

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cableone.net

RECEIVED
OCT 08 2009
DEPT. OF WATER RESOURCES
SOUTHERN REGION

October 6, 2009

The Secretary
Federal Energy Regulatory Commission
888 First Street NE
Mail Code: DLC HL-11.1
Washington, DC 20426

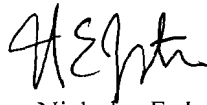
Subject: Application for Amendment of License – Little Wood River Ranch II Hydroelectric
Project – FERC No. 12063

Dear Secretary:

Attached please find an original and 8 copies of an Application for Amendment of License for the
subject project.

You may call me at (208) 528-6152 if you have any questions.

Regards,



Nicholas E. Josten
Project engineer

Copies

FERC – Washington, D. C.
FERC – Portland Regional Office
U.S. Bureau of Land Management, Shoshone, ID
U.S. Fish and Wildlife Service, Boise, ID
U.S. Environmental Protection Agency, Boise, ID
U.S. Army Corps of Engineers, Idaho Falls, ID
Idaho Department of Fish and Game, Boise, ID
Idaho Department of Environmental Quality, Twin Falls, ID
Idaho Department of Water Resources, Twin Falls, ID
Idaho State Historic Preservation Office, Boise, ID
Lincoln County Planning and Zoning, Shoshone, ID
Shoshone-Bannock Tribes, Fort Hall, ID
Montie Day, Landowner, Shoshone, ID
Bill Arkoosh, Gooding, ID

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OCT 08 2009

DEPT. OF WATER RESOURCES
SOUTHERN REGION

**APPLICATION FOR
AMENDMENT OF LICENSE**

FOR

**LITTLE WOOD RIVER RANCH II
HYDROELECTRIC PROJECT**

FERC NO. 12063

Applicant: William Arkoosh

September 2009

**BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

APPLICATION FOR AMENDMENT OF LICENSE

- 1) William Arkoosh applies to the Federal Energy Regulatory Commission for an amendment of license for the Little Wood River Ranch II water power project.
- 2) The exact name and business address of the applicant is:

William Arkoosh
2005 Highway 26
Gooding, ID 83330
(208) 934-5387
- 3) The applicant is a citizen of the United States, licensee for the water power project, designated as Project No. 12063 in the records of the Federal Energy Regulatory Commission, issued on March 17, 2006.
- 4) The amendments of license proposed and the reason(s) why the proposed changes are necessary are:
 - (a) As licensed the combined length of the feeder and tailrace canals makes the project cost prohibitive to construct. The Applicant wishes to move and shorten the canals to create a smaller project that is economically feasible. The amendment would reduce the installed capacity of the Project from 1,500 kW to 1,230 kW. The project would be moved to the south side of the Little Wood River where the natural topography can be utilized to form part of the south bank of the feeder canal, thus reducing canal construction cost. The combined length of the feeder and tailrace canals would be reduced from 6,300 ft to 5,500 ft. The proposed amendment would reduce the length of the bypass reach in the Little Wood River from 2.3 miles to 1.3 miles.
- 5) (i) The statutory or regulatory requirements of the state in which the project would be located and that affect the project as proposed, with respect to bed and banks and to the appropriation, diversion and use of water for power purposes, and with respect to the right to engage in the business of developing, transmitting and distributing power and in any other business necessary to accomplish the purposes of the license under the Federal Power Act are:
 - (a) Title 42, Chapter 1 and 2, Idaho Code addresses the requirement for a Water Appropriation Permit, issued by the Idaho Department of Water Resources.

- (b) 401 Water Quality Certification under the Federal Clean Water Act is administered in Idaho by the Idaho Department of Environmental Quality;
 - (c) Title 42, Chapter 38, regulates the bed and banks of Idaho streams;
 - (d) Title 36, Chapter 9, Idaho Code deals with the protection of fish in Idaho waters;
 - (e) Title 50, Chapter 11, Idaho Code grants to Idaho Counties the right to establish Planning and Zoning Commissions and grants authority to counties to govern building standards. A conditional use permit must be obtained from Lincoln County prior to construction.
- (ii) The steps which the applicants have taken or plan to take to comply with each of the laws cited above are:
- (a) The applicant has made application to IDWR to appropriate streamflow for hydroelectric power;
 - (b) IDEQ issued a 401 water quality certification for the project on 1-Jun-2004;
 - (c) The applicant has contacted Idaho Department of Lands concerning requirements for a stream alteration permit. Department of Lands stated that the project reach of the Little Wood River is designated as non-navigable water. No state permit is necessary.
 - (d) The applicant has consulted with the Idaho Department of Fish and Game regarding protection of fish in the Little Wood River and has incorporated IDFG recommended terms and conditions into the project design.
 - (e) The applicant will complete a Conditional Use Permit application with Lincoln County prior to construction.

This application is executed in the State of Idaho by:

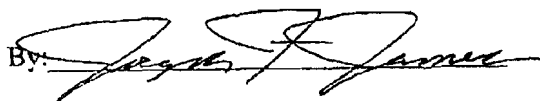
William Arkoosh
2005 Highway 26
Gooding, ID 83330
(208) 934-5387

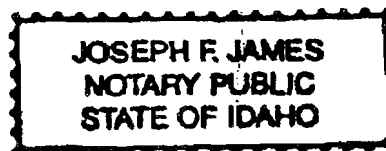
being duly sworn, deposes and says that the contents of this application are true and correct to the best of his knowledge or belief. The undersigned has signed this application this _____ day of _____, 2009.

Respectfully submitted,


William Arkoosh

Subscribed to and sworn to before me, a Notary Public of the State of Idaho, this 22nd day of September, 2009.

By: 



My Commission Expires: 2/26/2011

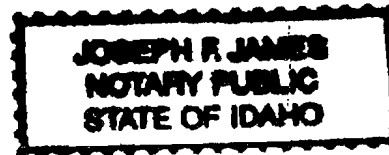
I hereby certify that copies of this application were served upon the following parties:

- a. FERC – Washington, D. C.
- b. FERC – Portland Regional Office
- c. U.S. Bureau of Land Management
- d. U.S. Fish and Wildlife Service
- e. U.S. Environmental Protection Agency
- f. U.S. Army Corps of Engineers
- g. Idaho Department of Fish and Game
- h. Idaho Department of Environmental Quality
- i. Idaho Department of Water Resources
- j. Idaho State Historic Preservation Office
- k. Lincoln County Planning and Zoning
- l. Shoshone-Bannock Tribes
- m. Montie Day, Landowner

By: William Arkoosh
William Arkoosh

Subscribed to and sworn to before me, a Notary Public of the State of Idaho, this 29th day
of September 2009

By: Joseph R. James



My commission expires: 2/26/2011

REQUESTED AMENDMENT

The changes requested under this amendment application are:

- 1) Reduce the authorized plant generation capacity from 1,500 kW to 1,230 kW;
- 2) Reduce the length of the bypass reach in the Little Wood River from 2.3 miles to 1.3 miles;
- 3) Move the powerhouse and canals to the south side of the Little Wood River;
- 4) Lengthen the feeder canal from 2,800 ft to 3,900 ft;
- 5) Shorten the tailrace canal from 3,500 ft to 1,600 ft;
- 6) Lengthen the transmission line from 2.0 miles to 2.2 miles and move it to accommodate the new powerhouse location;
- 7) Bury $\frac{1}{4}$ mile of the transmission line;
- 8) Article 404, Operational Compliance and Monitoring Plan, is retained;
- 9) Article 405, Environmental Features Design Plan, is retained and amended to include final design for log-boom and exit ramps for animal egress as described in revised Exhibit F-3;
- 10) Article 406, Riparian habitat Improvement Plan, is modified so that the riparian improvement project perimeter (Article 406 Plan, Figure 1) corresponds with the shortened bypass reach proposed under this amendment;
- 11) Article 407, Environmental Monitoring Plan, is retained.

BACKGROUND

The Little Wood River Ranch II Project (FERC No. 12063) received an original minor project license on 17-Mar-2006. Subsequent to licensing, it was determined that the project was not feasible to construct at the available PURPA power rate in Idaho. After additional field investigation, it was determined that the project would be economically feasible at a smaller generating capacity, requiring a shorter river bypass reach and shorter overall canal length. Additionally, by moving the project to the south side of the river to take advantage of topography, the amount of basalt excavation would be reduced. In this new location, the project remains almost exclusively on applicant-owned lands. A small amount of the feeder canal would occur on BLM lands.

In addition, this amendment proposes to bury $\frac{1}{4}$ mile of transmission line where it crosses a cultivated field and would otherwise interfere with operation of a center-pivot sprinkler.

As a minor project, the original application requirements included Exhibits A, E, F, and G. Modifications to these exhibits to support the proposed amendment are provided below.

A draft amendment proposal was sent to resource agencies for comment in May 2009. Agency comments on this draft are included in Appendix A.

AMENDED EXHIBIT A

The following items from the original Exhibit A are changed to reflect the requested increase in project capacity. These changes are incorporated into Revised Exhibits F-1 and F-3.

Exhibit A, Project Data

The project data is revised as follows (changes in bold):

1. Project Data

- | | | |
|--------|--|-----------------------------------|
| (i) | Generating units | |
| | Number of units | One, connected to two turbines |
| | Auxiliary units | none |
| | Capacity of unit | 1,230 kW |
| | Provision for future units | none |
| (ii) | Type of hydraulic turbines | Francis, single regulated |
| (iii) | Mode of operation | Automatic, run-of-the-river |
| (iv) | Estimated annual energy generation | 5.6 million kWh |
| (v) | Estimated average head | |
| | Static head: | 34.5 |
| | Design head: | 34.0 |
| (vi) | Reservoir surface area and storage capacity | 9.1 acres, 45 af |
| (vii) | Turbine hydraulic capacity | |
| | Unit 1 | 375 cfs |
| | Unit 2 | 125 cfs |
| | Total | 500 cfs |
| (viii) | Sizes, capacities, and construction materials | |
| | Diversion/bypass | |
| | Construction | Rock rubble w/ slide gates |
| | Length | 220 ft |
| | Height | 12 ft |
| | Capacity | 500 cfs |
| | Elevation (top of dam) | 3800.0 ft asl |

Feeder Canal	earth embankment on north side, dikes as required on south side
Construction	
Capacity	500 cfs
Length	3,900 ft
Bottom width	25 ft
Side slope	3:1 with some topographic variation on south side
Depth of water	Variable
Penstock intake	
Construction	Concrete
Height	12 ft
Capacity	500 cfs
Elevation (top of dike)	3800.0 ft asl
Penstocks	
Number	two
Construction	Steel pipe or HDPE
Diameter	60 inches
Length	120 ft
Capacity	500 cfs (combined)
Powerhouse	
Construction	Concrete foundation, steel building
Length	60 ft
Width	20 ft
Height	25 ft
Floor elevation	3750 ft asl
Tailrace channel	
Construction	excavated from rock
Capacity	500 cfs
Length	1,600 ft
Bottom width	25 ft
Side slope	3:1 to vertical when in solid rock
Transmission line	
Length	11,600 ft
Transformer	Step-up to 12.5 kV
Intertie	3 phase transmission line

AMENDED EXHIBIT E

Vegetative cover

The amended project's overall impact to vegetation resources would be reduced compared with the existing licensed project.

The amended project facilities would affect essentially the same mixture of pasture, cropland and sagebrush as the original project except that the total affected acreage is reduced by about 13% due to the shorter overall canal length. Also, the proportion of cropland and pasture would increase relative to sagebrush due to the greater agricultural use that currently occurs on the south side of the river.

Direct project impacts on the Little Wood River riparian vegetation from construction would be about the same as for the original project and would occur exclusively at the diversion and tailrace return. Indirect project impacts to riparian vegetation would be reduced by about 44% due to the change in the length of the bypass reach from 2.3 miles to 1.3 miles.

The design of the amended feeder canal is expected to produce additional wetlands and riparian vegetation. Under the amendment, the south embankment of the feeder canal would be partially formed from existing, natural topography. Variations in topography will have the effect of forming several small ponds along the feeder canal. These ponds will promote growth of permanent riparian vegetation along the edges.

