

Wellington, Superintendent

June 17, 1948

Region No. 2

The topographic maps included with the plans for the storage dam, bench mark No. 1 is located at the westerly end of the west wing of the storage dam. The elevation of this bench mark is not included. However, for this dam, it is quite probable that the structure constructed in accordance with the plans and plans for these construction features are as shown on the plan. You will recall that an attempt was to be made through your office to obtain aerial photos of the county land bordering the reservation on the east to overlap enough to include a picture of this reservoir. During the visit to the Fort Belknap Reservation June 3 to 10 by members of the Missouri Basin staff some discussion was had in your office concerning the Suction Creek storage reservoir, also known as Dam No. 17, which was constructed by the CCC-ID. The physical characteristics of this reservoir, particularly the total possible storage, were considered rather important data in connection with the studies now in progress concerning irrigation on the Fort Belknap Reservation.

On his return to the Billings Office Mr. W. F. Gettelman, Hydraulic Engineer, went over the CCC-ID plans for this reservoir to ascertain the controlling elevations of the storage dam, detached spillway, and the outlet pipe through the storage dam. From the topographic maps attached to the plans Mr. Gettelman then planimeted the areas for the various contour elevations and arrived at the total storage figure of 3,953 acre-feet storage, with a total ponded area of 684 acres. The attached sheet for this reservoir shows a tabulation of the storage for each foot of draw-down for the total draw-down of 14 feet as estimated from the plans, the same being the difference from the elevation of the drop spillway at 101 down to the flow line elevation of the 30" diameter outlet pipe. At the time of his visit there Mr. Gettelman took a hand level shot from the water surface as of June 8th to what appeared to be the high water mark. The water level appeared to be six feet below high water, or approximately elevation 95, which would indicate a present storage as of June 8th of little more than 1100 acre-feet.

As noted on the attached storage sheet for this reservoir, these figures in regard to presumed storage capacity should not be relied upon until proper check has been made with a surveyor's level to definitely ascertain the total possible draw-down. The outlet pipe could have been set higher than the plans show, which would have the result of cutting off some of the lower storage as dead storage. The storage in the lower few feet of the reservoir, however, is a small factor when the entire storage capacity of the reservoir is considered.

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2

(69)

W. Wellington, Superintendent

June 17, 1948

The topographic maps included with the plans show a bench mark No. 1 near the storage dam. Bench mark No. 1 is located 100 feet west of the northwesterly end of the west wing of the storage dam. The datum was assumed. The elevation of this bench mark is not included. However, for a comparatively small height of this dam, it is quite probable that the dam spillway and outlet were constructed in accordance with the plans and that the elevations for these construction features are as shown on the plans. You will recall that an attempt was to be made through your office to see if any of the aerial photos of the county land bordering the reservoir on the west happen to overlap enough to include a picture of this reservoir. Even if such a picture should show only a part of this reservoir, it would still be of value in determining whether the reservoir storage capacity extends as high as shown on the plans and on the attached tabulation.

The two attached copies of storage data on this reservoir are included for the information of yourself and Mr. Larson, the Project Engineer.

One is transmitted herewith a report of the reservoir

If it is found convenient to have a check made of the elevation differences described in regard to the dam and so forth, we should appreciate receiving information as to the results thereof, as it would then give complete authenticity to these storage figures for use in our studies.

Very respectfully,

Sincerely yours,

(Signed) A. G. Harper

Allan G. Harper,
Assistant Regional Director.

VFG:jh
cc: Harper
Farmer

Gottelman

holdup

Enclosures - 2

Mr. Tom G. White
Supervising Construction Engineer
208 Hedden Building
Billings, Montana

5
2
2
5
0
8
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4
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(68)

EARTHFILL STRUCTURAL REPORT

Structure No. 17 Location SW 1/4 Sec. 23 T27 R. 2 Agency Ft. Belnap

Constructed By IECW Year 1935 Land Status _____

Construction Data: Spillway Data:

Fill Volume 2800 C.Y. Type Natural riprap drop

Length 230 Ft. Length 120 Ft.

Height 14.0 Ft. Width 100 Ft.

Slope: Up Str. _____ Down Str. _____ Grade _____ %

Material: Core _____ Dam _____ Rec. Potential: Duck geese habitat

Foundation _____ Maintenance Data:

Insp. Date	Cond.*	Repair Date

Freeboard 4 Ft.

