

Name TERRA CORPORATION
By 31 South State Street
Address Lake Oswego, Oregon 97034

Application No. 46373
Permit No. 34210
Certificate No. ~~42472~~ 50121
See File R-46372
Stream Index, Page No. 2-76 B9

FEES PAID		
Date	Amount	Receipt No.
9-3-69	27 ⁰⁰	16127
9-9-75	\$1 2.00 Cert. Fee	49337 49338

Date filed September 3, 1969
Priority September 3, 1969
Action suspended until O.K. 6/69

Returned to applicant
Date of approval September 9, 1969

CONSTRUCTION

Date for beginning September 9, 1970
Date for completion October 1, 1971
Extended to

Date for application of water October 1, 1972
Extended to

PROSECUTION OF WORK

Form "A" filed started
Form "B" filed
Form "C" filed 12/7/71 See file R 46372

FINAL PROOF

Blank mailed SEP 5 1975
Proof received SEP 15 1975
Date certificate issued

ASSIGNMENTS

Date	To Whom	Address	Volume	Page

REMARKS

This is a refiling of appl. no. 45947
2.0 cfs from Abernathy Creek and reservoir for recreation and fish culture.

Form C

IMPORTANT—This form is a notice to the State Engineer that permittee is ready to make **final proof** to the extent to which the water has actually been applied to the intended use under the terms of the permit. Permittee is cautioned that Certificate of Water Right will be issued based on the extent of the quantity and use as determined by the **final proof** inspection and survey which will be made in response to the filing of this Form C.

NOTE: In the case of an irrigation permit, this Form C should not be mailed to the State Engineer until all of the land described in the permit, which it is intended to irrigate under this permit at any time, has actually been irrigated. Fill out, detach and mail to the State Engineer, Salem, Oregon 97310, when all of the water has been applied.

Application No. R-46373

NOTICE OF COMPLETE APPLICATION OF WATER TO A BENEFICIAL USE

I, TERRA CORPORATION, the holder of Permit No. 34210

to appropriate the public waters of the state of Oregon, completely applied the waters to a beneficial use in accordance with the terms of said permit, on the 12th day of JAN., 1971.

Remarks:

IN WITNESS WHEREOF, I have hereunto set my hand this 22 day of SEPT., 1971.

Fred E. Weber, Pres.
(Signature of Applicant)

8 North State St. Lake Oswego, Ore
(Address)

RECEIVED
OCT 17 1971
STATE ENGINEER
SALEM OREGON

0.18
mb

STATE OF OREGON

COUNTY OF CLACKAMAS

Proof of Appropriation of Water

RECEIVED

SEP - 9 1975

WATER RESOURCES DEPT.
SALEM, OREGON

TERRA CORPORATION

of **8 North State Street, Lake Oswego**, State of **Oregon**,
has applied beneficially the waters of
Abernathy Creek and Mampano Reservoir constructed under Application No. R-46372,
Permit No. R-5444
a tributary of **Willamette River** for the purpose of
recreation and fish culture

under Permit No. **34210** of the State Engineer, and that the use of said waters has been
completed under the terms of said permit; that the priority of the
right dates from **September 3, 1969**

that the amount of water for the purposes aforesaid, has been actually beneficially used in the
amount of
1.0 acre foot

or its equivalent in case of rotation, measured at the point of diversion from the stream.
The point of diversion is located in the **NW 1/4 NE 1/4, Section 13, T. 3 S., R. 2 E., W. M.,**
700 feet South and 3400 feet East from NW Corner, Section 13.

The amount of water used for irrigation, together with the amount secured under any other
right existing for the same lands, shall be limited to ----- of one cubic foot per second
per acre,

and shall conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use under the right, and to which such right is appurtenant, is
as follows:

NW 1/4 NE 1/4
SW 1/4 NE 1/4
SE 1/4 NW 1/4
NE 1/4 SE 1/4
NW 1/4 SE 1/4
Section 13
T. 3 S., R. 2 E., W. M.

I have read the above and foregoing proof of appropriation of water; I know the contents
thereof, and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 8th day of Sept,

19...75

Fred Weber

46373
TO
WEC
4-28-81

STATE OF OREGON

COUNTY OF CLACKAMAS

CERTIFICATE OF WATER RIGHT

This Is to Certify, That TERRA CORPORATION

of North State Street, Lake Oswego, State of Oregon 97034, has made proof to the satisfaction of the Water Resources Director, of a right to the use of the waters of Abernathy Creek and Mampano Reservoir constructed under Permit No. R-5444

a tributary of Willamette River for the purpose of recreation and fish culture

under Permit No. 34210 and that said right to the use of said waters has been perfected in accordance with the laws of Oregon; that the priority of the right hereby confirmed dates from September 3, 1969

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 2.0 cubic feet per second

or its equivalent in case of rotation, measured at the point of diversion from the stream. The point of diversion is located in the NW 1/4 NE 1/4, Section 13, T3S, R2E, WM; 700 feet South and 3400 feet East from NW Corner, Section 13

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, shall be limited to ----- of one cubic foot per second per acre,

and shall conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use under the right hereby confirmed, and to which such right is appurtenant, is as follows:

- NW 1/4 NE 1/4
- SW 1/4 NE 1/4
- ~~NE 1/4 SE 1/4~~ SE NW
- NE 1/4 SE 1/4
- NW 1/4 SE 1/4

Section 13
Township 3 South, Range 2 East, WM

This certificate is being issued to correctly describe the amount of water and supersedes certificate recorded at page 42472, Volume 34, State Record of Water Right Certificates. of water right

The issuance of this superseding certificate does not confirm the status of the water right in reference to ORS 540.610, regard to the provisions of ORS 540.610 pertaining to forfeiture or abandonment.

The right to the use of the water for the purposes aforesaid is restricted to the lands or place of use herein described and is subject to the existing minimum flow policies established by the Water Policy Review Board.

WITNESS the signature of the Water Resources Director, affixed

this date.

Water Resources Director

CERTIFICATE OF
WATER RIGHT

STATE OF OREGON
to

STATE OF OREGON, }
County of } ss.

I CERTIFY, that the within was received
and duly recorded by me in Volume
of Record of Water Right Certificates, at
page on the day
of, 19.....

