ACT/007/004
#8(2)

0036

CASTLE GATE
COAL COMPANY

RECEIVED
FEB 19 1987
DIVISION OF
OIL, GAS & MINING

February 17, 1987

Mr. John Livesay, Supervisor
Southeastern Region
Wildlife Resources
455 West Railroad Avenue
Price, Utah 84501-2829

Dear Mr. Livesay:

Thank you for the prompt response to Castle Gate Coal's request for input into the temporary crossing in the Price River. I will incorporate your comments into the design of the temporary crossing.

Attached is a copy of the request for a Nationwide Corp Permit. Please notice that I have made the statement that under normal flow conditions of 200 CFS a velocity of 7.2 FPS is expected (Page 8/10 in Corp Submittal Attachment #1). Your letter states that velocity of around 5.2 FPS is needed in order to ensure trout will be able to pass through the structure.

In order to lower the velocity, the slope of one of the culverts must be lowered. From chart 47 page 8/10 of the Corp Submittal 50 CFS and .005 slope will yield a velocity of less than 5.5 feet per second.

The effect of decreasing the pipe slope to .005 will put the culvert in outlet control and lower the energy grade line. "H" would equal 6.55 feet instead of 7.1' as shown on page 1/10. From Exhibit 3-12 page 6/10 a 60" culvert in outlet control would exceed the 150 cubic feet per second required under maximum anticipated flow.

cc5.ra/017

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Therefore, in order to meet the requirements of Wildlife Resources, Castle Gate Coal Company will place one of the middle culverts at .005 ft/ft slope to obtain the flow rate of 5.2 feet per second.

Sincerely,

Richard H. Allison, Jr., P.E.
Project Supervisor

RHA:jcr

cc: Lowell Braxton, D.O.G.M.
Brooks Carter, Corp of Engineers
Project File
Chrono

cc5.ra/017

CASTLE GATE
COAL COMPANY

February 11, 1987

Mr. Brooks Carter
District Engineer
U. S. Army Corp of Engineers
125 South State Street
Salt Lake City, Utah 84111

Re: Nationalwide Permit for Minor Road Crossing
30 CFR 330.5(14)

Dear Mr. Carter:

Castle Gate Coal Company is applying for a Nationwide Permit under 30 CFR 330.5(14). The purpose of this permit is to build a temporary crossing in the Price River. The location of this crossing is at Castle Gate Coal Company Preparation Plant located at the site of the old town of Castle Gate. Castle Gate Coal Company will need the crossing for the purpose of getting men and equipment to the construction site of a unit train loadout on the Denver & Rio Grande Western Railroad. Castle Gate Coal Company will utilize the crossing from April 1987 through November 1987. The location of the crossing is shown on Aerial Photo 3.4-1. (State Plane coordinates 517750 N, 2,177,060 E.)

I have contacted the Soil Conservation service for expected flow rates during the period of time that the crossing would be in the Price River. The S.C.S. says that this year is expected to be below average flow rates. The S.C.S. had flow data from 1981 at a gauge station located at Heiner. Peak for 1981 was 516 CFS. Since this station is located below Willow Creek this peak would be higher than could be expected at the low water crossing site since Castle Gate is above Willow Creek.

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I also contacted the U.S.G.S. in Salt Lake City for information. The last year the U.S.G.S. has information on flow data at Heiner and Willow Creek is 1969. The Price River had a peak of 835 CFS with Willow Creek contributing 57 CFS to this flow. The U.S.G.S. considered this a wet year.

Another consideration in the design is the amount of flow released from the dam at Scofield. David Rowley of the Price River Water Users Assn., said the maximum rate which the Price River Water Users would demand is 400 CFS. This is a combination of what is let out of the dam at Scofield and the White River.

Therefore, based on all of the previous data I would expect a maximum of 500 CFS to pass Castle Gate during 1987. The attached design for the temporary crossing is based on a flow rate of 600 CFS which exceeds the expected maximum flow by 20%.

In summary, the attached design will meet the critera in 30 CFR 330.5(14) for a Nationwide Permit. The fill below the normal high waterline is 175 cubic yards, which is less than 200 cubic yards. The structure will not impede migrating fish as the flow rate at normal pool is 7.2 feet per second. Castle Gate Coal Company is working with Larry Dalton of the Fish and Wildlife Service to mitigate any damage to the Riparian habitat.

Your approval of this application would be appreciated as soon as possible. Castle Gate Coal Company would like to begin construction in late March or early April. Any questions can be directed to me at 801/472-8661.