A small increase in vegetation loss would occur due to burial of ¼ mile of transmission line and the increased length of the transmission line for the amended project compared with the original license project. However, permanent vegetation loss due to transmission lines is very small and in this case would be more than offset by vegetation benefits from the shorter project canals and bypass reach.

Fisheries

The amended project's overall impact to fishery resources would be reduced compared with the existing licensed project.

Under the proposed amendment the length of the bypass reach would be reduced from 2.3 miles to 1.3 miles, thus reducing the amount of fishery habitat loss due to dewatering.

Wildlife

The amended project's overall impact to wildlife resources would be reduced compared with the existing licensed project.

Under the proposed amendment the length of the bypass reach will be reduced from 2.3 miles to 1.3 miles and the total length of canal will be reduced from 6,300 ft to 5,600 ft. Also, the use of natural topography to form part of the south embankment of the feeder

canal would be expected to promote development of new permanent riparian vegetation. The net effect of the amended project would therefore be to increase wildlife habitat relative to the existing licensed project.

The amended project incorporates a log boom and egress ramp to protect wildlife that may become entrained in the feeder canal (see Exhibit F-3). This measure was required under Article 405 of the original license. The egress ramp will have an 8:1 slope (approximately 7.1 degrees) and will be textured with gravel to increase traction.

A small increase in the potential for avian-powerline collisions would result from the increased transmission line length. However, the Article 405 requirement to construct transmission lines to raptor-proof guidelines will minimize negative effects to wildlife.

Water quality and quantity

The amended project's overall impact to water quantity and quality would be about the same as for the existing licensed project.

In the draft amendment application sent to resource agencies for comment in May 2009, we showed a combined impoundment/feeder canal with a surface area of over 15 acres. Idaho Department of Environmental Quality (IDEQ) expressed concerns that the larger impoundment could have a negative effect on water temperature. In response to this comment, the final amendment proposal (this document) has been modified to separate the impoundment from the feeder canal. Thus, since the height and location of the diversion dam have changed only slightly (height increased from 3799.5 to 3800.0 and location moved 200 ft upstream), the size of the impoundment behind the diversion will be nearly identical to the original license¹. In addition, the final amendment proposal includes additional dikes along the feeder canal in order to decrease ponding associated with the previous design. The overall surface area of the combined feeder and tailrace canals as proposed in this amendment is approximately 5.5 acres (see Table 1). The overall surface area of the combined canals in the original licensed project is approximately 5.8 acres. Thus the amended project reduces the overall water surface area compared with the original licensed project and is therefore likely to have a slightly reduced adverse effect on water temperature.

Table 1. Comparison of canal water surface area for the original and amended project.

Facility	Original License			Proposed Amendment		
	Length (ft)	Avg Width (ft)	Area (acres)	Length (ft)	Avg Width (ft)	Area (acres)
Feeder Canal	2800	40	2.6	3900	45	4.0
Tailrace Canal	3500	40	3.2	1600	40	1.5
TOTALS	6300		5.8	5500		5.5

¹ New surveying data collected during preparation of this amendment allowed the applicant to make a more accurate estimate of the upstream limit of the impoundment area; the new estimate of the impoundment area is 9.1 acres

Based on experience with the Little Wood River Ranch I hydro project located several miles downstream of the proposed project, it is expected that the new impoundment will cause a decrease in suspended sediment load thus reducing solar heating of the Little Wood River. Considering that the canal length is reduced by 800 ft compared to the original project and the bypassed river reach is reduced by one mile compared to the original project, the overall effect of the amended project on water temperature is expected to be about the same or slightly improved compared with the original licensed project.

Land & water uses

The amended project's overall impact on land and water use would be about the same as for the existing licensed project.

Recreational uses

The amended project's overall impact to recreational resources would be about the same as for the existing licensed project.

Historical and archaeological resources

The project effects to historical and archeological resources would potentially change under the proposed amendment, but would be adequately addressed under Article 408 of the original license.

Scenic and aesthetic resources

The amended project's overall impact to scenic and aesthetic resources would be about the same as for the existing licensed project.

Expected Change in Short-term Environmental Impacts

Construction impacts to vegetation and wildlife from the amended project would be less than for the existing licensed project due to the reduced ground disturbance required to construct the shorter canals (shortened from 6,300 ft to 5,600 ft). These effects would offset the additional habitat loss due to the increased transmission line length (lengthened from 2.0 to 2.2 miles) and burial of ¼ mile of transmission line across a cultivated field.

The short-term environmental impacts of the amended project would otherwise be comparable to the existing licensed project.

Expected Change in Long-term Environmental Impacts

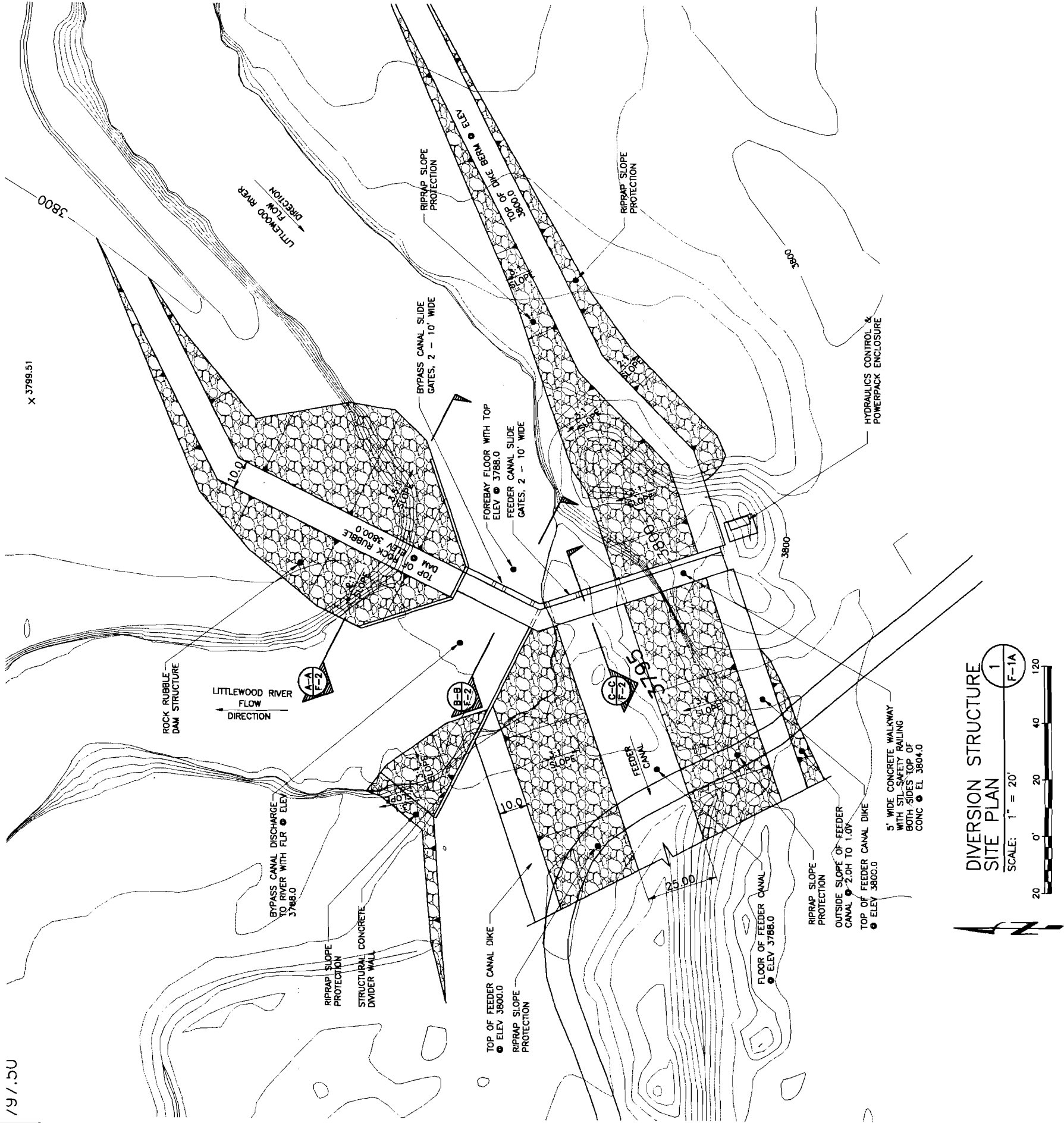
Permanent vegetation and habitat loss would be reduced in comparison with the existing licensed project due to the reduced length of the canals (from 6,300 ft to 5,600 ft) and the shorter length of the bypass reach in the Little Wood River (from 2.3 miles to 1.3 miles). The reduced canal length will result in less permanent vegetation loss. The shorter bypass reach will mean that a smaller section of the Little Wood River will experience reduced water flow and the corresponding permanent adverse impacts to vegetation, fishery, and wildlife habitat. Some new permanent riparian habitat is expected to develop

along the feeder canal due to the use of natural topography to form part of the southern canal embankment. Variations in topography will have the effect of forming small ponds that will promote growth of new permanent riparian vegetation along the edges.

A small increase in the potential for avian-powerline collisions would result from the increased transmission line length. However, the Article 405 requirement to construct transmission lines to raptor-proof guidelines will minimize any negative effect.

The effect of the hydropower project toward reducing sediment load in the Little Wood River is expected to be about the same as for the original project since most of the sediment settling occurs in the impoundment behind the diversion. The size of the impoundment for the amended project is roughly the same as for the original licensed project. Lower sediment load is expected to reduce solar heating in the river downstream thus causing a reduction in water temperature. In addition, the amended project will have slightly reduced overall water surface area due to shortened canal length, which will also contribute toward decreasing water temperature. With riparian improvements required under approved Article 406, the overall long-term effect on water temperature is expected to be positive compared with the original licensed project.

AMENDED EXHIBIT F



X 3799.51

DIVERSION STRUCTURE
SITE PLAN

SCALE: 1" = 20'



NOTES:

SEE EXHIBIT F-2 FOR SECTIONS
A-A, B-B AND C-C

LITTLEWOOD RIVER NO.2
HYDROELECTRIC PROJECT

EXHIBIT F-1

FERC PROJECT NO. 12063-000

THIS DRAWING IS A PART OF THE FERC APPLICATION FOR
LICENSE MADE BY THE UNDERSIGNED THIS _____ DAY OF
_____, 2009

MR. BILL ARKOOSH
OWNER

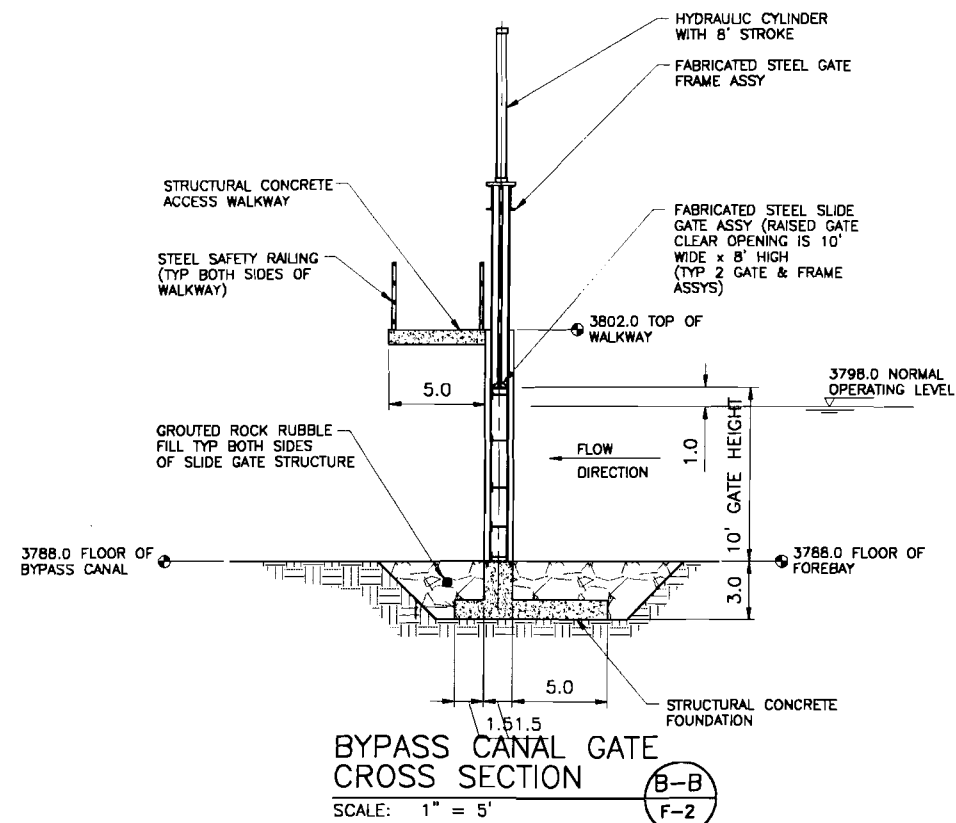
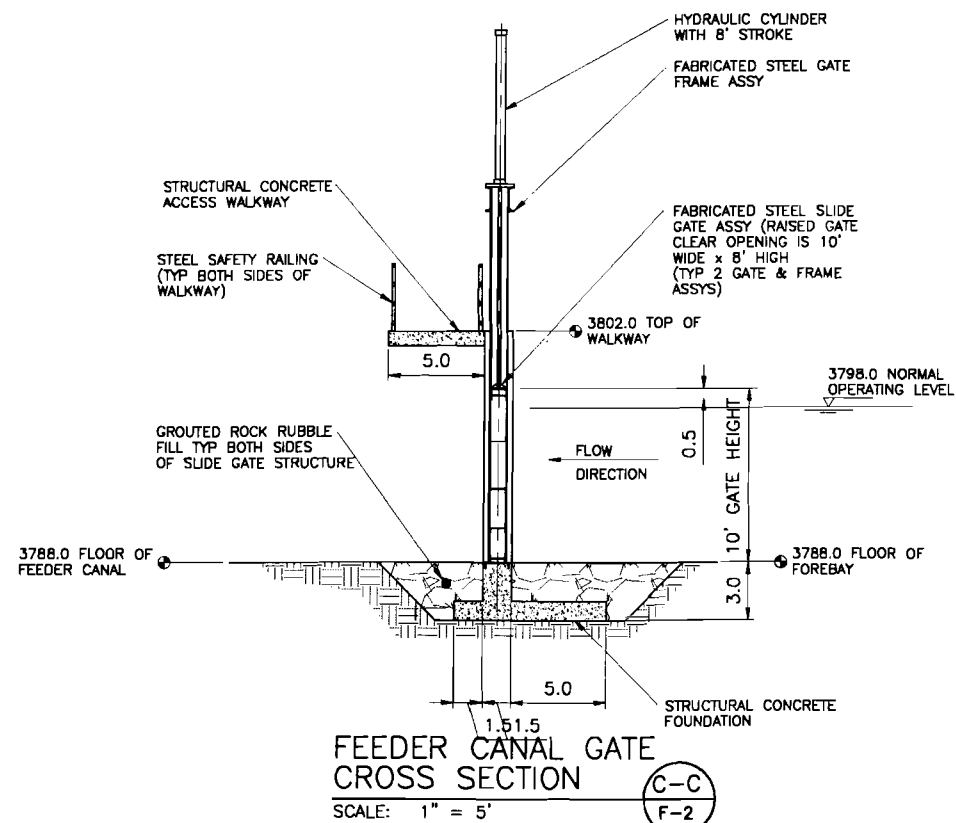
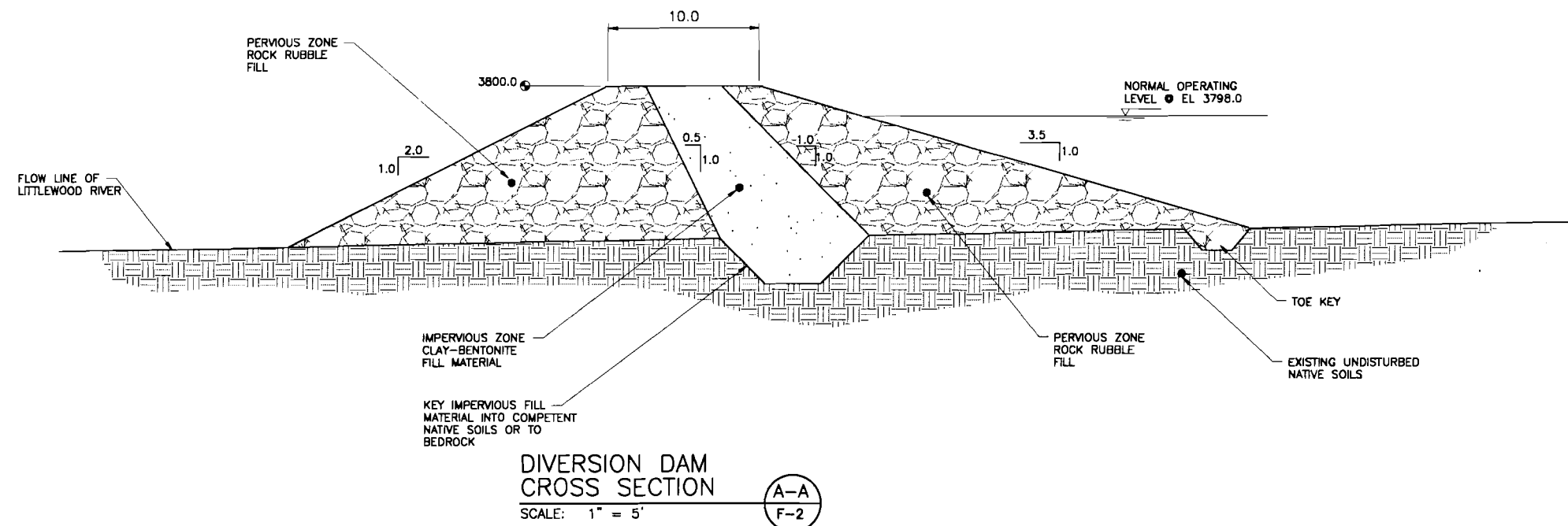
REV B, MAR 13, 2009

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2742 ST CHARLES AVE
IDAHO FALLS, ID 83404

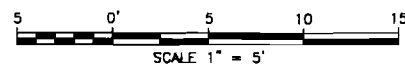
EXHIBIT F-1

DIVERSION SITE PLAN

LITTLEWOOD RIVER NO. 2 HYDROELECTRIC PROJECT



REV B, MAR 13, 2009



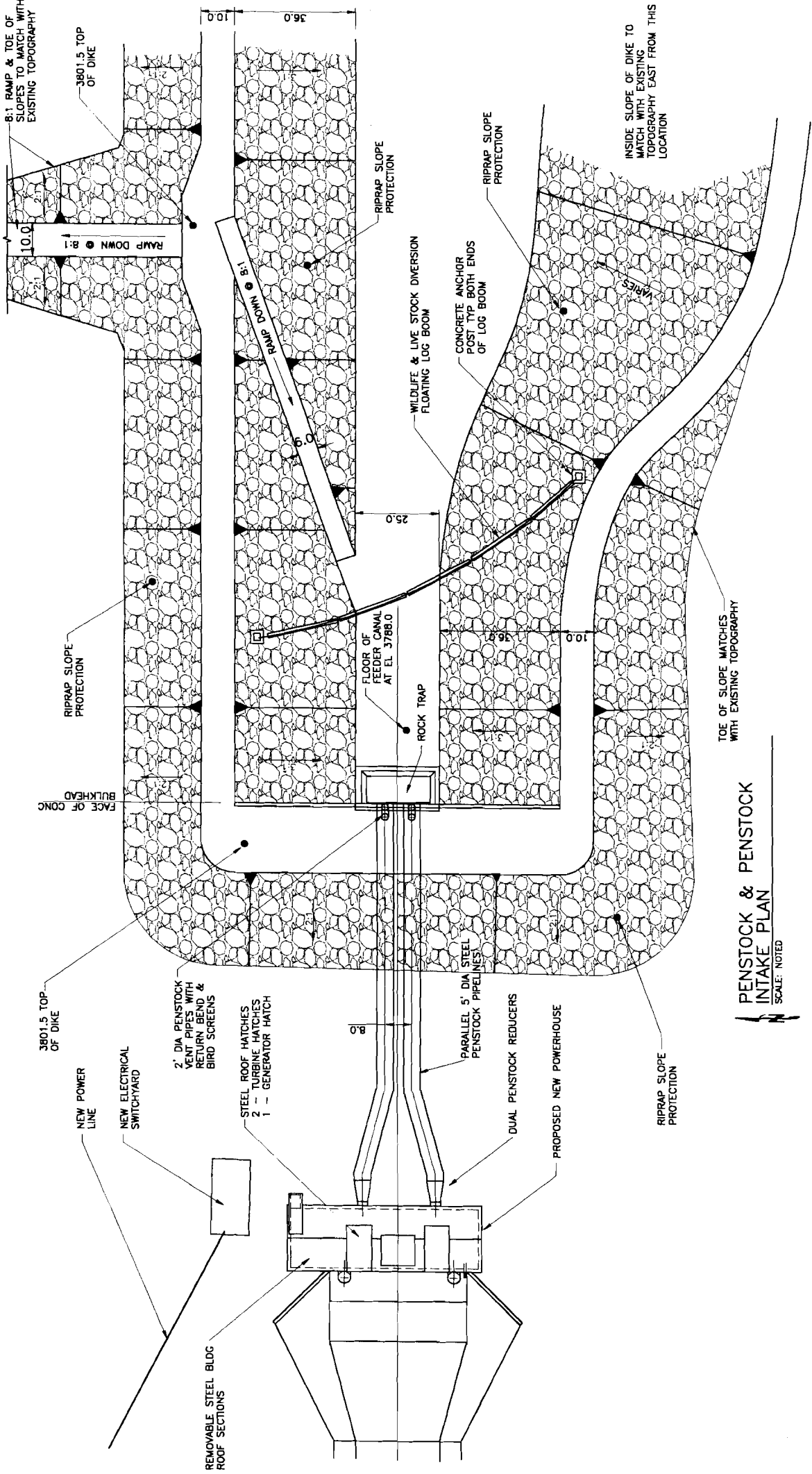
**LITTLEWOOD RIVER NO.2
HYDROELECTRIC PROJECT
EXHIBIT F-2
FERC PROJECT NO. 12063-000**

THIS DRAWING IS A PART OF THE FERC APPLICATION FOR
LICENSE MADE BY THE UNDERSIGNED THIS _____ DAY OF
_____, 2009

MR. BILL ARKOOSH
OWNER

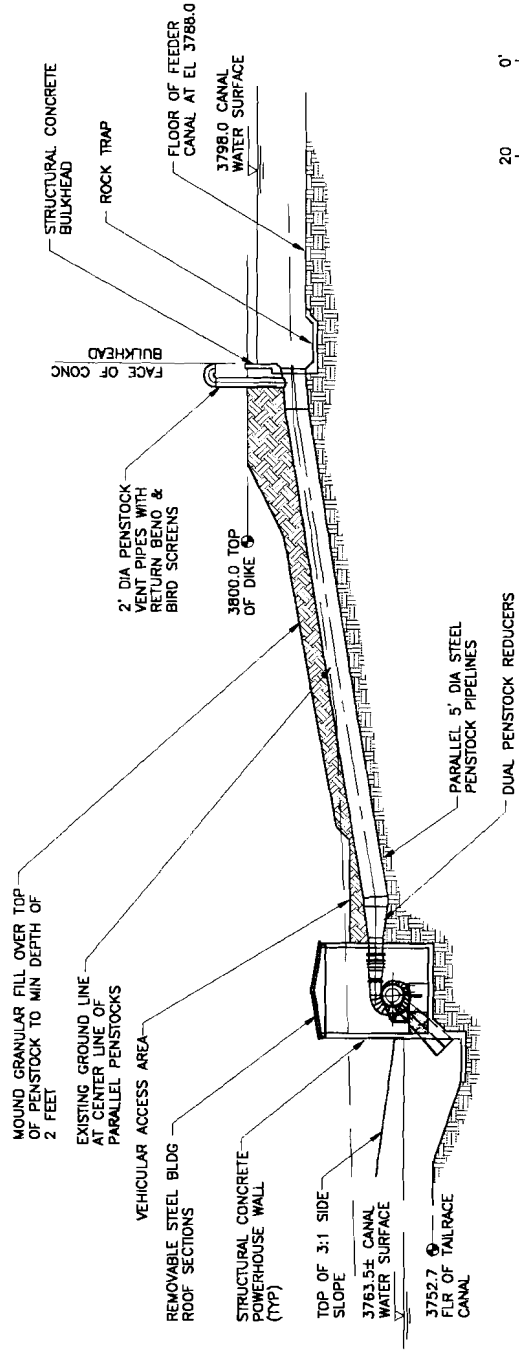
GeoSense
2742 ST CHARLES AVE
IDAHO FALLS, ID 83404

