

Instructions for Preparing an Emergency Action Plan in Nebraska

Introduction

Emergency Action Plans (EAPs) are important documents to have in the event of an emergency involving the potential failure of a high hazard dam. It is critical that the information contained in an EAP is accurate, current, and easy to find in the event of an emergency so that people at risk can be effectively warned and evacuated.

While at first glance it may appear that preparation of an EAP is a time consuming task, this guide has been prepared to streamline the process and help you through each step. A fillable EAP template in Microsoft® Word format, which is available in the Dam Safety section of DNR's website (dnr.ne.gov/docs/damsafety.html), has been prepared for your use so you can essentially "fill-in-the-blanks". As you can see, most of the pages only have a few pieces of information that need to be filled in.

Prior to starting the preparation of your EAP, it is a good idea to contact DNR. The dam safety engineers at DNR are more than willing to help you through the process. If you live in a community or county with several high hazard dams, most of the local government information may have already been collected for another EAP. DNR may be able to provide you an example of an EAP that has already been prepared in your community, which will save you a significant amount of time when you start gathering information. If you are having trouble finding any information or have any other questions, please feel free to contact them.

Mark Noble P.E.
Dam Safety Engineer
402-471-0581
mark.noble@nebraska.gov

Tim Gokie P.E.
Dam Safety Engineer
402-471-6398
tim.gokie@nebraska.gov

Listed below are suggested steps to assist you in preparing an EAP.

Step 1: Familiarize Yourself with the Fillable EAP Template.

Take some time to read through the EAP Template and familiarize yourself with the EAP process. The EAP Overview on page 3 provides a good summary of the overall EAP process. In the template, the areas shaded in grey are the items that you will have to fill-in/replace with information specific to your dam. As you read through the EAP, think about how the EAP can be tailored to match local conditions in your community.

Unless you have good reason, you should only change the grey highlighted portions of the EAP template. The EAP template was developed using national standards and has been adapted to match typical local government structures in Nebraska. The template was developed by experts in the dam safety and the emergency response communities. It represents a compilation of what have been recognized as the best EAP documents across various state and federal agencies and it has been updated based on "lessons learned" from actual dam related emergencies.

Furthermore, it is important to have consistency in the response to dam related emergencies across the state, and especially across each county. Many local agencies have several high hazard potential dams within their jurisdictional boundaries. On the state level, DNR and the Nebraska Emergency Management Agency (NEMA) must be prepared to respond to dam related emergencies on over one hundred high hazard potential dams. In order to assure a rapid, effective response to dam related emergencies, there must be consistency in EAP documents across the state. Deviating from the EAP template could result in confusion and slower response times if an actual emergency were to occur at your dam.

Nevertheless, there may be local conditions and local realities that make deviating from the standard necessary. DNR recognizes that local agencies are better equipped and have a better understanding of what will be needed to respond to an emergency in their community. Therefore, DNR will accept deviations from the standard EAP template if they are done for legitimate reasons.

Step 2: Select a Dam Observer and an Alternate Dam Observer

The most significant role in the EAP is the role of the Dam Observer. The Dam Observer must be available to inspect the dam during periods of abnormal stress, such as heavy rainfalls, rapid snowmelt, high sustained winds, or an earthquake. Criteria for selecting a dam observer include:

- Ideally, the dam observer should live at or near the dam site. Under no circumstance should the dam observer live more than 10 miles from the dam.
- The person should not be responsible for more than 2 high hazard dams. In the event of heavy rainfall or an earthquake, several dams may experience emergency events simultaneously.
- The person must be able to determine the appropriate emergency level if an emergency event is detected.
- The person must be able to direct an emergency contractor to implement remedial actions that may delay, moderate, or prevent the failure of a dam.

Step 3: Review the Evacuation Map for Your Dam

All high hazard potential dams in the state are required to have an evacuation map for the area downstream of the dam that may be inundated if the dam should fail. The area that may be inundated must be determined by a professional engineer using methods accepted by DNR. The evacuation map is the most important component of any EAP as it will be the primary tool used by emergency personnel in the case of an actual dam emergency.

