

HYDROLOGY/FLOODPLAIN ASSESSMENT
FOR PROJECT BRP 050-1(20)
SH 50 AT COLORADO RIVER

The hydrology and floodplain assessment for this project has been prepared in accordance with Executive Order 11988 and procedures and requirements contained in the Federal Aid Highway Program Manual, Volume 6, Chapter 7, Subsection 3, (FHPR 6732).

BASIN DESCRIPTION

The Colorado River begins on the west of Mount Richtofen in Grand county at an elevation of 13,000 feet. At this point it flows south and west to this site, which is just above the confluence with the Gunnison River in Grand Junction. The total drainage area down to this point is 7,930 square miles.

The vegetation on the basin consists of mountain forests at higher altitudes, to pinon, juniper and brush at middle altitudes. At Grand Junction desert brush, cottonwoods and willows are prevalent. Soils in the basin consist of rocky outcrops along mountain and mesa tops to gravel, sand and silt on lower reaches.

HYDROLOGY

The overall climate for this region is semi-arid. Precipitation varies from 8 inches at Grand Junction to over 40 inches on the high mountain peaks. The peak flows for the Colorado River are caused primarily by snowmelt. The numerous reservoirs and irrigation diversions located along the river do not affect the hydrology. From the FEMA study (City of Grand Junction, Mesa County, July 1982) for this area the following discharges are given for our site:

$Q_{10} = 40,000 \text{ cfs}$
 $Q_{50} = 56,000 \text{ cfs}$
 $Q_{100} = 63,000 \text{ cfs}$

FLOOD HISTORY

The existing situation at this site consists of two parallel bridges that cross the channel at right angles to the direction of flow. The river channel has low banks on the north side that are overtopped during floods. The bridges themselves are above the 100 year flood and are adequate.

DESIGN

For the new bridge the design is controlled by the existing upstream bridge size and will be designed without significant encroachment in the floodplain. With this design there should not be any change in the historic conditions. In designing the new structure the following will require analysis during final design:

1. The bridge must have adequate freeboard to facilitate debris passage under the bridge at design discharge.
2. The design will be consistent with the established FEMA regulations.
3. Channel stability must be investigated with an emphasis on the potential for sediment desposition or scour. The need for bank protection can then be analyzed.

STATE OF COLORADO

DEPARTMENT OF HIGHWAYS

222 South Sixth Street, P.O. Box 2107
Grand Junction, Colorado 81502-2107
(303) 248-7208



June 6, 1988

Mr. Grady L. McNure
Chief, Regulatory Unit Four
U. S. Army Corps of Engineers
764 Horizon Drive, Room 211
Grand Junction, Colorado 81506-8719

Dear Grady:

Enclosed is the Colorado Department of Highways (CDOH) application for an Individual Corps of Engineers permit which will allow the construction of a new bridge and approaches approximately 0.4 miles in total length. The project is known as BRF 050-1(20) U.S. 50 at Colorado River and is the Fifth Street Bridge in Grand Junction, Colorado. The new bridge will replace height restricted, unsafe bridge structure H-2-H built in 1933 over the Colorado River. This overhead truss bridge is a historic bridge and is listed on the National Register of Historic Places. The old bridge to be replaced is a narrow, 24 foot wide bridge which currently handles the two northbound lanes of U.S. 50 in the south part of Grand Junction. The replacement of this bridge was initiated under an Environmental Assessment FHWA in April, 1988. This is an Intermediate Categorized FHWA/CDOH project and coordination efforts are ongoing with the State Historic Preservation Officer to finalize plans to replace this structure.

This project will require the placement of 16,120 cubic yards (CY) total materials, of which 670 CY is concrete and steel and 3,900 CY is embankment; 11,000 CY is temporary material, of which 6,050 CY is for coffer dam number one and 4,950 CY is for coffer dam number two, as shown on the enclosed drawings. Approximately 550 CY of riprap will be needed to protect the bridge abutments and river bank. All of the temporary and permanent fill quantities noted above will be placed below ordinary high water. All temporary fill material will be removed as soon as the work is completed or will be protected during high water if necessary.

The project will temporarily affect approximately 0.20 acres of wetlands located throughout the project by the placement of temporary fill over these isolated wetland areas. The rootmats

Mr. Grady L. McNure
June 6, 1988
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will not be affected and all temporary fill will be removed. The wetlands will recover once the temporary coffer dams are removed and the overflow channels reconstructed.

CDOH is in the process of requesting water quality certification from the Colorado Department of Health and Senate Bill 40 clearance from the Colorado Division of Wildlife. We will provide your office with copies of this certification correspondence when received by this office.

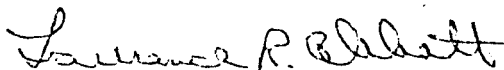
All work will be done with standard construction equipment, i.e., cranes, backhoes, trucks, etc. A detour will be needed and the existing southbound bridge structure immediately adjacent to this older bridge will be converted to two way traffic for the duration of the replacement/construction period (four to six months) of the new bridge. Construction is expected to begin in August or September of this year.

There are no downstream domestic water users within one mile of this project. Mitigation for threatened and endangered species in the area has been agreed to by FHWA, CDOH, U.S. Fish and Wildlife Service and the Colorado Division of Wildlife. Other impacts of the project have also been mitigated to eliminate any significant impacts which might result from this project.

If you have any questions concerning this request or application, please give us a call here in Grand Junction at 248-7223.