**EXHIBIT F-2
DIVERSION STRUCTURE SECTIONS
LITTLEWOOD RIVER NO. 2 HYDROELECTRIC PROJECT**



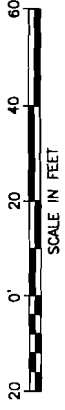
PENSTOCK & PENSTOCK
INTAKE PLAN

SCALE: NOTED



PENSTOCK & PENSTOCK
INTAKE ELEVATION

SCALE: NOTED



REV C, MAY 14, 2009

GeoSense
2742 ST CHARLES AVE
IDAHO FALLS, ID 83404

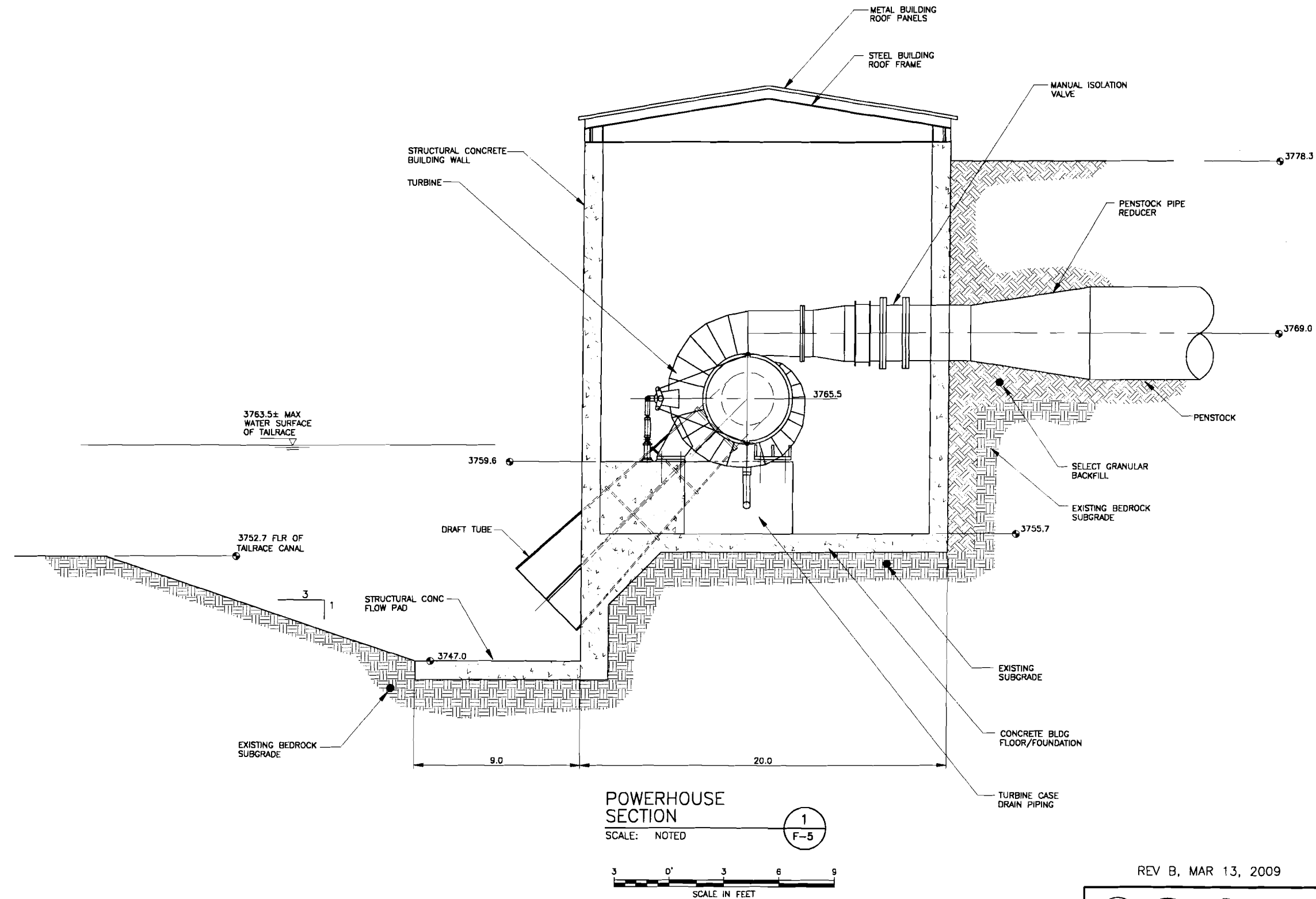
EXHIBIT F-3
PENSTOCK & PENSTOCK INTAKE PLAN & ELEV
LITTLEWOOD RIVER NO. 2 HYDROELECTRIC PROJECT

LITTLEWOOD RIVER NO.2
HYDROELECTRIC PROJECT
EXHIBIT F-3

FERC PROJECT NO. 12063-000

THIS DRAWING IS A PART OF THE FERC APPLICATION FOR
LICENSE MADE BY THE UNDERSIGNED THIS _____ DAY OF
_____ 2009

MR. BILL ARKOOSH
OWNER

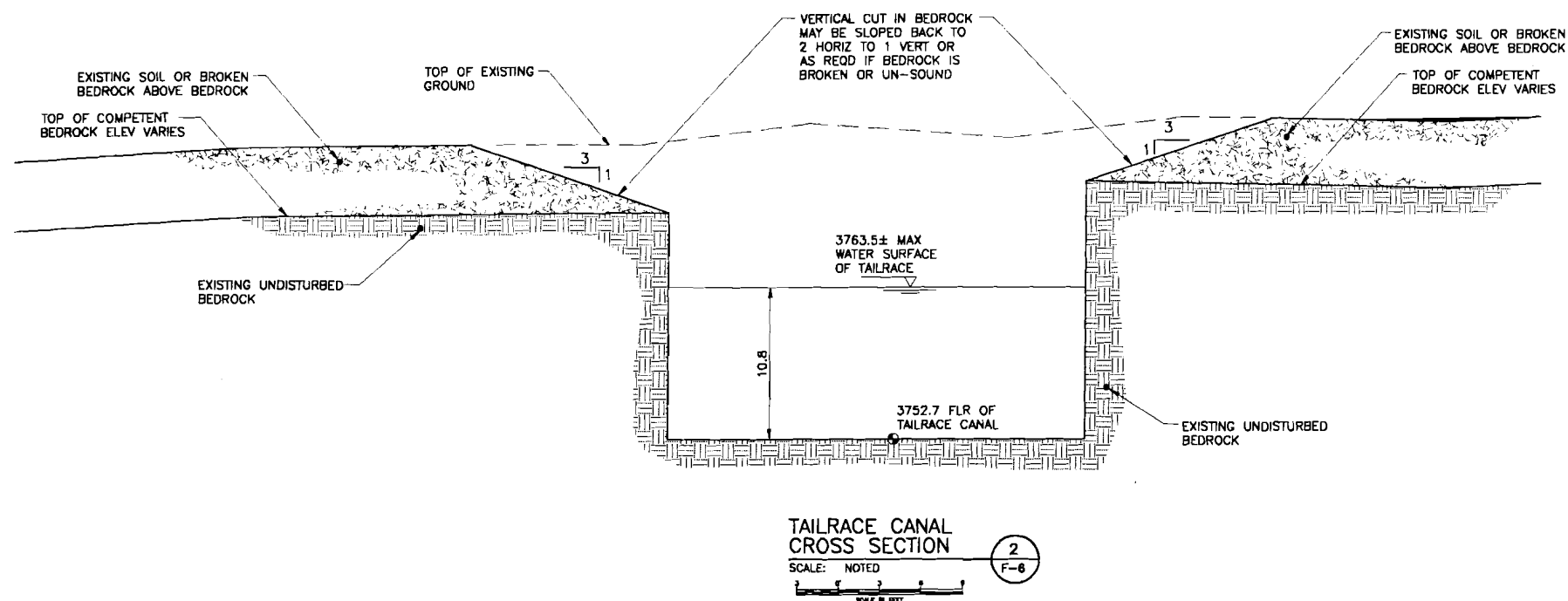
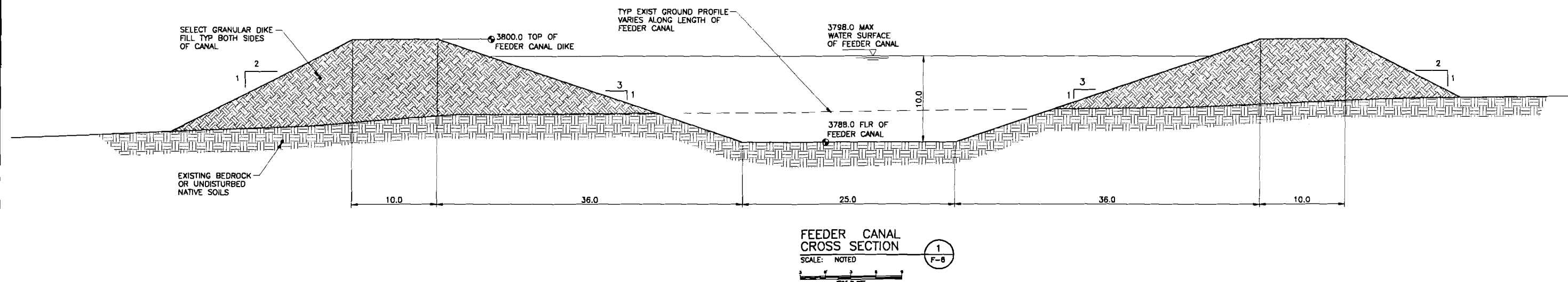


**LITTLEWOOD RIVER NO.2
HYDROELECTRIC PROJECT**
EXHIBIT F-5
FERC PROJECT NO. 12063-000
THIS DRAWING IS A PART OF THE FERC APPLICATION FOR
LICENSE MADE BY THE UNDERSIGNED THIS _____ DAY OF
_____, 2009
MR. BILL ARKOOSH
OWNER