Sincerely,

Richard H. Allison, Jr., P.E.
Project Supervisor

RHA:jcr

cc: David Miller
Chrono
Project File

cc5.ra/014

ATTACHMENT NO. 1

Ten Pages and

Aerial Photo 3.4-1

Culvert Size Determination

Problem: Determine the number and size of pipes needed to pass 600 CFS in the Price River given the following data:

Q = 600 CFS

Sn = .014 ft/ft = slope of culvert

H.W. Max. = 10'

Mannings n = .024

There will no backwater from downstream flow. The entrance will be mitered to conform to slope of the embankment.

Solution: The pipes are sized using the method outlined in the S.C.S. Engineering Field Manual Section 3.

From Exhibit 3-10:

a. A 60" pipe will pass 150 C.F.S.

b. Headwater depth in diameters = 1.2
   1.2 x 5' = 6' which is less than the maximum allowable 10'

Check for inlet control: So > Sn

From Exhibit 3-5

a. So = .014

b. Sn = .011

c. .014 > .011 therefore, INLET CONTROL

Since 600 CFS is design flow, use 4 60" dia CMP's

Check: Assume T.W. =3/4 D or 3.75' = ho

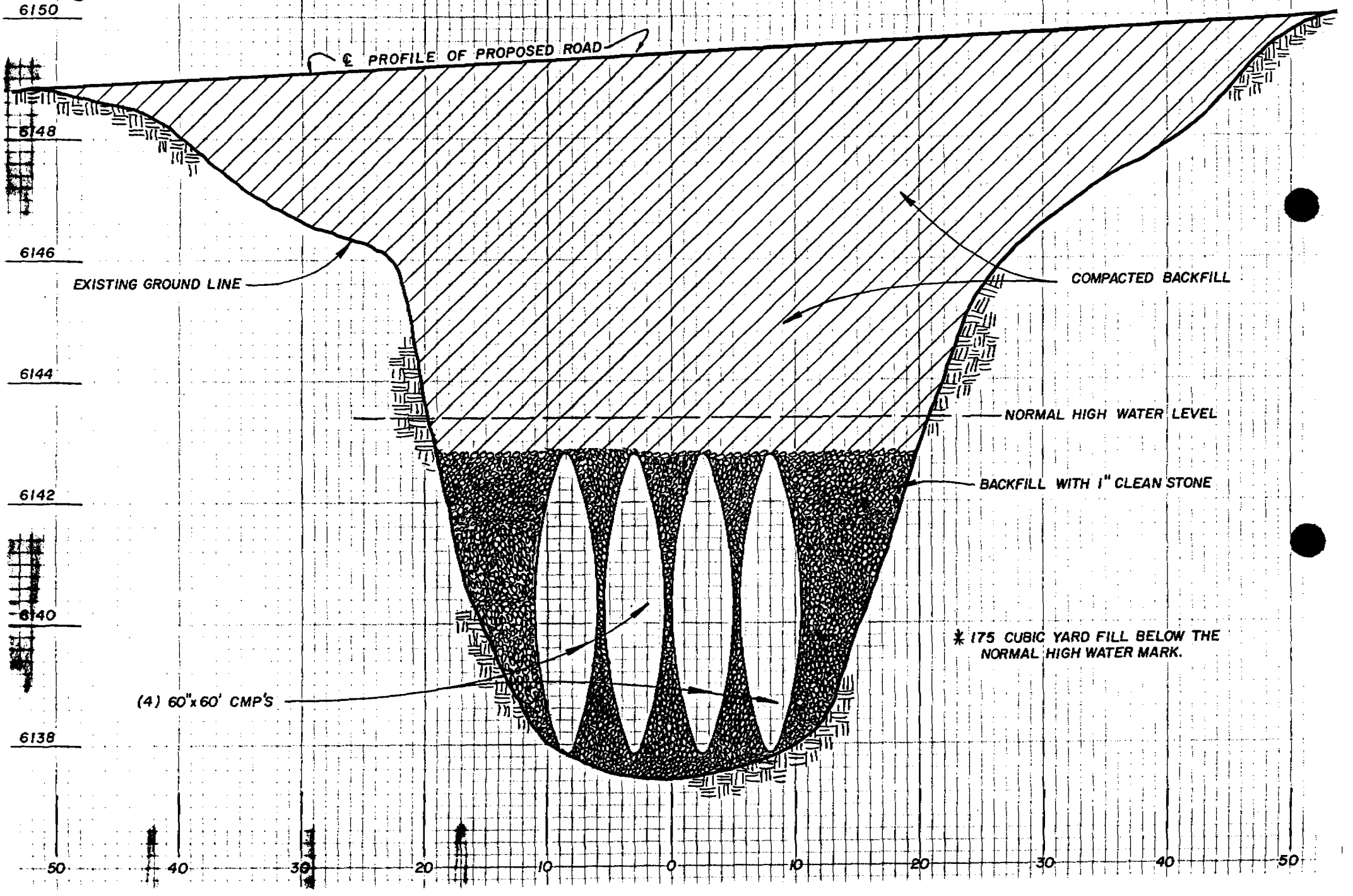
H = H.W. - ho + So l
= 10 - 3.75 + .014 (60)
= 7.09' say 7.1'