Very truly yours,

R. P. MOSTON
DISTRICT ENGINEER



BY: LAURENCE R. ABBOTT
DISTRICT ENVIRONMENTAL MANAGER

HDC/rff

Enclosures

cc: DOW - Grand Junction and Denver w/enc.
Barry/Brin w/enc.
Moston/Perske
Sabin/Jackson w/enc.
Spanicek
Abbott
Cooper w/enc.
File

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

(33 CFR 325)

OMB APPROVAL NO. 0702-0036
Expires 30 June 1986

The Department of the Army permit program is authorized by Section 10 of the River and Harbor Act of 1899, Section 404 of the Clean Water Act and Section 103 of the Marine, Protection, Research and Sanctuaries Act. These laws require permits authorizing activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Information provided on this form will be used in evaluating the application for a permit. Information in this application is made a matter of public record through issuance of a public notice. Disclosure of the information requested is voluntary; however, the data requested are necessary in order to communicate with the applicant and to evaluate the permit application. If necessary information is not provided, the permit application cannot be processed nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

1. APPLICATION NUMBER (To be assigned by Corps)	3. NAME, ADDRESS, AND TITLE OF AUTHORIZED AGENT LAURENCE R. ABBOTT, DISTRICT ENVIRONMENTAL MANAGER COLORADO DEPARTMENT OF HIGHWAYS P. O. BOX 2107 GRAND JUNCTION, CO 81502	
2. NAME AND ADDRESS OF APPLICANT R. P. MOSTON DISTRICT ENGINEER COLORADO DEPARTMENT OF HIGHWAYS P. O. BOX 2107 GRAND JUNCTION, CO 81502 Telephone no. during business hours A/C () _____ (Residence) A/C (303) 248-7208 (Office)	Telephone no. during business hours A/C () _____ (Residence) A/C (303) 248-7223 (Office) Statement of Authorization: I hereby designate and authorize _____ _____ to act in my behalf as my agent in the processing of this permit application and to furnish, upon request, supplemental information in support of the application. SIGNATURE OF APPLICANT R.P. Moston R. P. MOSTON, DISTRICT ENGINEER DATE JUNE 6, 1988	

4. DETAILED DESCRIPTION OF PROPOSED ACTIVITY

4a. ACTIVITY

THE CONSTRUCTION OF A NEW BRIDGE ON U.S. 50 AT THE COLORADO RIVER IN GRAND JUNCTION (FIFTH STREET BRIDGE) WILL INVOLVE NEW ROAD APPROACHES, TEMPORARY WETLAND DISTURBANCE, TEMPORARY COFFER DAMS AND RIPRAP PLACEMENT. THE CONSTRUCTION WILL INVOLVE THE PERMANENT PLACEMENT OF 5,120 CUBIC YARDS (CY) OF MATERIAL BELOW ORDINARY HIGH WATER, 670 CY OF CONCRETE AND STEEL, 3900 CY OF EMBANKMENT AND 500 CY OF RIPRAP. THE PROJECT WILL ALSO BE PLACING 11,000 CY OF TEMPORARY FILL MATERIAL INTO THE COLORADO RIVER IN TWO COFFER DAMS. ALL OF THE ABOVE-MENTIONED MATERIAL WILL BE PLACED BELOW ORDINARY HIGH WATER.

4b. PURPOSE

THIS BRIDGE IS UNSAFE AND THE BRIDGE HAS A HEIGHT-RESTRICTION AND IS IN VERY POOR REPAIR. THE NEW BRIDGE WILL BE WIDER (44 FEET) AND WILL SAFELY HANDLE TWO LANES OF TRAFFIC, INCLUDING TRUCK AND BUS TRAFFIC.

4c. DISCHARGE OF DREDGED OR FILL MATERIAL

MATERIAL FOR THE CONSTRUCTION OF THIS PROJECT WILL COME FROM AN UNDESIGNATED SOURCE NEAR THE PROJECT AREA. THERE ARE SEVERAL COMMERCIAL SOURCES IN THE AREA. WORK IN THE RIVER WILL BE DONE DURING LOW WATER FLOWS AS MUCH AS POSSIBLE.

NAMES AND ADDRESSES OF ADJOINING PROPERTY OWNERS, LESSEES, ETC., WHOSE PROPERTY ADJOINS THE WATERWAY

THOMAS N. LEWIS
1337 WHITE AVENUE
GRAND JUNCTION, CO 81501

ROBERT M. MATHER AND
DIANE C. MATHER
1133 SUNDIAL ROAD
GRAND JUNCTION, CO 81501
(LOTS 1-11 - SOUTHEAST SIDE)

ROY L. GAMBLE AND
MARY E. GAMBLE
547 SHANK COURT
GRAND JUNCTION, CO 81503

WATERBODY AND LOCATION ON WATERBODY WHERE ACTIVITY EXISTS OR IS PROPOSED

COLORADO RIVER, SOUTH SIDE OF GRAND JUNCTION

LOCATION ON LAND WHERE ACTIVITY EXISTS OR IS PROPOSED

ADDRESS:

U.S. 50 SOUTH OF GRAND JUNCTION, COLORADO
STREET, ROAD, ROUTE OR OTHER DESCRIPTIVE LOCATION

MESA	COLORADO	81501	23	1 S.	1 W.
COUNTY	STATE	ZIP CODE	Sec.	Twp.	Rge.
			Tax Assessors Description:		
MESA COUNTY AND COLORADO DEPARTMENT OF HIGHWAYS			Map No.	Subdiv. No.	Lct No.
LOCAL GOVERNING BODY WITH JURISDICTION OVER SITE					

9. Is any portion of the activity for which authorization is sought now complete? YES NO
If answer is "Yes" give reasons, month and year the activity was completed. Indicate the existing work on the drawings.

10. List all approvals or certifications and denials received from other federal, interstate, state or local agencies for any structures, construction, discharges or other activities described in this application.

ISSUING AGENCY	TYPE APPROVAL	IDENTIFICATION NO.	DATE OF APPLICATION	DATE OF APPROVAL	DATE OF DENIAL
COLORADO DEPARTMENT OF HEALTH	401 CERTIFICATION		JUNE 1988		
COLORADO DIVISION OF WILDLIFE	SENATE BILL 40 CLEARANCE		JUNE 1988		

10. Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities or I am acting as the duly authorized agent of the applicant.

