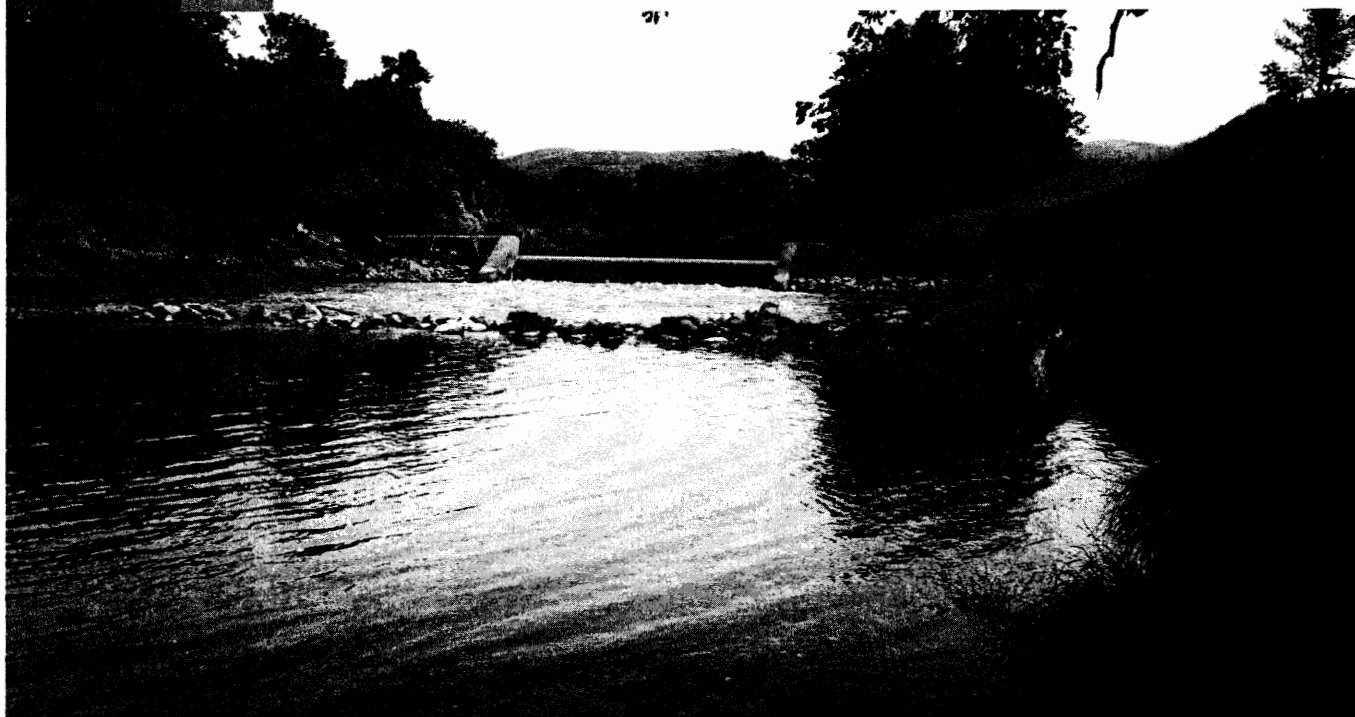


Outdoor Heritage Grant Fund Application

for

Kathryn Dam Repurposing Project

Barnes County, ND



Submitted By

Barnes County Water Resource District

April 2017

Outdoor Heritage Grant Fund Application
for
Kathryn Dam Repurposing Project
Barnes County, ND

Prepared by:

Consulting Engineering • Land Surveying

North Dakota

Bismarck

Minot

West Fargo

Minnesota

Fergus Falls



moore
engineering, inc.

mooreengineeringinc.com

Project No. 17300

Barnes County Water Resource District
PO Box 306
Valley City ND 58072
701-845-8508

April 27, 2017

Board Members

Chairman

Jerry Hieb
4041 117th Ave SE
Valley City, ND 58072
701-845-0683

Vice Chairman

Bruce Anderson
11223 35th St. SE
Valley City, ND 58072
701-840-1450

Manager

Shawn Olason
12538 41st ST SE
Valley City, ND. 58072
701-490-8696

Manager

Bret Fehr
1215 97th Ave. SE
Wimbledon, ND 58492
701-435-2816

Manager

Dale Jorissen
10430 21st St. SE
Rogers, ND. 58479
701-490-1080

North Dakota Industrial Commission
Attn: Outdoor Heritage Fund Program
State Capitol – Fourteenth Floor
600 East Boulevard Avenue, Dept. 405
Bismarck, ND 58505

RE: Outdoor Heritage Fund Grant Application – Kathryn Dam Repurposing Project
Barnes County Water Resource District

Dear Outdoor Heritage Fund Advisory Board,

The Barnes County Water Resource District is pleased to submit the attached Outdoor Heritage Fund Grant Application Request for the Kathryn Dam Repurposing Project.

This is a new project and it will allow for upstream fish passage, improved river connectivity, and will provide enhanced fish habitat. Angler access will be enhanced by river bank stabilization, boulder walkways and a walking trail. Removal of the existing dam and replacement with rock weirs will significantly improve various recreational opportunities at the facility. Removal of the existing dam will also improve safety and liability exposure of the District by eliminating the existing hydraulic roller conditions.

In summary, the project objectives are closely aligned with the specific directives of the Outdoor Heritage Fund Program.

We look forward to a successful outcome from your review.

Sincerely,

BARNES COUNTY WATER RESOURCE DISTRICT



Heather Manson
Secretary-Treasurer

Attachment

Outdoor Heritage Fund Grant Application



The purpose of the North Dakota Outdoor Heritage Fund is to provide funding to state agencies, tribal governments, political subdivisions, and nonprofit organizations, with higher priority given to projects that enhance conservation practices in this state by:

Directive A. Providing access to private and public lands for sportsmen, including projects that create fish and wildlife habitat and provide access for sportsmen;

Directive B. Improving, maintaining and restoring water quality, soil conditions, plant diversity, animal systems and by supporting other practices of stewardship to enhance farming and ranching;

Directive C. Developing, enhancing, conserving and restoring wildlife and fish habitat on private and public lands; and

Directive D. Conserving natural areas and creating other areas for recreation through the establishment and development of parks and other recreation areas.

Exemptions

Outdoor Heritage Fund grants may not be used to finance the following:

- A. Litigation;
- B. Lobbying activities;
- C. Any activity that would interfere, disrupt, or prevent activities associated with surface coal mining operations; sand, gravel, or scoria extraction activities; oil and gas operations; or other energy facility or infrastructure development;
- D. The acquisition of land or to encumber any land for a term longer than twenty years; or
- E. Projects outside this state or projects that are beyond the scope of defined activities that fulfill the purposes of Chapter 54-17.8 of the North Dakota Century Code.

NO CONSIDERATION:

In addition to those specific items in law that are ineligible for funding, in the absence of a finding of exceptional circumstances by the Industrial Commission, the following projects will NOT receive consideration for funding:

- A completed project or project commenced before the grant application is submitted;
- A feasibility or research study;
- Maintenance costs;
- A paving project for a road or parking lot;
- A swimming pool or aquatic park;
- Personal property that is not affixed to the land;
- Playground equipment, except that grant funds may be provided for up to 25% of the cost of the equipment not exceeding \$10,000 per project and all playground equipment grants may not exceed 5% of the total grants per year (see Budget Form for how this will be calculated);
- Staffing or outside consultants except for costs for staffing or an outside consultant to design and implement an approved project based on the documented need of the applicant and the expenditures may not exceed 5% of the grant to a grantee if the grant exceeds \$250,000 and expenditures may not exceed 10% of the grant to a grantee if the grant is \$250,000 or less (see Budget Form for how this will be calculated);

- A building except for a building that is included as part of a comprehensive conservation plan for a new or expanded recreational project (see Budget Form for definition of comprehensive conservation plan and new or expanded recreational project); or
- A project in which the applicant is not directly involved in the execution and completion of the project.

Application Deadline

Applications for this grant round cycle are due on **May 1, 2017 at 5:00 p.m. CT**. All information, including attachments, must be submitted by that date. See instructions below for submission information.