From Exhibit 3-12 a 48" CMP would pass 150 CFS in outlet control.

Conclusion: Use 4 60" dia. CMP to be conservative in design.

SECTION THRU STREAM AT PIPE CROSSING

LOOKING UPSTREAM



PROJECT: Temporary Crossing at Price River

DESIGNER: Allison

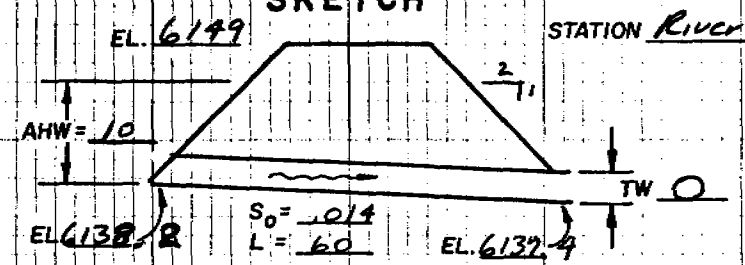
DATE: 2/10/87

Page 3/10

Problem: What size culvert is needed to pass 600 CFS in Price River. Assume no backwater from downstream flow

Method: SCS Field Manual Chapter 3

SKETCH



MEAN STREAM VELOCITY = 7.2

MAX. STREAM VELOCITY = 10.2

CULVERT DESCRIPTION (ENTRANCE TYPE)	Q	SIZE	HEADWATER COMPUTATION										CONTROLLING HW	OUTLET VELOCITY		
			INLET CONT.		OUTLET CONTROL $HW = H + h_o - LS_o$											
			$\frac{HW}{D}$	HW	K_e	H	d_c	$\frac{d_c+D}{2}$	TW	h_o	LS_o	HW				
Try 60" (Mitered)	150		1.2	6'	.7									10.2		

NOTES:

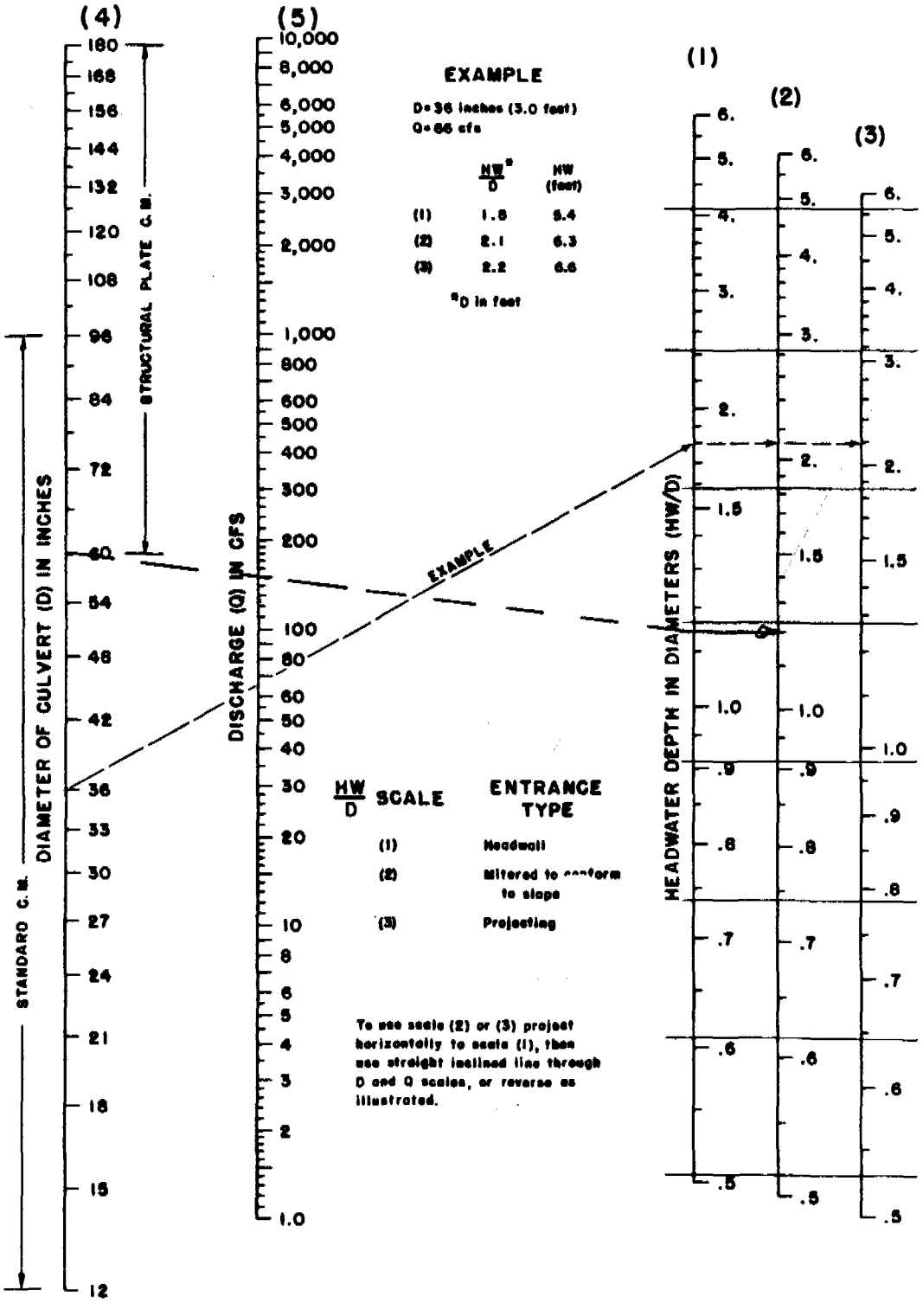


Exhibit 3-10 Headwater depth for CM pipe culverts with inlet control (Ref. Hyd. Eng. Cir. No. 5, USBPR, 1965)