If you are updating or revising an EAP for an existing high hazard potential dam, then you should already have an evacuation map or inundation map for the dam and it can simply be incorporated into the new plan. However, if (a) you are preparing an EAP for a new high hazard potential dam, (b) conditions at the dam or downstream of the dam have changed, (c) the map is not legible or unable to be copied into the new EAP, or (d) the original map was not prepared by a professional engineer, then a new map will need to be prepared by a professional engineer. The process of hiring an engineer and preparing the evacuation map

may take several months. Contact DNR if you are unsure whether your map will need to be updated or if you have any other questions regarding Evacuation Maps.

Step 4: Complete the EAP Worksheet

A worksheet has been prepared to help you gather the basic information that will be needed to complete your EAP. The worksheet, which is available at dnr.ne.gov/docs/damsafety.html, also includes places you are likely to find the required information. You should plan to meet with your local emergency manager to discuss the EAP and determine local resources that are available in the event of an emergency. You can find the name of your local emergency manager at <http://www.nema.ne.gov/local/search.phtml>.

Step 5: Collect the Required Maps and Figures

Below is a list of maps and figures that will need to be included in the EAP. Some of the figures will need to be copied from the original construction plans. Contact DNR if you are unable to find the original plans for your dam. Other maps can be prepared in ArcMap® or similar mapping software. Another option is to prepare maps using DNR's Interactive Map which can be accessed at http://dnr.ne.gov/databank/inter_active.html. It should be anticipated that in the future copies will be made from the original maps you include in the EAP. Consequently, all maps in the EAP should be clear, legible, and able to be copied. It is also preferable if maps are in digital format so they can readily be inserted as images into the fillable EAP template. Some maps and figures may have to be scanned.

- State map showing general location of dam
- Local map showing specific location of dam
- Evacuation map (see step 3 above)
- Plan view of dam (copy from original construction plans)
- Profile of principal spillway (copy from original construction plans)

Examples of each map are shown at the end of these instructions.

Step 6: Prepare Preliminary EAP

- a) Download the fillable EAP template from dnr.ne.gov/docs/damsafety.html and save it to your computer.
- b) When you open the template change the view of the document on your screen to print layout (click the **View** menu to select **Print Layout**).
- c) Input the data gathered in step 4 above. Any of the content of the EAP template can be edited; however, the grey highlighted areas contain information that must be input into your EAP. To insert data into these areas, simply select the grey highlighted area and type in your information. After typing in your data, if the area is still highlighted, remove the grey highlighting (Select the text you want to remove highlighting from. On the **Formatting Toolbar**, click the arrow next to **Highlight** , and then click **None**. If you don't see the **Formatting Toolbar** go the **View** menu, click **Toolbars**, then click **Formatting** to bring up the **Formatting Toolbar**).
- d) Insert maps and other scanned figures. (To insert maps or other scanned files, select the location that you want to insert the graphic, click the **Insert** menu, click **Insert Picture**,

then click **From File**. You will then need to navigate to the folder where the maps or scanned drawings are located on your computer, select the appropriate file to insert, and then click **Insert**. If you have trouble inserting a photo, map, or drawing, click the Format menu, then **Paragraph**. Make sure the **Line spacing** is set on **single**.)

- e) Make sure the Roles and Responsibilities Section (page 4) corresponds with the roles and responsibilities listed for each agency in the Expected Actions Section.
- f) Check the page numbers in the Table of Contents and throughout the document to make sure they are correct.
- g) Change the date, dam name and total number of pages (the cover sheet and final page for the spine of the binder should not be included in the total page count) in the headers and footers (double click on the header or footer and make the necessary edits. Note if you change the header or footer on one page, it will change the header and footer in the entire document.).
- h) Double check the entire document to make sure all grey highlighted areas have been filled in and the grey highlighting has been removed.

Step 7: Send Preliminary EAP to Local Agencies for Review

The preliminary EAP should be sent to any local agencies that have a major role in the plan. The EAP must be sent to the local emergency manager for review. Once the EAP is approved by DNR and finalized (Step 9), the agencies that play a major role in the EAP will need to sign a postcard indicating they have reviewed the plan and they concur with the tasks and responsibilities assigned for them and/or their organization (Steps 10 and 11).