Instructions

Please download this Word document (available on the Industrial Commission/Outdoor Heritage Fund Program website at <http://www.nd.gov/ndic/outdoor-infopage.htm>) to your computer and provide the information as requested. You are not limited to the spacing provided except in those instances where there is a limit on the number of words. After completing the application, save it and attach it to an e-mail and send it to outdoorheritage@nd.gov or print it and mail it to the address noted in the next paragraph.

Attachments in support of your application may be sent by mail to North Dakota Industrial Commission, ATTN: Outdoor Heritage Fund Program, State Capitol – Fourteenth Floor, 600 East Boulevard Ave. Dept. 405, Bismarck, ND 58505 or by e-mail to outdoorheritage@nd.gov. The application and all attachments must be received or postmarked by the application deadline. You will be sent a confirmation by e-mail of receipt of your application.

You may submit your application at any time prior to the application deadline. Early submission is appreciated and encouraged to allow adequate time to review your application and ensure that all required information has been included. Incomplete applications may not be considered for funding. Any item noted with an * is required.

Oral Presentation. Please note that you will be given an opportunity to make a ten-minute Oral Presentation at a meeting of the Outdoor Heritage Fund Advisory Board. These presentations are strongly encouraged.

Open Record. Please note that your application and any attachments will be open records as defined by law and will be posted on the Industrial Commission/Outdoor Heritage Fund website.

*Name of Organization * Barnes County Water Resource District*

*Federal Tax ID# * 45-6002198*

*Contact Person/Title * Jerry Hieb, Chairman*

*Address * P.O. Box 306*

City * Valley City

State * ND

Zip Code * 58072-0306

E-mail Address * jerryhiebert@yahoo.com

Web Site Address

Phone * 701-845-0683

Fax # (if available)

List names of co-applicants if this is a joint proposal

MAJOR Directive: (select the Directive that best describes your grant request)*
Choose only one response

Directive A. Providing access to private and public lands for sportsmen, including projects that create fish and wildlife habitat and provide access for sportsmen;

Directive B. Improving, maintaining and restoring water quality, soil conditions, plant diversity, animal systems and by supporting other practices of stewardship to enhance farming and ranching;

X Directive C. Developing, enhancing, conserving and restoring wildlife and fish habitat on private and public lands; and

Directive D. Conserving natural areas and creating other areas for recreation through the establishment and development of parks and other recreation areas.

Additional Directive: (select the directives that also apply to the grant application purpose)*
Choose all that apply

X Directive A. Providing access to private and public lands for sportsmen, including projects that create fish and wildlife habitat and provide access for sportsmen;

X **Directive B.** Improving, maintaining and restoring water quality, soil conditions, plant diversity, animal systems and by supporting other practices of stewardship to enhance farming and ranching;

Directive C. Developing, enhancing, conserving and restoring wildlife and fish habitat on private and public lands; and

Directive D. Conserving natural areas and creating other areas for recreation through the establishment and development of parks and other recreation areas.

Type of organization: (select the category that describes your organization)*

- State Agency
- X Political Subdivision
- Tribal Entity
- Tax-exempt, nonprofit corporation.

Project Name* Kathryn Dam Repurposing Project

Abstract/Executive Summary. An Executive Summary of the project stating its objectives, expected results, duration, total project costs and participants.* (no more than 500 words)

Overview

Kathryn Dam is located on the main stem of the Sheyenne River about one mile east of the City of Kathryn, north of County Highway 38 in Oakhill Township of Barnes County, North Dakota.

The existing dam was constructed by the Civilian Conservation Corps in 1934, most likely for recreation and water supply purposes. The east and west abutments underwent repairs in 1947 and 1957, respectively, and the North Dakota State Water Commission (the "SWC") completed an extensive gunite surfacing project on behalf of the Barnes County Water Resource District (the "District") in 1990. Following significant flood events within the past five years, the river banks and embankments adjacent to the dam have experienced significant erosion and repairs are needed to maintain the integrity of the dam. The existing low head dam can produce a dangerous hydraulic roller that threatens to drown anglers and boaters.

The District has investigated repair options and has completed a study of alternatives. The preferred alternative selected by the District includes removal of the dam and abutments, and construction of a series of rock riffles upstream of the existing dam footprint. This option will eliminate the dangerous hydraulic roller conditions, improve fish passage and river connectivity, and maintain a pool upstream of the structure.

Channel banks in the immediate project vicinity would be stabilized and restored with vegetation. Angler access will be maintained on the left river bank by preserving the existing rock jetty and development of improved angler access in conjunction with the bank stabilization. The bench will allow for improved access past the steep eroding bank immediately downstream of the dam. Angler access will also be developed on the right river bank immediately downstream of the last rock arch to allow anglers to take advantage of fish concentrating below the rock arches and in the zones of diverse current that are anticipated to develop in this area. A non-ADA compliant walking trail leading to a new rock jetty is planned.

Benefits the Project Will Provide

Upstream passage of fish, river connectivity, and fish habitat downstream will be improved. Although fish will be able to migrate upstream, they will likely be more concentrated below the rock rapids much as they are below the existing dam. Angler access will be improved with bank stabilization, a proposed flat boulder walkway and a walking trail.

Removal of the existing dam and replacement with rock arch weirs will significantly improve various recreational opportunities at the facility. Shallow pools between the rock weirs will allow for portage and operation of canoes, kayaks, and boats between the upper and lower river stretches. Lower pool velocities and depths along the shorelines would provide for swimming and wading activities.

The project will also improve safety and liability exposure of the District through a design that will eliminate the existing hydraulic roller conditions.

Project Duration:*

The final design and permitting is anticipated to be complete by fall of 2017, with construction occurring in 2018.

Amount of Grant request \$ \$161,423.60

Total Project Costs \$ 1,009,276.00

(Note that in-kind and indirect costs can be used for matching funds)

A minimum of 25% Match Funding is required. Amount of Matching Funds \$*

Please indicate if the matching funds will be in-kind, indirect or cash.

See below for a breakdown of matching funds. Matching funds will be cash.

Source(s) of Matching Funds*

Please provide verification that these matching funds are available for your project. Note that effective as of July 1, 2015 no State General Fund dollars can be used for a match unless funding was legislatively appropriated for that purpose.

It is anticipated that the State Water Commission will provide \$520,577.40 in cost share funding for the project. In addition, \$262,275.00 in funding is being provided by the District.

The US Fish and Wildlife Service will provide \$50,000.00 in matching funds towards the fish passage facility. The ND Game and Fish Department is anticipated to provide \$15,000.00 in matching funds.

Preliminary engineering plans and concept studies were supported by \$21,500 in funding from the District and \$21,500 in funding from the State Water Commission.

Certifications *

X I certify that this application has been made with the support of the governing body and chief executive of my organization.

X I certify that if awarded grant funding none of the funding will be used for any of the exemptions noted on Page 1 of this application.

Narrative

Organization Information – Briefly summarize your organization’s history, mission, current programs and activities. *

Include an overview of your organizational structure, including board, staff and volunteer involvement. (no more than 300 words)

The Barnes County Water Resource District is political subdivision that has been in existence for decades. The District is governed by a five member board of managers appointed by the Barnes County Commission. It has the responsibility within Barnes County to manage, conserve, protect, develop and control waters of the state for the benefit of the public. It is the policy of the District to provide management, conservation, protection, development and control of water resources, to work cooperatively with other resource agencies to strengthen and mutually support related programs, and protect and promote the health, safety and general welfare of the people of North Dakota.

The District manages a variety of programs including those related to drainage permits, legal drains, maintaining, protecting and controlling streamflow, protection and maintenance of water bodies, managing flooding issues, protection and maintenance of water quality and construction, operation and maintenance of a variety of dams.

The District has minimal staff. To accomplish program goals, the District retains professional services for legal and engineering needs when necessary.

Important ongoing District projects include Little Dam Repurposing Project, Hobart Lake Flood Damage Reduction Project, Clausen Springs Dam operations and maintenance, and various other flood control projects.