REV B, MAR 13, 2009

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IDAHO FALLS, ID 83404

EXHIBIT F-5
POWERHOUSE ELEVATION
LITTLEWOOD RIVER NO. 2 HYDROELECTRIC PROJECT



**LITTLEWOOD RIVER NO.2
HYDROELECTRIC PROJECT**

EXHIBIT F-6

FERC PROJECT NO. 12063-000

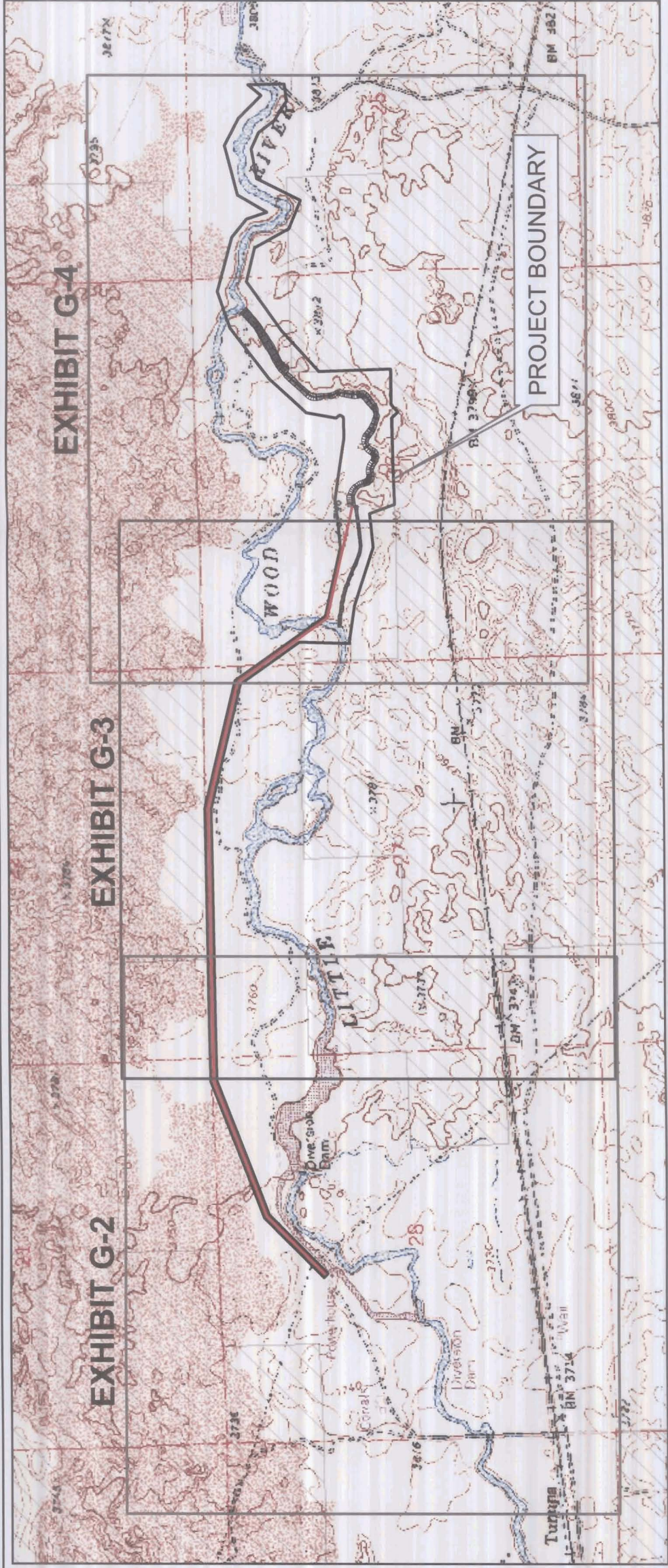
THIS DRAWING IS A PART OF THE FERC APPLICATION FOR
LICENSE MADE BY THE UNDERSIGNED THIS _____ DAY OF
_____, 2009

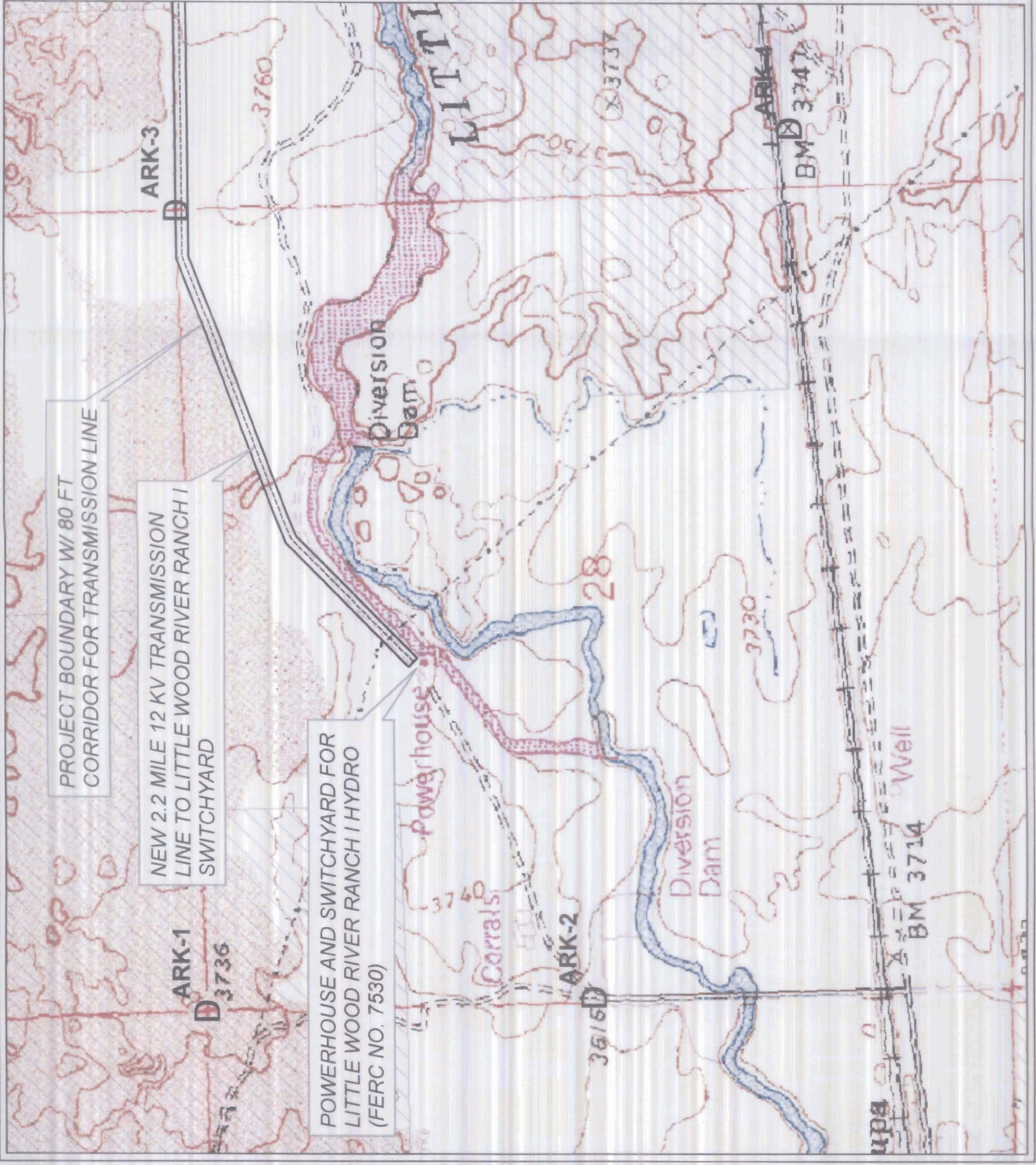
MR. BILL ARKOOSH
OWNER

REV B, MAR 13, 2009

GeoSense
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IDAHO FALLS, ID 83404

EXHIBIT F-6
FEEDER CANAL & TAILRACE CROSS SECTION
LITTLEWOOD RIVER NO. 2 HYDROELECTRIC PROJECT





CONTROL POINTS
(NAD 83 UTM ZONE 11N)

LABEL	UTMX	UTMY
ARK-1	697870	4759851
ARK-2	697895	4759079
ARK-3	699470	4759906
ARK-4	699636	4758682
ARK-5	701011	4760131
ARK-6	700790	4759036
ARK-7	702620	4760174
ARK-8	702198	4759013

ALL LANDS T5S, R16E, BOISE MERIDIAN
COORDINATES SCALED FROM USGS DIGITAL
RASTER GRAPHICS (BOUNDARY LINES ON THIS
MAP DO NOT REFLECT RESULTS OF A
BOUNDARY SURVEY)

Land Ownership

 PRIVATE

 BLM

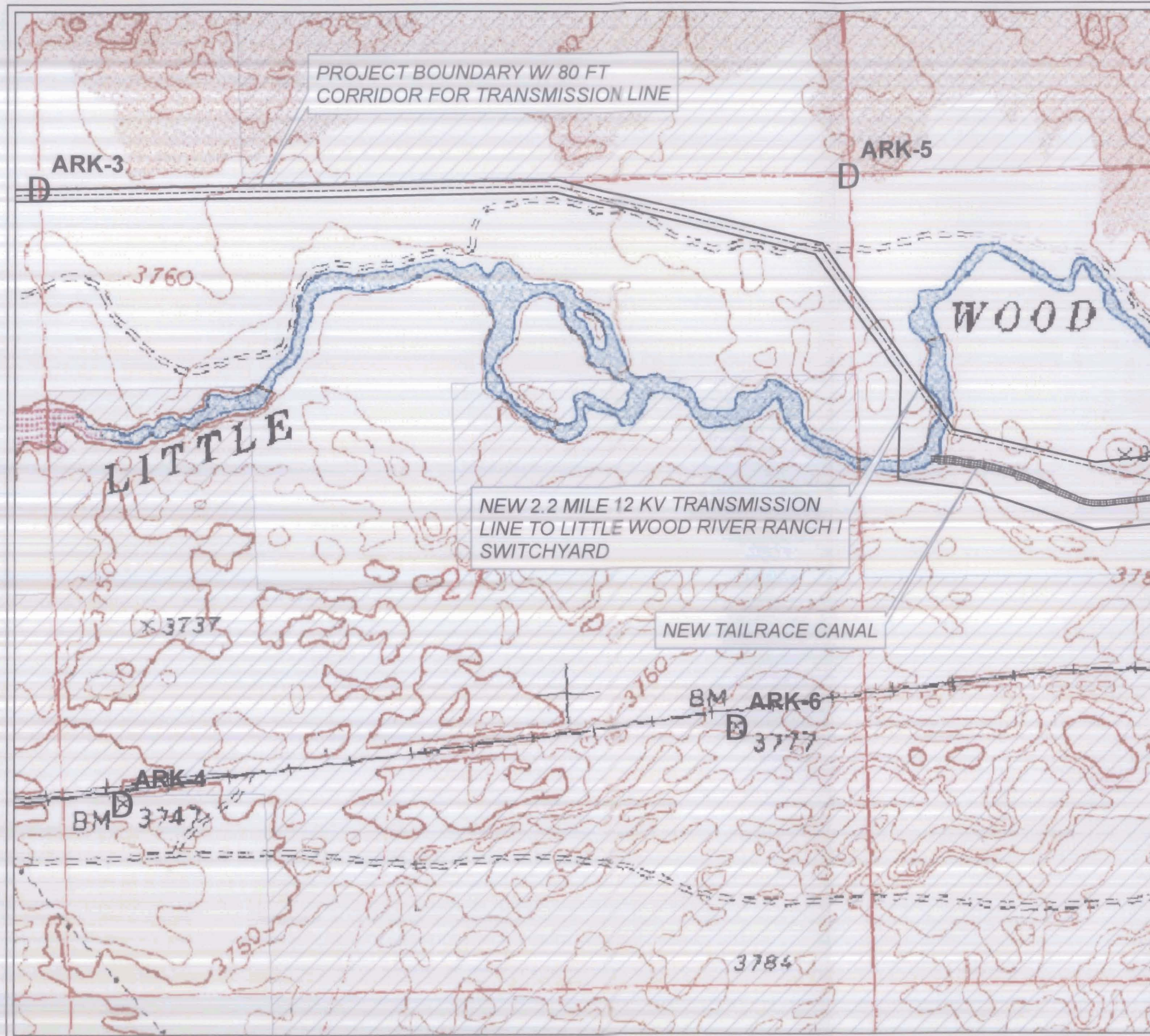


EXHIBIT G-2
REVISED 9/2009

PROJECT BOUNDARY (WEST PORTION)
LITTLE WOOD RIVER RANCH II
FERC NO. 12063


0 50 100 200 300 400 500 Meters
NAD83 / UTM ZONE 11N

** NIP MATERIAL UNDER 18 CFR 388.112 **



CONTROL POINTS (NAD 83 UTM ZONE 11N) LABEL UTMX UTM Y

ARK-1	697870	4759851
ARK-2	697895	4759079
ARK-3	699470	4759906
ARK-4	699636	4758682
ARK-5	701011	4760131
ARK-6	700790	4759036
ARK-7	702620	4760174
ARK-8	702198	4759013

ALL LANDS T5S, R16E, BOISE MERIDIAN
COORDINATES SCALED FROM USGS DIGITAL
RASTER GRAPHICS (BOUNDARY LINES ON THIS
MAP DO NOT REFLECT RESULTS OF A
BOUNDARY SURVEY)