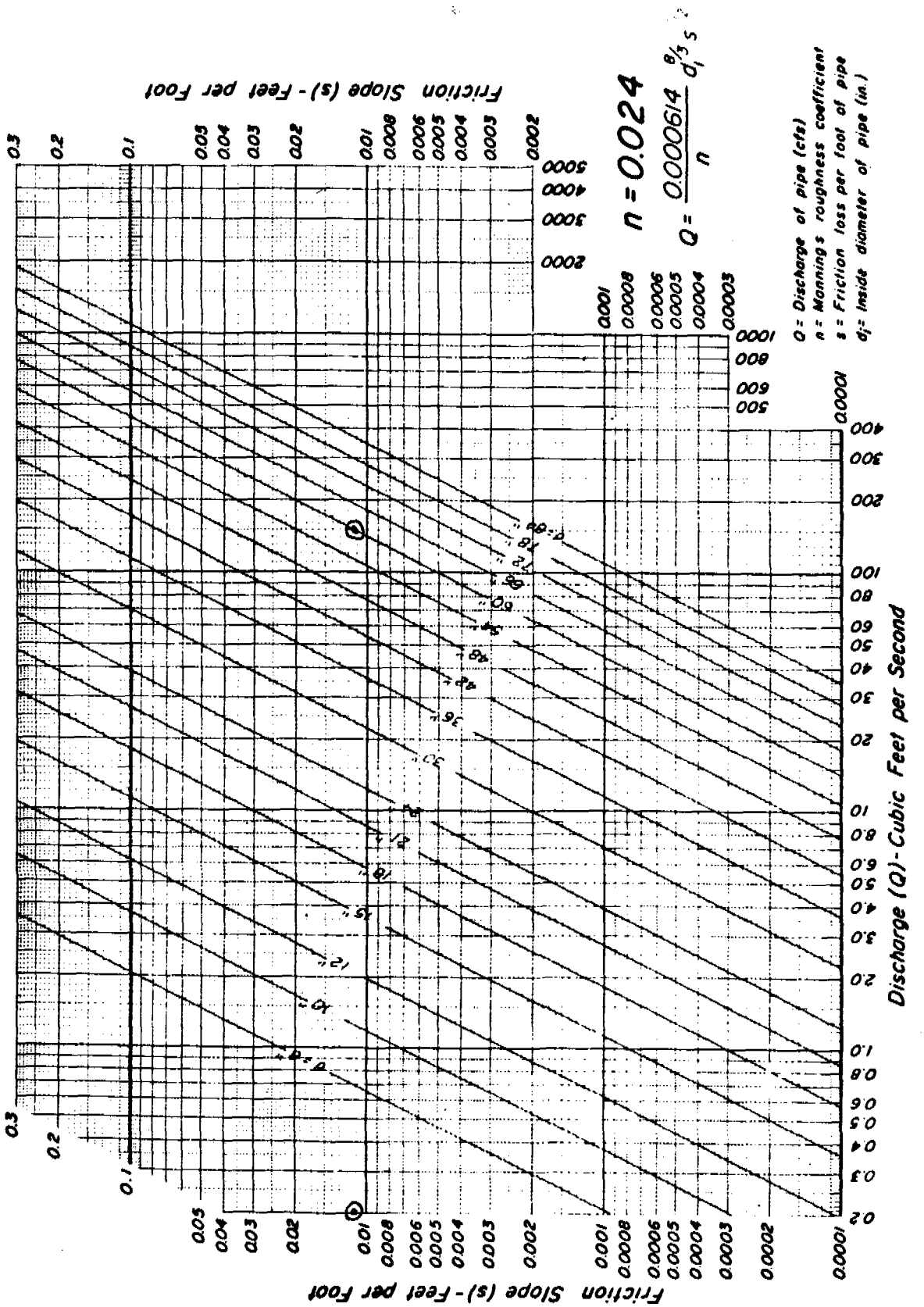


Exhibit 3-5 Discharge of circular pipes flowing full.
Manning's n = 0.024

(Sheet 6 of 6)