Storage Capacity ~~400~~ 700 Ac.Ft.

Spreading Area 449.5 Ac.

Riprap Rock 750 Sq. Yd.

Veg. Seed: Ac. _____ Kind _____

Shrubs: No. _____ Kind _____

Drainage Area Duck Cr 610.0 Ac.

Remarks: 17 mile Res

- * Legend Proj. Cond.
- I-Repairs req'd Imm.
- II- " " 3 yrs.
- III- " " 5 yrs.
- IV- " " 5 yrs.

Land and Minerals
Code 360

JUL 05 1988

Dave Schwab
State Historic Preservation Office
Montana Historical Society
225 N. Roberts Street
Helena, Montana 59620

Dear Mr. Schwab:

Thank you for your comments on the Report of Findings on the Lake Seventeen archeological survey; included below are our responses.

Proposed improvements on the existing dam will raise the water elevations a maximum of 3 feet above the present levels. A Bureau of Indian Affairs (BIA) archeologist and engineer mapped the expected high water line in January 1988 to verify its location in relation to the archeological sites. Although 40 sites were located around the reservoir, all of these sites were found to be well above the projected water line and will not be affected by the increase in the reservoir pool.

Survey of the reservoir area was done as part of a longer term planning project, as well as to evaluate the immediate impacts of dam improvements. This survey is still ongoing; consequently, the site forms for these 40 sites are not yet available. When this survey is completed, these forms will be submitted to your office.

We have considered your comments regarding the National Register eligibility of the Lake Seventeen Dam (24BL990). We do not feel the structure merits National Register status of the following reasons:

1. There is some confusion about the relationship of this structure to the Duck Creek Irrigation Unit. This is largely because the USGS maps and early irrigation maps identify two different drainages as Duck Creek. After further review of the records and discussions with personnel in BIA's Branch of Water Resources, we have determined that the Duck Creek Unit described in the history of irrigation is actually located to the east and slightly above the Lake Seventeen area. Some of the earlier diversion structures mentioned in the original survey report were located on a different drainage over a mile east of the reservoir and had no

10/10

Part 10

1/1/100

1/1/100

1/1/100

relationship to the Lake Seventeen area. The only relationship Lake Seventeen has to irrigation was the addition of outlet works in the 1950's to help regulate flows to the Three Buttes Irrigation System to the north.

2. The features identified as part of the Lake Seventeen dam were all built in 1933 and 1935. This dam was built to provide storage water for range and wildlife. Although the structure is over 50 years old, we find it difficult to identify the criteria under which the dam would qualify for the National Register. Since the dam is not related to the earlier irrigation structures, it does not adequately reflect the history of dam and irrigation facility construction on the reservation. Certainly the Civilian Conservation Corps (CCC) era of construction was an event important to the history of the nation, but the Lake Seventeen earthen dam would be a poor representative of this era. As an engineering feature, it represents neither a monumental nor particularly distinctive structure.

The value of the dam to the overall history of the reservation is also questionable. It may impound a relatively large body of water, but it did not contribute to the overall development of irrigation, nor did it result in any significant changes in land use or any changes in economic or social conditions on the reservation. The reservoir has served and continues to serve as an impoundment for livestock water and a wildlife habitat area.

3. The integrity of the structure should also be addressed. The dam has undergone a series of repairs over the years. Wind and wave erosion has damaged the dam in the past, necessitating adding soil and rock riprap to the reservoir side of the dam. The flood in 1986 resulted in additional wave damage to approximately 25 percent of the dam and leaks around the outlet works. Existing outlet works and headgates are rusted and unusable and need to be replaced.

While the integrity of the structure has suffered over the years, we feel this to be a minor point. A more critical concern is the lack of overall historic value. It is not a significant engineering feature nor has it played an important role in the local or regional history of the area. Lacking these qualities, we do not feel it should be considered eligible for the National Register.

We trust that we have adequately addressed your concerns. If you have any questions, please feel free to contact Marvin keller at (406)657-6145.