Purpose of Grant – Describe the proposed project identifying how the project will meet the specific directive(s) of the Outdoor Heritage Fund Program *

Identify project goals, strategies and benefits and your timetable for implementation. Include information about the need for the project and whether there is urgency for funding. Please indicate if this is a new project or if it is replacing funding that is no longer available to your organization. Identify any innovative features or processes of your project. If your project includes tree/shrub/grass planting, please provide a planting plan describing the site design, planting methods, number of trees/shrubs by species and stock size, grass species and future maintenance. A statement certifying that the applicant will adhere to USDA-NRCS tree/shrub/grass planting specifications along with the name of the governmental entity designing the planting may be substituted for a planting plan. If your project includes Section 319 program funding, please provide, in detail, the specific best management practices that will be implemented and the specific projects for which you are seeking funding. Please note that if your proposal provides funding to an individual, the names of the recipients must be reported to the Industrial Commission/Outdoor Heritage Fund. These names will be disclosed upon request.

Project Objectives

The project objectives are closely aligned with the specific directives of the Outdoor Heritage Fund Program.

This is a new project and it will allow for upstream fish passage, improved river connectivity, and the rock riffles will improve fish habitat downstream. Angler access will be enhanced by river bank stabilization, boulder walkways and a walking trail.

Removal of the existing dam and replacement with rock arch weirs will significantly improve various recreational opportunities at the facility. Shallow pools between the rock weirs will allow for portage and operation of canoes, kayaks, and boats between the upper and lower river stretches. Lower pool velocities and depths along the shorelines would provide for swimming and wading activities.

The project will stabilize and establish vegetation at eroding river banks on both sides, improving water quality and plant and animal habitat.

Removal of the existing dam will also improve safety and liability exposure of the District by eliminating the existing hydraulic roller conditions. Fatalities have occurred at similar low level dams with hydraulic roller conditions, and as such there is an inherent urgency for funding and construction.

The District's engineers will also work with ND Game and Fish during design development to maintain a deeper pool area directly below the existing dam. Historically, this recreational and fishing area was created (Fingal Wildlife Club) based on the fishing opportunities that it provides.

Timetable for Implementation

The final design and permitting is expected to be complete by fall of 2017, with construction anticipated in 2018.

Management of Project – Provide a description of how you will manage and oversee the project to ensure it is carried out on schedule and in a manner that best ensures its objectives will be met.*

Include a brief background and work experience for those managing the project.

Permitting, design and construction of the project would be managed by the Barnes County Water Resource District, utilizing the services of Moore Engineering, Inc. and Barr Engineering Co. These engineering firms have collaborated together on similar projects in the past that were completed on schedule and within scope and budget.

Long term management and maintenance of the facility would be provided by the District, with assistance of the noted engineering firms as required.

Evaluation – Describe your plan to document progress and results. *

How will you tell if the project is successful? Please be specific on the methods you will utilize to measure success. Note that regular reporting, final evaluation and expenditure reports will be required for every grant awarded.

Benefits that the project will provide include improved upstream fish passage and river connectivity, improved fish and wildlife habitat, increased angler access, a reduction in river bank erosion, and elimination of the hydraulic roller conditions.

The District intends to collect data and document pre- and post-construction fish and wildlife habitat conditions. Increased angler access and reduction in river bank erosion conditions will also be documented. The benefits of eliminating the hydraulic roller conditions will be realized upon removal of the existing dam.

Financial Information

ATTACHMENT: Project Budget – Using the standard project budget format that is available on the website at <http://www.nd.gov/ndic/outdoor-infopage.htm> , please include a detailed total project budget that specifically outlines all the funds you are requesting. Note that a minimum of 25% match funding is required.*

The project budget should identify all matching funds, funding sources and indicate whether the matching funds are in the form of cash or in-kind services. Effective July 1, 2015 no State General Fund dollars can be used for a match unless funding was legislatively appropriated for that purpose. As noted on the standard project budget format, certain values have been identified for in-kind services. Please utilize these values in identifying your matching funds. **NOTE: No indirect costs will be funded.**

X I certify that a project budget will be sent to the Commission*

Sustainability – Indicate how the project will be funded or sustained in future years. *

Include information on the sustainability of this project after all the funding from the Outdoor Heritage Fund has been expended and whether the sustainability will be in the form of ongoing management or additional funding from a different source.

The District will fund future operations and maintenance of the project through their general fund and through cost share support from partnering agencies.

Partial Funding – Indicate how the project will be affected if less funding is available than that requested. *

If funding other than from the Outdoor Heritage Fund is not obtained, the project would be delayed until such time that funding is secured and it is possible that the District may not be able to afford the project and they may need to breach the dam to eliminate the existing hazards around the dam. Breaching the dam would significantly reduce the existing recreational opportunities around the dam.

Partnership Recognition - If you are a successful recipient of Outdoor Heritage Fund dollars, how would you recognize the Outdoor Heritage Fund partnership? * Please note it is a requirement that there be signage at the location of the project acknowledging the funding from the Outdoor Heritage Fund if appropriate for your project.

The District will provide signage at the facility identifying the names of all the project sponsors. The project vicinity is noted for its fishing, hunting and outdoor recreation opportunities. The signage with the Outdoor Heritage Fund listed as a project sponsor will be viewed and appreciated by all who visit. The District would also orchestrate a media campaign centered around the project and the Outdoor Heritage Fund would be singled out as a primary partner in the project.

Scoring of Grants

All applications will be scored by the Outdoor Heritage Fund Advisory Board after your ten-minute oral presentation. The ranking sheet(s) that will be used by the Board is available on the website at <http://www.nd.gov/ndic/outdoor-infopage.htm> .

Awarding of Grants*

All decisions on requests will be reported to applicants no later than 30 days after Industrial Commission consideration. The Commission can set a limit on duration of an offer on each application or if there isn't a specific date indicated in the application for implementation of

the project, then the applicant has until the next Outdoor Heritage Fund Advisory Board regular meeting to sign the contract and get the project underway or the commitment for funding will be terminated and the applicant may resubmit for funding. Applicants whose proposals have been approved will receive a contract outlining the terms and conditions of the grant. Please note the appropriate sample contract for your organization on the website at <http://www.nd.gov/ndic/outdoor-infopage.htm> that set forth the general provisions that will be included in any contract issued by the North Dakota Industrial Commission. Please indicate if you can meet all the provisions of the sample contract. If there are provisions in that contract that your organization is unable to meet, please indicate below what those provisions would be. *

Responsibility of Recipient

The recipient of any grant from the Industrial Commission must use the funds awarded for the specific purpose described in the grant application and in accordance with the contract. The recipient cannot use any of the funds for the purposes stated under Exemptions on the first page of this application.

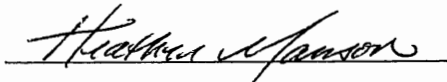
If you have any questions about the application or have trouble submitting the application, please contact Karlene Fine at 701-328-3722 or kfine@nd.gov

Revised: January 18, 2017

Certification

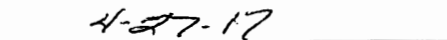
The information contained in this grant application has been developed under the authority of the Barnes County Water Resource District who will meet the financial and other program requirements of the Outdoor Heritage Fund Program. Technical support was provided by Mike Opat, PE, of Moore Engineering, Inc., 701-282-4692, who is available to answer engineering and other technical related questions.