R. P. MOSTON
DISTRICT ENGINEER

LAURENCE R. ABBOTT
DISTRICT ENVIRONMENTAL MANAGER

R.P. Moston
SIGNATURE OF APPLICANT

JUNE 6, 1988
DATE

Laurence R. Abbott
SIGNATURE OF AGENT

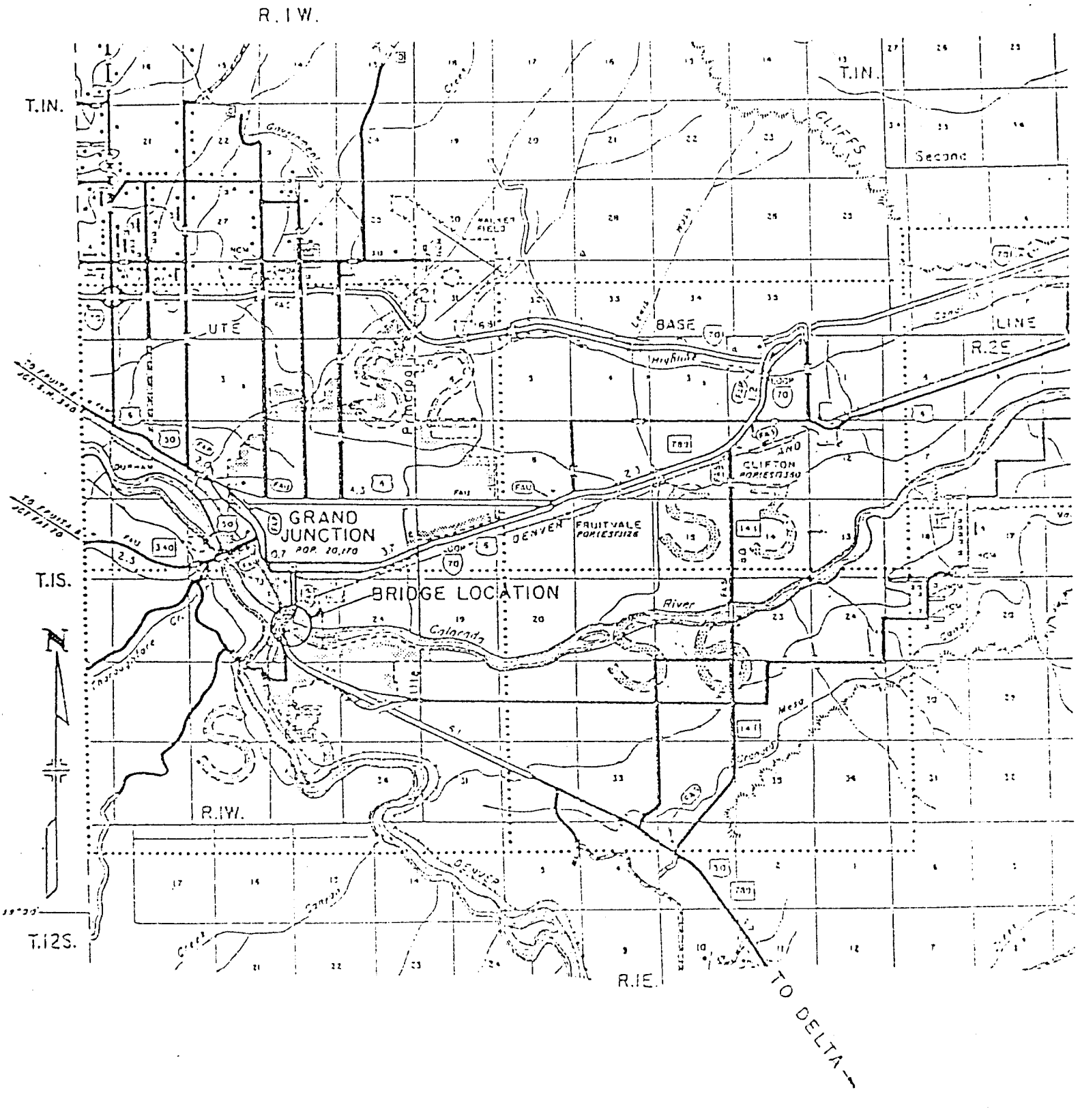
JUNE 6, 1988
DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in Block 3 has been filled out and signed.