ALLOW 3½ ACRES TO TRIM

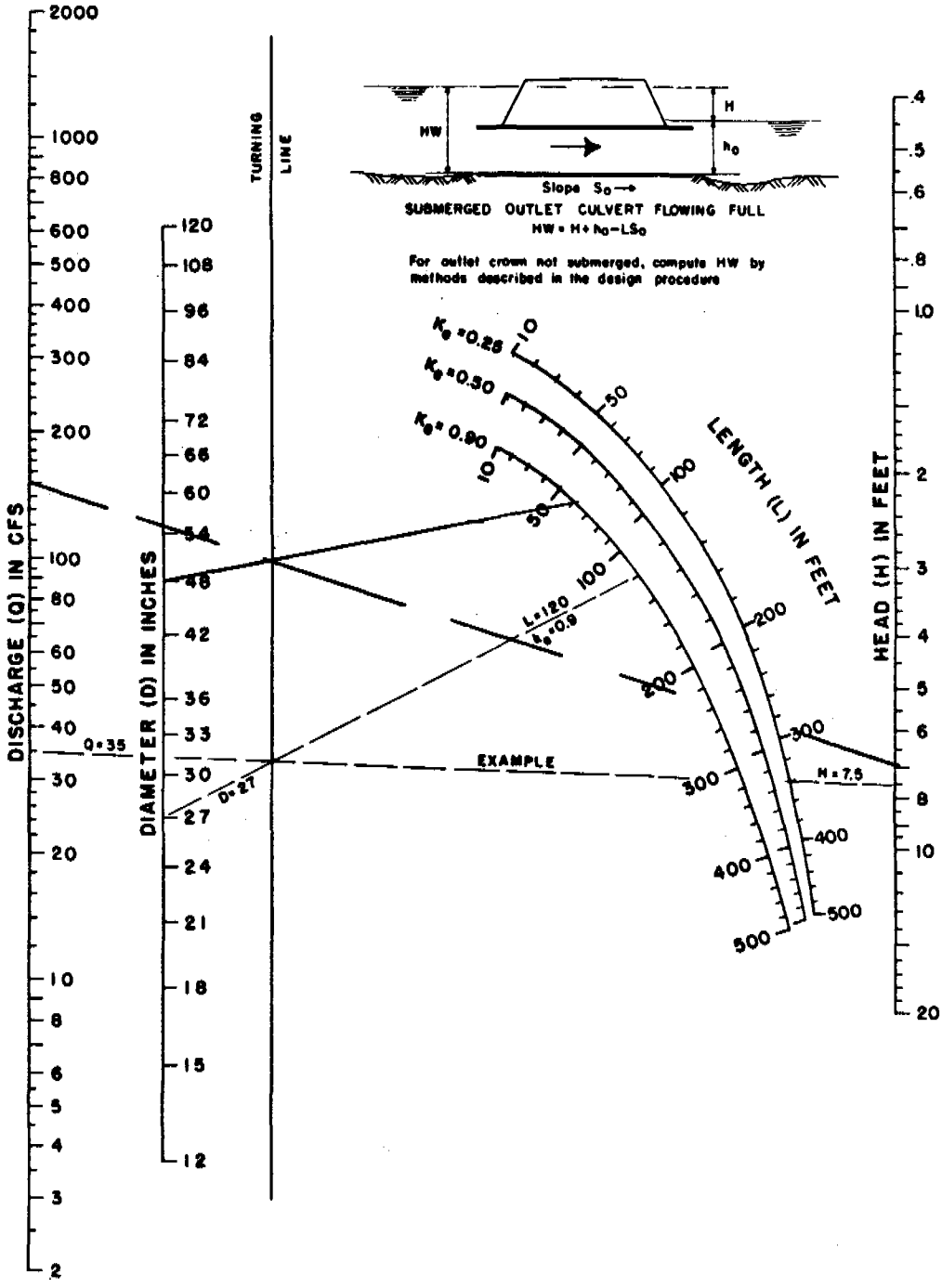


Exhibit 3-12 Head for CM pipe culverts flowing full with outlet control n = 0.024 (Ref. Hyd. Eng. Cir. No. 5, USBPR, 1965)

Rip Rap Sizing

1. Determine Velocity:

   From Chart 7 U. S. Department of Transportation Hydraulic Design Series #3 Chart #45, A 60" culvert flowing with 150 CFS would have an exit velocity of 10.1 F.P.S.

2. Determine Rip-Rap Size:

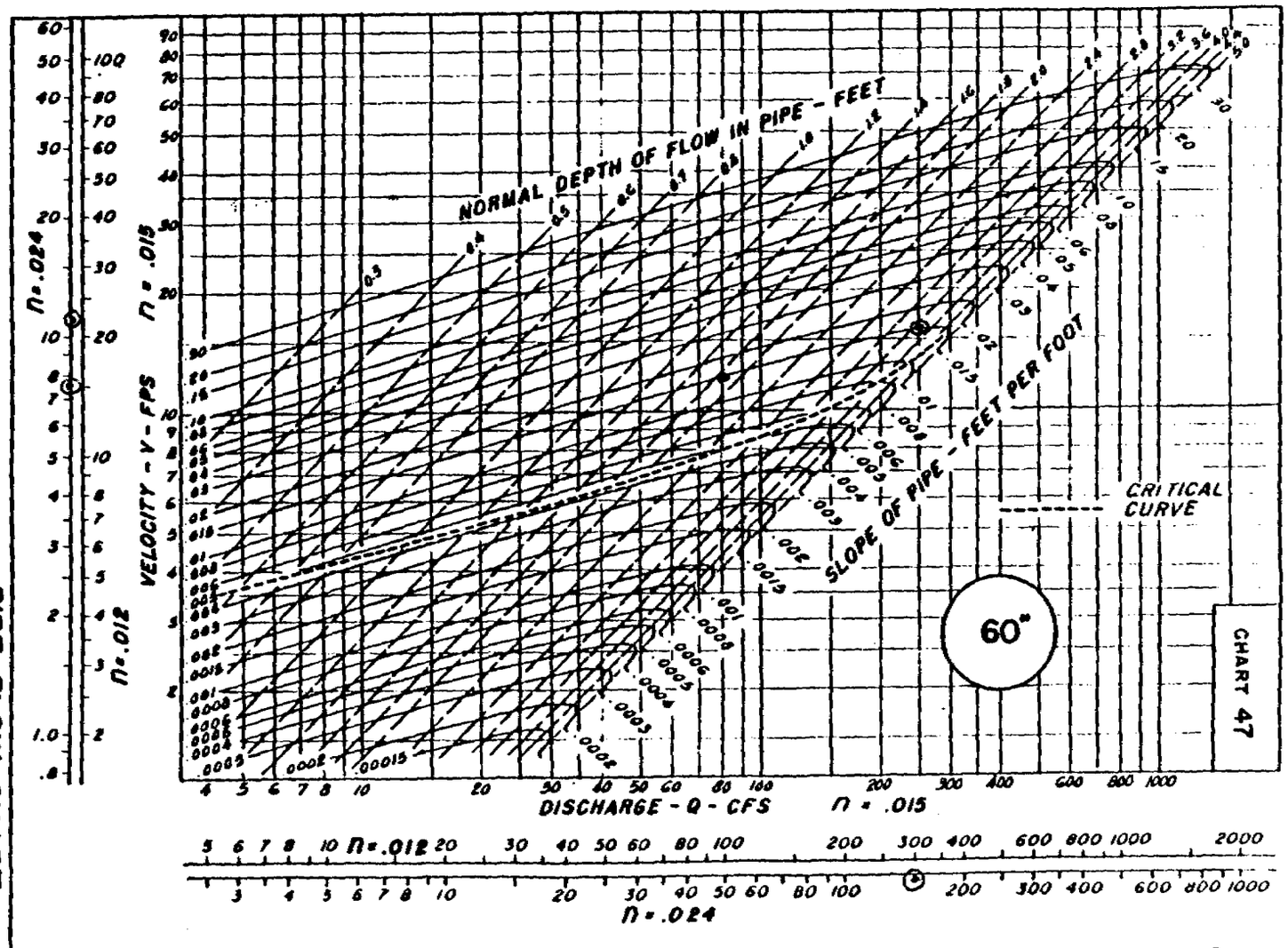
   From Figure 2 of USE OF RIPRAP FOR BANK PROTECTION June 1967, curve for 12:1 or bottom shows that a stone dia of .7 feet would adequately prevent erosion.