Signed:



Heather Manson, Secretary-Treasurer
Barnes County Water Resource District

Date:



Appendix A

Proposed Budget

Project # 17300
 Date Created: 4/26/2017

**Proposed Budget - Outdoor Heritage Grant Application
 Kathryn Dam Improvements
 Barnes County Water Resource District
 Barnes County, North Dakota**

Rock Arch Riffles w/Lowered Crest Elevation

FUNDING SOURCES						
<i>Project Expense</i>	<i>OHF Request</i>	<i>US Fish and Wildlife Service</i>	<i>State Water Commission Grant</i>	<i>ND Game & Fish Dept</i>	<i>Local</i>	<i>Total Funding</i>
Total Construction	\$88,585.00	\$50,000.00	\$427,490.00	\$15,000.00	\$144,125.00	\$725,200.00
Contingencies (20%)	\$38,941.00		\$42,749.00		\$63,350.00	\$145,040.00
Engineering - Design	\$17,938.00		\$25,382.00		\$29,200.00	\$72,520.00
Engineering - Construction	\$13,309.60		\$23,206.40		\$21,500.00	\$58,016.00
Geotechnical Engineering/Soil Borings	\$1,250.00		\$1,750.00		\$2,000.00	\$5,000.00
Legal Fees	\$200.00		\$0.00		\$300.00	\$500.00
Administrative Expenses	\$200.00		\$0.00		\$300.00	\$500.00
Right of Way	\$1,000.00		\$0.00		\$1,500.00	\$2,500.00
TOTAL PROJECT COST	\$161,423.60	\$50,000.00	\$520,577.40	\$15,000.00	\$262,275.00	\$1,009,276.00

Project # 17300
 Date Created: 5/6/2016
 Date Revised: 4/26/2017

**Kathryn Dam Improvements
 Barnes County Water Resource District
 Barnes County, North Dakota**

Engineer's Opinion of Probable Cost
 Rock Arch Riffles w/Lowered Crest Elevation

	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL	FUNDING SOURCES	
						SWC (75%/40%)	LOCAL
	Remaining Construction						
1.	Mobilization	L.Sum	1	\$69,200.00	\$69,200.00	\$51,900.00	\$17,300.00
2.	Water Control	L.Sum	1	\$50,000.00	\$50,000.00	\$37,500.00	\$12,500.00
3.	Remove Existing Dam	L.Sum	1	\$130,000.00	\$130,000.00	\$97,500.00	\$32,500.00
4.	Sediment Removal	L.Sum	1	\$26,400.00	\$26,400.00	\$19,800.00	\$6,600.00
5.	Granular Filter for Rock Riffles	L.Sum	1	\$33,000.00	\$33,000.00	\$13,200.00	\$19,800.00
6.	Filter Rock for Rock Riffles	L.Sum	1	\$47,000.00	\$47,000.00	\$18,800.00	\$28,200.00
7.	Base Rock for Rock Riffles	L.Sum	1	\$127,900.00	\$127,900.00	\$51,160.00	\$76,740.00
8.	Cobbles and Chinking Rock for Rock Riffles	L.Sum	1	\$1,600.00	\$1,600.00	\$640.00	\$960.00
9.	Boulders for Rock Riffles	L.Sum	1	\$57,100.00	\$57,100.00	\$22,840.00	\$34,260.00
10.	Install Downstream Sheetpile Cutoff	L.Sum	1	\$51,000.00	\$51,000.00	\$20,400.00	\$30,600.00
11.	Improved Angler Access	L.Sum	1	\$15,000.00	\$15,000.00	\$6,000.00	\$9,000.00
12.	Stabilize Downstream Left River Bank	L.Sum	1	\$44,000.00	\$44,000.00	\$33,000.00	\$11,000.00
13.	Stabilize Downstream Right River Bank	L.Sum	1	\$53,000.00	\$53,000.00	\$39,750.00	\$13,250.00
14.	Site Restoration	L.Sum	1	\$20,000.00	\$20,000.00	\$15,000.00	\$5,000.00
	Total Construction				\$725,200.00	\$427,490.00	\$297,710.00
	Contingencies (20%)				\$145,040.00	\$42,749.00	\$102,291.00
	Engineering - Design				\$72,520.00	\$25,382.00	\$47,138.00
	Engineering - Construction				\$58,016.00	\$23,206.40	\$34,809.60
	Geotechnical Engineering/Soil Borings				\$5,000.00	\$1,750.00	\$3,250.00
	Legal Fees				\$500.00	\$0.00	\$500.00
	Administrative Expenses				\$500.00	\$0.00	\$500.00
	Right of Way				\$2,500.00	\$0.00	\$2,500.00
	TOTAL PROJECT COST				\$1,009,276.00	\$520,577.40	\$488,698.60

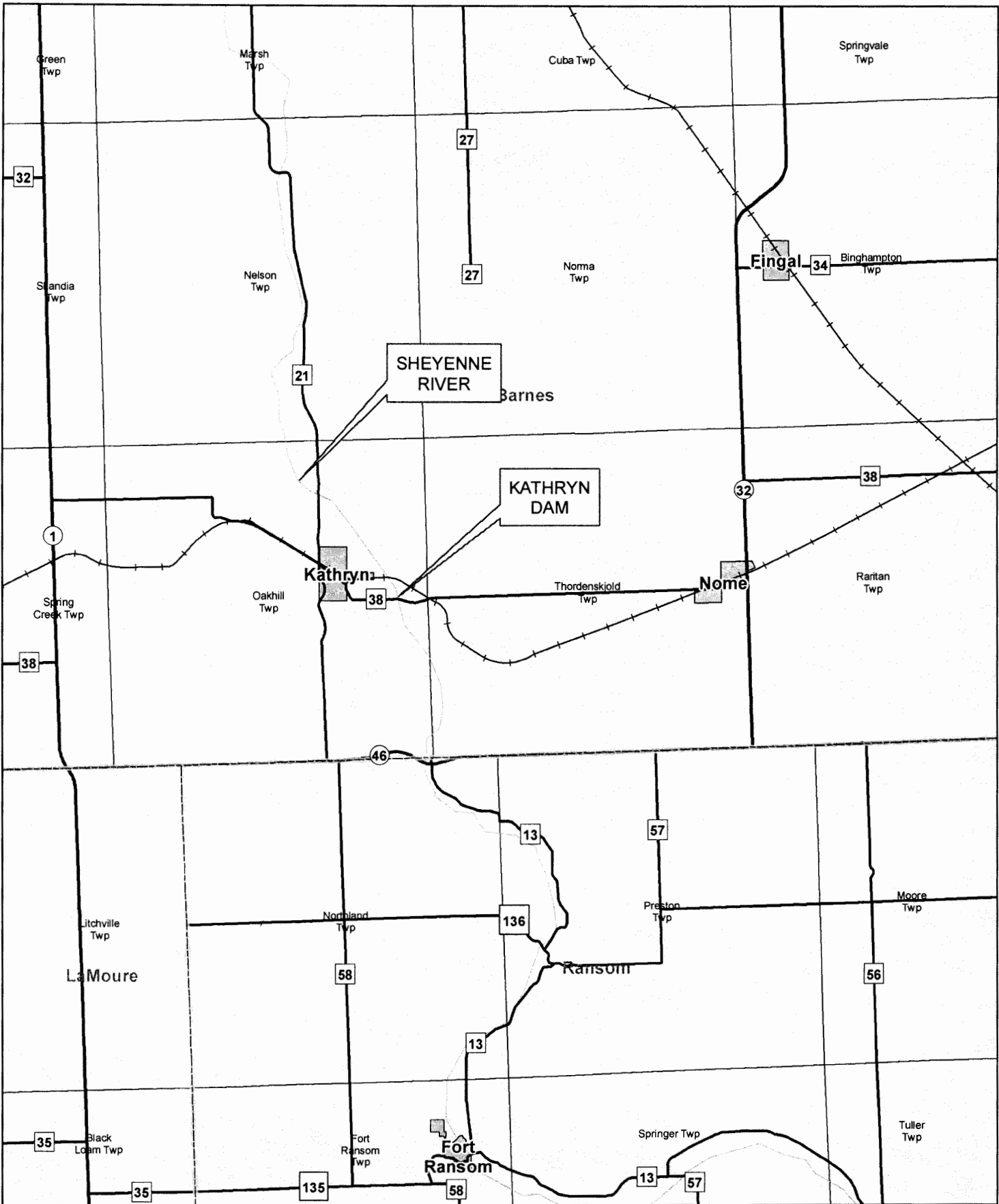
Other Potential Sources for Local Funds:

Local Share= \$488,698.60
 USFWS fish passage funds= \$50,000.00
 ND Outdoor Heritage Fund= \$161,423.60
 ND Game & Fish Dept.= \$15,000.00
Total Remaining Local= \$262,275.00



Appendix B

Vicinity Map



VICINITY MAP
KATHRYN DAM REPURPOSING PROJECT
SHEYENNE RIVER, KATHRYN, BARNES CO.

