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TO:
Pat Regan - Regional Engineer
Office of Energy Projects - FERC
Division of Dam Safety and Inspection
Portland Regional Office
101 Southwest Main Street - Suite 905
Portland, Oregon 97204

SUBJECT:
August Monthly Report for the Falls Creek Hydro-electric Project
FERC # P-11659

DATE SUBMITTED:
9/06/06

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Dear Mr. Regan,

Please find enclosed the Monthly Construction Report for the Falls Creek Hydroelectric Project, FERC # P-11659.

Gustavus Electric Company, as the licensee for the above project, submits this report.

Sincerely,

Richard Levitt
GEC President

Contact Richard Levitt (richardlevitt@cs.com) to add names to distribution list.

Falls Creek Hydroelectric Project (P-11659)
MONTHLY CONSTRUCTION REPORT TO FERC
August 2006

1) Progress of Work

The month of August was primarily devoted to road construction. Some site preparation of the penstock route was started. Work which supported road construction included additional drilling and blasting of the Blueberry Hill road cut, further development of the gravel pit, and initial stripping, drilling and blasting of the powerhouse access road cut (See figure 1).

2) Status of Construction

Removal of overburden from the powerhouse access road cut. Bedrock was encountered here and has been blasted once so far. Additional shots will be necessary to get to complete this road segment.

Road construction toward the powerhouse proceeded at a slow pace this month. On August 1, the road was adjacent the lower falls. For the next week, overburden material, consisting of hard pan clays, weathered clays, gravel and mud, peats and forest soils - was backhauled from the road route descending along the canyon rim. A total of 21,000 cu. yards was back hauled to the disposal site at the clear - cut to make new road for a length of 550 feet. Approximately 200 feet of this new road excavation was then drilled the following week and shot on August 16. Shot rock was excavated from the road alignment and stockpiled at the staging area on the bluff overlooking the powerhouse. No further work was done on the road to the powerhouse during the remainder of August.

Blueberry Hill road cut. The final road elevation will be ~ 20' below the present condition and will take an additional session of drilling and blasting.

On the road to the intake, additional stripping and backhauling in the "Blueberry Hill" area continued (see figure 1). The area was then drilled (300 holes) in preparation of blasting. It was shot on August 15. Some of the shot rock was used as future penstock route foundation material. Most of the shot rock was left in place and a road constructed on top of it. This shot will eventually yield approximately 10,700 cu. yards of rock for the road ahead to the intake. Working ahead, material was then backhauled to the disposal site near the Strip Fen Y. Shot rock was used for road construction toward the intake as the backhaul progressed.

The road cut just past Blueberry Hill was very steep with unstable soil, and required a lot of backhaul. Just ahead, the "Horseshoe Ridge" had to be excavated, requiring a 43-foot cut. A total of 40,000 cu. yards of material was backhauled in

this area. The material was mostly lodgment till clay that had been softened and mixed with weathered clays, muddy gravels and soils by an ancient mass wasting event. When this material was disturbed during excavation it turned semi-liquid, especially during the wetter periods of the month. This made it challenging to control erosion in this area and impossible to control the expansion of the Strip Fen Y disposal site. See the environmental section for more details here.

In addition to road construction, the penstock right of way adjacent the road was stripped to competent material from the intersection station 30+00, to station 51+00.

Deep cut through the Horse Shoe Ridge. Approximately 40,000 yards were hauled back to the Strip Fen Y waste site from here.

3) Construction Difficulties

As with every other month since the start of the project, precipitation was above normal (approximately double the monthly average). The wet conditions and unstable nature of the back haul materials made for difficult road building conditions and limited forward progress to only 1400 feet this month.

The sections of road to the powerhouse and to the intake completed this month were extremely difficult. However, this difficulty was not unexpected. It was not known what type of material would be encountered in these locations, and while we were hoping for usable gravel or possibly shot rock, it was no surprise that the backhaul was significant.

Penstock ditch preparations near the Strip Fen Y.

5) Critical Events and Dates

The Blueberry Hill road cut was shot on August 15, and almost immediately, backhauling started on the road ahead to the intake. On August 25, the backhaul cut through Horseshoe Ridge was complete. On August 24 alone over 6000 cu. yards of material was backhauled. On August 16, the road route to the powerhouse was shot and rock excavation continued. The continuation of the road to the powerhouse will require a series of small shots on the steep slope adjacent Falls Creek.

