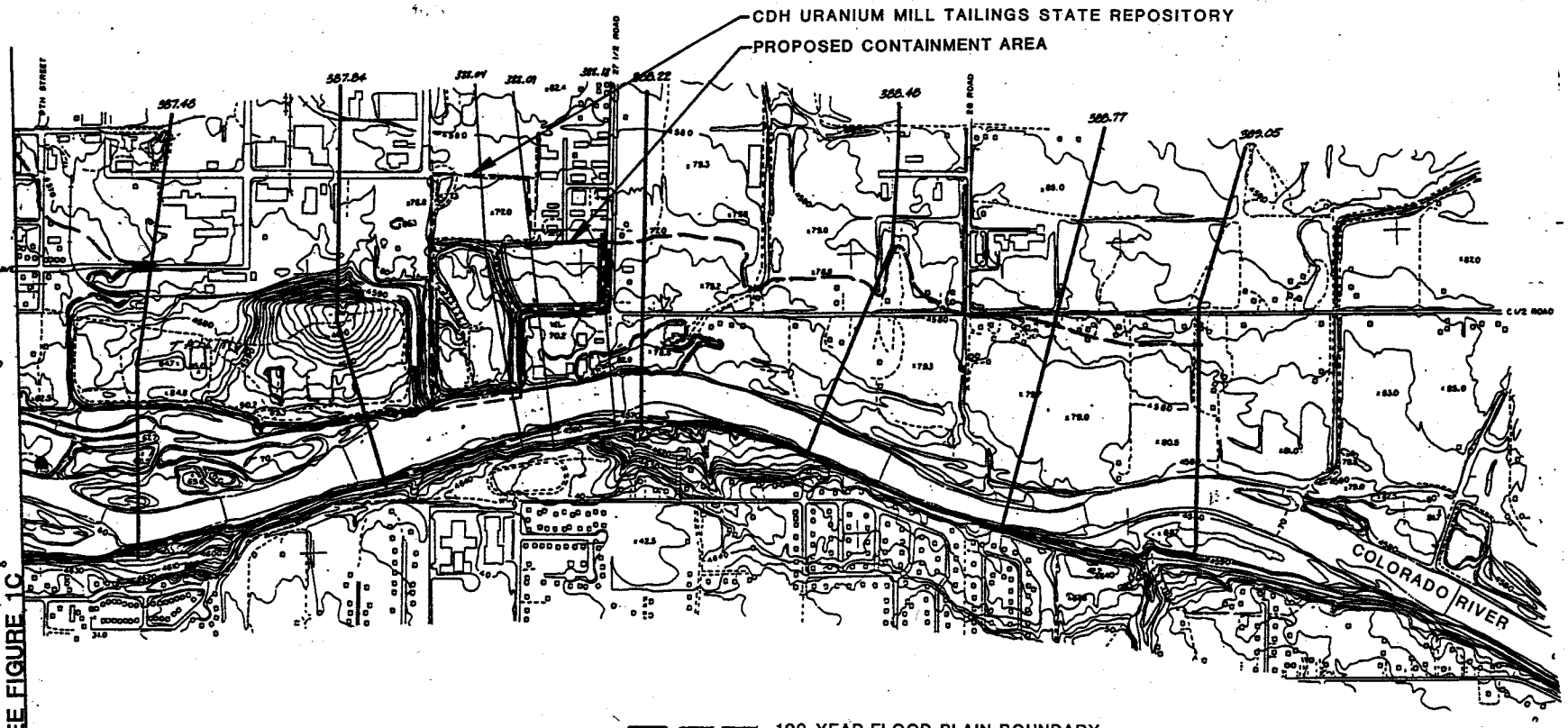


FIGURE 2C

TOPOGRAPHICAL MAPPING
RIVER MILE 387.48 TO RIVER MILE 389.05

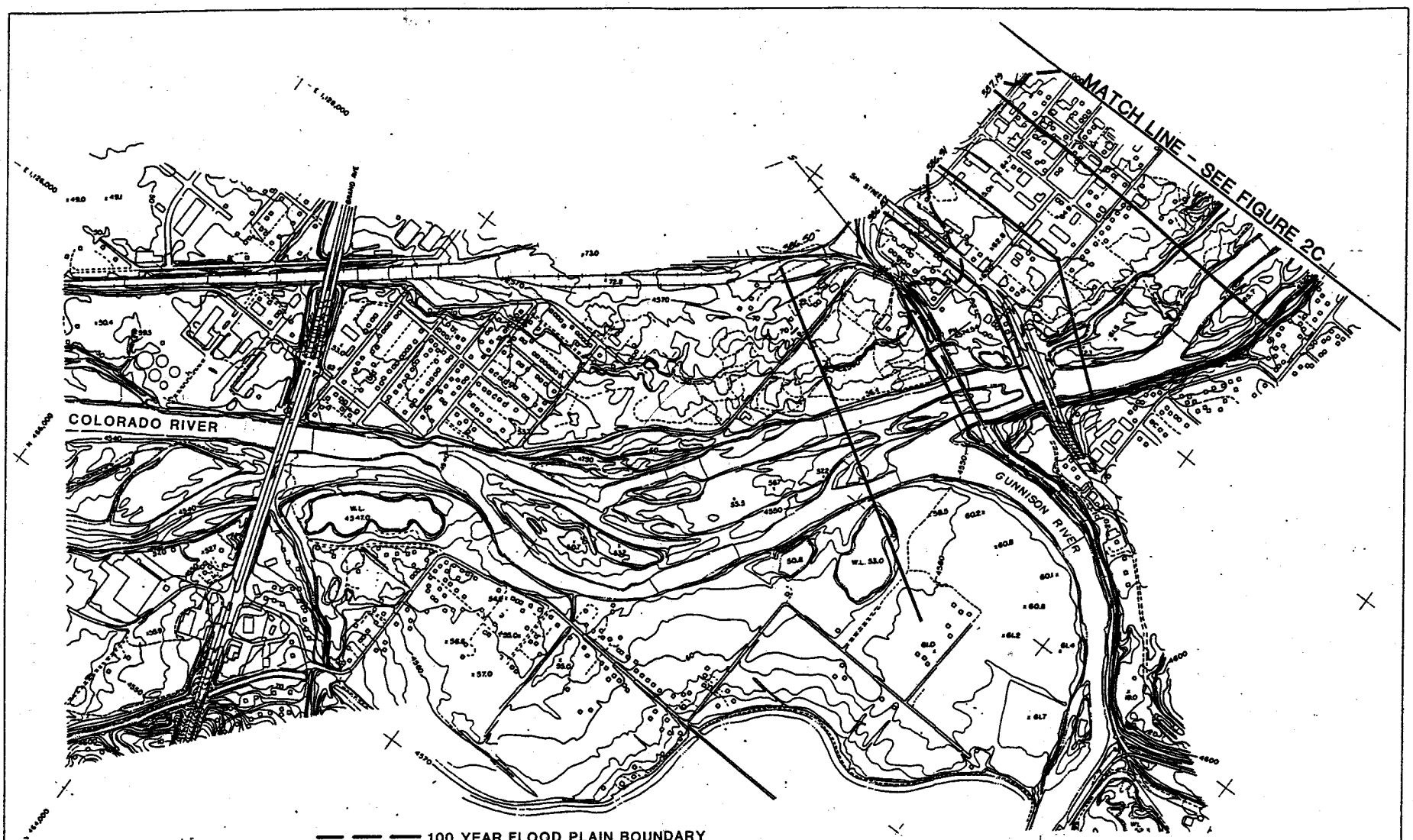


FIGURE 1C

TOPOGRAPHICAL MAPPING
RIVER MILE 386.50 TO RIVER MILE 387.19

APPENDIX D

WATER SURFACE PROFILES

1. FIGURE 1D: HISTORICAL/EXPANSION COMPARISON FOR Q = 63,000 CFS

2. FIGURE 2D: COE/SATO PRELIMINARY/HISTORICAL/EXPANSION COMPARISON FOR Q = 63,000 CFS