County Clerk

STATE OF OREGON

COUNTY OF CLACKAMAS

CERTIFICATE OF WATER RIGHT

This Is to Certify, That TERRA CORPORATION

97034

of 8 North State Street, Lake Oswego, State of Oregon, has made proof to the satisfaction of the STATE ENGINEER of Oregon, of a right to the use of the waters of Abernathy Creek and Mampano Reservoir constructed under Application No. R-46372, Permit No. R-5444 a tributary of Willamette River for the purpose of recreation and fish culture

under Permit No. 34210 of the State Engineer, and that said right to the use of said waters has been perfected in accordance with the laws of Oregon; that the priority of the right hereby confirmed dates from September 3, 1969

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 1.0 acre-foot 2.0 cubic feet per second

or its equivalent in case of rotation, measured at the point of diversion from the stream. The point of diversion is located in the NW 1/4 NE 1/4, Section 13, T. 3 S., R. 2 E., W. M., 700 feet South and 3400 feet East from NW Corner, Section 13.

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, shall be limited to ----- of one cubic foot per second per acre,

and shall conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use under the right hereby confirmed, and to which such right is appurtenant, is as follows:

NW 1/4 NE 1/4
SW 1/4 NE 1/4
SE 1/4 NW 1/4
NE 1/4 SE 1/4
NW 1/4 SE 1/4
Section 13
T. 3 S., R. 2 E., W. M.

This certificate is being issued to correctly describe the amount of water and supersedes certificate recorded at page 42472 vol 34 SRWRC. The issuance of this correction certificate does not confirm the status of the water right in reference to ORS 540.610.

The right to the use of the water for the purposes aforesaid is restricted to the lands or place of use herein described.

WITNESS the signature of the State Engineer, affixed this date. September 15, 1975

James E. Sexson
Water Resources Director State Engineer

Recorded in State Record of Water Right Certificates, Volume 34, page 42472

TOWNSHIP 3S . RANGE 2E . W. M.

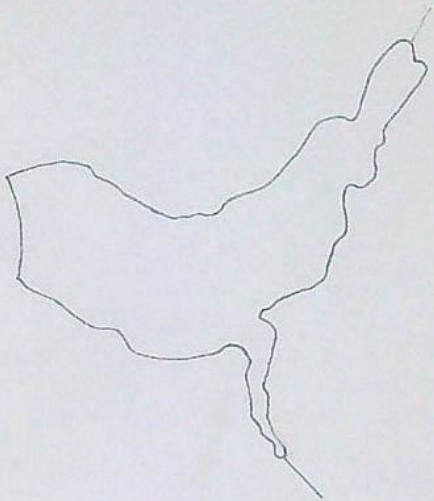
SECTION 13

NE				NW				SW				SE				APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER		
NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE					
FISH Ponds				Cancelled sp. or Rec. Vol.				18 P. 288				8411			9221					
				Stock								34403			27027		32520			
Res. Res. Res.				Res.				Res. Res.				R-45946			R-5400		CANCELED			
30 50 70 30 40				20 160				160 10 11 12 10				R-45947			34057		CANCELED			
Res. Res.				Res.				Res. Res.				R-46372			R-5444		42471			
FISH REC. REC.				FISH REC.				FISH REC. REC.				46373			34210		50121 42472			
← Municipal →								← mun →												

BEAVER LAKE & MO

+

—



+

Info: Mr. Webber

Source: Resv. on Abernethy Cr. (trib ~~to~~ Willimette)

Use: Recreation, swimming & sailing for about 50 people
Fish Culture, used by Wild Life Comm. as
Salmon rearing pond.

Tie: PTS-1974-5, tied to DFK-3LL-167

10-11-74

Larry A. Meunier

Field Engineer

Abstract of Permit No. 34210

Application No. 46373 Certificate No.

Name Terra Corporation
 Address ~~31 South State Street~~ 8 N. State St.
 Lake Oswego, Oregon 97034
 Source of water supply ~~Abernathy Creek & reservoir to be constructed under Appl. No. R-46372, Permit No. R-5444~~ Mampano
 Use Recreation and fish culture
 Point of diversion 700' S. & 3400' E. from NW cor. Sec. 11, being within NW 1/4 NE 1/4, Sec. 13; T. 3 S., R. 2 E., W. N., county of Clackamas
 Number of acres

DESCRIPTION OF LAND TO BE IRRIGATED OR PLACE OF USE

Twp.	Range	Sec.	NE 1/4				NW 1/4				SW 1/4				SE 1/4				
			NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	
3S	2E	13		Rec. Rec. Fish														Rec. Rec. Fish	

Priority date September 3, 1969 ✓
 Amount of water 1.0
~~2.0 c.f.s.~~
 Time limit to begin construction ~~September 9, 1970~~
 Time limit to complete construction 10-1-71 extended to extended to
 Time limit to completely apply water 10-1-72 extended to extended to
 Remarks:

PT 5-1974-S
 10-11-74 LHN
 Inspected

Basin 2, Vol. 1



Water Resources Department
MILL CREEK OFFICE PARK

555 13th STREET N.E., SALEM, OREGON 97310

PHONE 378-8508 or
1-800-452-7813

April 8, 1981

Fred E. Weber, President
Terra Corporation
8 North State Street
Lake Oswego, OR 97034

Dear Mr. Weber:

REFERENCE: File 46373

We received your letter of March 17, 1981 regarding your concern for the appropriation of 1.0 acre-foot under your Permit 34210. You stated that the permit had been issued for 2.0 acre-feet and you would like that amount of water. There is an error in the certificate you received in that it should not have stated 1.0 acre-foot, but instead should have been 1.0 cubic foot per second. Upon going through this file as a result of your letter, I found this error; however, I did not find any justification for reducing the amount of water allowed in the permit from the 2.0 cubic feet per second to the 1.0 cubic foot per second. We are therefore going to issue a correction certificate changing the amount of water on your Certificate 42472 so as to correctly show the 2.0 cubic feet per second as allowed in the permit.

You also mentioned in your letter that you have some small trees presently growing on the back side of the dam. Trees can become a major hazard to a hydraulic structure and should not be allowed. You should definitely remove them so as to not create a hazard to your facility.

Sincerely,

BRUCE A. ESTES, Supervisor
Survey/Certificate Section

BAE:wpc
4542A

COPY

arry, 23 Mar 81

Is this what you had in mind to correct improper certificate along with letter explaining tree hazard?

Dune

I think we need correction proof to correct certificate.

1.0 cfs is large for 780 ac ft. res. Using 0.01 cfs/ac ft would now be issued 0.78 cfs.

Why was permit granted for 2.0 cfs?