Created By: GZ Date Created: 5/16/2016 Date Saved: 05/16/16 Date Plotted: 05/16/16 Date Exported: 05/16/16
 Plotted By: gary.zimmer Parcel Date: NA Aerial Image: NA Elevation Data: NA
 Horizontal Datum: NAD 1983 StatePlane North Dakota South FIPS 3302 Feet Vertical Datum: NAVD1988
 T:\Projects\17300\17300\17300_sht1_85x11.mxd



moore
 engineering, inc.

Appendix C

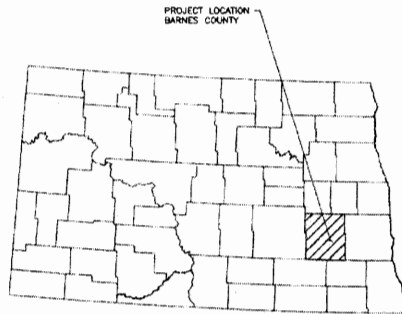
Preliminary Plans

KATHRYN DAM REPURPOSING PROJECT

BARNES COUNTY WATER RESOURCE DISTRICT

SHEYENNE RIVER

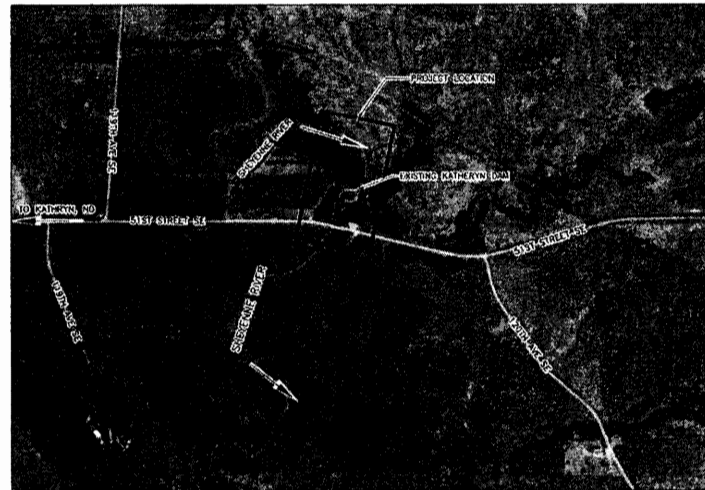
KATHRYN, NORTH DAKOTA



LOCATION MAP
NOT TO SCALE

TABLE C-01

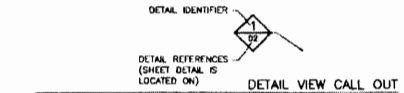
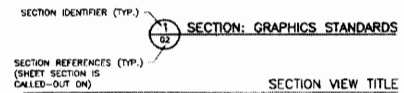
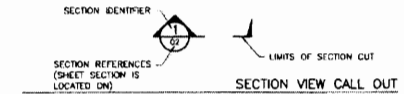
ABBREVIATION	DESCRIPTION
APPROX	APPROXIMATE
CFS	CUBIC FEET PER SECOND
EL. FT.	ELEVATION
H	HORIZONTAL
L.W.L.	LOW WATER LEVEL
NAVD	NORTH AMERICAN VERTICAL DATUM
NAD	NORTH AMERICAN DATUM
ND	NORTH DAKOTA
NE	NORTH-EAST
SE	SOUTH-EAST
SF	SQUARE FEET
STA	STATION
TED	TO BE DETERMINED
T.O.	TOP OF
TYP.	TYPICAL
V	VERTICAL
WSE	WATER SURFACE ELEVATION



VICINITY MAP
NOT TO SCALE

GENERAL NOTES:

1. LEFT BANK AND RIGHT BANK NOMENCLATURE IN THIS DRAWING SET REFERS TO THE LEFT AND RIGHT RIVER BANKS WHEN LOOKING DOWNSTREAM



SHEET INDEX

SHEET NUMBER	TITLE
C-01.....	TITLE SHEET
C-02.....	EXISTING CONDITIONS PLAN
C-03.....	PROJECT LAYOUT PLAN
C-04.....	DEMOLITION PLAN, ELEVATION AND SECTION
C-05.....	ROCK RIFFLE PLAN AND PROFILE
C-06.....	ROCK RIFFLE AND FATHWORK SECTION AND DETAILS



NORTH DAKOTA ONE CALL:
CALL BEFORE YOU DIG
1-800-785-0555 or 811

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY XXXXX
XXXXXXX, REGISTRATION NUMBER PE-XXXX ON XX/XX/XXXX
AND THE ORIGINAL DOCUMENT IS STORED AT BARR ENGINEERING
COMPANY, 234 WEST CENTURY AVENUE, BISMARCK, ND 58503

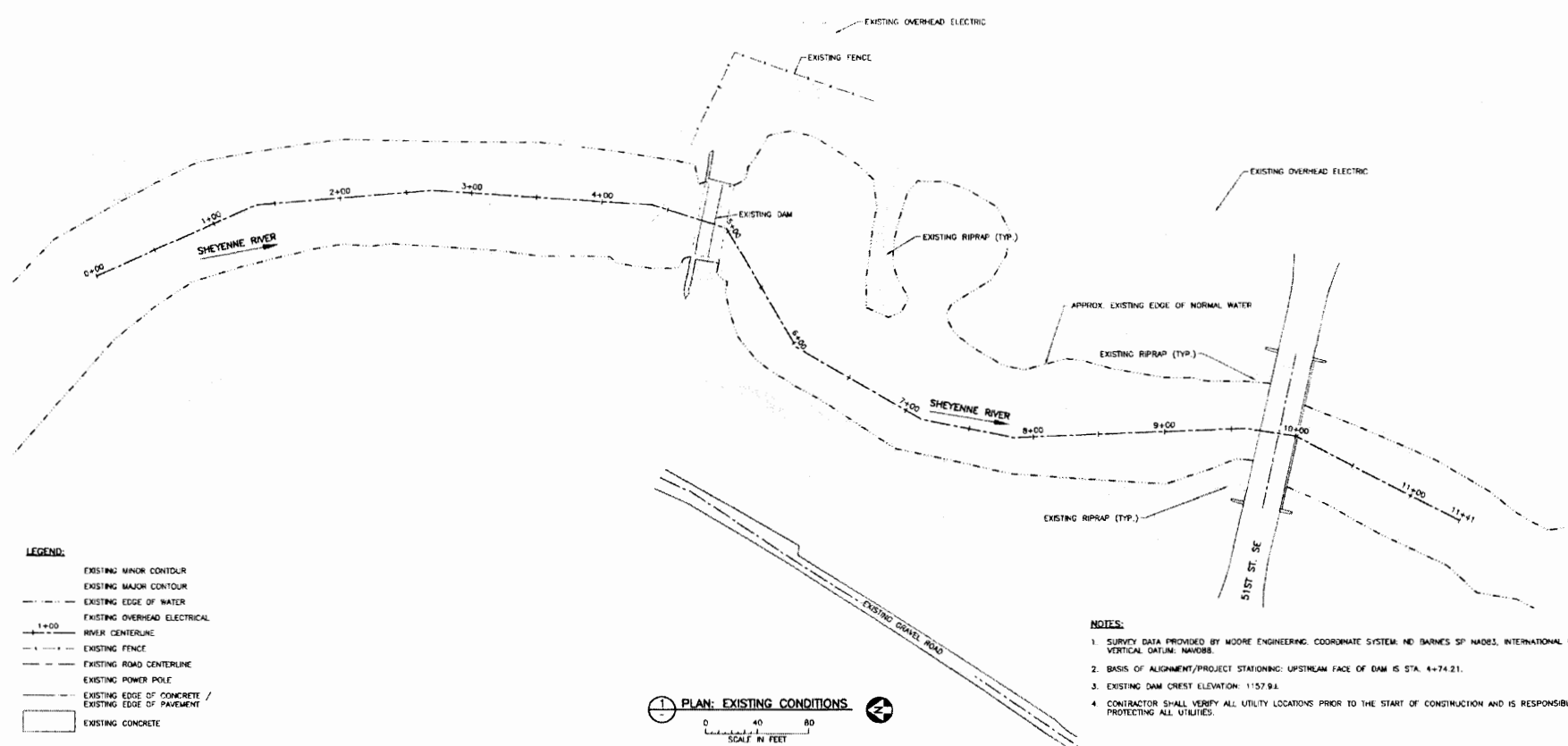
CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD-LOCATING ALL SITE UTILITIES,
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THE PLANS ARE APPROXIMATE. ANY UTILITIES DAMAGED BY CONTRACTOR SHALL
BE REPAIRED BY CONTRACTOR TO THE SATISFACTION OF THE UTILITY OWNER.