3. FIGURE 3D: HISTORICAL/EXPANSION COMPARISON FOR Q = 49,300 CFS

4. FIGURE 4D: SATO PRELIMINARY/HISTORICAL/EXPANSION COMPARISON FOR Q = 49,300 CFS

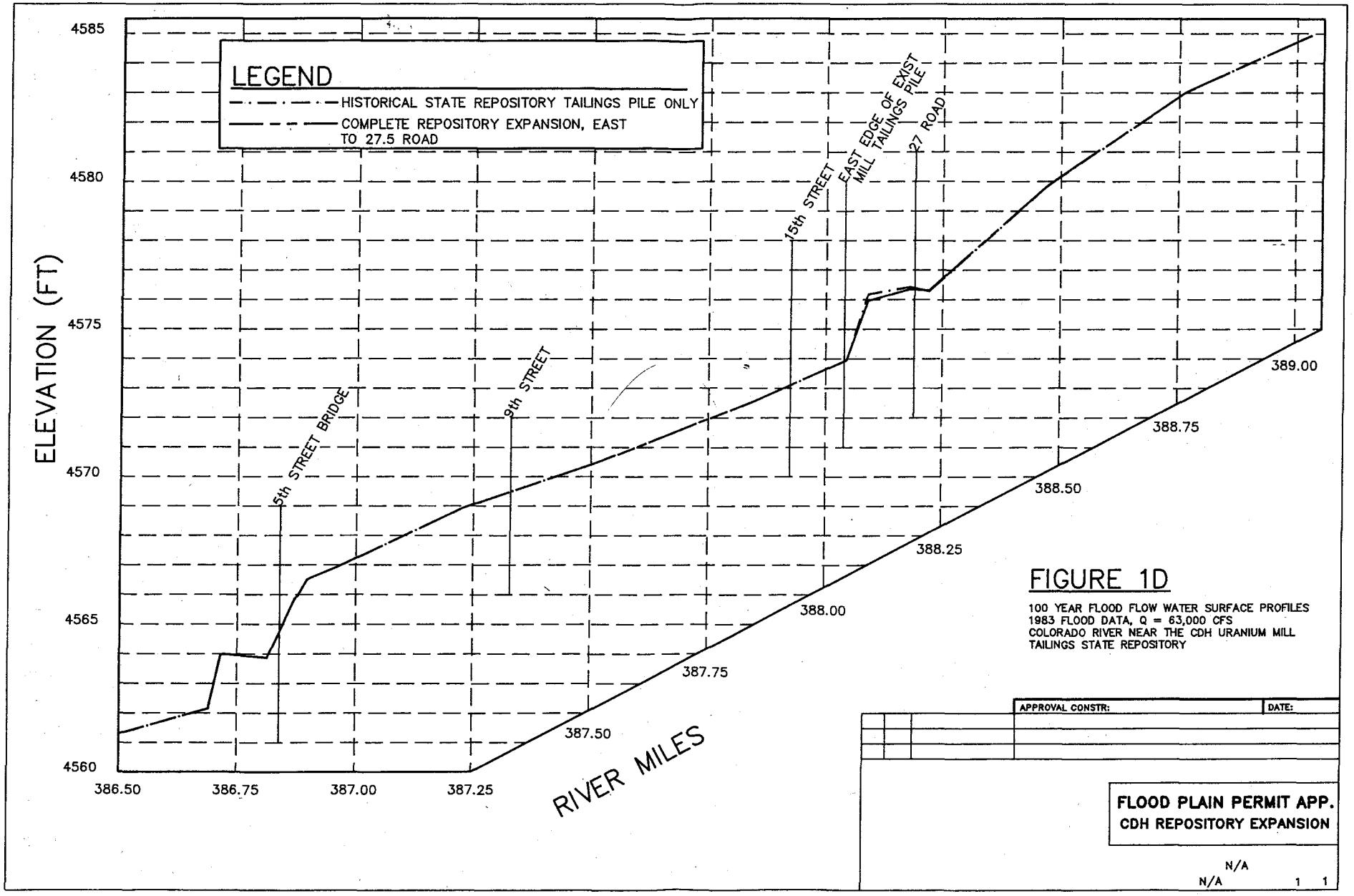


FIGURE 1D

100 YEAR FLOOD FLOW WATER SURFACE PROFILES
1983 FLOOD DATA, Q = 63,000 CFS
COLORADO RIVER NEAR THE CDH URANIUM MILL
TAILINGS STATE REPOSITORY