26 Mar 81

Larry J. said evidently 2.0 cfs granted due to fish rearing. We should issue correction certificate allowing 2.0 cfs.

I agree since there are no tracts in file to justify reducing Q.

Dune

Proof not necessary since this will be all allowed by permit.

STATE OF OREGON

ROUTE SLIP

Date 3/19

TO: Larry J.

FROM: Jeri L.

CHECK Approval Investigate

Necessary Action Confer

Prepare Reply Per Telephone Conversation

For My Signature For Your Information

Your Signature As Requested

Comment Note and File

Initial and Return Return With More Details

COMMENTS:
 Please check w/ Gary O. re question about trees.
 Gary O. says - remove trees

ie F
75,
Inst
) f
3-4

81-125-1568

ld investigate the discrepancy and if in feet proceed to issue us an additional concerned by activities by others upstream proper use of the lake.

maintenance of the dam. Somewhere I had allowed to grow on the dam itself.

growing on the back side of the dam, above pretty but if they will in any way en- will remove them.

Perhaps when someone from your department ce a look.

Very truly yours,

THE MILCREST CORPORATION

By Fred E. Weber
 Fred E. Weber, Pres.

FEW:sj



THE TERRA CORPORATION

8 NORTH STATE STREET, LAKE OSWEGO, OREGON

Property Development

RECEIVED

MAR 18 1981

WATER RESOURCES DEPT
SALEM, OREGON

March 17, 1981

636-7633

Mr. James E. Sexson, Director
Water Resources Department
1178 Chemeketa Street N. E.
Salem, Oregon 97310

Dear Mr. Sexson:

In checking my files regarding the Beaver Lake Mompano dam I notice that the water right we aquired in 1975, permit #R-5444, only provided for an appropriation of one acre foot, instead of two acre feet as approved in the application for permit #34210, filed in 1969.

A-46373-4

I would appreciate it if you would investigate the discrepancy and if in fact we are entitled to the two feet proceed to issue us an additional appropriation. We are greatly concerned by activities by others upstream from us which might endanger our proper use of the lake.

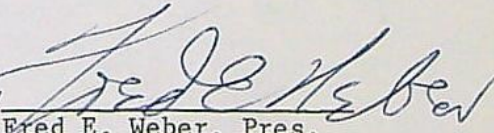
I also have a question regarding maintenance of the dam. Somewhere I had heard that trees should not be allowed to grow on the dam itself.

We have several small fir trees growing on the back side of the dam, above the fish ladder. They look very pretty but if they will in any way endanger the integrity of the dam I will remove them.

I would appreciate your advise. Perhaps when someone from your department is in the vicinity they could take a look.

Very truly yours,

THE MILCREST CORPORATION

By 
Fred E. Weber, Pres.

FEW:sj



Water Resources Department

MILL CREEK OFFICE PARK

555 13th STREET N.E., SALEM, OREGON 97310

PHONE 1-800-452-7813
378-3066

March 26, 1980

Metropolitan Service District
527 SW Hall
Portland, OR 97201

Dear Mr. Holstun:

Reference: File Nos. R-46372 and 46373

Pursuant to your request, enclosed are the copies of the permits numbered R-5444 and 34210 along with the certificates recorded at pages 42471 and 42472 in Volume 34 State Record of Water Right Certificates. These certificates are the documents of record pertaining to the above mentioned permits. Our receipt No. 16750 covering the copying fee of \$2.75 you submitted is also enclosed.

While in most cases the rights described by the certificates will be valid, you are cautioned that the rights or any part thereof may be lost through intentional abandonment or forfeited by five successive years of non-use. Our records will not show that any portion of a right has been lost until a cancellation proceeding has been completed.

Sincerely,

Stephen C. Brown
Water Rights Engineer

SCB:ka
enclosures
cc: Files
0375A

COPY

October 30, 1972

R-46372
46373

Terra Corporation
8 North State Street
Lake Oswego, Oregon 97034

Attention: Mr. Fred Weber

Dear Sir:

In response to your earlier telephone call, I have inspected the rip-rap which has been placed below the spillway of the Mompano Dam. The rip-rap does not appear to be large enough to withstand flow conditions such as those experienced last winter. This rip-rap contains more soil than is desirable.

I suggest that clean rip-rap with a minimum size of $1\frac{1}{2}$ cubic foot be used for any lining which is placed in the future.

Very truly yours,

G. L. OBERHOLTZER,
Engineer

GLC:gb

cc; Mike Ricks, Watermaster

April 5, 1972

R-46372
46363 46373
Dam File (?)
M-53

Werner S. Storch & Assoc., Inc.
Consulting Engineers
Suite 800
1220 SW Morrison Street
Portland, OR 97205

Attention George M. Jacobs

Dear Sir:

I have reviewed your letter and a drawing of March 30, 1972, regarding the Beaver Lake spillway problem and there is no doubt that part of the troubles with the road and the embankment washing is as you have indicated. Our local watermaster has received a report from someone in the county to the effect that the water was washing over the road, and when I examined the area just after, I could see where water had flowed across the road into the ditch below. Also, it was apparent that there was a significant amount of water in the ditch on the north side of the road.

I'm not sure I will agree with your thoughts on not raising the concrete wall in the area upstream of the stilling basin and until we can make a cross-section and profiles of the ditch immediately downstream of the bridge and run a backwater profile of this section at the design flow, we will not have the answer. Obviously, some work needs to be done in this area, and our only point of disagreement is the extent of this work. I am of the opinion at the present time that backwater from the bridge and the flat ditch section below, has moved the hydraulic jump up the spillway chute. The exact distance up the chute, and the magnitude of the jump can be computed when we have completed the cross-section and profile of the bank and channel sections. I suggest you delay remedial work until this information can be gathered and computations made.

I will advise and set up a meeting when we have reached a conclusion.

Very truly yours,

AMP:cd
cc Terra Corporation

A. M. PETSKA
Engineer

March 8, 1972

R-46372
46373
Dam File
M-53

Terra Corporation
8 N. State Street
Lake Oswego, OR 97034

Attention Fred Webber

Dear Sir:

This is to confirm our telephone conversation of Wednesday, March 8, regarding your Mompano Reservoir, in particular, the current problems with the chute section of the spillway. As I indicated, the backwater conditions in the bridge area are causing a hydraulic jump to move up into the concrete chute which is overtopping the road and will need to be corrected. To determine the exact location of this jump and the height to which the concrete wall on the left side of the spillway chute will need to be constructed, it is necessary to run cross-sections and water surface profiles through the bridge and downstream for a rather significant distance. This cannot be done at present due to the depth of the water downstream of the bridge, and as I indicated, when the flows recede, we will take these cross-sections and profiles and computations, compute the necessary height of the wall and will advise.