**30% DRAFT
SUBMITTAL**

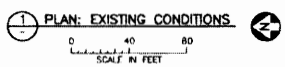
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- LEGEND:**
- EXISTING MINOR CONTOUR
 - EXISTING MAJOR CONTOUR
 - - - EXISTING EDGE OF WATER
 - - - EXISTING OVERHEAD ELECTRICAL
 - 1+00 RIVER CENTERLINE
 - - - EXISTING FENCE
 - - - EXISTING ROAD CENTERLINE
 - - - EXISTING POWER POLE
 - - - EXISTING EDGE OF CONCRETE / EXISTING EDGE OF PAVEMENT
 - EXISTING CONCRETE
 - EXISTING RIPRAP
 - EXISTING TREE



- NOTES:**
1. SURVEY DATA PROVIDED BY MOORE ENGINEERING. COORDINATE SYSTEM: ND BARNES SP NAD83, INTERNATIONAL FEET. VERTICAL DATUM: NAVD83.
 2. BASIS OF ALIGNMENT/PROJECT STATIONING: UPSTREAM FACE OF DAM IS STA. 4+74.21.
 3. EXISTING DAM CREST ELEVATION: 1157.91.
 4. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO THE START OF CONSTRUCTION AND IS RESPONSIBLE FOR PROTECTING ALL UTILITIES.



NORTH DAKOTA ONE CALL
 CALL BEFORE YOU DIG
 1-800-795-0555 or 811

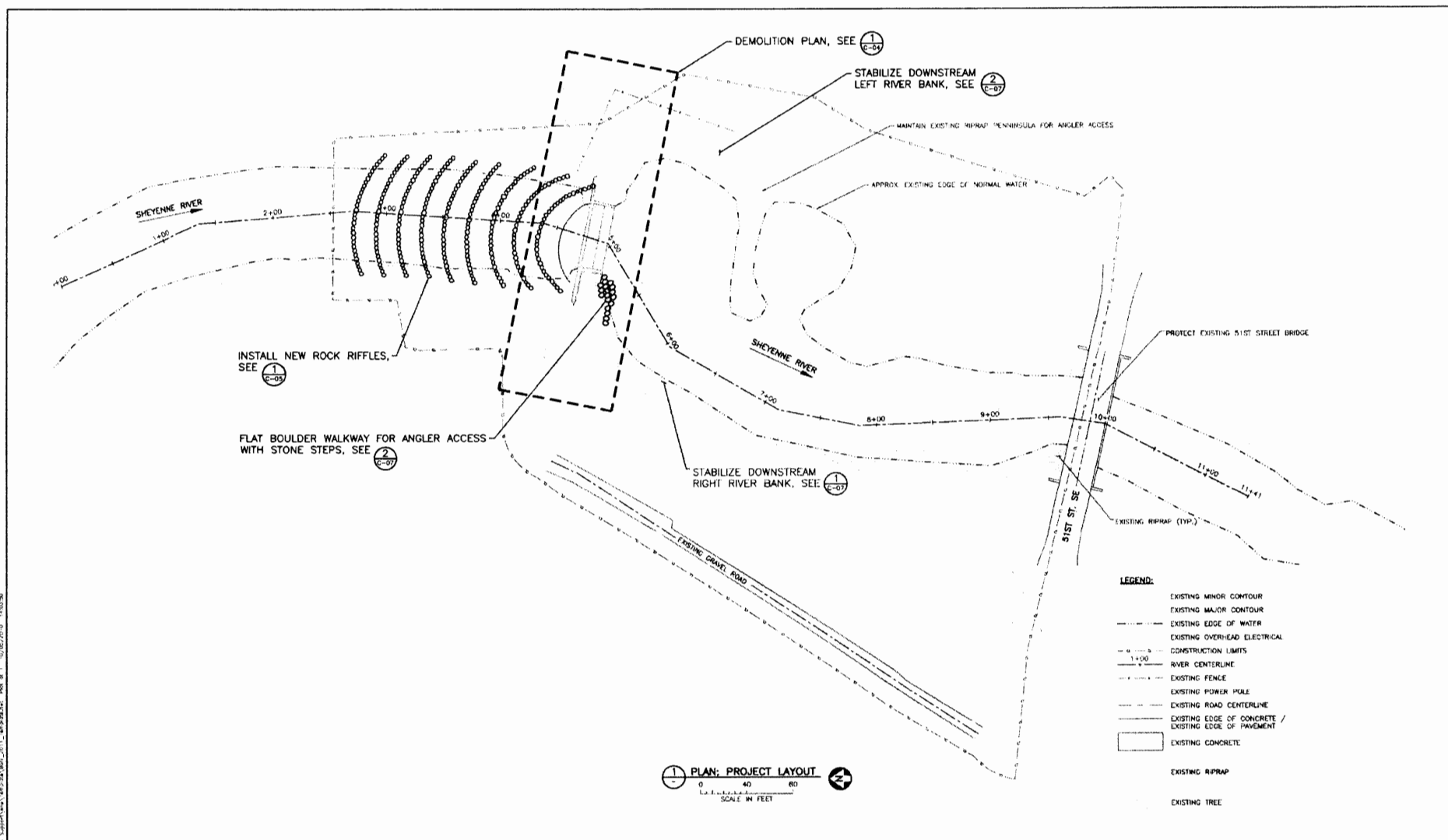
THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY XXXXX
 XXXXXXXXXXXX, REGISTRATION NUMBER PE-XXXX ON XX/XX/XXXX
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**30% DRAFT
 SUBMITTAL**

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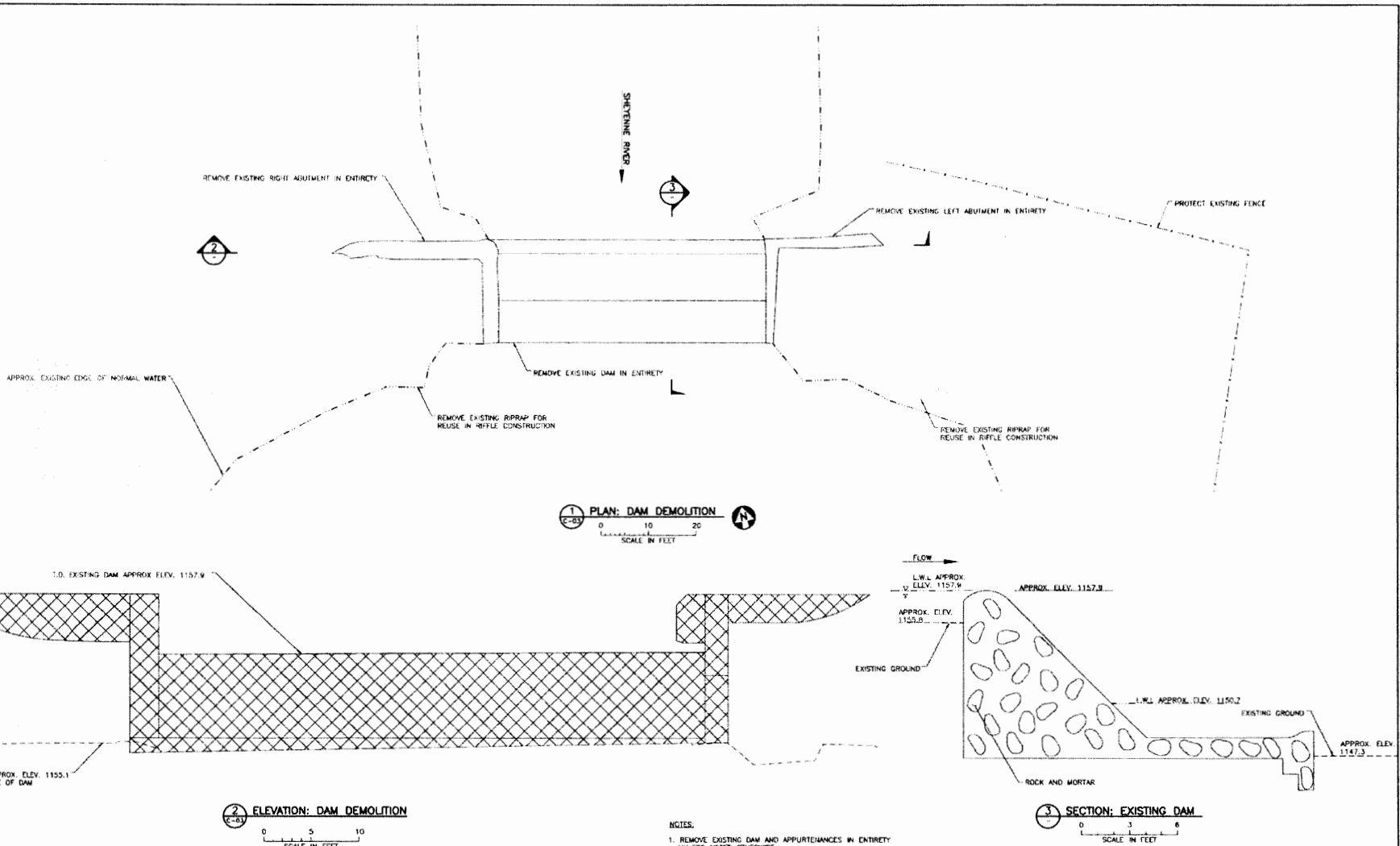
NO.		CHK.	APP.	DATE	REVISION DESCRIPTION