Sincerely,

/s/ RICHARD C. WHITESELL

Area Director

Enclosure

360:MKeller:bpf:6/30/88

bcc: 100

300

360:Subject/Chrono

Marv3/Letter20

DATE:

REPLY TO

ATTN OF: Division of Programs, Water Resources, Code 380

SUBJECT: Cancellation of Lake 17 bid package

TO: Superintendent, Fort Belknap Agency

FROM: Billings Area Director

Due to insufficiency of available funds to fully fund the low bid on the subject project, the Billings Area Office, Water Resources, has requested that the bid package be cancelled until sufficient funds can be allocated to this project. If sufficient funds can be found, the bid package will be reissued this winter for a contract award by next spring.

In the meantime, the present condition of Lake 17 dam must be preserved. The existing coffer dam has served well. The reservoir has been drawn down this summer by the roads department. However, if heavy snow melt and/or heavy spring rains occur, the reservoir would be refilled quickly. The coffer dam crest is not of sufficient height to divert flood waters through the emergency spillway. If floods do occur, the coffer dam could be overtopped, threatening the dam.

It is recommended that the coffer dam be raised to a sufficient height to prevent overtopping and to force flood water through the emergency spillway. In the absence of raising the coffer dam, snow melt, rainfall, and reservoir levels must be closely monitored until the threat of flooding is over next spring.

If you have any questions, please contact Mr. Douglas J. Oellermann, Agricultural Engineer, at 657-6782.

380:DOELLERMANN:mem:10-7-88
C:\TEXT\DOUG\LAKE17.MEM
bcc: 100 Reading File
300 Reading File
380 Reading/Chrono File
Subject File

DATE:

REPLY TO

ATTN OF: Division of Programs, Water Resources, Code 380

SUBJECT: Funding for reconstructing of Lake 17

TO: Superintendent, Fort Belknap Agency

FROM: Billings Area Director

The Billings Area Office Branch of Water Resources (Water Resources) would like to issue an invitation for bids (IFB) for the subject project in the near future. However, funding remains a problem. The account identified to fund this project, C50/999/X/1000/5590/FLD, had about \$26,000 in it as of the end of Fiscal Year 1988. In a memorandum to you on December 6, 1988, we authorized additional expenditures from this account not to exceed \$7,500 for the repair of White Bear Dam, leaving a balance of about \$18,500.

As you are aware, an IFB for this project was issued during the summer of 1988. The lowest bid received totalled about \$90,000, leaving a funding shortfall of about \$71,500.

Water Resources has reviewed their funding sources, trying to locate additional funds for this project. However, the accounts over which Water Resources has control are earmarked for either irrigation or water rights. The Lake 17 project fits neither of these categories. Therefore, funding from Water Resource accounts is not possible.

Do you know of any available funds for Lake 17 so that we can issue an IFB as soon as possible?

If you have any questions concerning this matter, please contact Mr. Douglas Oellermann, at telephone number 657-6782.

380:DOELLERMANN:mem:1-24-89
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*bcc: 100 Reading File
300 Reading File
380 Reading/Chrono File
Subject File*

LAKE 17 INTERIM REPORT

RECOMMENDATIONS

1. Conduct hydrology investigations to determine water supply and spillway requirements.
2. Determine relationship of primary and secondary spillways to desired normal water surface for enlarged dam through additional surveying.
3. Investigate key trench and borrow material requirements through borings.
4. Conduct detailed survey of dam centerline and adjacent areas to determine cut and fill requirements.
5. Determine principle spillway and drawdown facilities.
6. Determine if Safety of Dam requirements apply.
7. Determine water requirements of irrigation, fish & wildlife and stock.
8. Address environmental assessment needs.

Office

1. Hydrology
 - water supply
 - spillway reqmts.
5. Determine spillway & drainage facilities
6. SOD?
7. Water requirements
8. EA?

Field

2. Survey 1° & 2° spillways & determine water surface
3. Key trench & borrow area borings
4. Survey dam centerline & adjacent areas for cut & fill

FEB 03 1988

BAO Water Resources

DATE: FEB 03 1988

REPLY TO
ATTN OF: Division of Programs, Land and Minerals, Code 360

SUBJECT: Trip Report, January 20-21, 1988

TO: Superintendent, Fort Belknap Agency

Purpose:

To accurately locate the proposed high waterline on Lake 17 and determine if it will impact known archeological resources.