3. Conclusion:

   By observation and field measurements the stone in the existing channel is more than adequate to prevent erosion. Stone size in channel varies from 6" to 3' in diameter.

Maximum Flow

Normal Flow
200 CFS IN
River



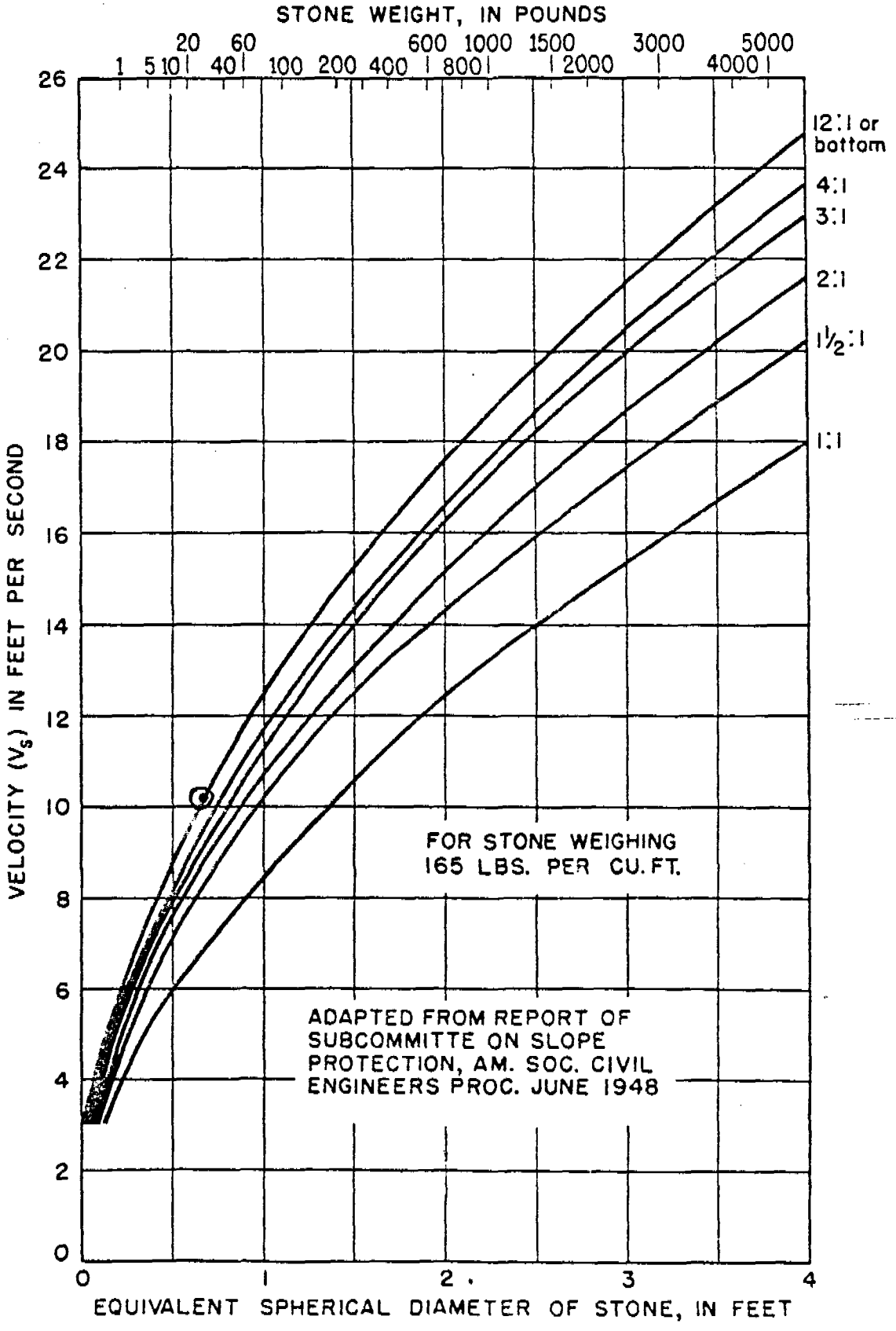


FIG. 2-SIZE OF STONE THAT WILL RESIST DISPLACEMENT FOR VARIOUS VELOCITIES AND SIDE SLOPES

Construction Procedures

1. The channel bottom at the location of the pipes will be graded to remove large rocks which would puncture the culverts. The rocks will be saved to be used for Riprap on the upstream face of the crossing.

2. The pipes will backfilled with 3/4 to 1" clean stone up to the top of the pipe in order to reduce the amount of sediment in the stream. The next 4 to 5 feet will backfilled with road base material.

3. Pursuant to a request by Mr. Larry Dalton of Wildlife resources the following will be done:

   a. The dead tree in the area will be left for Wildlife who are cavity dwellers.

   b. Large cottonwood trees (6" diameter) which must be removed will be replaced on a one for one basis with trees in five (5) gallon size buckets.

   c. Large rocks will be saved for replacement in stream for enhancement of fish habitat. This enhancement will be done with the help of Wildlife Resources.

   d. Reseeding in buffer zone will be done with seed mixture approved by Wildlife resources.

   e. A resting area for migrating fish will be provided upstream and downstream of the crossing to provide by locating rocks or depressions in channel.

4. The construction will be done in a way as to have a minimal disturbance on the Price River banks and bottom. When the crossing is removed the banks should be in the same condition as prior construction as only fill will be placed and no excavation is required. Therefore the same bank conditions should be exposed after removal of temporary structure as existed prior to construction.

STATE OF UTAH
NATURAL RESOURCES
Wildlife Resources

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
William H. Geer, Division Director

Southeastern Region • 455 West Railroad Avenue • Price, UT 84501-2829 • 801-637-3310

February 9, 1987

Richard Allison, P.E.
Castle Gate Coal Company
P.O. Box 449
Helper, UT 84526

Dear Richard:

In regards to the temporary stream crossing of the Price River that would be needed to construct a new unit train loadout, the following is offered for your consideration. You will need a state permit to "Alter a Natural Stream Channel", which should be obtained from Utah Division of Water Rights; a permit to dredge the river bottom from the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act; and approvals from Utah Division of Oil, Gas & Mining.

During construction , a minimum area of disturbance should be planned. It is recommended that the crossing site be situated such that an existing dead cottonwood tree (snag) be retained for avifauna use.

Placement of the four 60 foot long, temporary culverts should be during as low a flow as practicable to reduce sedimentation. Placement of the first culvert should be with the protection of a coffer dam. Once the culvert is in place, all of the river flow should be directed through it while the other culverts are placed. This will reduce sediment impacts to brown trout eggs that are currently in the redds. One of the perimeter culverts should be placed lower than the other three, so that fall spawning brown trout can migrate during low flows. Cutthroat trout will utilize any of the other culverts during the higher spring flows. In either situation, water velocity through a 60 foot long culvert to be utilized by trout should not exceed 5.2 ft/sec. The enclosed Table will assist you in determining whether or not velocity dissipative culverts will be needed. Also, the fish passage culverts must not have a drop on their downstream end.

I anticipate that approximately 0.25 acre of critical valued riparian habitat will be temporarily destroyed. Mitigation should take the form of replacing each lost cottonwood tree with a 5 gallon sized transplant. Additionally, creation of pool structures through boulder placement in the

immediate area of the temporary crossing when it is dismantled will off set unavoidable impacts to the fishery. Without question, all disturbed areas must be reclaimed.

Thank you for an opportunity to provide comment on this project.

Sincerely,

John Livesay

John Livesay, Supervisor
Southeastern Region

JL/LBD/dd

cc: SERO/Fisheries & Nongame Management
Darrell Nish
Ron Hodson