CLIENT	BARN	DATE	1/20/16
PROJECT	KATHRYN DAM	SCALE	AS SHOWN
NO.	1004	DATE	1/20/2016

BARR Barr Engineering Co. 234 West Century Ave. Bismarck, ND 58503 Ph: 701-252-2277 Fax: 701-252-8371 www.barr.com		Project Office: BARR ENGINEERING CO. 234 WEST CENTURY AVE. BISMARCK, ND 58503 Ph: 1-800-832-2277 Fax: (701) 252-8371 www.barr.com	Scale: AS SHOWN Date: 1/20/2016 Design: STG Checked: MTP2 Drawn: MTP2 Approved:
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BARNES COUNTY WATER RESOURCE DISTRICT		KATHRYN DAM REPURPOSING PROJECT KATHRYN, NORTH DAKOTA	BARR PROJECT No. 34021004.00 CLIENT PROJECT No.
PROJECT LAYOUT PLAN		DWG. No. C-03	REV. No. A

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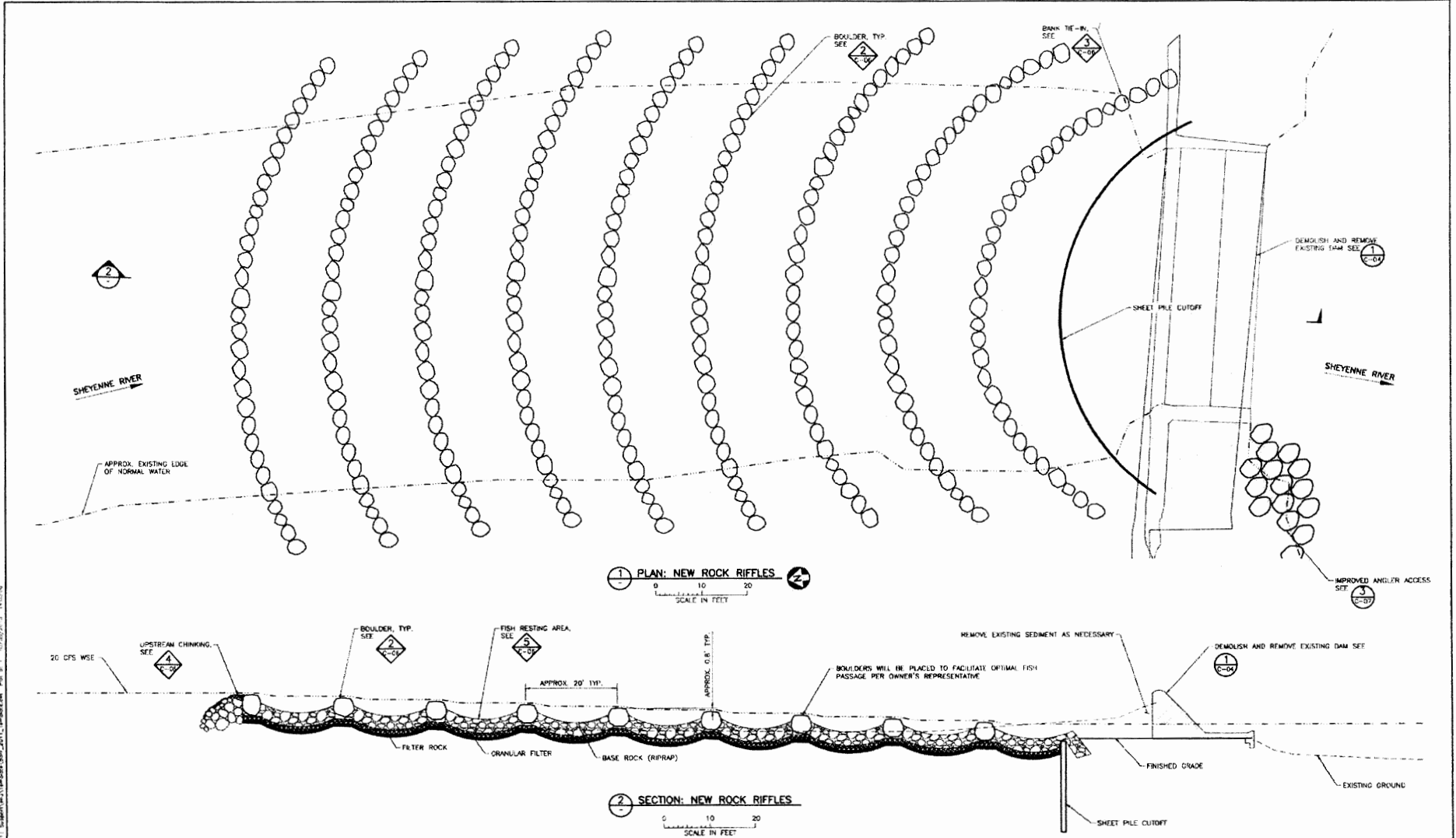
NOTES:
 1. REMOVE EXISTING DAM AND APPURTENANCES IN ENTIRETY UNLESS NOTED OTHERWISE.
 2. ABUTMENT REMOVAL NOT SHOWN ON SECTION VIEW.

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					CLIENT: 7/7/16						BARR ENGINEERING CO. 234 WEST CENTURY AVE. BISMARCK, ND 58503 Ph: 1-800-832-2277 Fax: (701) 722-8371 www.barr.com	Project Office: BARR ENGINEERING CO. 234 WEST CENTURY AVE. BISMARCK, ND 58503	Sheets: AS SHOWN Date: 1/18/2016 Drawn: SJD Checked: MTP2 Swapped: MTP2 Approved:	BARNES COUNTY WATER RESOURCE DISTRICT	KATHRYN DAM REPURPOSING PROJECT KATHRYN, NORTH DAKOTA	BARR PROJECT No.: 34021004.00 CLIENT PROJECT No.:
				RELEASED TO/FOR: A B C D 1 2 3	DATE RELEASED:							DEMOLITION PLAN, ELEVATION AND SECTION	DWS No: C-04 REV. No: A			
NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION											