When we have completed this work, we will contact you and meet with you and your engineer at the site sometime early this spring in order that you might complete this construction during the coming summer.

Very truly yours,

A. M. PETSKA
Engineer

AMP:cd

cc Clayton Gardner, Watermaster

**STATE
ENGINEER**

WATER RESOURCES DEPARTMENT

1178 CHEMEKETA STREET N.E. • SALEM, OREGON • 97310 • Phone 378-3739

Terra Corp.
8 N. State St.
Lake Oswego, OR 97034

October 21, 1971

R-46372
46373

Gentlemen:

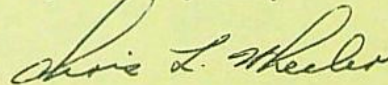
This will acknowledge receipt of your notice to the effect that complete application of water has been made under permit No. R-5444 and 34210.

Pursuant to your report and in line with the general practice of this office, a survey will be made at a later date.

After this survey, proof may be made and certificate issued covering the actual use of water as found by the engineer. In case of irrigation, any lands described in the permit that have not been irrigated will be automatically eliminated from the water right.

In the meantime, the permit which you hold will be valid evidence of the water right in question so long as you continue to use the water.

Very truly yours,



CHRIS L. WHEELER
State Engineer

Form 128C
reo

August 12, 1971

R-46372
46374

Mr. Fred E. Weber
The Terra Corporation
8 North State Street,
Lake Oswego, OR 97034

Dear Mr. Weber:

In reference to your letter of July 23, 1971, regarding the placement of rip rap in the spillway exit channel, please advise when work is initiated in order that we may schedule an inspection.

Very truly yours,

A. M. PETSKA
Engineer

AMP:cd



THE **TERRA CORPORATION**

Property Development

8 NORTH STATE STREET, LAKE OSWEGO,
OREGON

636-7633

RECEIVED
JUL 26 1971
STATE ENGINEER
SALEM OREGON

July 23, 1971

Mr. A. M. Petska, Engineer
Water Resources Department
1178 Chemeketa Street N.E.
Salem, Oregon 97310

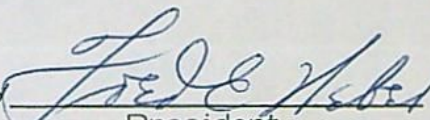
Dear Mr. Petska:

This is to advise you that we intend to place the rip rap in the spillway exit channel during the low water period this fall. At the same time we intend to clean and shape the channel.

Please excuse the delay in answering your letter.

Very truly yours,

TERRA CORPORATION

By 
President

FEW:ld

July 14, 1971

R-46372
46373

Terra Corporation
31 S. State Street
Lake Oswego, Oregon 97034

Gentlemen:

My last inspection of your Manpano Reservoir, I noted the rip-rap had not been placed in the spillway exit channel in accordance with the approved plans and specifications. I presume this work will be accomplished this year, prior to the winter rain. Would you please advise when you expect to initiate placing of this rip-rap.

Very truly yours,

A.M. PETSKA
Engineer

AMP:cd

cc Clayton Gardner, Watermaster

April 5, 1971

R-46372
46373

Terra Corporation
31 S. State Street
Lake Oswego, OR 97034

Gentlemen:

On March 26, 1971, I performed an inspection of your Manpano Reservoir. The reservoir was full with a small amount of water trickling over the spillway. The dam appears to be in excellent condition, and my only criticism is the lack of rock rip-rap at the discharge end of the spillway and the big abutment.

Please advise when you expect placing this rip-rap to prevent erosion of the fill and big abutment in this area.

Very truly yours,

A. M. PETSKA
Engineer

AMP:od

WERNER S. STORCH & ASSOCIATES, INC., CONSULTING ENGINEERS

RECEIVED
OCT 7 1970
STATE ENGINEER
SALEM OREGON

OUR NEW ADDRESS IS:
1220 S. W. MORRISON, SUITE 800
PORTLAND, OREGON 97205

October 5, 1970

RE: R-46372
46373
Dam File
M-53

State Engineer
Water Resources Department
516 Public Service Building
Salem, Oregon 97310

Attention: Mr. A. M. Petska, Engineer

Dear Mr. Petska:

This is to confirm our telephone conversation regarding the riprap material for the dam face. The material will be 6" minus pit-run rock placed in a 12 inch layer. This is the proposed change which your office had approved earlier.

The slop protection material will be place in the Zone 2 area, as shown on sheet 32-2-11 of the plans.

In answer to the question in your October 1 letter about the gate, I don't know what the specified unit was as it was not named on the plans, but the Armco gate would equal, or be superior to, the gate that was specified.

Very truly yours,

WERNER S. STORCH & ASSOCIATES, INC.

George M. Jacobs
JC

George M. Jacobs, P. E.

GMJ:jc

cc: Fred Weber



STATE OF OREGON

INTEROFFICE MEMO

FORM 81-125-0016

TO: Files R-46372 and 46373 and
Dam File M-53

DATE: October 1, 1970

FROM: A. M. Petska, Engineer

SUBJECT: Construction Inspection Report

On Wednesday, September 30, 1970, I performed a construction inspection of the Beaver Lake Project and found the fill had been completed, slopes dressed, however, the riprap had not been placed. The concrete contractor was busy cutting to grade the lower portion of the concrete spillway chute and placing steel. Mr. Linn, the contractor, estimated the lower block would be poured on the afternoon of October 1, 1970. My observation of the steel placement and concrete work and grade lines appeared that Mr. Linn was a competent concrete man and was doing an excellent job.

AMP:mfb

October 1, 1970

R-46372
46373
Dam File
M-53

Werner S. Storeh and Associates, Inc.
Consulting Engineers
Suite 810
509 SW Oak Street
Portland, Oregon 97204

ATTENTION George M. Jacobs

Gentlemen:

In response to your letter of September 24 and September 25, 1970, the proposed change in the control works on the stainless-steel-oil filled pipe operating stem to a 1½ inch diameter coldrolled steel shaft and stem supports at 12 foot 6 inch spacing is hereby approved. You stipulate the gate to be an Armco Heavy Duty unit and the gate lift pedestal is the Armco CPE-2, I presume that the Armco Heavy Duty unit is the same as stipulated in the approved plans and specifications.