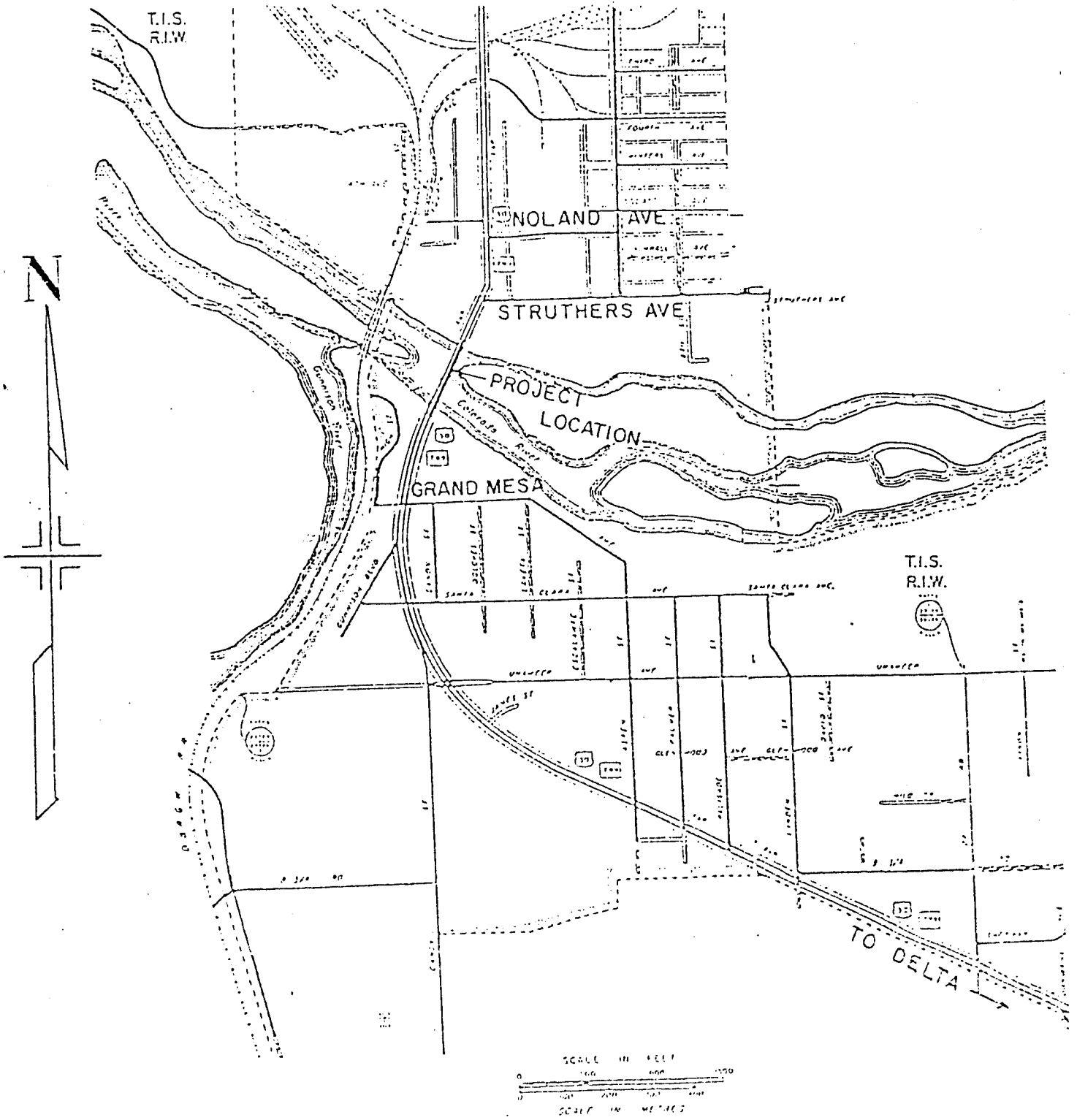
18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of The United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than \$10,000 or imprisoned not more than five years, or both.

Do not send a permit processing fee with this application. The appropriate fee will be assessed when a permit is issued.

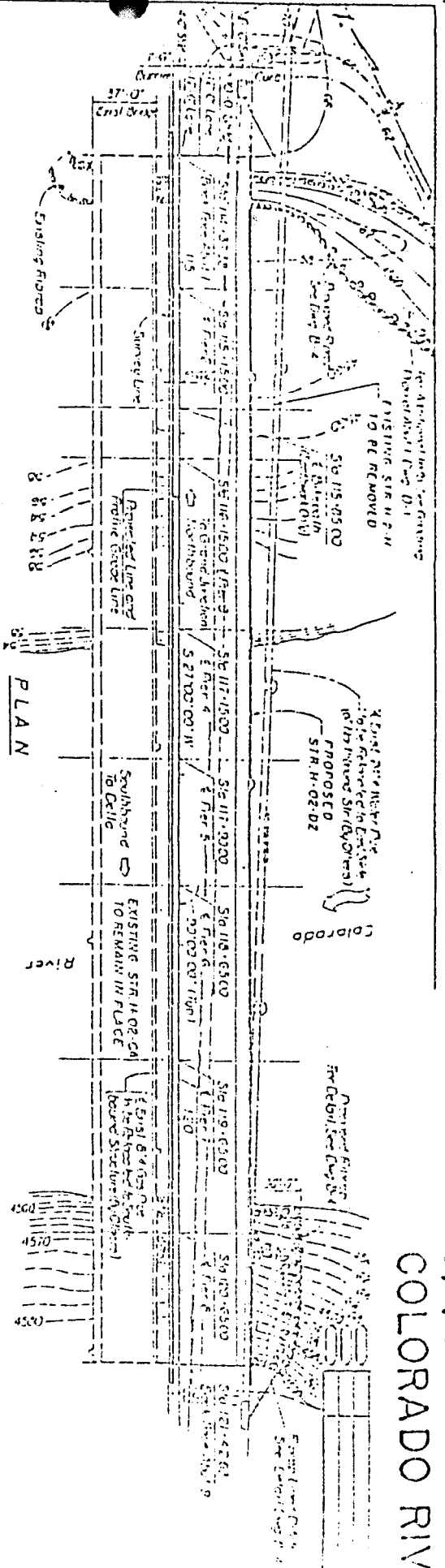
BRF 050-1 (20)
U.S. 50 AT
COLORADO RIVER