Step 8: Collect Comments and Prepare Draft Copy

Collect all the comments from the local agencies and make the necessary revisions to the EAP document. All local issues must be resolved and any necessary local agreements must be obtained prior to submitting the plan to DNR for review.

Step 9: Submit the Draft EAP for Review by DNR

After completing the draft EAP, it must be submitted to DNR at the address below. Include one complete hard copy of the plan, a copy of the Microsoft® Word file on CD, and a digital copy (if possible) of all maps or figures that are not included in the Word file on CD. As an alternative to including a CD, the digital files (less than 10 MB) can be emailed to mark.noble@nebraska.gov or tim.gokie@nebraska.gov. Please note, the dam owner must sign and date the cover sheet prior to submitting the EAP to DNR.

Department of Natural Resources
Attn: Patrick J. Diederich P.E.
301 Centennial Mall South
Lincoln, NE 68509-4676

After reviewing the plan, DNR will either approve the plan or return the plan with comments. If the plan is returned with comments, each comment must be addressed and then the plan must be resubmitted as explained above. The dam owner must again sign and date the cover sheet prior to resubmitting the EAP to DNR.

Step 10: DNR Approval and Distribution

Once DNR approves the EAP, DNR will make a copy of the plan for each of the plan holders listed in the EAP. DNR will bind the copies into standard DNR-issued binders that include specially designed dividers and tabs for the critical sections of the EAP.

When DNR distributes the EAPs, DNR will include signature postcards (two for each plan holder) to be signed by each plan holder and returned to the dam owner and DNR. By signing the postcard, the plan holder will be indicating they have reviewed the plan and they concur with the tasks and responsibilities assigned for them and/or their organization.

Step 11: Collect Signature Postcards

The dam owner shall maintain the plan holder checklist (page 24 in the fillable EAP template) in the EAP and keep the signature post cards in the inside front pocket of their EAP folder as the postcards are returned by the plan holders. The dam owner must follow up with any plan holders that fail to return the signature postcards. After all the plan holders have returned the postcards, the dam owner shall sign on the line at the bottom of the plan holder checklist.

Step 12: Review and Update EAP Annually

It is the dam owner's responsibility to review and update the EAP annually. Instructions for updating the EAP are included in the Maintenance—EAP Review and Revision section of the EAP.