Recently some questions arose regarding the riprap on the upstream face of the dam and I was under the impression that you proposed to eliminate a significant amount of the riprap bedding material, however, the riprap would still be placed as specified, would you please confirm.

Very truly yours,

A. M. PETSKA
Engineer

AMP:mfb

cc Fred D. Weber, President
Terra Corporation

WERNER S. STORCH & ASSOCIATES, INC., CONSULTING ENGINEERS

September 25, 1970

Project #5240

State Engineer
Water Resources Department
516 Public Service Building
Salem, Oregon 97310

RECEIVED
SEP 28 1970
STATE ENGINEER
SALEM OREGON

Attn: A. M. Petska
Engineer

RE: BEAVER LAKE DAM R-46372
46373
M-53

Gentlemen:

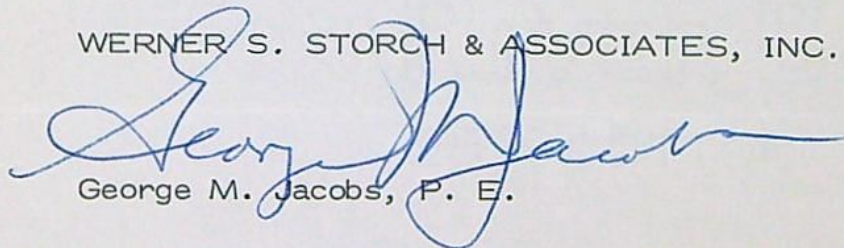
This is a request for approval of the following proposed change in construction from that originally contemplated.

Change in the drainage gate installation from the stainless-steel-oil filled pipe combination operating stem to a 1-1/2 inch diameter cold-rolled steel shaft coated with a bitumastic paint. Stem supports will be added to provide a 12'-6" spacing which increases the number of supports required.

The gate itself is to be an Armco Heavy Duty unit. The gate operator is to be an Armco CPE-2 pedestal mounted operator.

Very truly yours,

WERNER S. STORCH & ASSOCIATES, INC.



George M. Jacobs, P. E.

GMJ:jc

cc: Fred Weber

WERNER S. STORCH & ASSOCIATES, INC., CONSULTING ENGINEERS

September 24, 1970

State Engineer
Water Resources Department
516 Public Service Building
Salem, Oregon 97310

RECEIVED
SEP 28 1970
STATE ENGINEER
SALEM, OREGON

Attn: A. M. Petska

RE: BEAVER LAKE DAM
R-46372
46373
M-53

Gentlemen:

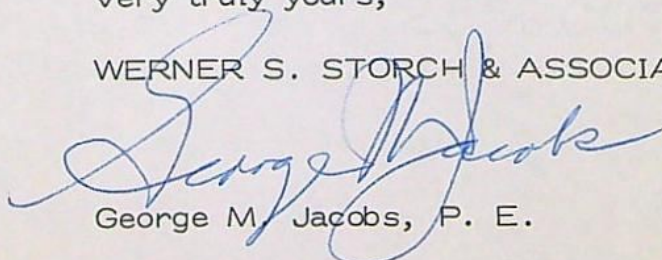
This is to affirm that we have been retained by Mr. Weber of Terra Corporation, to provide engineering inspection services during the construction of the spillway and fishway on the referenced project.

To post you on current progress, the contractor has shaped the spillway section to grade and is placing his forms for the side of the floor slabs. He anticipates placing his steel in the stilling basin and chute section of the spillway the first part of next week. A preliminary discussion indicates that he intends to place the concrete by pumping which, in view of access conditions, would probably be the best method to use. Incidentally, no concrete is to be placed until I have inspected the steel and formwork. Further, concrete samples will be taken during each major pour.

I will keep you posted as the work progresses. You might give me a call when you plan to visit the project and we could arrange to get together on the site.

Very truly yours,

WERNER S. STORCH & ASSOCIATES, INC.


George M. Jacobs, P. E.

GMJ:jc

September 23, 1970

R-46372
46373
M-53

Fred E. Weber, President
Terra Corporation
31 State Street
Lake Oswego, Oregon 97034

Dear Mr. Weber:

Thank you for your letter of September 17, 1970 advising that Werner Storch & Associates, Inc. are the engineers in charge of your project and have been so engaged since the fall of 1969. We will look to Mr. George Jacobs to answer any questions we may have regarding the engineering and construction of the project.

Very truly yours,

A. M. Petska
Engineer

AMP:lsj

cc: Mr. George Jacobs
Werner Storch & Associates, Inc.



THE TERRA CORPORATION

31 STATE STREET, LAKE OSWEGO,

Property Development

RECEIVED
SEP 21 1970
STATE ENGINEER
SALEM, OREGON

OREGON
636-7633

September 17, 1970

Mr. A. M. Petska, State Engineer
State of Oregon
516 Public Service Building
Salem, Oregon 97310

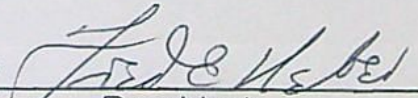
Dear Mr. Petska:

This is to inform you that Werner Storch & Associates, Inc. of Portland are the engineers in charge of the Beaver Lake Dam and have been so engaged since the late fall of 1969.

We would like to refer you to Mr. George Jacobs, who is the supervising engineer.

Very truly yours,

BEAVER LAKE DEVELOPMENT
CORPORATION

By 
President

FEW:ld

cc: Mr. George Jacobs
Werner Storch & Assoc.

September 4, 1970

R-46372
46373
M-53

Werner S. Storch & Associates, Inc.
Consulting Engineers
Suite 810
509 S.W. Oak Street
Portland, Oregon 97204

Attention: George M. Jacobs, Engineer

Dear Mr. Jacobs:

This is in response to your letter of August 13, 1970 in which you request approval for a change in the construction of the upstream slope Beaver Lake Dam. The proposed construction, a one-foot layer of six-inch minus pit-run rock on the upstream slope will not be as maintenance free as that originally proposed. However, this is a small item.

This proposed construction will be approved, and so indicate this change or deviation from the approved plans on the as-built drawings.