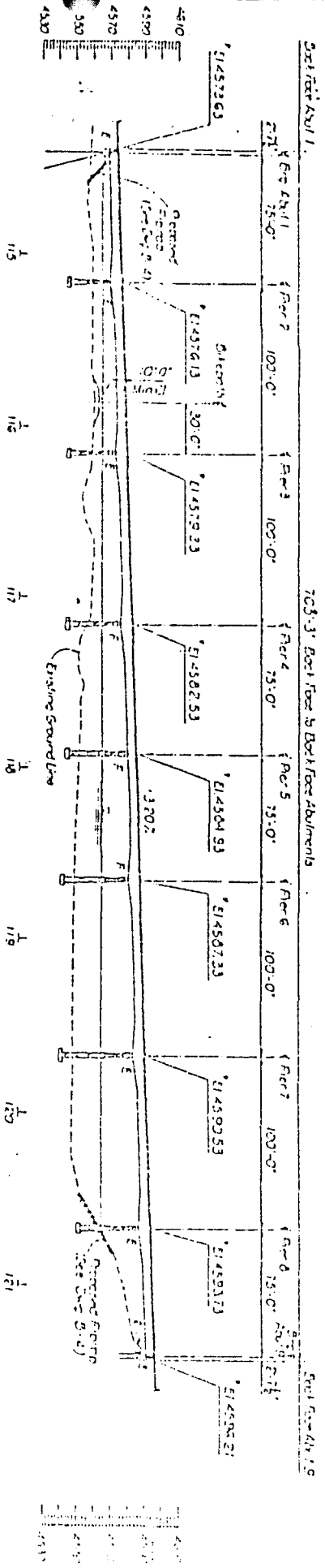
GRAND JUNCTION



U.S. 50 AT
COLORADO RIVER



PLAN



SECTION

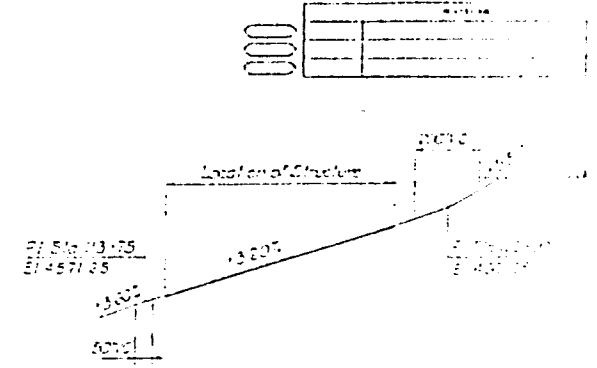
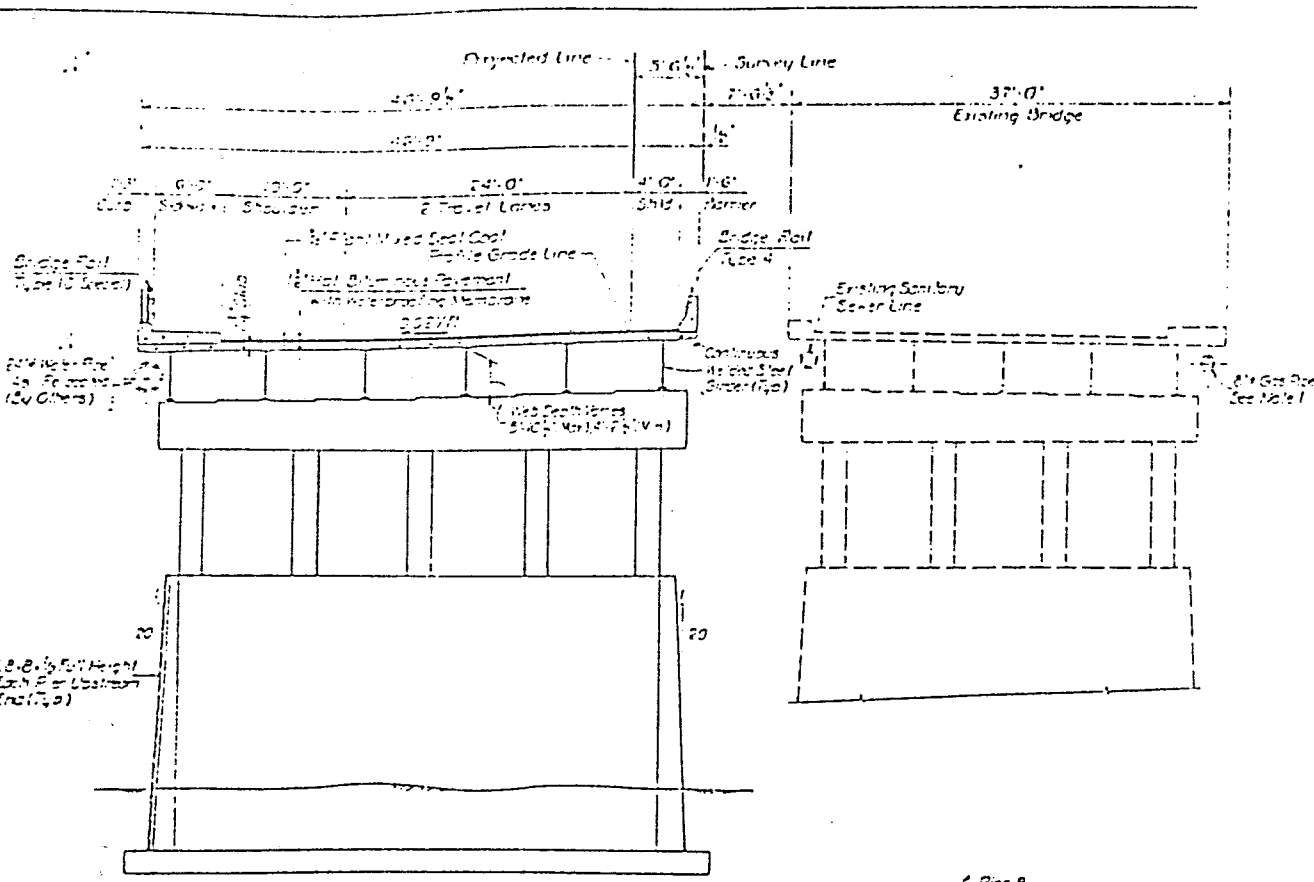
(Top of Napile Gravel Line)
(Finish Cross Elevation)

Hydraulic Information
 Deck Area - 7,900 Sq. Ft.
 O.C.S. - 57,000 C.F.S.
 D.M.W. - 4,564 3/4
 A.M.W. - 4,564 3/4
 Q.M. - 63,000 C.F.S.
 H.W. - 4,563 2/4

AF CONSULTANTS INC.
 CONSULTANTS

DIVISION OF HIGHWAYS	
GENERAL LAYOUT	
PROJECT NO.	50-1-1
DATE	1950
BY	J. W. ...
CHECKED	...
APPROVED	...