APPROVAL CONSTR:	DATE:

FLOOD PLAIN PERMIT APP.
CDH REPOSITORY EXPANSION

N/A
N/A 1 1

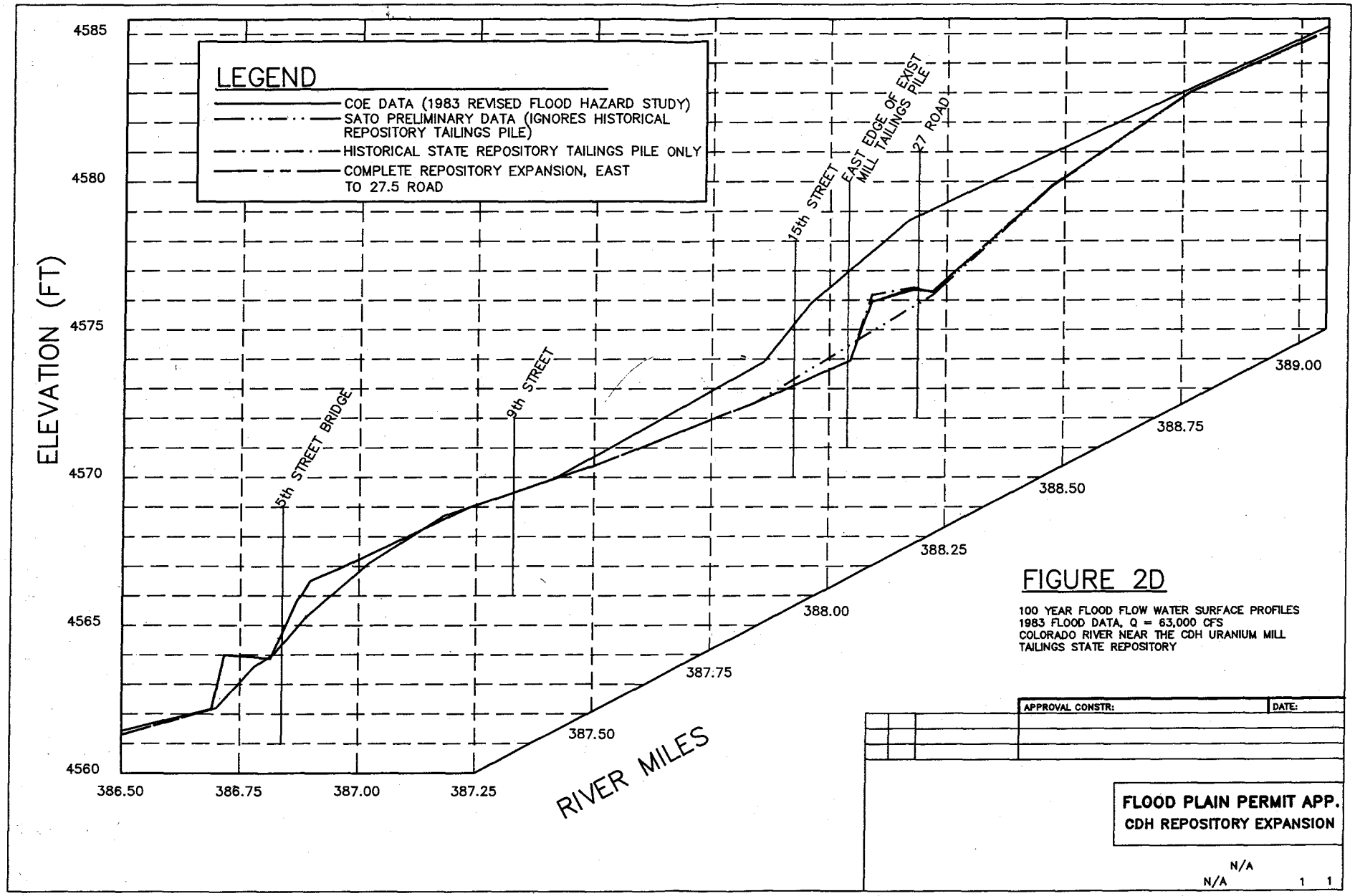


FIGURE 2D

100 YEAR FLOOD FLOW WATER SURFACE PROFILES
1983 FLOOD DATA, Q = 63,000 CFS
COLORADO RIVER NEAR THE CDH URANIUM MILL TAILINGS STATE REPOSITORY

APPROVAL CONSTR:	DATE:

FLOOD PLAIN PERMIT APP.
CDH REPOSITORY EXPANSION

N/A
N/A 1 1

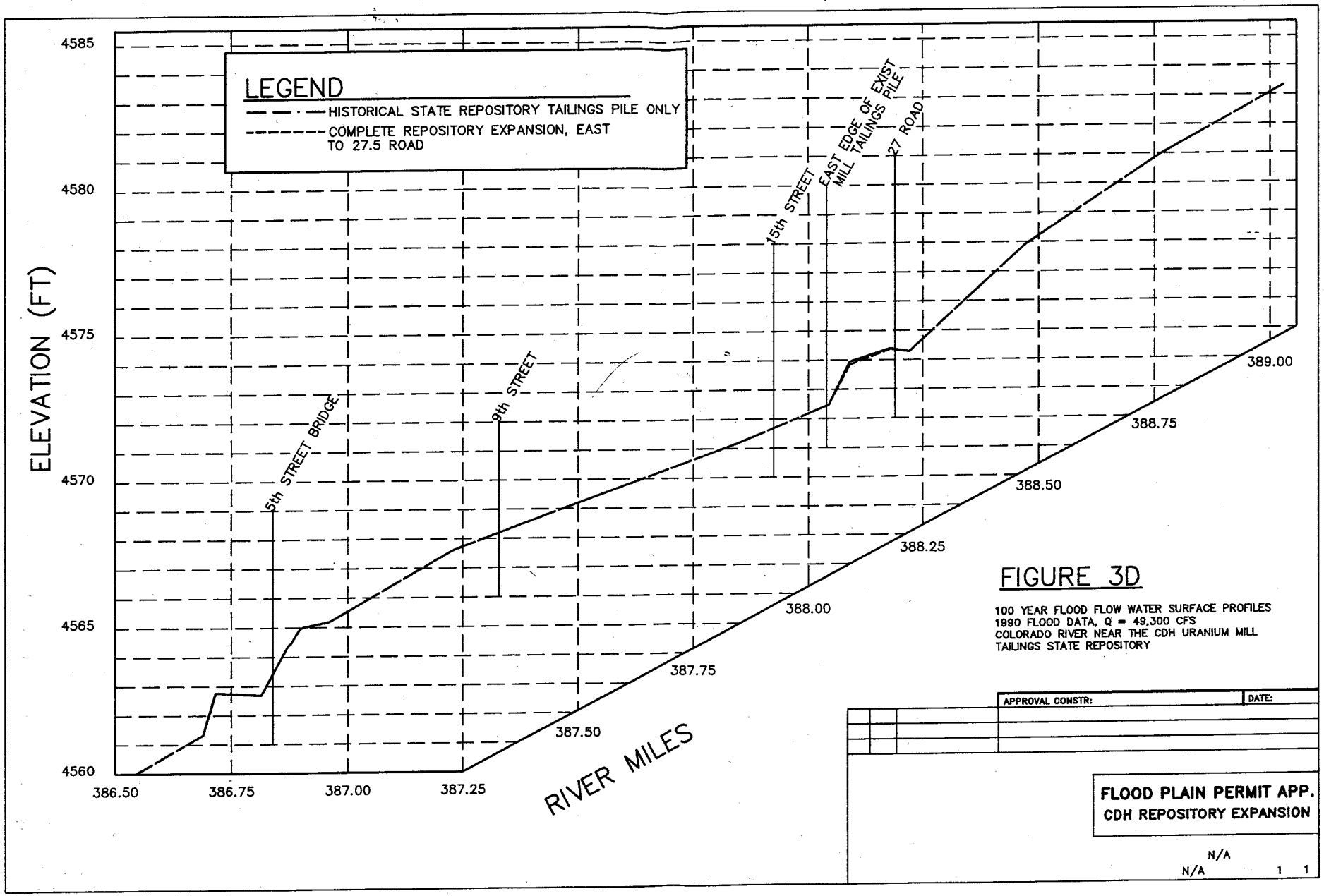


FIGURE 3D

100 YEAR FLOOD FLOW WATER SURFACE PROFILES
1990 FLOOD DATA, Q = 49,300 CFS
COLORADO RIVER NEAR THE CDH URANIUM MILL
TAILINGS STATE REPOSITORY

APPROVAL CONSTR:	DATE:

FLOOD PLAIN PERMIT APP.
CDH REPOSITORY EXPANSION

N/A
N/A 1 1

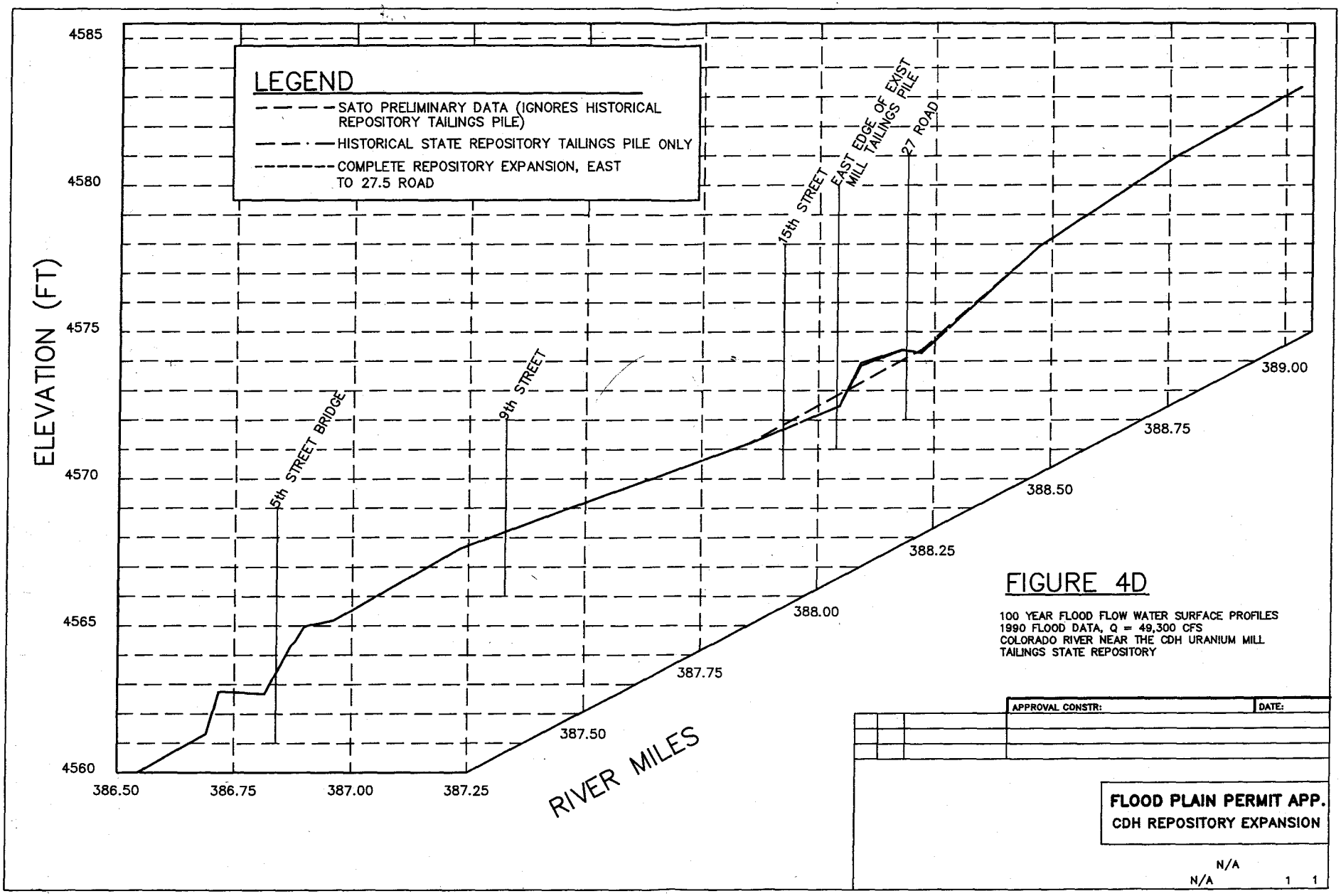


FIGURE 4D

100 YEAR FLOOD FLOW WATER SURFACE PROFILES
1990 FLOOD DATA, Q = 49,300 CFS
COLORADO RIVER NEAR THE CDH URANIUM MILL TAILINGS STATE REPOSITORY

APPROVAL CONSTR:	DATE:

FLOOD PLAIN PERMIT APP.
CDH REPOSITORY EXPANSION

N/A
N/A 1 1

APPENDIX E

CROSS SECTION DATA

1. FIGURE 1E: RIVER MILE 387.84
2. FIGURE 2E: RIVER MILE 388.04
3. FIGURE 3E: RIVER MILE 388.09
4. FIGURE 4E: RIVER MILE 388.18
5. FIGURE 5E: RIVER MILE 388.22

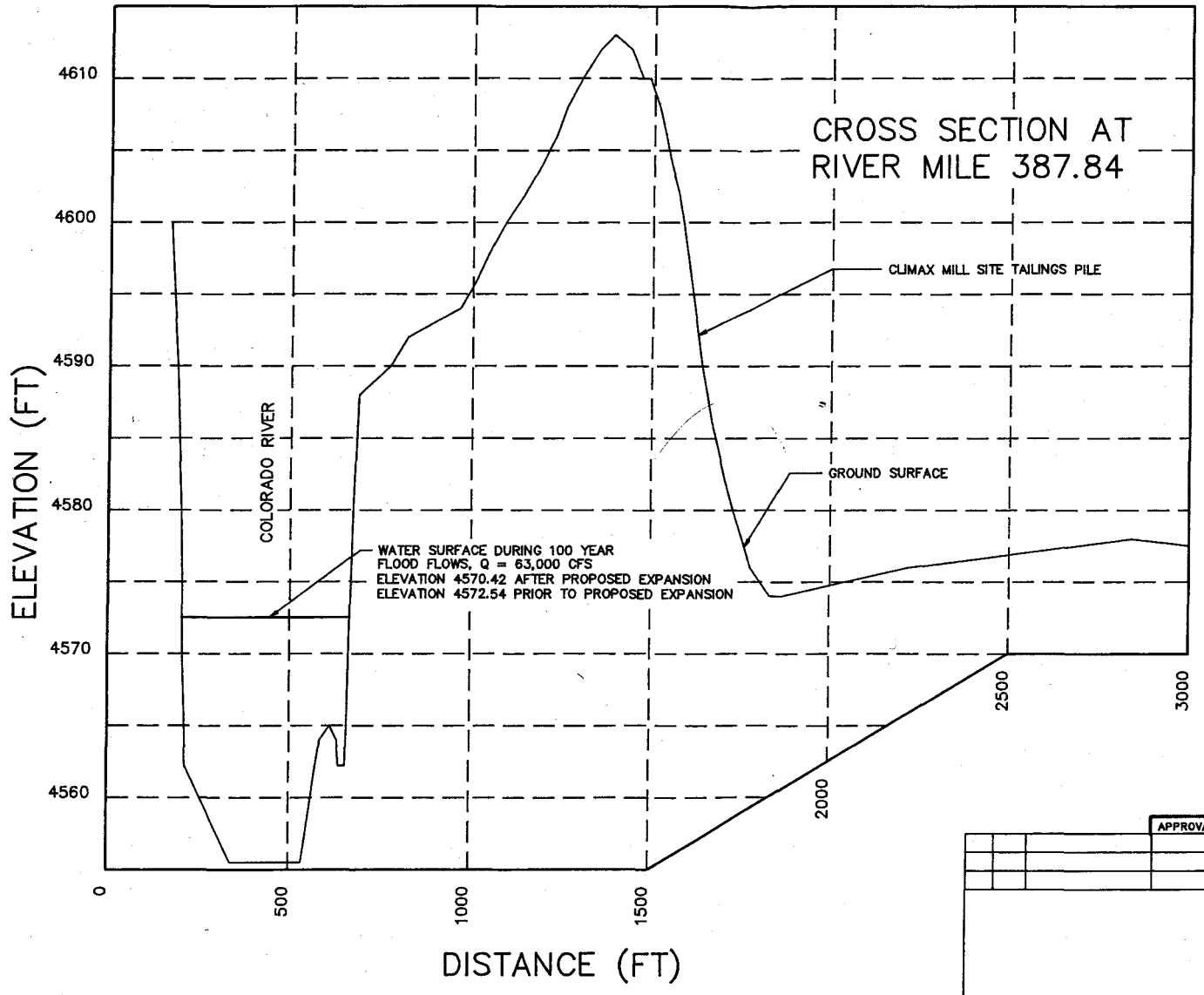


FIGURE 1E

CROSS SECTION DATA
100 YEAR FLOOD FLOWS
COLORADO RIVER NEAR THE
CDH REPOSITORY

			APPROVAL CONSTR:	DATE:

FLOOD PLAIN PERMIT APP.
CDH REPOSITORY EXPANSION

N/A
N/A 1 1

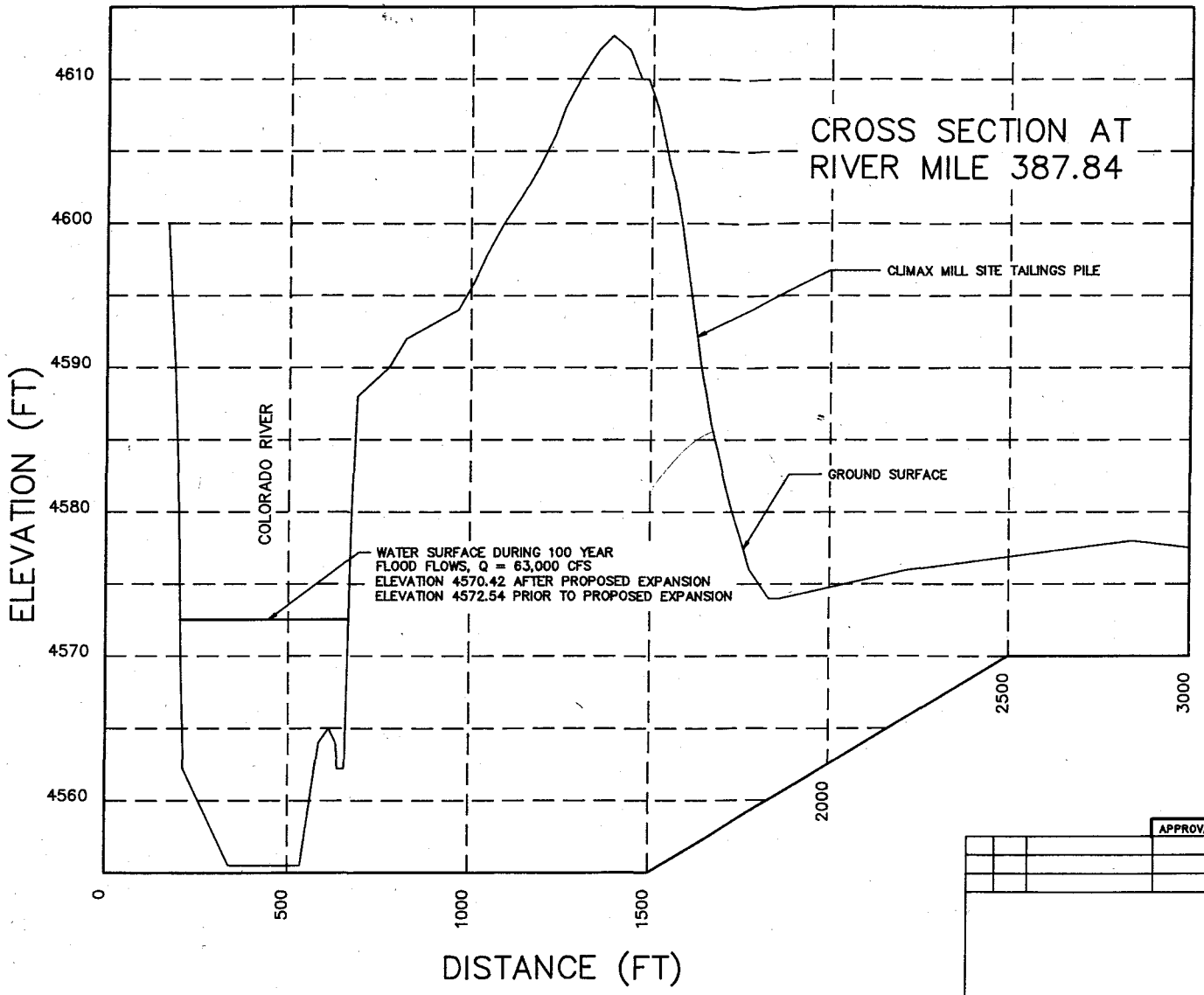


FIGURE 1E

CROSS SECTION DATA
100 YEAR FLOOD FLOWS
COLORADO RIVER NEAR THE
CDH REPOSITORY

	APPROVAL CONSTR:	DATE:

FLOOD PLAIN PERMIT APP.
CDH REPOSITORY EXPANSION

N/A
N/A 1 1

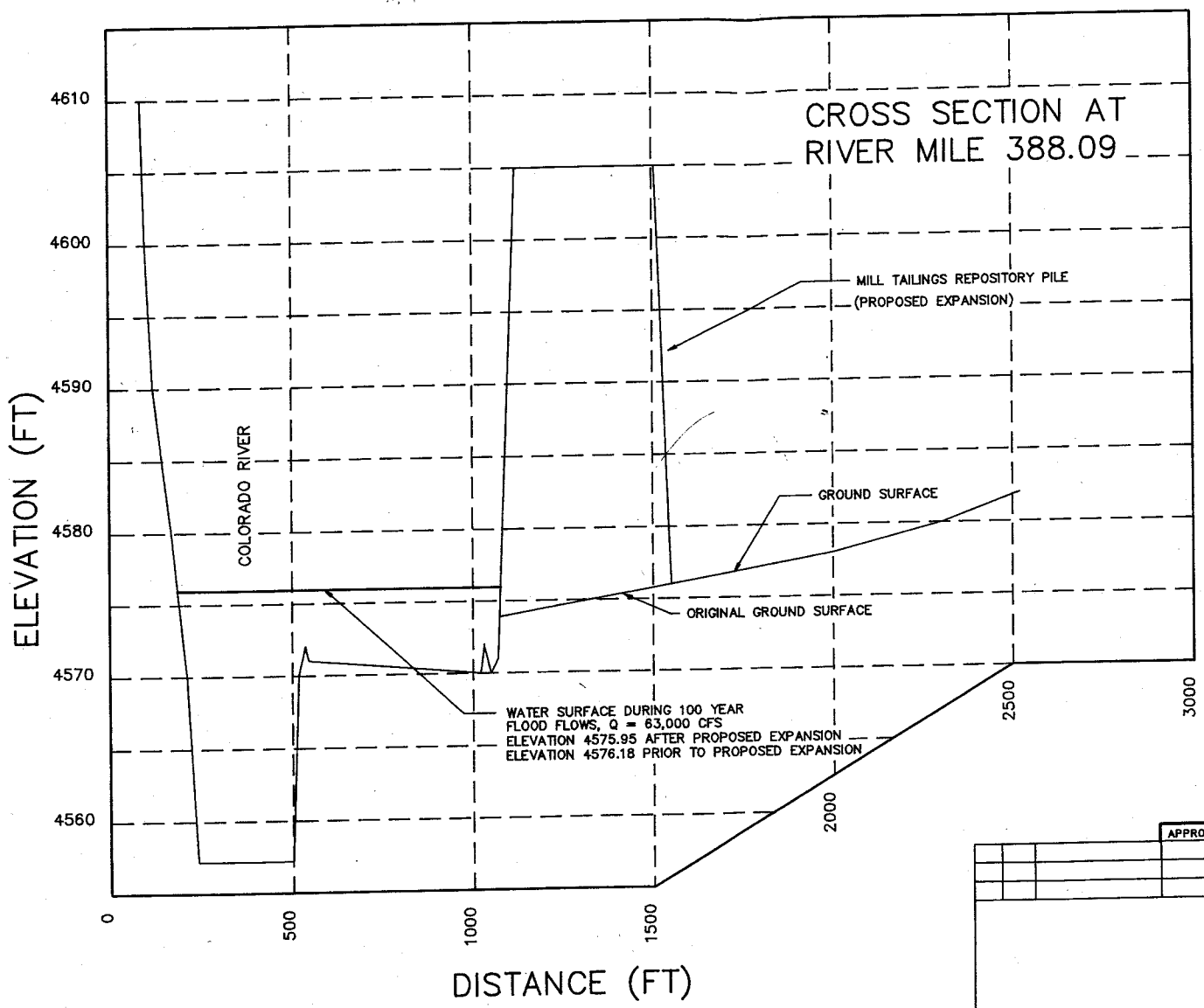


FIGURE 3E

CROSS SECTION DATA
100 YEAR FLOOD FLOWS
COLORADO RIVER NEAR THE
CDH REPOSITORY

APPROVAL CONSTR:	DATE:

FLOOD PLAIN PERMIT APP.
CDH REPOSITORY EXPANSION

N/A
N/A 1 1

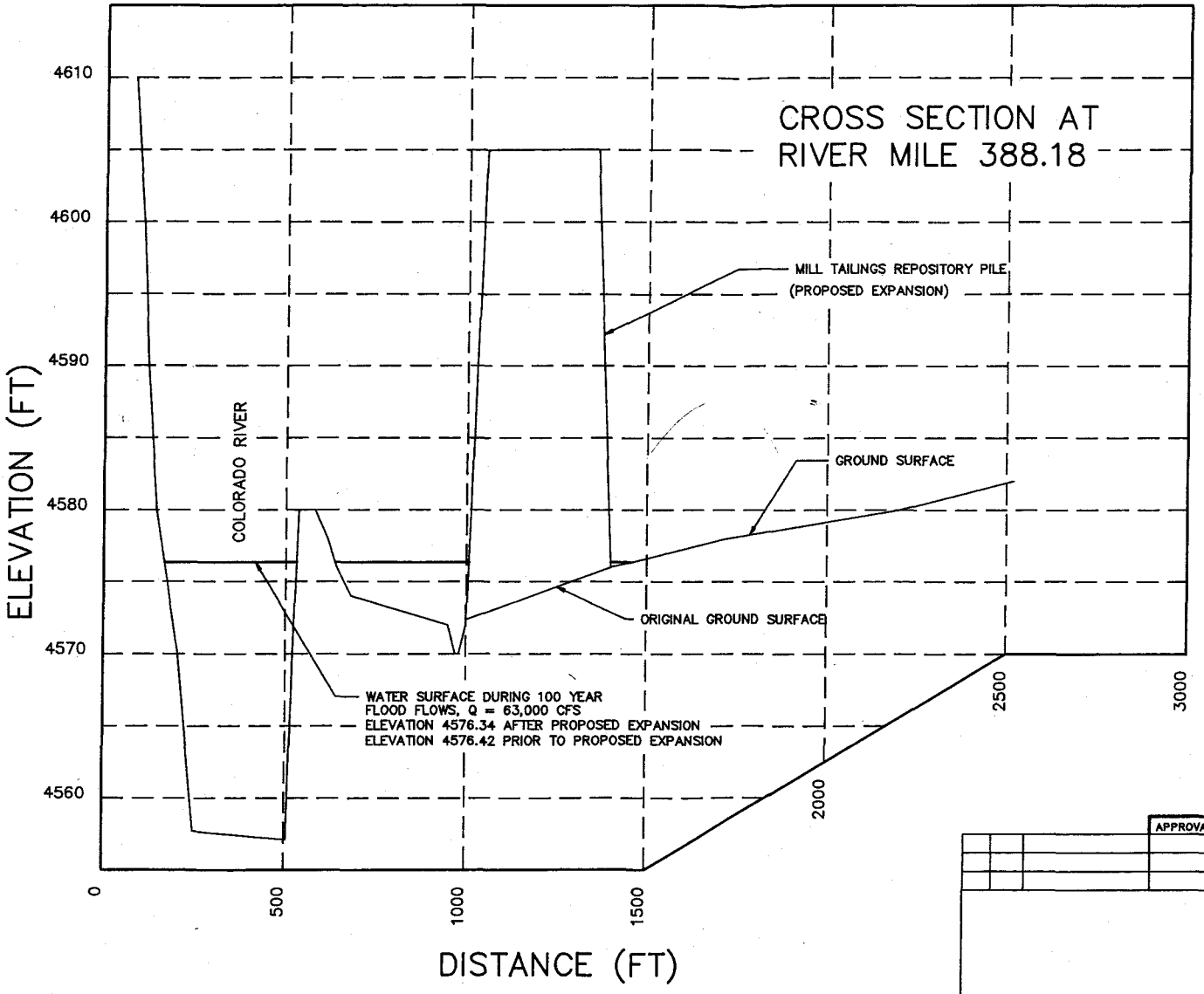


FIGURE 4E

CROSS SECTION DATA
100 YEAR FLOOD FLOWS
COLORADO RIVER NEAR THE
CDH REPOSITORY

		APPROVAL CONSTR:	DATE:

FLOOD PLAIN PERMIT APP.
CDH REPOSITORY EXPANSION

N/A
N/A 1 1

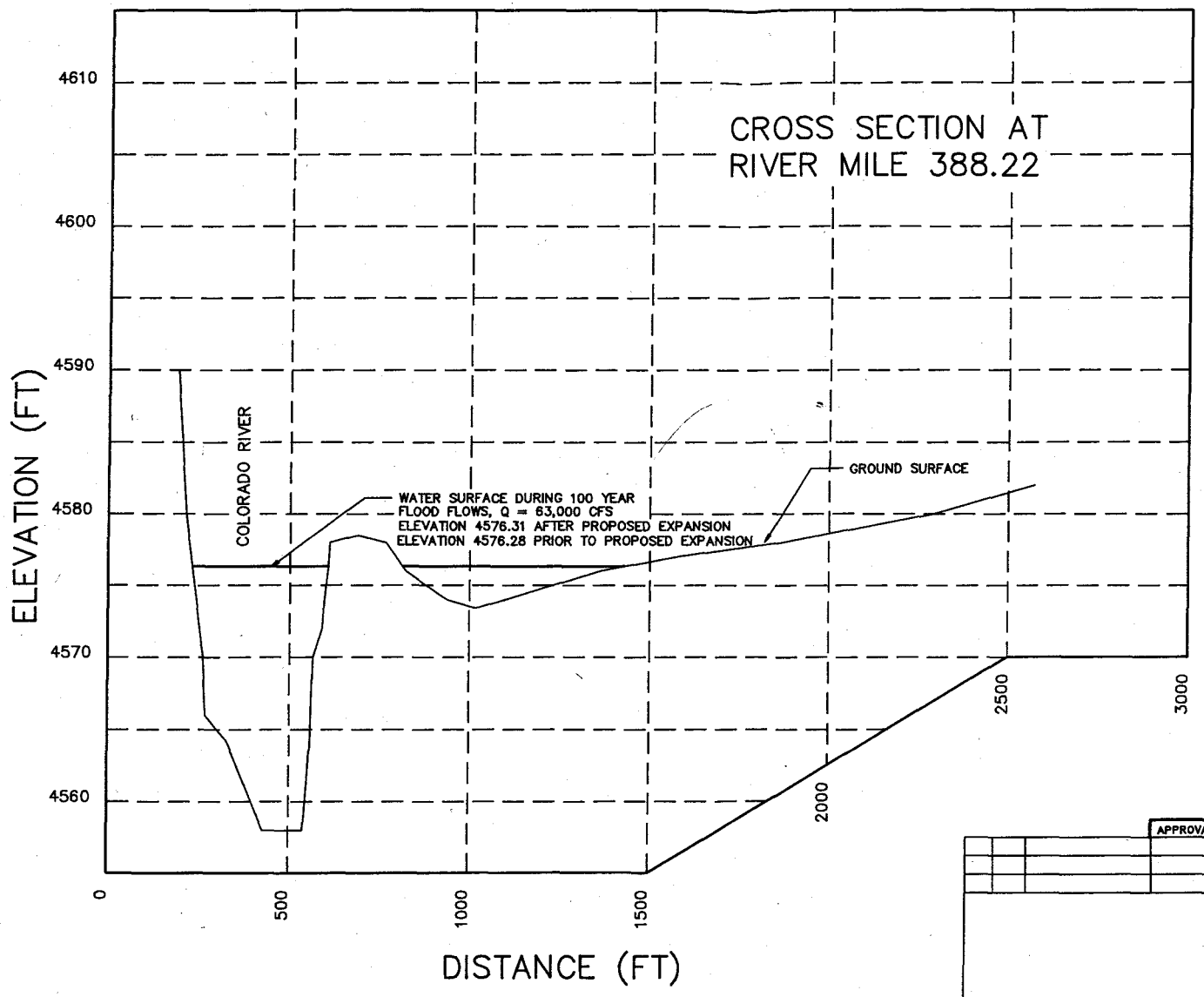


FIGURE 5E

CROSS SECTION DATA
100 YEAR FLOOD FLOWS
COLORADO RIVER NEAR THE
CDH REPOSITORY

APPROVAL CONSTR:	DATE:

FLOOD PLAIN PERMIT APP.
CDH REPOSITORY EXPANSION

N/A
N/A 1 1