8) Sources of Major Construction Material

Rock from the Blueberry Hill road cut was used for construction of the intake road. Rock from the powerhouse access road cut was stock piled on the bluff above the powerhouse site. Material from the gravel pit continues

to be used for road topping and finer grading throughout the project area.

11) Photographs

Ten photo vantage points have been established throughout the project area. See Figure 1 for photo site locations and Appendix 1 for this month's photos.

12) Erosion Control and Other Environmental Measures

Although rain fall was considerably above normal during the month of August, existing sediment and erosion control measures were adequate for most of the project area. Two notable exceptions were as follows:

1. A pulse discharge of ~500 -1000 cubic feet of water occurred on August 7 at the powerhouse site approach road. The water had been collected in a sediment pond along side the road and above the creek reach extending from the lower falls. The discharge occurred as a consequence of "mopping out" the pond and loading trucks for backhauling. This event was unlikely to have effected stream turbidity levels for more than a few minutes as flows were high at this time.
2. Silt was introduced to the creek via two small springs in the vicinity of the Horse Shoe Ridge cut. The overburden material in this area is comprised of a glacial lodgement till that is much softer than most other examples encountered on the project area. The softness of this material is likely due to a mass wasting event that occurred in the ancient past and makes for a generally mucky work environment at both the cut and disposal ends of the operation. Persistent precipitation, heavy at times, has led to a near constant weeping of liquefied till along cut banks and onto the road. The fines in this material make there way through the road gravels and are transported toward Falls Creek by spring waters that travel through the road. The amount of sediment contributed to Falls Creek from this area has been too small to measure at sampling sites and at this point is a non-issue in terms of turbidity management. However, it is possible that a significant number of these small sediment sources could be created along the intake and powerhouse roads so the issue can not be completed ignored. A temporary pond on the uphill side of the road and a practice of "lifting" and burming the road has the situation under control in this area at present. Eventually, additional work on the backslopes, establishing permanent ditches and additional culverts will be necessary for long-term management of the situation.

Disturbed area from pulse discharge of sediment-pond water at the powerhouse site approach.

Silt and mud buildup on the road bed approaching the horse shoe cut. Cutbank weeping of liquefied lodgement till and weathered clay has been persistent in the latter days of the month. This is one area that is currently contributing sediment to Falls Creek, though the overall effect has been nominal.

It should be noted that turbidity levels have been well within parameters and there has been no

need for a stop work order associated with sediment and erosion control thus far.

A small rock slide occurred as a result of the first shot at the powerhouse access road cut. Approximately 1,500 yards of mostly rock slid down the steep canyon walls to the very edge of the creek. None of the material actually made it to the creek but the terminal lobe has settled within the flood plain and has been “washed” by one high flow event.

Consultation between the construction superintendent and the ECM resulted in a plan for expansion of the gravel pit. It was agreed that no additional marbled murrelet trees would come to harm through this expansion and an area was flagged to insure that tree and overburden removal would cause minimum impact to important habitat.

The spoils area near the Strip Fen Y continued to expand “glacially” as hauling back of overburden and waste material from deep cuts for road and penstock grade continued through the month. Persistent precipitation liquefied most haul back materials either at the point of removal or when placed in the dump site. The spoils area now covers approximately 4 acres of what used to be hemlock scrub forest and the terminus is nearing a fen/peat bog margin (wetlands). There has been an estimated 100,000+ cu. yards dumped in this site. We expect this area to continue to expand until the intake road has been completed. Alternative disposal areas and designs have been considered and minor modifications have been made.

The small slide that occurred in the vicinity of the Blueberry Hill road cut (described in the July report) appears to be stable at this time.

Slope stability in the area between Blueberry Hill and the Horse Shoe Ridge is worthy of concern. Much of the area is steep (>50% slope), wet and comprised of a mixture of previously disturbed lodgement till and weathered clay on bedrock. The construction superintendent should be commended for getting a road through this difficult area without a mass wasting event or significant sediment and erosion control issues during construction. However, it is likely that a mass wasting event of unknown proportions is imminent. The area immediately down-slope leads to Falls Creek. Other than standard erosion and sediment control measures, included ditching and culverting the road to reduce uphill loading from water and sediment, it is unclear what more can be done to prevent such an event - see photos on following page.

Rock slide from the powerhouse access road cut to the creek bank near the powerhouse site.