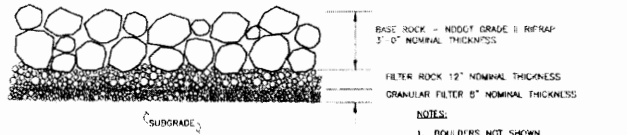
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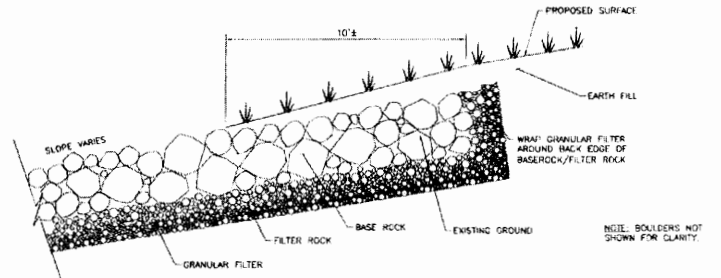
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NO. BY CHK/APP DATE REVISION DESCRIPTION		RELEASED TO/FOR: A B C D 1 2 3 DATE RELEASED		DWG. No. C-05		RELY. No. A					

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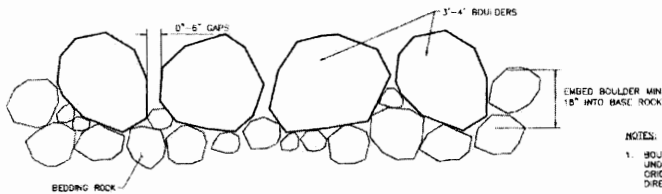
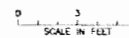
- NOTES:
- BOULDERS NOT SHOWN
 - ENGINEER SHALL INSPECT THE SUBGRADE FOR APPROVAL BEFORE PLACEMENT OF GEOTEXTILE FABRIC OR GRANULAR FILTER

1 **DETAIL: ROCK RAPIDS (TYP.)**



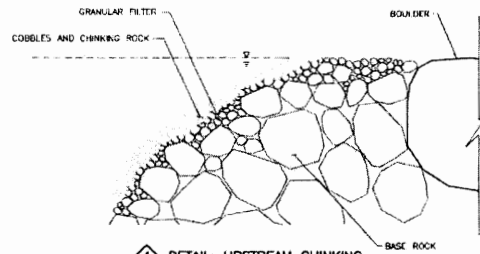
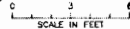
NOTE: BOULDERS NOT SHOWN FOR CLARITY

3 **DETAIL: BANK TIE-IN (TYP.)**

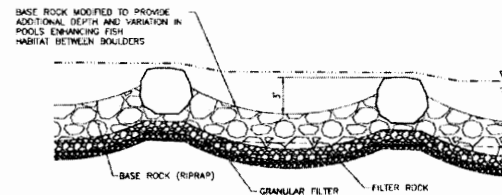
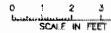


- NOTES:
- BOULDER GAPS WILL BE ADJUSTED UNDER FLOW CONDITIONS AFTER ORIGINAL PLACEMENT UNDER THE DIRECTION OF THE ENGINEER
 - BOULDERS SHALL BE 4" - 6" NOMINAL DIAMETER FOR MIST UPSTREAM RIFFLE

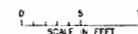
2 **DETAIL: BOULDERS**



4 **DETAIL: UPSTREAM CHINKING**



5 **DETAIL: FISH RESTING POOL**



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BARR ENGINEERING CO.		AS SHOWN		34021004.00	
234 WEST CENTURY AVE.		Date		CLIENT PROJECT No.	
BISMARCK, ND		1/28/2016			
58503		Drawn		DWG. No.	
Designed		MTP2		REV. No.	
Checked		MTP2		C-06	
Approved		MTP2		A	
Project Office		Scale		BARR PROJECT No.	
BARR ENGINEERING CO.		AS SHOWN		34021004.00	
234 WEST CENTURY AVE.		Date		CLIENT PROJECT No.	
BISMARCK, ND		1/28/2016			
58503		Drawn		DWG. No.	
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Approved		MTP2		A	

**BARNES COUNTY
 WATER RESOURCE DISTRICT**

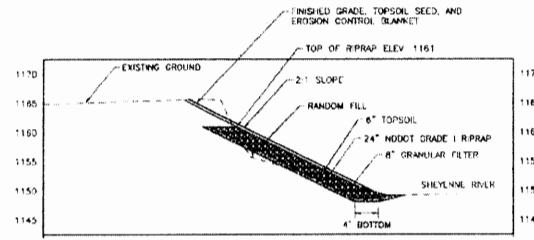
**KATHRYN DAM REPURPOSING PROJECT
 KATHRYN, NORTH DAKOTA
 ROCK RIFLE AND EARTHWORK
 SECTION AND DETAILS**

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION

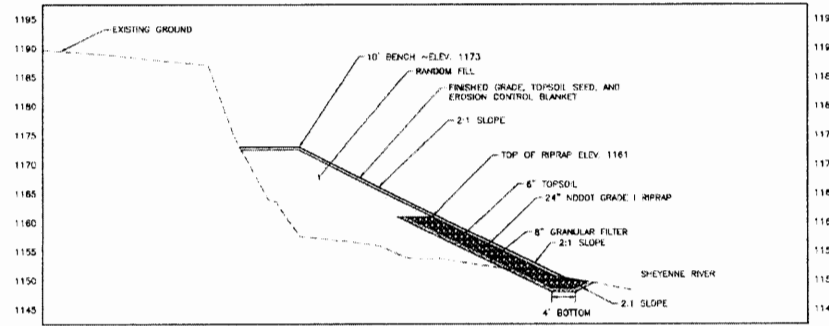
CLIENT	NO.	DATE	NO.	DATE	NO.	DATE

BARR
 Corporate Headquarters
 Bismarck, Minnesota
 Ph: 1-800-432-8277

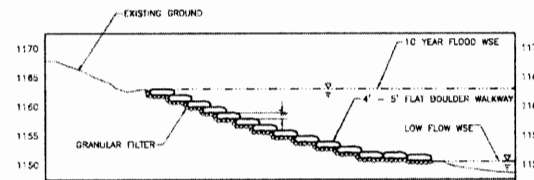
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JOB: 34021004-010-000000 2016.dwg 1/27/2016 9:11:13 AM
NO. BY CHK APP DATE REVISION DESCRIPTION



1 SECTION: RIGHT BANK RESTORATION TYPICAL
SCALE IN FEET



2 SECTION: LEFT BANK RESTORATION TYPICAL
SCALE IN FEET



3 SECTION: RIGHT BANK ANGLER ACCESS
SCALE IN FEET

NOTES:
1. HEIGHT BETWEEN BOULDERS IN WALKWAY SHALL BE ON AVERAGE NO MORE THAN 1 FOOT.

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234 WEST CENTURY AVE.
BISMARCK, ND 58503
Corporate Headquarters
Minneapolis, Minnesota
Ph: 1-800-633-3277
Fax: (701) 292-6371
www.barr.com

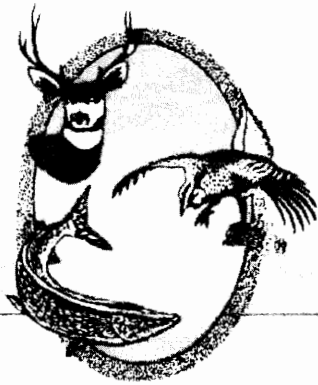
DATE	AS SHOWN
1/22/2016	

**BARNES COUNTY
WATER RESOURCE DISTRICT**

**KATHRYN DAM REPURPOSING PROJECT
KATHRYN, NORTH DAKOTA**
**ANGLER ACCESS AND EARTHWORK
SECTION AND DETAILS**

DATE	1/22/2016
PROJECT NO.	34021004.00
CLIENT PROJECT NO.	
DRWG. NO.	C-07
REV. NO.	A

Appendix D
Letter of Support



"VARIETY IN HUNTING, AND FISHING"

NORTH DAKOTA GAME AND FISH DEPARTMENT

100 NORTH BISMARCK EXPRESSWAY BISMARCK, NORTH DAKOTA 58501-5095 PHONE 701-328-6300 FAX 701-328-6352

April 26, 2017

Barnes County Water Resource District
PO Box 306
Valley City, ND 58072

RE: Kathryn Dam OHF grant application

Dear Chairman Hieb:

Kathryn Dam and its associated public use area on the Sheyenne River has provided enhanced fishing opportunities for anglers for many decades. Thank you for considering this in working with the participants involving this project.

Based on the information I have reviewed I support the Kathryn Dam renovation project.

Sincerely,



BJ Kratz
Southeast District Fisheries Supervisor