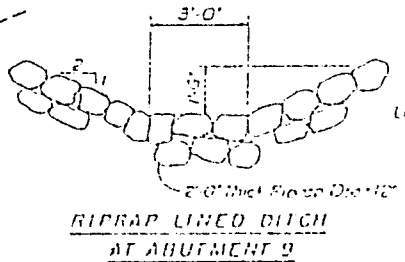
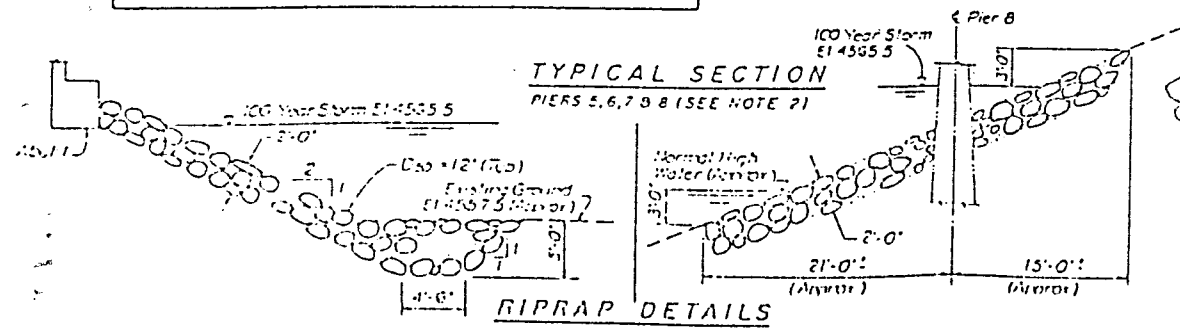
BRF 050-1 (20)
 U.S. 50 AT
 COLORADO RIVER



PROFILE GRADE

- NOTES:
- Existing Gas Line at Pier B Bridge to be Relocated to Southward Slope of Pier B.
 - Piers 2, 3 and 4 are Similar to Pier 1 with no Columns.
 - Existing Stone Bridge to be Replaced on Project Specifications and Standard Specifications.