Aerial view of the gravel pit. The area on the right side of the current road alignment has been recently cleared of trees and will eventually be developed as a gravel source.

Aerial view of the Strip Fen Y spoils area. Mass wasting has occurred along the margins of this dump site, especially at the terminus. The total area covered is now approximately 4 acres.

Monitoring of turbidity in Falls Creek has been ongoing through the month of August. Sampling has occurred at the powerhouse site, at the Horse Shoe Ridge area and upstream of construction activities. A peak of 35 NTUs was recorded on August 17. The peak recording happened after two days of heavy rains and was associated with natural increases in stream turbidity. Typical turbidity readings ranged from 5-10 NTUs.

This was the situation on August 5th as the road construction crew came out of the Blueberry Hill cut and began side-hill cutting their way to the Horse Shoe Ridge cut. The materials encountered along this road segment were fairly unstable, wet in places and slopes exceeded 50% most of the way. Though no mass wasting event occurred during construction of this segment the probability is still high.

This was the situation on August 30th. The road segment from the Blueberry Hill cut through the Horse Shoe Ridge cut has been completed, minus ditches and culverts. The uphill slopes "weep" liquefied lodgement till and weathered clay onto the side of the road. Additional work on these slopes will be necessary to reduce micro-wasting processes and resultant sediment contributions to Falls Creek.

Two fuel spills were observed this month. Approximately 2 gallons of hydraulic fluid was spilled when a hose failed on one of the track-hoes - diapers were used to clean up the majority of the spill. Also, one of the dump trucks was leaking oil because during a maintenance event the drain plug was not put back tight enough. This situation was dealt with as soon as the crew were made aware of the leakage.

Biotic monitoring - A transducer and staff gage have been installed in the same location as a previous USGS station. This station will provide data for documenting flows during biotic monitoring surveys and for the frazzle ice modeling effort. A hobo weather station will be installed at this location during September for collection of wind speed and direction, air temp, redundancy on water temp and precipitation - also in support of frazzle ice modeling efforts.

Staff gage and transducer location.

Salmon foot counts began in the middle of July. No salmon were recorded in that month. The first pinks and chums were recorded early in August but numbers were relatively low. By mid-month pink numbers were up considerably. The foot count immediately following the high flows on August 17 documented the peak abundance for pinks at approximately 2900 fish. The last foot count of the month showed a significant decrease in numbers to 1100. Chums were scarce this season.

Monitoring of dolly abundance in the bypass reach has been problematic. A four day period of relatively little precipitation is necessary to complete the minnow trapping and snorkeling surveys. This has not occurred since August 1 so the monitoring has been postponed until improvements in the weather occur.

13) Wildlife Activity

Moose traffic was about the same as last month - most activity seemed transient. A wolf was seen on several occasions along the road segments approaching and departing the Strip Fen Y. Bear traffic increased again this month, especially near the anadromous reach, with signs of feeding at the current road terminus. It is noteworthy that very little construction activity occurred at the powerhouse site in the last half of the month, likely allowing for greater fish availability to bears than would be the case if drilling would have continued during this time. Foot counts documented up to 2,900 pinks in the anadromous reach. A red-tailed hawk was observed in the vicinity of the powerhouse site on 2 separate occasions while no goshawks were observed this month. We discovered evidence of a sea-level marine environment (in the form of clam shells, snail shells and barnacle basal plates) at the powerhouse site approximately 180 feet above current sea level. Samples were collected for potential carbon dating.

Fresh wolf tracks on the service road.

14) Nomenclature

The following nomenclature changes have been made for this and all future reports:

Old name	***New name***
Pit #3	*Rock pit*
Pit #4	*Blueberry hill road cut*
Pit #5	*Gravel Pit*

The following sections are not yet applicable to the date of this report:

4) Contract Status
6) Reservoir Filling
7) Foundations
9) Materials Testing and Results
10) Instrumentation

Clam shells were found in clay deposits approximately 180 feet above current sea-level.