Sample Maps and Figures

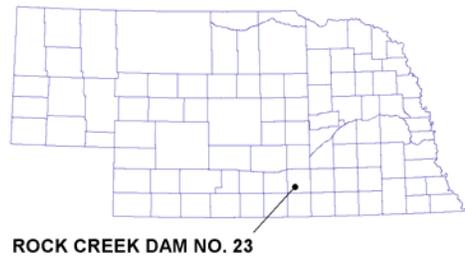


Figure 1 Sample of state map showing general location of dam

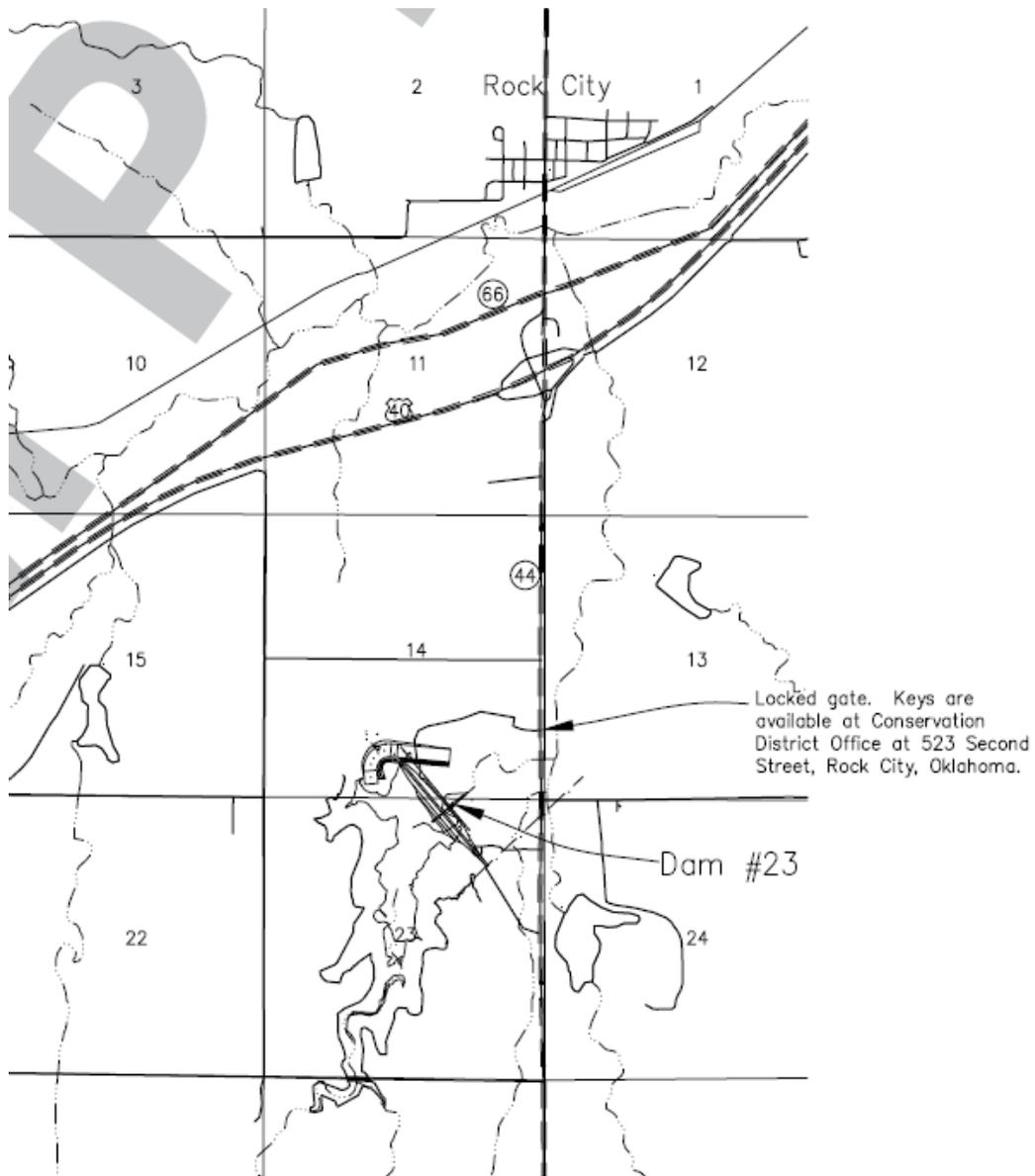


Figure 2 Sample of local map showing specific location of dam



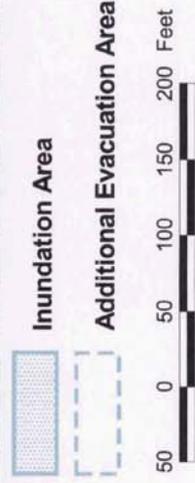
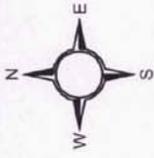
Catamaran Dam Emergency Evacuation Area Map (Sheet 1 of 2)

**FOR OFFICIAL USE ONLY
NOT FOR DISTRIBUTION**

The inundated area shown on this map reflects an extremely rare event. Publication of this map is not intended to reflect in any way upon the structural integrity of Catamaran Dam.