Very truly yours,

A. M. Petska
Engineer

AMP:lsj

cc: Terra Corporation

WERNER S. STORCH & ASSOCIATES, INC., CONSULTING ENGINEERS

August 13, 1970

Project # 5240

RECEIVED
AUG 17 1970
STATE ENGINEER
SALEM OREGON

Mr. A. M. Petska, Engineer
Water Resources Department
516 Public Service Building
Salem, Oregon 97310

RE: BEAVER LAKE DAM

File No. R-46372
46373
M-53

Dear Mr. Petska:

This is a request for approval of a change in the construction of the upstream slope protection on the face of the dam.

The present plans for construction show, on sheet No. 32-2-11, a two foot depth of rock composed of a one-foot depth of processed gravel, overlaid with a one-foot depth of gravel and cobbles, extending from elevation 173 to the top of the dam.

The proposed construction, in lieu of the above, would be to place a one-foot layer of six-inch minus pit-run rock on the upstream slope from elevation 173 to the top of the embankment.

Very truly yours,

WERNER S. STORCH & ASSOC., INC.

George M. Jacobs
George M. Jacobs, P. E. *by jc*

GMJ:jc

cc: Fred Weber



**FISH
COMMISSION**

OFFICE OF THE DIRECTOR

307 STATE OFFICE BLDG. • 1400 S.W. 5th AVE. • PORTLAND, OREGON • 97201

TOM McCALL
GOVERNOR

RECEIVED
JUL 15 1970
STATE ENGINEER
SALEM, OREGON

July 14, 1970

Mr. George M. Jacobs
Werner S. Storch & Associates
Suite 810, Oregon Building
Portland, Oregon 97204

Dear Mr. Jacobs:

We have reviewed the fishway plans for Beaver Lake Dam on Abernathy Creek that you delivered to us on approximately July 1, 1970. The fishway has been designed to meet fishway criteria specified for this dam. Therefore, under the authority of Oregon Revised Statute 509.605, we hereby approve the fishway design as submitted. We have discussed these plans with representatives of the Oregon State Game Commission, and they also have indicated their verbal approval.

The opportunity to work with you in resolving this problem has been appreciated by our staff.

Sincerely,

GERALD L. FISHER, ACTING
STATE FISHERIES DIRECTOR

cc: Department of Environmental Quality
Oregon State Game Commission
State Engineer ✓

COPY

WERNER S. STORCH & ASSOCIATES, INC., CONSULTING ENGINEERS

June 24, 1970

RECEIVED
JUN 25 1970
STATE ENGINEER
SALEM OREGON

Mr. A. M. Petska, Engineer
State Engineers Office
Water Resources Department
516 Public Service Building
Salem, Oregon 97310

RE: BEAVER LAKE DAM SPILLWAY R-46372
46373
M-53 ←

Dear Mr. Petska:

In your June 22 letter to Mr. Martin, with regard to sheet 6,
you state:

"Considerable care could be exercised in the placement
and the blinding of this drain line to insure minor uplift
pressures."

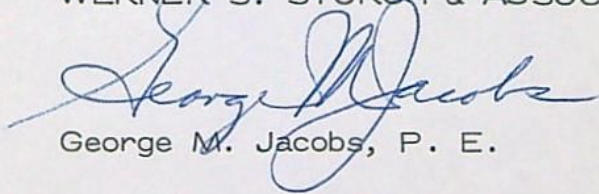
I am calling your attention to this as I believe that the intention
was to say:

"Considerable care should be exercised in the placement
of the under drain system to prevent blinding of the drain
which could create uplift pressures that would be detri-
mental to the structure."

My thanks, again, for your prompt handling of the plan review
and approval.

Very truly yours,

WERNER S. STORCH & ASSOC., INC.


George M. Jacobs, P. E.

GMJ:jc

cc: Robert A. Martin
Terra Corporation

R-46372
46373
M-53

June 22, 1970

Robert A. Martin
4621 S.W. Kelly
Portland, Oregon 97201

Dear Mr. Martin:

This is to advise you that the modified spillway for the Beaver Lake Dam as prepared by Werner S. Storch and Associates has been approved by the State Engineer, and a print of these approved drawings has been sent to the applicant, Terra Corporation. Mr. Jacobs of Storch and Associates has advised that his organization was to prepare the plans and specifications and that you as the construction engineer will supervise the construction. Please confirm this assumption and advise this office when construction on this phase is initiated. Mr. Jacobs stipulated that the specifications pertaining to concrete originally approved for this project are applicable for this spillway, and any exceptions or deviations to these specifications appear as notes on the plans.

I would like to call your attention to Sheet 1 of 6, particularly the notes calling for the placement of rock riprap in the area around the existing bridge. When this spillway operates at its design capacity, considerable displacement of this rock riprap can be expected. Unanticipated currents and turbulence will exist, and I strongly recommend stockpiling a supply of riprap to be placed to protect the existing bridge and its abutments.

Sheet 6 of 6 shows the underdrain system for the spillway. Considerable care could be exercised in the placement and the blinding of this drain line to insure minor uplift pressures.

Please advise when construction on this and any phase of this project is initiated in order that engineers from this office may schedule inspections while construction is in progress. As we have indicated before,

Robert A. Martin

-2-

June 22, 1970

we will expect a completion report citing a summation of all engineering tests performed on the materials to insure their meeting specifications.

Very truly yours,

A. M. Petska
Engineer

AMP:lsa

cc: Terra Corporation
31 South State Street
Lake Oswego, Oregon 97034

Werner S. Storch & Associates
Suite 810
509 S.W. Oak Street
Portland, Oregon 97204

CERTIFIED - Return Receipt Requested

R-46372
46373
~~46373~~

June 19, 1970

Werner S. Storch & Associates, Inc.
Consulting Engineers
Suite 810
509 S. W. Oak Street
Portland, Oregon 97204

Attention: George M. Jacobs

Gentlemen:

This is to confirm our telephone conversation of Wednesday, June 17, 1970 regarding the proposed spillway for the Beaver Lake Dam. As I indicated, my computations utilizing the method outlined in Chow's chapter on spatially varied flow essentially agree with those you submitted on June 10, 1970. Selection of the control point as outlined by Mr. Chow is based on work performed by Mr. Hines who has defined the location of the control point being that point where the channel slope becomes tangent to and exceeds the slope of the line of critical depths. I find in my computations and in plotting your computations that the channel slope in the area of station 115 and station 110 are only infinitesimally steeper than the slope of critical depths. This would indicate that flow downstream of this control point would be at critical depth, providing the channel section maintained a constant width. In this particular instance, the channel is converging and the flow is further impaired by the baffels and the abrupt channel bend. Therefore, to insure that critical, or super critical flow will occur in this area, I have recommended a 3 foot drop in grade from station 108 to station 155. This would be accomplished by lowering the grade at the entrance to the chute to elevation 171. Mr. Jacobs disagreed that this was necessary. However, he indicated that this change would be made.