PROJECT NO.	BRF 050-1
DATE	
BY	
CHECKED BY	
APPROVED BY	

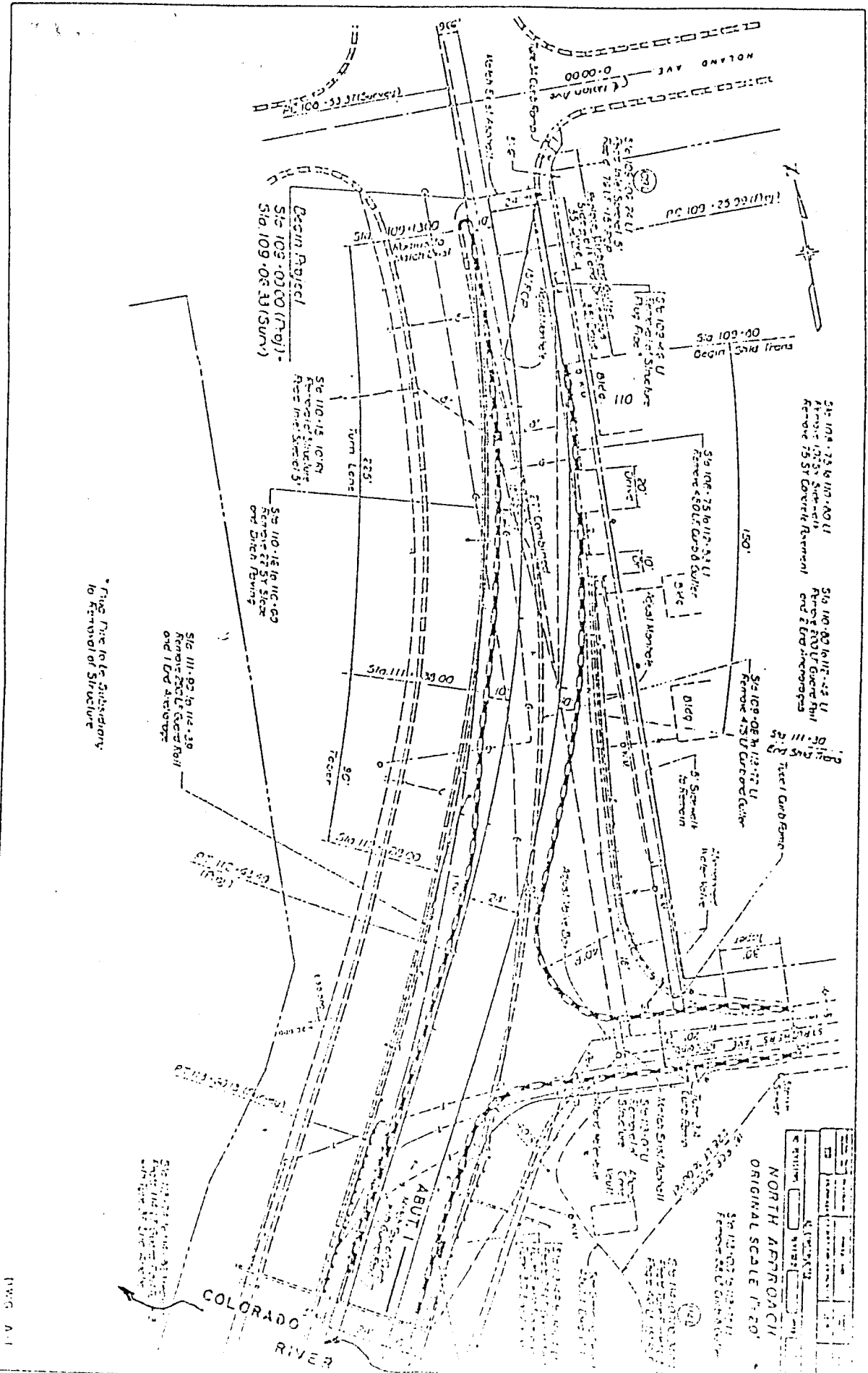


DIVISION OF HIGHWAYS
 TYPICAL SECTION

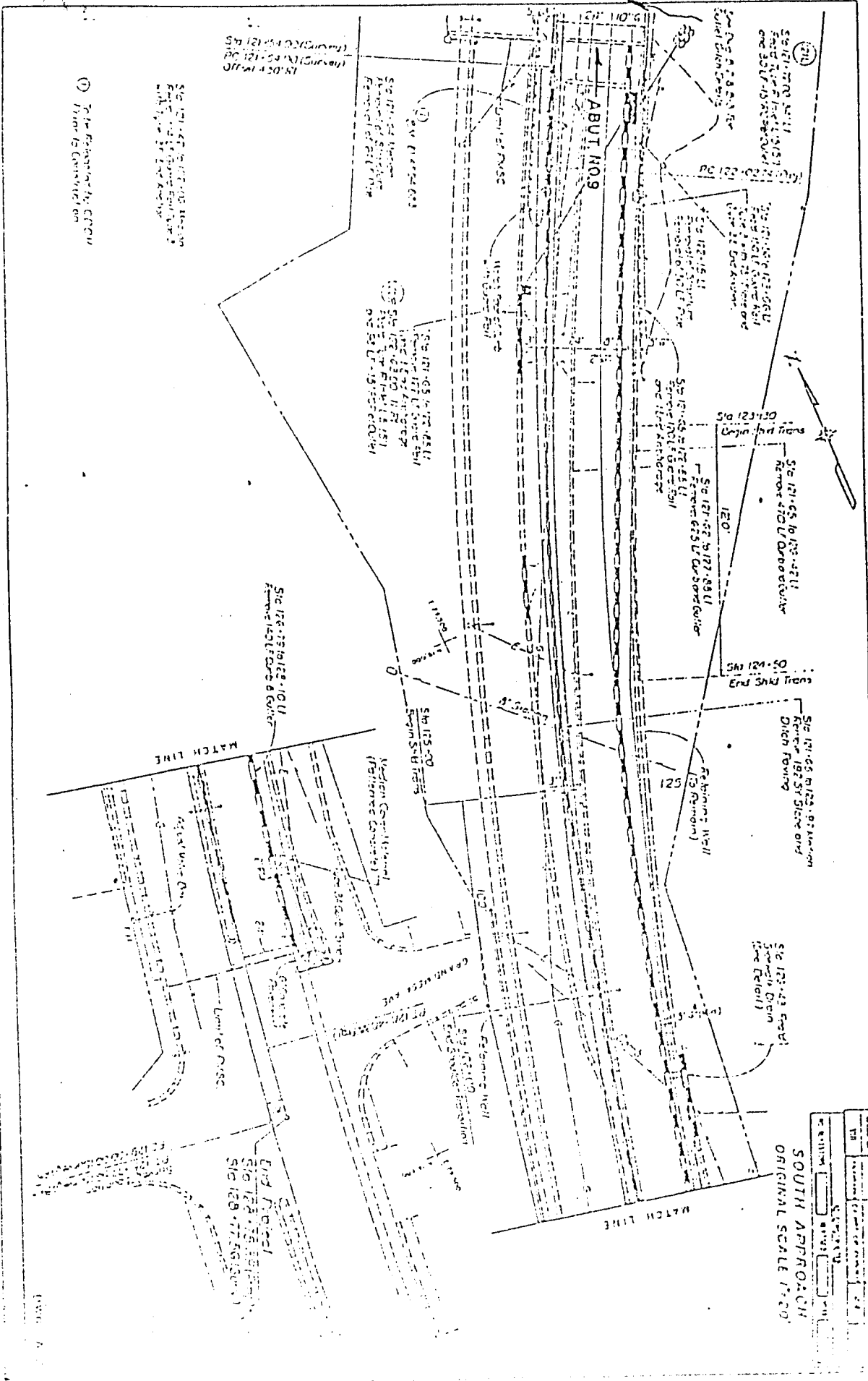
AT CONSULTANTS INC.