Map Date: Nov. 2008
Prepared By: Isaac Diego, PE



Basis for computation of evacuation area:
 Breach inundation study completed by NE-DNR in November 2008
 Hydraulic model used: HEC-RAS (routing); TR-60 (peak discharge); TR-66 (hydrograph)
 Model assumptions:
 -Top of Dam Breach
 -Total volume of breach hydrograph = 320 acre-ft
 -Height of water at time of breach = 26 ft
 -Peak breach discharge = 18,000 cfs
 -Downstream area defined by 2-foot aerial topography data
 -Mapped inundation includes 1 foot of freeboard

Figure 3 Sample evacuation map

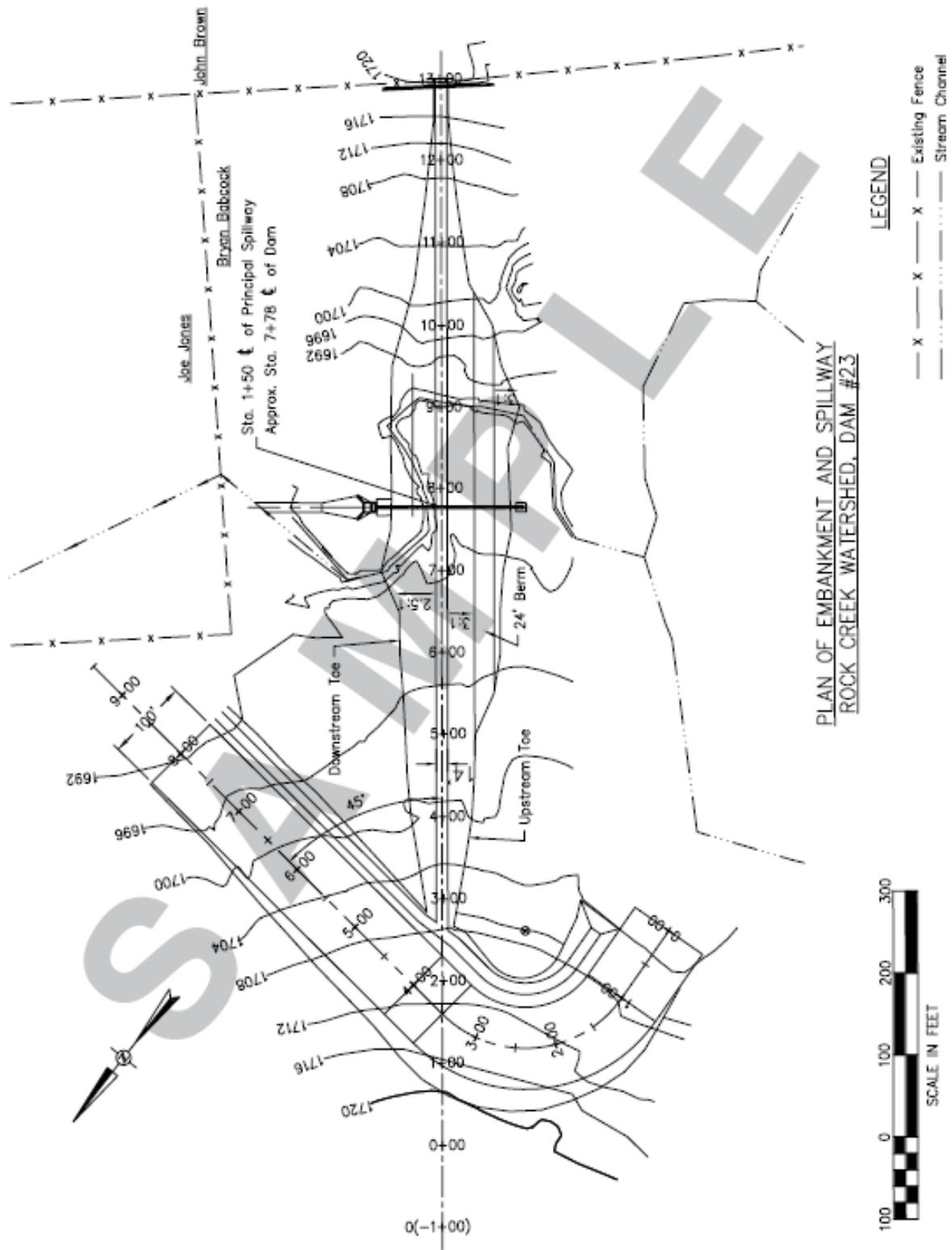


Figure 4 Sample plan view of dam (copy from original construction plans)