In reviewing the structural components and grades as shown in the spillway plans, I advised Mr. Jacobs that when the spillway is operating at its design capacity, the back wall of the spillway would be overtopped at cross section B24, cross section C24 and cross section D24. Mr. Jacobs advised that this was a function of his design, that

June 19, 1970

this area would be sodded, that no damage would occur. Furthermore, the wing walls provided at approximately the center line of the dam would convey this overtopping flow into the spillway channel.

Upon your resubmission of a set of reproducible drawings together with one print reflecting the aforementioned changes, I will recommend the State Engineer approve these plans, and a copy will be returned to the applicant and this deviation from the approved plans and specifications will be approved. This change may then be initiated.

Very truly yours,

A. M. Petska
Engineer

AMP:lra

R-46372
46373

May 21, 1970

Werner S. Storch & Associates, Inc.
Consulting Engineers
Suite 810
509 S.W. Oak Street
Portland, Oregon 97204

Attention: George M. Jacobs

Gentlemen:

This is to confirm our telephone conversation of Tuesday, May 19, 1970 regarding the proposed spillway for Beaver Lake Dam. As I indicated, my computations indicate this spillway will not pass the required 1,400 cubic feet per second expected flow while maintaining 2 feet of freeboard on the dam.

The computations of this spillway, particularly the angle point with baffles and the throat section is rather questionable and the literature indicates that these computations are more of an approximation and are not very precise. For the purposes of my computations, I selected the change in grade at the head of the spillway chute as the control point and computed the critical depth at that point. Backwater profiles were run downstream and upstream and the downstream section presented no problems. However, proceeding upstream, the flow of water through these baffles and the angle point is rather difficult to predict, and a search of the literature indicated that the method prescribed by Yarnell, which resulted from an extensive study of related literature and tests conducted on different kinds of piers, would be most applicable to this project. This method is outlined in the literature and I refer you to Mr. Chow's publication, "Open Channel Hydraulics" Article 17-10, and to Calvin Davis' second edition of the Handbook of Applied Hydraulics for a more complete dissertation on this subject. My computations indicated that there is approximately 3 feet of head lost in this area and that the flow immediately upstream of the baffles is sub-critical at a depth of 8.3 feet with a velocity of 9.3 feet per second. Carrying these computations upstream at the spillway throat, I arrive with the energy grade at elevation 184.

May 21, 1970

I suggest that perhaps some realignment of the spillway channel and entrance section could be made by moving the entrance section further into the left abutment and moving the alignment of the spillway chute further toward the end of the dam, and at this resulting angle point the approach channel could be raised to assure that critical depth occurs at this point.

As I indicated, computations of backwater profile through the angle point baffle area are subject to some disagreement and perhaps you disagree with the assumptions I have made. I suggest before completely discarding this design that copies of your computations be submitted for our review.

Very truly yours,

A. M. Petska
Engineer

AMP:lsa

STATE OF OREGON

INTEROFFICE MEMO

Applications R46372-3

DATE: December 8, 1969

FROM: Chris Wheeler

SUBJECT:

Mr. Jim Brennen telephoned this date and complained about the reservoir constructed under permit R-5444; that it has destroyed the stream; devalued all property on the creek and he and his neighbors object. He states that he will sue. (Mr. Posey has an attorney.) I advised Mr. Brennen of his right if he wishes to do so, but that action is in accord with the statutes and I didn't know of any grounds he has for success. I further advised him that the Corporation would have to pass the natural flow through, when required for prior rights, and it was probable that this would provide a better stream than nature as well as some minor flood benefits. He further stated that mud during construction killed all fishlife, including crawdads, and that even today there is not a single fish or crawdad in the stream as a result. This I question?



THE TERRA CORPORATION

31 STATE STREET, LAKE OSWEGO,

Property Development

OREGON
636-7633

16 October 1969

Mr. Gary Gasaway
State of Oregon
Department of Engineers
Salem, Oregon

RECEIVED
OCT 17 1969
STATE ENGINEER
SALEM, OREGON

Dear Gary:

We are enclosing a copy of a new moisture density curve prepared by Pittsburgh Testing Laboratory which presents a more accurate picture of the material we are working with at the Beaver Lake dam. This curve, applied to the samples previously taken, show an entirely different and more satisfactory result for the tests.

We are having a new spillway designed, to be located on the undisturbed ground at the west end of the dam and will forward the drawings to you as soon as they are completed.

Sincerely yours,

BEAVER LAKE DEVELOPMENT CORP.

By *Fred E. Weber*
President

Val

Enclosure

R-46372
46373

October 14, 1969

Terra Corporation
31 South State Street
Lake Oswego, Oregon 97034

Gentlemen:

and 34210.

R-46372, 46373, permit Nos. R-5444,

R-46372
46373

6

October 14, 1969

Terra Corporation
31 South State Street
Lake Oswego, Oregon 97034

Attention: Mr. Fred Weber, President

Gentlemen:

The plans and specifications for the Mompano Dam which were approved by the State Engineer are in effect together with the revised State Engineer permit for construction.

As stated previously, it is necessary that construction of this dam be done under the direct supervision of a registered professional engineer; and he must insure that construction is in strict accordance with the approved plans and specifications. If conditions are encountered which require modifications to these plans and specifications, the prior written approval must be obtained from the State Engineer.

During my last telephone conversation with Mr. Weber, revision of the spillway facility was discussed. If it is desired to modify the spillway and its location, a complete revision of the original plans will need to be submitted to the State Engineer for his tentative approval before initiation of the change.

Engineers from this office will be available to assist and advise in these changes.

Very truly yours,

Gary A. Gasaway
Engineer

GAG:lra

September 17, 1969

Martin Engineering Company
4621 S. W. Kelly Street
Portland, Oregon 97201

Dear Mr. Martin:

This letter will confirm our telephone conversation of this date concerning construction of the Mospano Dam by Terra Corporation. The moisture density tests performed on samples of the compacted fill material by Pittsburg Laboratory, taken September 16 and earlier, indicate that there is considerable material which has been placed in the fill that does not meet the minimum criteria of the approved specifications and generally falls within the range of 90 to 95% optimum density as determined by the standard Proctor test developed by Pittsburg Laboratory. This office must therefore conclude that this material as compacted is unsuitable for the storage of water and for the support of the spillway structure on the crest of the dam.