Land Ownership

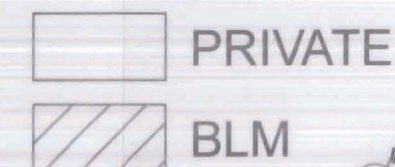


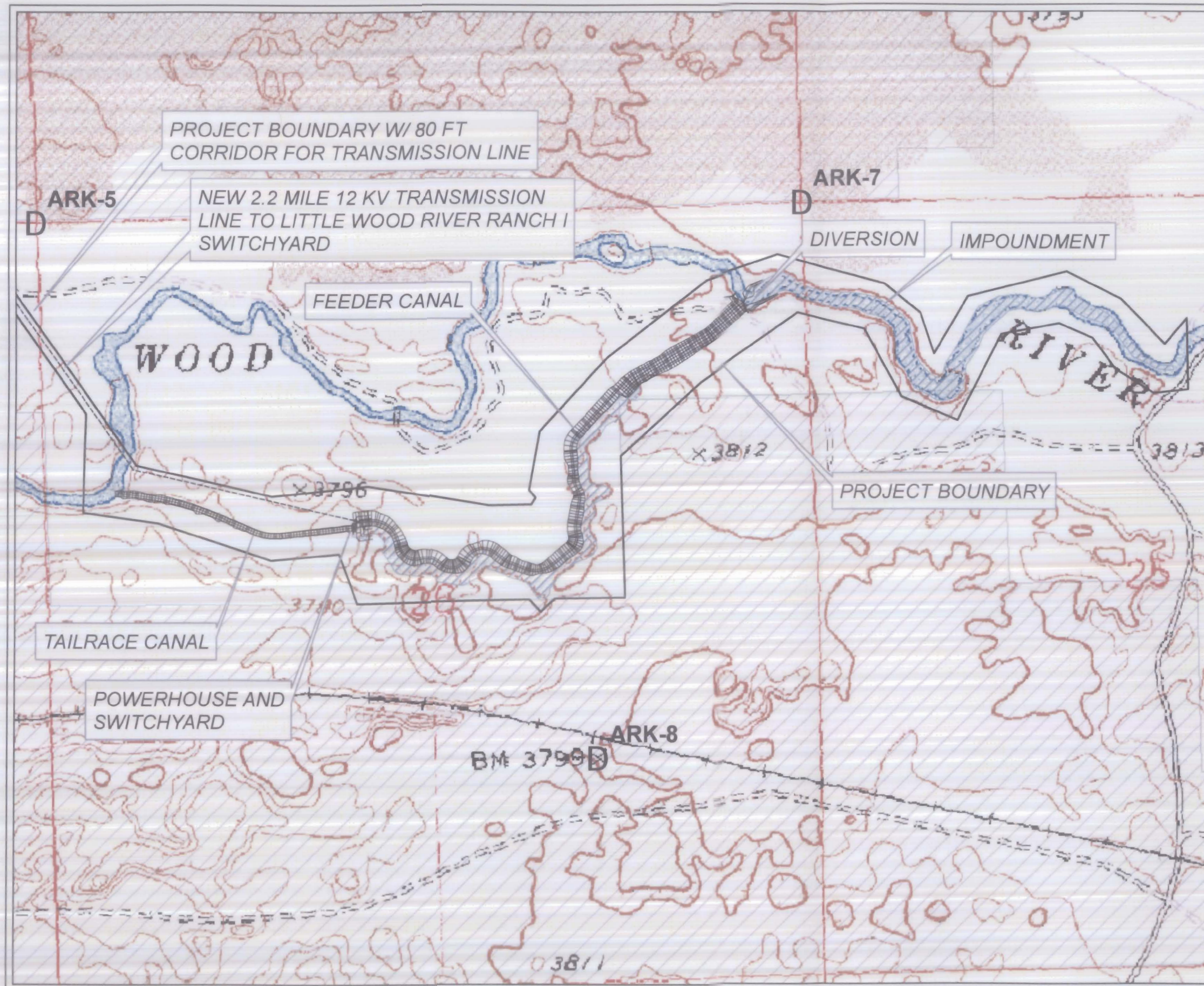
EXHIBIT G-3

REVISED 9/2009

PROJECT BOUNDARY (CENTER PORTION)
LITTLE WOOD RIVER RANCH II
FERC NO. 12063



** NIP MATERIAL UNDER 18 CFR 388.112 **



CONTROL POINTS (NAD 83 UTM ZONE 11N)

LABEL	UTMX	UTMY
ARK-1	697870	4759851
ARK-2	697895	4759079
ARK-3	699470	4759906
ARK-4	699636	4758682
ARK-5	701011	4760131
ARK-6	700790	4759036
ARK-7	702620	4760174
ARK-8	702198	4759013

ALL LANDS T5S, R16E, BOISE MERIDIAN
COORDINATES SCALED FROM USGS
DIGITAL RASTER GRAPHICS (BOUNDARY
LINES ON THIS MAP DO NOT REFLECT
RESULTS OF A BOUNDARY SURVEY)

Land Ownership

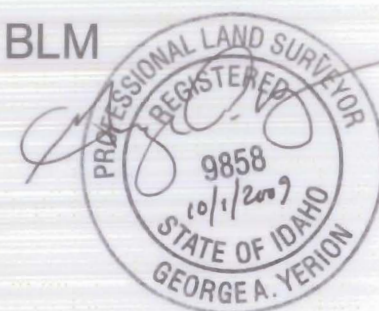
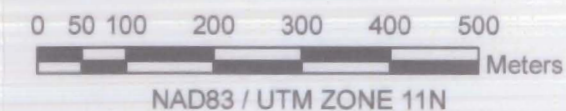


EXHIBIT G-4

REVISED 9/2009

PROJECT BOUNDARY (EAST PORTION)
LITTLE WOOD RIVER RANCH II
FERC NO. 12063



** NIP MATERIAL UNDER 18 CFR 388.112 **

Appendix A - Consultation

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cableone.net

May 18, 2009

Mr. Robert Ruesink
US Fish and Wildlife Service
1387 S Vinnell, Suite 368
Boise, ID 83709

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric Project - FERC No. P-12063

Dear Mr. Ruesink:

Attached please find a copy of the draft Application for Amendment of FERC License for the Little Wood River Ranch II hydroelectric project. By this amendment we seek to move the location of the power house to the south side of the Little Wood River, shorten the bypass reach from 2.3 to 1.3 miles, and decrease the peak generating capacity of the project from 1,500 kW to 1,230 kW. Changes in power prices and construction costs have made these changes necessary for economic feasibility.

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Thank you for your attention to this matter. If you have any questions, please feel free to call me at (208) 528-6152.

Very truly yours,



Nicholas E. Josten

Attachments

Draft Application for Amendment

Copies

Bill Arkoosh, Gooding, ID

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cableone.net

May 18, 2009

Mr. John Olson
US Environmental Protection Agency
1485 North Orchard St
Boise, ID 83706

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric
Project - FERC No. P-12063

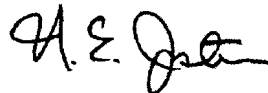
Dear Mr. Olson:

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Very truly yours,



Nicholas E. Josten

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Bill Arkoosh, Gooding, ID

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cableone.net

May 18, 2009

Mr. Sonny Buhidar
Idaho Department of Environmental Quality
601 Poleline Road, Suite 2
Twin Falls, ID 83301

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric Project - FERC No. P-12063

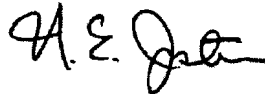
Dear Mr. Buhidar:

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Very truly yours,



Nicholas E. Josten

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Bill Arkoosh, Gooding, ID

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cableone.net

May 18, 2009

Mr. Corey Skinner
Idaho Department of Water Resources
1341 Fillmore St, Suite 200
Twin Falls, ID 83301-3380

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric Project - FERC No. P-12063

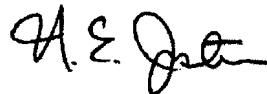
Dear Mr. Skinner:

Attached please find a copy of the draft Application for Amendment of FERC License for the Little Wood River Ranch II hydroelectric project. By this amendment we seek to move the location of the power house to the south side of the Little Wood River, shorten the bypass reach from 2.3 to 1.3 miles, and decrease the peak generating capacity of the project from 1,500 kW to 1,230 kW. Changes in power prices and construction costs have made these changes necessary for economic feasibility.

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Very truly yours,



Nicholas E. Josten

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Bill Arkoosh, Gooding, ID

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cableone.net

May 18, 2009

Mr. Scott Grunder
Idaho Department of Fish and Game
P.O. Box 25
Boise, ID 83707-0025

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric Project - FERC No. P-12063

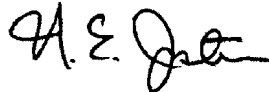
Dear Mr. Grunder:

Attached please find a copy of the draft Application for Amendment of FERC License for the Little Wood River Ranch II hydroelectric project. By this amendment we seek to move the location of the power house to the south side of the Little Wood River, shorten the bypass reach from 2.3 to 1.3 miles, and decrease the peak generating capacity of the project from 1,500 kW to 1,230 kW. Changes in power prices and construction costs have made these changes necessary for economic feasibility.

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Nicholas E. Josten

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Bill Arkoosh, Gooding, ID

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cablone.net

May 18, 2009

Mr. Mike McDonald
Idaho Department of Fish and Game
319 South 417 East
Jerome, ID 83338

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric
Project - FERC No. P-12063

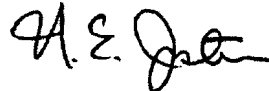
Dear Mr. McDonald:

Attached please find a copy of the draft Application for Amendment of FERC License for the Little Wood River Ranch II hydroelectric project. By this amendment we seek to move the location of the power house to the south side of the Little Wood River, shorten the bypass reach from 2.3 to 1.3 miles, and decrease the peak generating capacity of the project from 1,500 kW to 1,230 kW. Changes in power prices and construction costs have made these changes necessary for economic feasibility.

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Very truly yours,



Nicholas E. Josten

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Bill Arkoosh, Gooding, ID

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cableone.net

May 18, 2009

Ms. Suzi Neitzel
Idaho State Historic Preservation Office
210 Main Street
Boise, ID 83702

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric
Project - FERC No. P-12063

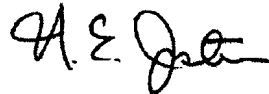
Dear Ms. Neitzel:

Attached please find a copy of the draft Application for Amendment of FERC License for the Little Wood River Ranch II hydroelectric project. By this amendment we seek to move the location of the power house to the south side of the Little Wood River, shorten the bypass reach from 2.3 to 1.3 miles, and decrease the peak generating capacity of the project from 1,500 kW to 1,230 kW. Changes in power prices and construction costs have made these changes necessary for economic feasibility.

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Very truly yours,



Nicholas E. Josten

Attachments
Draft Application for Amendment

Copies
Bill Arkoosh, Gooding, ID

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cableone.net

May 18, 2009

Ms. Diane Yupe
Shoshone-Bannock Tribes
P.O. Box 306
Fort Hall, ID 83203

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric Project - FERC No. P-12063

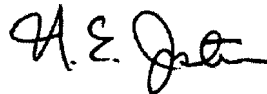
Dear Ms. Yupe:

Attached please find a copy of the draft Application for Amendment of FERC License for the Little Wood River Ranch II hydroelectric project. By this amendment we seek to move the location of the power house to the south side of the Little Wood River, shorten the bypass reach from 2.3 to 1.3 miles, and decrease the peak generating capacity of the project from 1,500 kW to 1,230 kW. Changes in power prices and construction costs have made these changes necessary for economic feasibility.