PROJECT NO.	BRF 050-1
DATE	
BY	
CHECKED BY	
APPROVED BY	

BRF 050-1 (20)
 U.S. 50 AT
 COLORADO RIVER



COLORADO RIVER

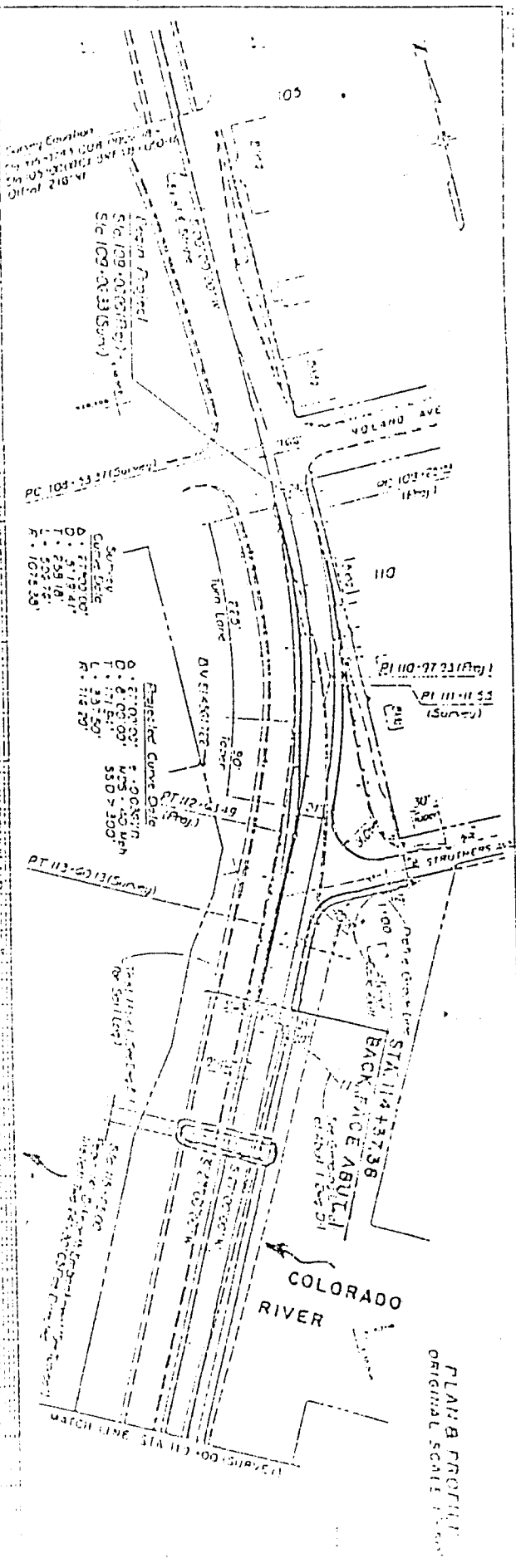


BRF 050-1 (20)
 U.S. 50 AT
 COLORADO RIVER

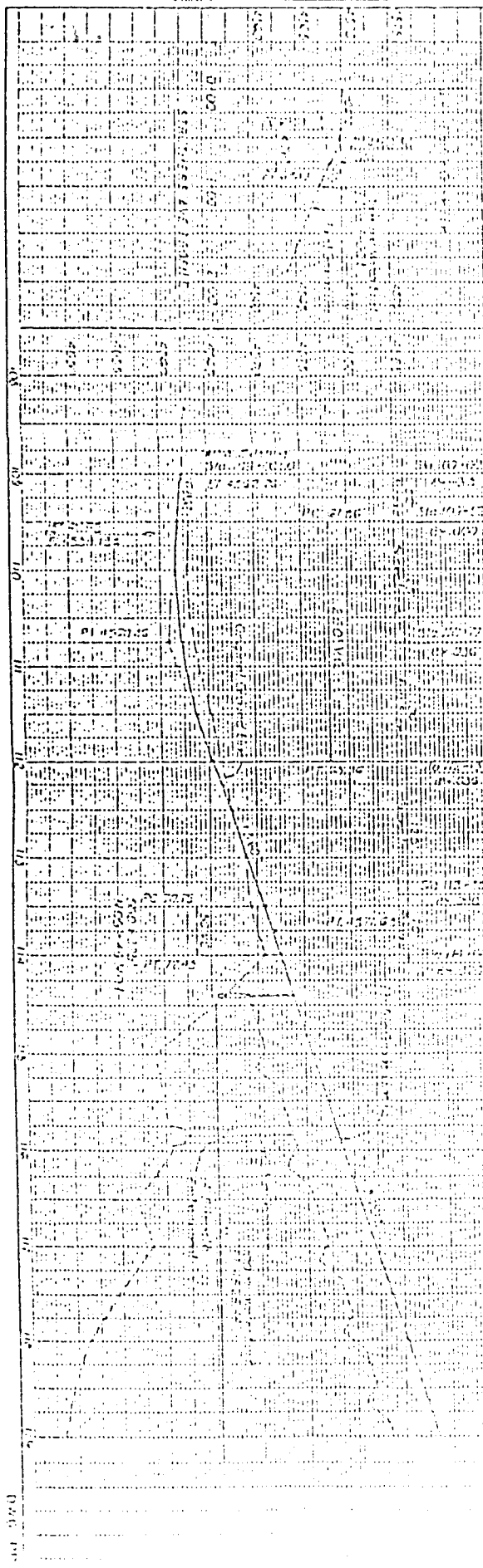
DATE	BY	CHECKED	APPROVED

SOUTH APPROACH
 ORIGINAL SCALE 1"=20'

BRF 050-1 (20)
 U.S. 50 AT
 COLORADO RIVER



PLAN & PROFILE
 ORIGINAL SCALE 1"=100'



STATE OF COLORADO

DEPARTMENT OF HIGHWAYS

222 South Sixth Street, P.O. Box 2107
Grand Junction, Colorado 81502-2107
(303) 248-7208



June 7, 1988

*WITHIN THE CITY - REFERRED FROM
COUNTY ENGINEERING*

Mr. Keith Corey
Mesa County Floodplain Coordinator
P. O. Box 1237
Grand Junction, CO 81502

Dear Keith:

Enclosed is an application for a Mesa County floodplain permit for Project BRF 050-1(20), U.S. 50 at Colorado River, here in Grand Junction. This project will replace the present substandard bridge over the Colorado River on U.S. 50 (Fifth Street) with a new, two lane bridge at the present location.

We have enclosed information transmitted to the U.S. Army Corps of Engineers during our application for a Corps 404 Individual Permit on this project.

The replacement of this bridge with a new bridge will not adversely affect property adjacent to the Colorado River floodplain during the 100 year flood event. Attached to the application is the hydraulic analysis conducted by AE Consultants, Inc. which verifies this fact. The average 100 year flood elevation for this area is 4,565.44 and the design of this new structure more than adequately accommodates the 100 year flood event at this location.

Also enclosed is a plan sheet which shows the design of this bridge replacement. We plan to advertise this project for construction in August or September of this year, with construction beginning in September or October, 1988.

Mr. Keith Corey
June 7, 1988
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As a public agency expending taxpayer's funds, we request that the standard fees associated with issuing this permit be waived.

If you have any questions or require further information, please do not hesitate to contact us at 248-7223.

Very truly yours,

R. P. MOSTON
DISTRICT ENGINEER



BY: LAURENCE R. ABBOTT
DISTRICT ENVIRONMENTAL MANAGER

HDC/rff

Enclosures

cc: U.S. Army Corps of Engineers - Grand Junction
Brasher
Conger
Barry/Brin w/enc.
Moston/Perske
Sabin/Jackson
Cooper w/enc.
File



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

September 15, 1988

Mr. R.P. Moston
District Engineer
Department of Highways
222 South 6th Street
P.O. Box 2107
Grand Junction, CO 81502

Dear Mr. Moston:

In regard to your application for a City of Grand Junction Floodplain Permit for the 5th Street Bridge reconstruction, this letter shall serve as our approval of the application as submitted. We are particularly pleased with your cooperation on the Riverfront Project through the construction of a bench under the north end of the bridges to accommodate our future trail extension.

You also requested a waiver of the application fees for this permit from the City Council. The City Attorney has advised me that, in this case, this office has the authority to waive the fee without City Council action. You may therefore consider the request for waiver also approved.

Please let me know if we can be of additional assistance.

Sincerely,

Karl G. Metzner
Director of Planning

KGM/tt

xc: City Attorney
File #32-88
Jim Shanks