It is the logical decision, as you have pointed out, that all material which does not meet the criteria of the approved specifications should be removed to the extent that the remaining compacted fill does satisfy the specifications. The adequacy of the remaining fill will need to be supported by engineering tests. As we have discussed, that material in the vicinity of the spillway should be compacted to a density of 100% of optimum by the standard Proctor tests. The remaining fill will be adequate at 95% of optimum density.

It is our recommendation, that you, as the supervising engineer of this project, formally outline your plan to the owner for removal of the unsuitable fill material and its recompaction in the embankment, including placement of the remaining fill so as to obtain results which satisfy the many engineering tests of the soil and the presence of you or your qualified representative on the site at all times directing the placement of fill and supervising testing schedules and locations. It has become obvious that very close control in the placement of this soil will be necessary in order to obtain the density as specified.

Martin Engineering Company

September 17, 1969

If you have any questions, comments, or recommendations regarding this matter, please feel free to contact the State Engineer for assistance. Please keep this office informed of further developments and plans concerning construction of this dam.

Very truly yours,

Gary A. Gasaway
Engineer

GAG:lga

cc: Fred Weber, President
Terra Corporation

RE: R-46372
46373

September 10, 1969

Terra Corporation
31 South State Street
Lake Oswego, Oregon 97034

Gentlemen:

This is to advise you that your applications numbered R-46372 and 46373 have been approved by issuance of permits authorizing the construction of a reservoir and the storage of 780.0 acre feet of water from Abernethy Creek and the appropriation of 2.0 cubic feet of water per second from the reservoir and Abernethy Creek for recreation and fish culture.

You may use this letter as your authority to start construction of the project authorized by the permits pending your receipt of the permits. The permits will be mailed to you as soon as the necessary entries have been completed in the records of this office. However, this may take sometime due to a shortage of secretarial help.

Very truly yours,

Larry W. Jebousek
Assistant

LWJ:cdc

R-45946
45947

September 10, 1969

Robert A. Martin
4621 S. W. Kelly
Portland, Oregon 97201

Dear Mr. Martin:

This morning Mr. Weber of Terra Corporation called to inquire of my opinion on the method of installation of the outlet conduit for the Mompano Dam. It was Mr. Weber's desire to deviate somewhat from the approved plans and specifications by installing this conduit as a ditch conduit rather than using the pipe berm as in the plans. This letter will confirm my approval for this method of installing the conduit; however, your attention is called to the specifications, Section 8.3.4. The general conditions described in this section will also apply to installation of the conduit in a trench.

Very truly yours

Gary A. Gasaway
Engineer

GAG:lsc

cc: Fred Weber

R-45946
45947

August 21, 1969

Robert A. Martin
4621 S. W. Kelly
Portland, Oregon 97201

Dear Mr. Martin:

This letter will confirm my conversation of August 20, 1969 with you and Mr. Weber concerning excavation for the foundation of the Nonpanso Dam.

From my observation of the excavation, it appears that adequate stripping is being done as evidenced by that partially completed near the left end of the dam. Also, in comparing the logs of auger holes shown in the plans with the soil profile exposed in the cutoff trench, it appears you have very nearly attained that depth intended by the design engineer, which is through the sands and gravels and into the consolidated "blue fine silts". It is my suggestion that you excavate to that depth which you consider to be adequate from the standpoint of the soil profile logs shown in the plans. A few isolated pits in the bottom of the completed core trench should confirm your location in the soil profile. Upon completion of this excavation, I further suggest you have Mr. Dodds, the design engineer, examine the site for final confirmation and his approval for compliance with the original plans and specifications.

If you desire further assistance on this matter or for any other phase in construction of this dam, please feel free to call on either Mr. Letska or myself of the State Engineer's office.

Very truly yours,

Gary A. Gasaway
Engineer

GAG:lga

cc: Fred Weber
Donald Dodds

RE: R-45946
45947

August 15, 1969

Terra Corporation
31 South State Street
Lake Oswego, Oregon 97034

ATTENTION: Fred Weber, President

Gentlemen:

Enclosed are the authorization forms to cancel that portion of permits No. R-5400 and 34057 for the use of the stored water for irrigation purposes.

Also enclosed are the completed application forms to file for permit to store the water of Abernethy Creek for recreation and fish culture purposes, as discussed with you in our telephone conversation of this date. The new applications will require a total filing fee of \$53.80. These forms should be signed by you and returned to this office with the fees.

The authorizations to cancel the earlier permits will not be acted upon until such time as the new applications are approved by the issuance of permits.

Very truly yours,

Larry W. Jebousek
Assistant

LWJ:cdc
Enclosures

RE: R-46372
46373

September 4, 1969

Terra Corporation
31 South State Street
Lake Oswego, Oregon 97630

Gentlemen:

This will acknowledge receipt of your application for a permit to construct a reservoir and store 780 acre feet of water therein from Abernethy Creek for recreation and fish culture uses and the fee of \$26.80 for which our receipt No. 16126 is enclosed. This application has been filed and numbered R-46372.

Also acknowledged is receipt of your application for a permit to appropriate 2.0 cubic feet of water per second from Abernethy Creek and Mompano Reservoir for recreation and fish culture and the fee of \$27.00 for which our receipt No. 16127 is enclosed. This application has been filed and numbered 46373.

Your applications No. R-46372 and 46373 are in satisfactory form for approval by issuance of permits.

Very truly yours,

Larry W. Jebousek
Assistant

LWJ:cdc
Enclosures



THE TERRA CORPORATION

Property Development

31 STATE STREET, LAKE OSWEGO, OREGON

OREGON
636-7633

2 September 1969

Mr. Larry W. Jebousek
Water Resources Department
Oregon State Engineering Dept.
Salem, Oregon

RECEIVED
SEP 3 1969
STATE ENGINEER
SALEM, OREGON

Dear Mr. Jebousek:

We are enclosing the authorization forms cancelling certain portions of Permits No. R-5400 and 34057.

Completed application forms are also enclosed for permits to store the water of Abernethy Creek for recreation and fish culture purposes along with the filing fees of \$53.80.

We appreciate your assistance.

Sincerely yours,

TERRA CORPORATION

By *Pal Nilson*
Sec. to Mr. Weber

Enclosures