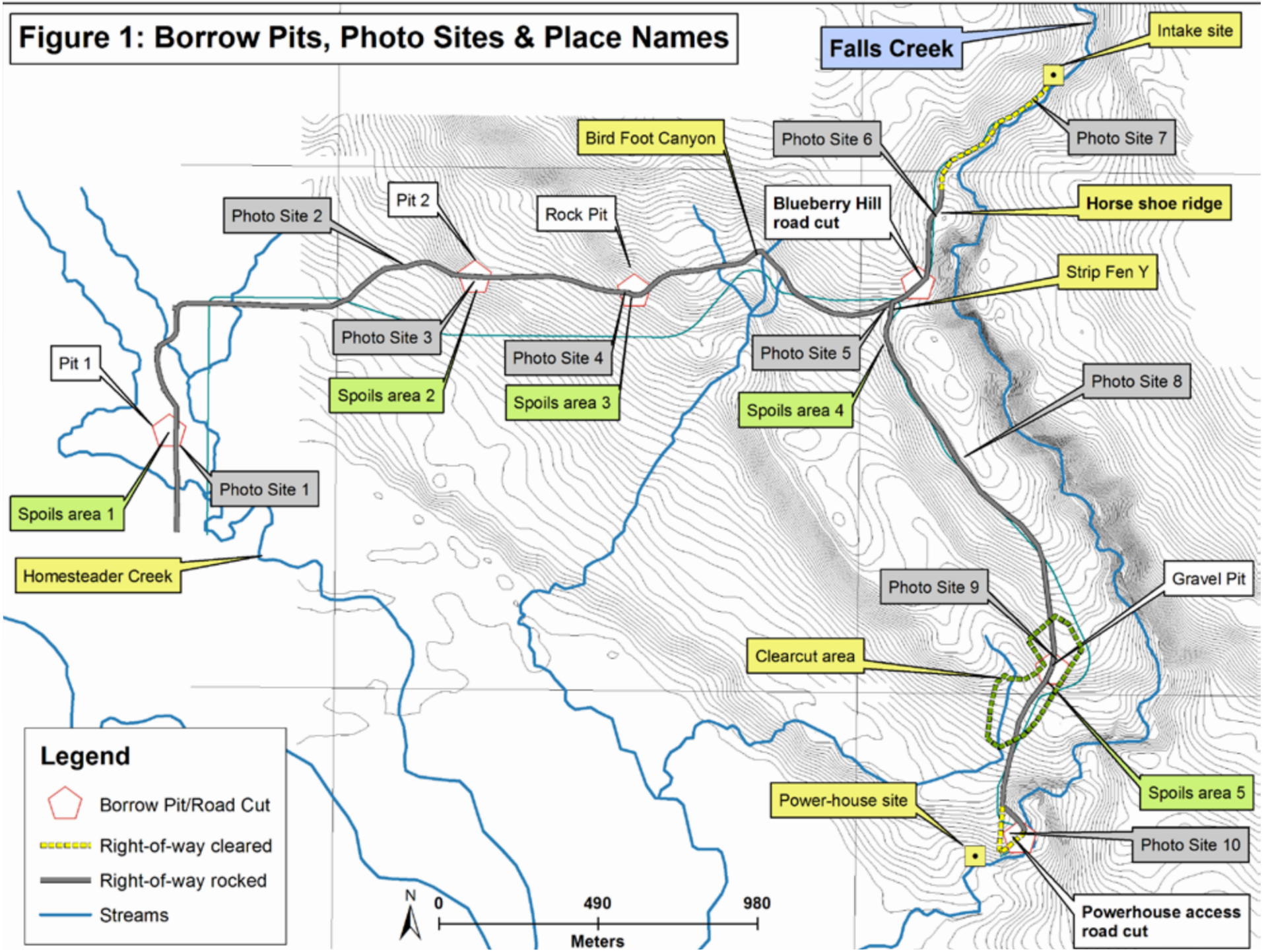
Figure 1: Borrow Pits, Photo Sites & Place Names
Falls Creek
Intake site
Photo Site 7
Bird Foot Canyon
Photo Site 6
Horse shoe ridge
Blueberry Hill road cut
Pit 2
Photo Site 2
Rock Pit
Strip Fen Y
Photo Site 3
Photo Site 4
Photo Site 5
Photo Site 8
Pit 1
Spoils area 2
Spoils area 3
Spoils area 4
Photo Site 1
Spoils area 1
Homesteader Creek
Photo Site 9
Gravel Pit
Clearcut area
Spoils area 5
Power-house site
Photo Site 10
Powerhouse access road cut
Legend
Borrow Pit/Road Cut
Right-of-way cleared
Right-of-way rocked
Streams
N
0
490
980
Meters

APPENDIX 1: AUGUST PHOTOS FROM VANTAGE POINTS

01_photo_site.jpg

02_photo_site.jpg

03_photo_site.jpg

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