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Very truly yours,



Nicholas E. Josten

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Draft Application for Amendment

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Bill Arkoosh, Gooding, ID

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cablone.net

May 18, 2009

Ms. Carol Boudreau
Lincoln County Zoning and Planning
111 West B Street
Shoshone, ID 83352

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric Project - FERC No. P-12063

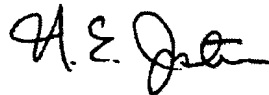
Dear Ms. Boudreau:

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Very truly yours,



Nicholas E. Josten

Attachments
Draft Application for Amendment

Copies
Bill Arkoosh, Gooding, ID

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cableone.net

May 18, 2009

Mr. Montie S. Day
38 Steuben Bay
Alameda, CA 94502

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric
Project - FERC No. P-12063

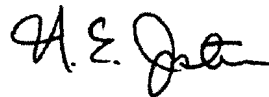
Dear Mr. Day:

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Very truly yours,



Nicholas E. Josten

Attachments

Draft Application for Amendment

Copies

Bill Arkoosh, Gooding, ID

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cablone.net

May 18, 2009

Mr. Mark Robertson
US Fish and Wildlife Service
1387 S Vinnell, Suite 368
Boise, ID 83709

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric Project - FERC No. P-12063

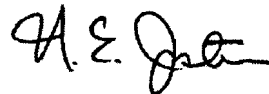
Dear Mr. Robertson:

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Nicholas E. Josten

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Bill Arkoosh, Gooding, ID

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cableone.net

May 18, 2009

Mr. Patrick Regan
FERC Portland Regional Office
101 SW Main Street - Suite 905
Portland, OR 97204

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric Project - FERC No. P-12063

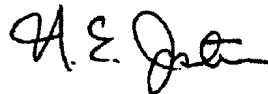
Dear Mr. Regan:

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Nicholas E. Josten

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Bill Arkoosh, Gooding, ID

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cablone.net

May 18, 2009

Mr. Rob Brochu
Army Corps of Engineers
900 N Skyline Drive
Idaho Falls, ID 83402

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric Project - FERC No. P-12063

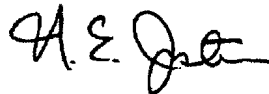
Dear Mr. Brochu:

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Nicholas E. Josten

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Bill Arkoosh, Gooding, ID

GeoSense
2742 Saint Charles Ave
Idaho Falls, ID 83404
(208) 528-6152
gsense@cablone.net

May 18, 2009

Ms. Debrah Kovar
Bureau of Land Management
400 W F Street
Shoshone, ID 83352

Subject: Draft License Amendment Application – Little Wood River Ranch II Hydroelectric Project - FERC No. P-12063

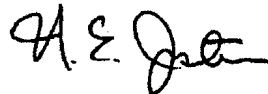
Dear Ms. Kovar:

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Very truly yours,



Nicholas E. Josten

Attachments

Draft Application for Amendment

Copies

Bill Arkoosh, Gooding, ID

From: Suzanne McConnell
To: gsense@cablone.net;
Subject: Response-Little wood River Ranch II Hydroelectric
Date: Wednesday, June 03, 2009 11:32:26 AM

Dear Mr. Nicholas E. Josten,

I received your letter, and wanted to let you know that according to IRC 2006 building code book R105.1 – Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the building official and obtain the required permit.

Please let me know if you have any questions, I will be more than happy to direct you to the next step.

Sincerely,

Suzanne McConnell
Lincoln County P&Z
smcconnell@lincolncountyid.us

For your records please note
Suzanne McConnell
Lincoln County Planning & Zoning Administrator
111 West B Street
Shoshone, Id. 83352
(208)886-9808
Fax (208)886-2027



IDAHO DEPARTMENT OF FISH AND GAME

600 South Walnut/P.O. Box 25
Boise, Idaho 83707

James E. Risch / Governor
Steven M. Huffaker / Director

July 3, 2009

Mr. Nick Josten
GeoSense
2742 Saint Charles Avenue
Idaho Falls, ID 83404

RE: Idaho Department of Fish and Game comments on Draft Application for Amendment of License for Little Wood River Ranch II Hydroelectric Project (FERC No. 12063)

Dear Mr. Josten:

Thank you for the opportunity to comment on the draft Application for Amendment of License for the Little Wood River Ranch II hydroelectric project. Idaho Department of Fish and Game (Department) staff has reviewed the amendment and has the following comments.

The Department understands the proposed amendment includes the following changes:

- 1) Reduce plant generation capacity from 1500 kW to 1230 kW;
- 2) Reduce length of the bypass reach in the Little Wood River from 2.3 to 1.3 miles;
- 3) Move the powerhouse and canals to the south side of the Little Wood River;
- 4) Lengthen the feeder canal from 2,800 to 3,700 feet;
- 5) Shorten the tailrace canal from 3,500 to 1,600 feet;
- 6) Increase the size of the intake impoundment from 8 acres (~40 ac-ft) to 15.5 acres (~45 ac-ft);
- 7) Lengthen the transmission line from 2.0 to 2.2 miles and moves it to accommodate a new powerhouse location;
- 8) Bury a portion of the transmission line.

In general, the Department does not object to the proposed license amendment. The footprint of the proposed project is generally reduced and thus effects on fish, wildlife, and vegetation resources are expected to be reduced or remain the same. We note that length of the feeder canal and transmission line will increase under the proposed license amendment. The Department agrees that the increase in vegetation disturbance due to lengthening the feeder canal and transmission line will be offset overall by shortening the length of the tailrace canal. Additionally, reducing the length of the bypass reach should reduce the projects effects on aquatic resources compared to the existing licensed project.

However, the proposed increase in the surface area of the impoundment pond (from 8 to 15.5 acres) without a significant increase in pond volume indicates that the pond will be shallower (decrease from 5 feet average depth to less than 3 feet average depth). This decrease in depth would be

Keeping Idaho's Wildlife Heritage

expected to increase water temperatures in the pond and in discharge from the project. According to the Idaho Department of Environmental Quality, the designated beneficial use for the reach of the Little Wood River where the project is located is cold water aquatic life and the reach is currently listed for temperature. The Department recommends the applicant evaluate the proposed change in impoundment size to confirm it will not result in a significant increase in water temperatures or adverse effects on aquatic biota in the affected reach.

Several of the existing license articles require consultation with the Department and other agencies on project design and operations. We specifically note that Article 405 (Environmental Features Design Plan) calls for a plan to include, among other items, a plunge pool below the minimum flow and spill release structure, a log-boom to prevent big game entrainment, and exit ramps near the boom for animal egress from the canal. We have not yet seen plans for the plunge pool and request the applicant consult with agency staff on an appropriate design. As an example of an effective design, we have attached photographs of a plunge pool installed below a culvert on the Feather River in Elmore County. The Department can provide technical references on potential plunge pool designs upon request.

Exhibit F-3 in the draft amendment application shows the proposed placement of a floating log-boom and associated exit ramp from the floor of the feeder canal to the top of the dike and another ramp from the top of the dike to land adjacent to the project. The exhibit indicates that both ramps are designed to be constructed on an 8:1 slope. This slope is too steep to provide effective egress for wildlife and should be modified. Additionally, the exit ramp surface should be roughened or textured to provide for animal traction. The Department recommends the applicant view another project in the area (Shoshone Hydroelectric Project, FERC No. 9967) which has a similar log-boom and exit ramps requirement and that provides adequate egress for wildlife. We recommend the applicant review the project's ramp design and consult with Department staff on ramp design modifications.

In summary, if the recommendations in this letter and existing license article requirements, particularly Articles 401-407, are adequately implemented, the Department does not object to the proposed application for amendment of the license.

Sincerely,



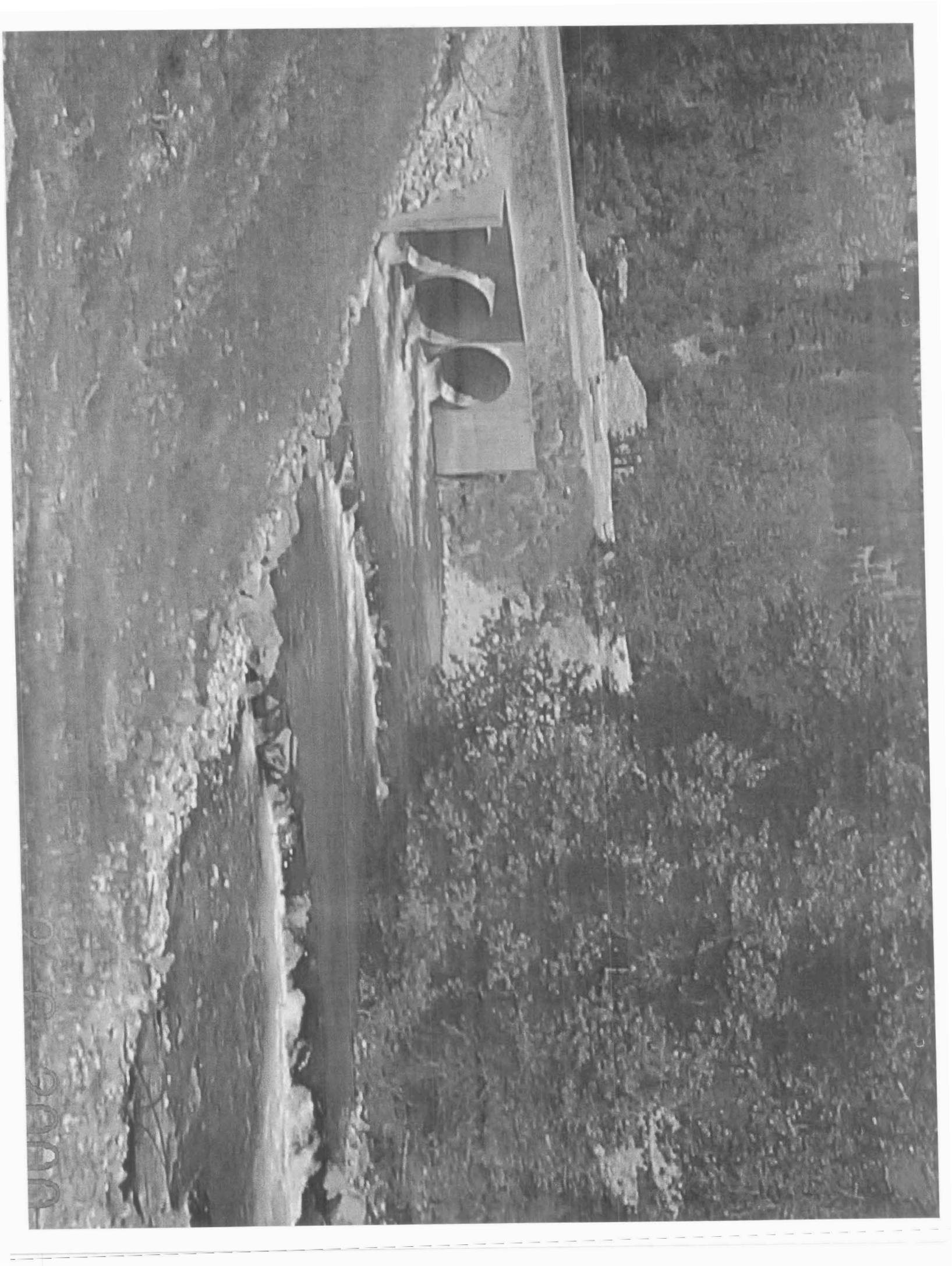
Cindy Robertson
Natural Resources Program Coordinator

cc: Mike McDonald, IDFG, Jerome
Sonny Buhidar, IDEQ, Twin Falls
Jeff Foss, USFWS, Boise
Harriet Hensley, AGO
William Arkoosh, Gooding, ID



6-6-2000







5-4-2000

From: Balthasar.Buhidar@deq.idaho.gov
To: gsense@cableone.net;
cc: Balthasar.Buhidar@deq.idaho.gov;
Subject: DEQ Comments & Review of FERC P-12063 (Little Wood River Ranch II Hydropower Project)
Date: Monday, July 20, 2009 3:37:53 PM

July 20, 2009

TO: Nicolas Josten, 2742 Saint Charles Avenue, Idaho Falls, Idaho 83404

FROM: Dr. Balthasar B. Buhidar, Ph.D., DEQ

RE: DEQ Comments & Review of FERC P-12063 (Little Wood River Ranch II Hydropower Project)

Nick:

I have been trying to get a hold of you for a number of days and keep coming up with a blank on both your email address (gsense@cableone.net) and your office telephone (208-528-6152). This is my last try today before I forward a hard copy. DEQ's comments are as follows as were sent to you (via email) on June 30, 2009:

Date: June 30, 2009

TO: Nicholas E. Josten (Authorized Agent)
TO: William Arkoosh (Applicant)

FROM: Dr. Balthasar B. Buhidar

RE: DEQ Comments and Review of FERC P-12063 (Little Wood River Ranch II Hydropower Project)

On June 1, 2004 the Idaho Department of Environmental Quality (DEQ) issued a 401 Water Quality Certification for the FERC P-12063 (Little Wood River Ranch II Hydropower Project) that was effective from June 1, 2004 through June 1, 2005. Part of the certification included that the project be constructed in accordance with the approved plans and specifications and any approved revisions submitted to FERC.