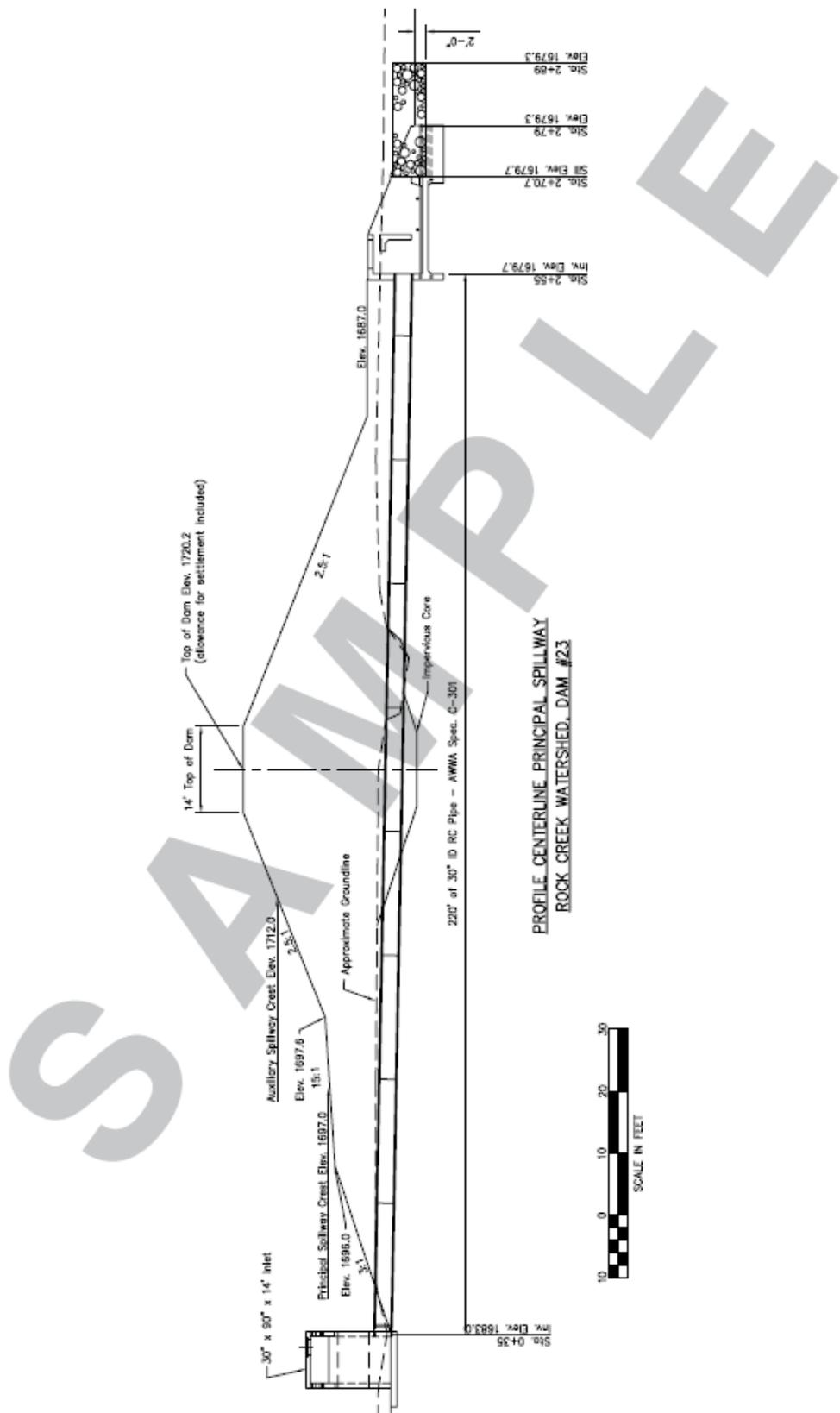


Figure 5 Sample profile of principal spillway (copy from original construction plans)