Contacts:

Dave Smith, Natural Resource Officer
Doug Ollermann, Water Resources

Discussion Items:

There were 43 archeological sites located in a recent survey around Lake 17; 11 of these sites were located in lower elevations. Because the proposed improvements on the dam would raise the water elevation approximately 3 feet, the location of these sites in relation to the new shoreline needed to be determined. On January 20-21, 1988, Messrs. Marvin Keller and Doug Ollermann mapped the proposed water elevation near the 11 archeological sites. Most of the sites were found to be above the proposed waterline and would not be impacted. Four sites located along the northwest shoreline of the reservoir (Nos. 3, 8, 9 and 15) could not be accurately located because of heavy snow cover. These sites still need to be evaluated.

Recommendations:

Archeological work on Lake 17 should not be a major undertaking. Since most of the sites appear to be above the proposed waterline, no further work will be required on these, beyond simple recording. The four sites that could not be located will be evaluated when the snow melts. If they are found to be above the waterline, no further work will be recommended. If portions of these sites will be below the new waterline, some form of testing will be recommended.

We anticipate the level of work on the archeological sites around Lake 17 will not be extensive and will be handled by in-house archeological staff

Follow-Up Required:

1. Evaluate the four sites covered by snow to determine their exact locations (as soon as snow melts).
2. Since the existing dam and spillway are over 50 years old, these structures will need to be recorded. We do not believe that these are important historic resources, but we will need to seek SHPO comments (as soon as snow melts).
3. Initiate testing on any archeological sites that may be covered by water (Spring 1988).
4. Complete recording of all sites located around the reservoir (Summer 1988).

The existing dam will need to be recorded before construction begins, but this will be a relatively minor undertaking.

Archeological work should not interfere with proposed dam construction. Even if minor testing is required on some sites, there appears to be adequate time to complete this work before water elevations rise.

Name of Consultant:

Marvin Keller, Archeologist

Approved:

/s/ Norris M. Cole

Area Natural Resources Officer

Assistant Area Director, Programs

cc: Water Resources, Code 380

Lake 17 perimeter

12/15/87

7000'

3400

1000

11,200

9400

2900

14000

48,900

9.3

x 1.20

58,680

11.1 mi.

AREA

SUM OF AREAS

UNITS OF FEET

2571374.7

22571374.7

518 Ac

* LAKE 17 AREA & PERIMETER *

LAKE 17 CROSS-SECTION AREAS

PERIMETER FEET	AREA SQUARE FEET	NO. OF UNITS	CROSS SECTION	CUT OR FILL
53038.0605	23703241.3	1	AREA	544 Ac
2235.01559	239204.56	1	ISLAND	5.35 Ac
55273.0761	23936445.9	2		

10.05 mi

10%

9

3

5

10

20

3

13

15

3

5

10

6

10

6

3

131

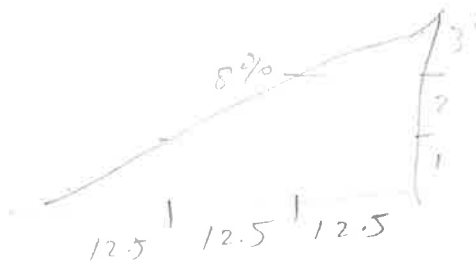
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$A_{T2} = 23,703,241$

$r = 2046.8$

$C = \pi r = 17,259$

17337



$12.5 \times 53038 = 662,975 = 15 \text{ Ac.}$



5000'

12/15/87

$$\begin{array}{r}
 3535 \\
 7071 \quad 3536 \\
 10615 \quad 3544 \\
 \hline
 3538.33 = 1 \text{ sq mi. scale}
 \end{array}$$

lake 17 surface Area @ el 3021
as per USGS quads

$$\begin{array}{r}
 2293 \\
 4602 \quad 2309 \\
 6899 \quad 2297 \\
 \hline
 2299.67 = 0.65 \text{ sq. mi.}
 \end{array}$$

$$\begin{array}{r}
 514 \\
 1025 \quad 511 \\
 1537 \quad 512 \\
 \hline
 512.33 = 0.14
 \end{array}$$

$$\begin{array}{r}
 90 \quad 83 \\
 173 \quad 88 \\
 261 \\
 \hline
 87 = .02
 \end{array}$$

$$\begin{array}{r}
 8 \\
 16 \\
 23 \\
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 7.67 = .002
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0.812 sq mi.
520Ac