Then, on August, 29, 2005 the DEQ issued an addendum on the same FERC P-12063 (Little Wood River Ranch II Hydropower Project) to expire December 30,

2009. Accordingly, the certification included that the project be constructed in accordance with the approved plans and specifications and any approved revisions submitted to FERC.

Now comes the Applicant again on the same FERC P-12063 (Little Wood River Ranch II Hydropower Project) with an Application for Amendment of the FERC License (dated May 2009) with a draft license amendment application dated May 18, 2009. As proposed, (1) the location of the power house will be moved to the south side of the Little Wood River; (2) shorten the bypass reach from 2.3 to 1.3 miles; (3) decrease the peak generating capacity of the project from 1,500 kW to 1,230 kw; (4) lengthen the feeder canal from 2,800 feet to 3, 700 feet; (5) shorten the tailrace canal from 3,500 feet to 1,600 feet; (6) increase the size of the intake impoundment from about 8 acres (approximately 40 acre-feet) to about 15.5 acres (approximately 45 acre feet); lengthen the transmission line from 2.0 miles to 2.2 miles and move it to accommodate the new powerhouse location; and bury a portion of the transmission line. A 60 day comment period is proposed commencing May 18, 2009, to run through July 18, 2009.

DEQ's preliminary comments on the proposed amendment are as follows:

1. The Little Wood River is a Section 303(d) listed water body and is listed for temperature in the stretch that the hydro project will be located. The beneficial use designation is cold water aquatic life. Making the proposed intake impoundment increase from 8 acres to 15.5 acres has the potential to increase the temperature in the return discharge to the Little Wood River. This could potentially raise the temperature of the Little Wood by an appropriate volume-temperature relationship. In other words, a 15.5 acre pond versus an 8 acre pond may have a detrimental affect on the water quality of the Little Wood River. DEQ recommends that the applicant provide confirming evidence that the proposed modification will not increase the temperature of the Little Wood River beyond background to the proposed site.
2. The stretch of the Little Wood River from Richfield to the mouth is not designated for salmonid spawning; although the stretch from Silver Creek to Richfield is designated for salmonid spawning. Is there evidence to support a minimal impact to fishery resources due to the possible affect of elevated temperature as a consequence of the proposed modification in the stretch of the Little Wood River where the power plant will reside?
3. The applicant notes in the draft application that the amended project's overall impact to water quality would be about the same as for the existing licensed project. The applicant needs to provide substantiation for this conclusion.

4. The applicant notes in the draft application that a shorter bypass reach will mean a smaller section of the Little Wood River will experience reduced water flow; and that some new permanent riparian habitat would be expected to develop along the feeder canal due to the use of natural topography to form the southern canal embankment. In addition, the variations in the topography will have the effect of forming small ponds along the feeder canal; such that these ponds will promote growth of new permanent riparian vegetation along the edges. The applicant needs to provide substantiation that possible temperature increases will not deleteriously affect the water quality of the Little Wood River.
5. A Section 401 water quality certification will be required for this the proposed activity. Therefore, a Joint Application for Permits is required for the Army Corps of Engineers.

If you have any concerns or questions, please contact me directly.

Best Regards,

Dr. Balthasar B. Buhidar, Ph.D.
Regional Manager - Water Quality Protection
Idaho Department of Environmental Quality
Twin Falls Regional Office
1363 Fillmore Street
Twin Falls, ID 83301

Tel: (208) 736-2190
Fax: (208) 736-2194
Email: Balthasar.Buhidar@deq.idaho.gov

"The future is predetermined by the character of those who shape it."

Notice: This electronic message and any attachments contain information from the State of Idaho, Department of Environmental Quality and may be privileged, confidential or otherwise protected from disclosure. Persons who share such information with unauthorized individuals may face penalties under state and federal law. If you received this electronic message in error, please reply to the sender and then immediately delete this message. Please note that if this message was forwarded or is a reply, some or all of the contents of this message or any attachments may have been altered. Thank you.

(END)

Nicholas E Josten

From: Robertson,Cindy [cindy.robertson@idfg.idaho.gov]
Sent: Wednesday, September 09, 2009 10:36 AM
To: Nicholas E Josten; Mike McDonald
Subject: RE: Wildlife Egress ramps on Arkoosh Hydro

Nick,

Comments in our July 3, 2009 letter regarding the slope of the egress ramps were based on our misunderstanding that the proposed 8:1 slope meant that the ramps would be constructed as 8 feet of vertical for every 1 foot of horizontal distance (standard rise/run). My apologies for the confusion. Based on statements from your email, we now understand that the ramps will be constructed as 1 foot of vertical for every 8 feet of horizontal distance (7.1 degree slope or approximately 12.5% slope). Ramps constructed on a 12.5% slope would be acceptable to IDFG.

We also recommended in our July letter that applicant view another project in the area (Shoshone Hydroelectric Project, FERC No. 9967) which has a similar log-boom and exit ramps requirement and currently provides adequate egress for wildlife. Based on our phone conversation earlier today, I understand the design of the Little Wood Ranch II egress ramps will be similar to the Shoshone project. We appreciate your continued consultation with us on the ramp design and other project related questions.

Cindy

Please note my new email address

Cindy Robertson

Natural Resources Program Coordinator

Idaho Department of Fish and Game

P.O. Box 25

Boise, ID 83707

PH: 208-287-2715

FAX: 208-334-2114

cindy.robertson@idfg.idaho.gov

From: Nicholas E Josten [mailto:gsense@cableone.net]

Sent: Friday, September 04, 2009 9:03 AM

To: Robertson,Cindy; 'Mike McDonald'

Subject: Wildlife Egress ramps on Arkoosh Hydro

Cindy and Mike,

In your comment on the draft amendment application you indicate that our proposed 8:1 slope for the egress ramps would be too steep. This is only a 7.1 degree slope and would meet almost all county, state or federal road standards for vehicles. We have built 6:1 ramps on the Birch Creek project and find that cattle can easily use them to cross a big canal. I wanted to check with you to see if you can provide any further explanation as to why you think they are too steep. The ramps would be graveled to provide vehicle traction – these ramps will also serve as access for maintenance vehicles in case we need to work on the intake structure.

Nick

Nicholas E. Josten
GeoSense
2742 Saint Charles Avenue
Idaho Falls, ID 83404
208-528-6152
gsense@cableone.net



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1363 Fillmore Street • Twin Falls, Idaho 83301 • (208) 736-2190

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

September 24, 2009

Mr. William Arkoosh
2005 Highway 26
Gooding, Idaho 83330

Mr. Nicholas Josten
GEOSENSE
2742 Saint Charles Avenue
Idaho Falls, Idaho 83404

RE: Arkoosh Water Temperature Analysis on FERC No. P-12063 Project (aka Little Wood River Ranch II Hydroelectric Project)

Dear Mr. Arkoosh and Mr. Josten:

The Idaho Department of Environmental Quality (DEQ) has reviewed the Arkoosh Water Temperature Analysis provided on September 9, 2009. The intent of the analysis was to provide justification to answer DEQ's concern that the proposed changes to the footprint of the project would not change the overall footprint from the original application; and that such a modification would not adversely affect the temperature in the Little Wood River beyond its already elevated level.

DEQ's CONFIRMATION ANALYSIS

DEQ conducted a separate analysis of the analysis provided by the Authorized Agent based on the mode of operation of run-of-river in order to confirm the Arkoosh Water Temperature Analysis. The DEQ analysis confirmed the Authorized Agent's analysis. DEQ's analysis is summarized as follows in Tables 1 and 2:

1. Table 1 summarizes the Original Footprint versus the Proposed Footprint Change based on the length and width of the facility structures (as surface area) that concern the Feeder Canal and the Tailrace Canal. These are then converted to acres.

Table 1. Comparison of Overall Footage and Acreage

	ORIGINAL FOOTPRINT				PROPOSED FOOTPRINT CHANGE			
	Length feet	Average Width feet	Square Footage feet	Acres	Length feet	Average Width feet	Square Footage feet	Acres
Feeder Canal	2800	40	112,000	2.57	3900	45	175,000	4.03
Tailrace Canal	3500	40	140,000	3.21	1600	40	64,000	1.47
Totals	6300		252,000	5.78	5500		239,000	5.50

Table 1 indicates that the Proposed Footprint Change would create a 4.84% reduction (or a reduction in 0.28 acres) from the Original Footprint. Although the Feeder Canal is increased from 2.57 acres to 4.03 acres (or a net increase of 1.46 acres or an increase by 56.8%), the Tailrace Canal is decreased from 3.21 acres to 1.47 acres (or a net decrease of 1.74 acres or a decrease by 54.2%). In general, there is a greater decrease (by 4.84%) in the overall surface area with the Proposed Footprint Change; thus indicating that the overall reduction would also mean either a reduction or stationary change in temperature of the Little Wood River based on surface area alone.

2. Table 2 summarizes the overall volume (based on cubic feet) assuming a 12 foot height in both the Feeder Canal and the Tailrace Canal.

Table 2. Comparison of Estimated Volume (in cubic feet)

	ORIGINAL FOOTPRINT				PROPOSED FOOTPRINT CHANGE			
	Length feet	Average Width feet	Height feet	Volume cubic feet	Length feet	Average Width feet	Height feet	Volume cubic feet
Feeder Canal	2800	40	12	1,344,000	3900	45	12	2,106,000
Tailrace Canal	3500	40	12	1,680,000	1600	40	12	768,000
Totals	6300			3,024,000	5500			2,874,000

The Proposed Footprint Change creates a 4.96% reduction (or a reduction in 150,000 cubic feet) from the Original Footprint. Although the Feeder Canal is increased from 1,344,000 cubic feet to 2,106,000 cubic feet (or a net increase of 762,000 cubic feet or an increase by 56.7%), the Tailrace Canal is decreased from 1,680,000 cubic feet to 768,000 cubic feet (or a net decrease of 912,000 cubic feet or a decrease by 54.3%). In general, there is a greater decrease in volume area (as cubic feet) with the Proposed Footprint Change; or an overall reduction of 4.96%; thus indicating either a reduction or stationary change in the temperature of the Little Wood River based on volume alone.

Therefore, DEQ concurs that the Proposed Footprint Change would indeed reduce the overall size of the project from the Original Footprint. The overall volume (based on cubic feet) would also potentially be reduced (assuming a 12 foot height). Assuming that the same volume characteristics for project size translate into water volume characteristics, then the effect on temperature appears to be that either (1) the temperature would remain the same or (2) the temperature would be reduced slightly from the Original Footprint (by at least 4.96% based on cubic feet of water).

CONCLUSIONS

Based on these calculations the overall reduction in the footprint of the area of concern should not create an additional thermal issue with the Little Wood River as the receiving waterbody.

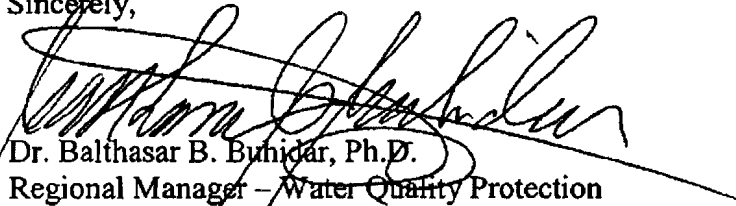
Mr. William Arkoosh
Mr. Nicholas Josten
September 24, 2009
Page 3

Essentially, the Proposed Footprint Change is less than the Original Footprint; and thus should not elevate the temperature of the Little Wood River above the level of the Original Footprint. In addition, DEQ discussed its conclusions with the Idaho Department of Fish and Game (IDFG-Jerome Field Office), and based on DEQ's calculations they concurred with the statistical conclusions.

Therefore, DEQ concludes that the increased Feeder Canal (in both surface area and volume size) in comparison to the decreased Tailrace Canal (in both surface area and volume size) should have an overall net stationary or net decrease on the temperature of the water discharging to the Little Wood River based on the overall decrease (in both the surface area and volume size) of the project size.

If you have any concerns or questions, please contact me directly at (208) 736-2190.

Sincerely,



Dr. Balthasar B. Buhidar, Ph.D.
Regional Manager - Water Quality Protection

Cc: Bill Allred, DEQ Regional Administrator - Twin Falls
Doug Megargle, IDFG-Jerome