UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
IDAHO OPERATIONS OFFICE
1435 N. Orchard St.
Boise, Idaho 83706

MEMORANDUM

DATE: July 1, 2008

SUBJECT: May 15, 2008 Site Inspection at Sackett Property

FROM: John M. Olson
Wetland Ecologist

TO: File

1. Introduction

A. On May 15, 2008, I conducted an inspection of the area around the Chantell and Michael Sackett property located near Kalispell Creek and Priest Lake in NE¼ Section 12, T 60 N, R 5 W, B. M. in Bonner County, Idaho (Attachment 1). The purpose of this site inspection was to examine the hydrologic conditions of the site and the surrounding area and to evaluate connections with other waters.

B. Prior to visiting the site, I went to the U. S. Forest Service Priest Lake Ranger District and examined historic aerial photographs of the project area. I examined original black and white aerial photographs from 1932 (labeled 693K32 and 694K32). These photographs were taken prior to Kalispell Bay Road being constructed. In these photographs the wetlands on the Sackett property appear contiguous with the wetlands to the north and appear as a continuous wetland to Priest Lake. A primitive road or trail appears to exist near the lakefront and a shoreline beach appears to constrict the wetland toward the west near Priest Lake. Photocopies of these original photographs are included as Attachment 2.

C. I arrived at the site at approximately 12:30 pm. I was accompanied by Michael Doherty (U. S. Army Corps of Engineers, Walla Walla District, Regulatory Division, Coeur d'Alene Field Office). The weather during the site inspection was dry and sunny with temperatures in the 70s. There was no snow on the site, inundation and ponding were limited to wetland and other aquatic areas, and upland areas were dry. I stayed at the site and in the area until approximately 6:00 pm.

2. Observations

A. I observed that all portions of the Sackett property where native soil was removed but fill material had not been placed (*i.e.*, along the east, south, and west edges of the property) were inundated or ponded/saturated to the surface

(Attachment 3, photographs 1 - 4). The water surface levels along the east side of the fill appeared to be approximately 6 to 12 inches higher than the water surface level along the west side of the fill (*i.e.*, inundated along east side, ponded/saturated to the surface along west side).

B. The vegetation at the site was in the growing season as evidenced by previously dormant vegetation now greening up and leafing out.

C. I observed that the wetland north of Kalispell Bay Road was inundated with 1 to 2 feet of water (Attachment 3, photographs 5 - 7). There is a substantial flow (estimated approximately 5 to 10 cubic feet per second) of surface water flowing through the outlet stream along the north side of Kalispell Bay Road to Kalispell Creek (Attachment 3, photographs 8 - 12). Beaver have been active in the outlet stream as evidenced by vegetation cut and placed in the channel (Attachment 3, photograph 16). A relatively large trout (perhaps 14 inches) was observed near the upstream end of the outlet stream. The water surface elevation on the north side of Kalispell Bay Road was approximately 2 feet below the road surface elevation.

D. The water surface elevation south of Kalispell Bay Road along the Sackett property was approximately 3 feet below the road surface elevation. I found no culverts through Kalispell Bay Road in the project area. I did not observe any surface water flow from the north side of Kalispell Bay Road to the south side. I also did not observe any obvious signs of seepage on the south side of Kalispell Bay Road above the water surface elevation. However, I believe it is likely there is shallow subsurface flow occurring below the water surface elevation between the northern wetland and the Sackett wetland as described below in Section 3.A.(4).

E. I observed that the area on the south side of the Sackett property along Old Schneider Road was inundated. There was no obvious surface flow from the Sackett property wetland to Priest Lake.

F. Priest Lake appeared to be approximately 2 feet below its normal high water elevation (Attachment 3, photographs 17 - 18). Along the lake shoreline immediately south of the Sackett property were 2 small drainage pipes (approximately 4 inch diameter) emerging from the shoreline (Attachment 3, photograph 19). One of the pipes had a discharge flow of approximately 2 to 3 gallons per minute going directly into Priest Lake (Attachment 3, photograph 20). These discharge pipes are located along the shoreline in front of the red-roofed house shown on the left side of photograph 21 (Attachment 3). It is approximately 300 linear feet from the southern edge of the Sackett wetland to the discharge pipes and Priest Lake. The water surface elevation in Priest Lake appeared to be approximately 8 to 10 feet below the elevation of the Sackett property wetlands (Attachment 3, photograph 21).

3. Ecology and hydrology of Sackett wetland

A. Michael Doherty is a biologist with the U. S. Army Corps of Engineers, Walla Walla District, Regulatory Division and works in the Coeur d'Alene Field Office in Coeur d'Alene, Idaho. Mike has worked in that office since 1984 covering northern Idaho, including the Priest Lake area. Mike almost certainly has more experience than anyone else in wetland identification and assessment and in wetland hydrology observations/knowledge in this area. Based on our observations and training/experience in wetland ecology and hydrology, our understanding of the ecology and hydrology of the Sackett wetland and the surrounding area is as follows:

(1) The outlet stream leading from the wetland on the north side of Kalispell Bay Road to Kalispell Creek is a constructed channel and appears to be perennial based on the amount of flow and the channel size and form. This stream is also mapped as perennial on the USGS Priest Lake SW Quadrangle (Attachment 1).

(2) The Sackett property wetland was clearly part of one wetland system with the wetland north of Kalispell Bay Road prior to construction of Kalispell Bay Road due to its similar landscape position and similar vegetation community. Without Kalispell Bay Road and the artificially constructed channel on the north side of Kalispell Bay Road, the entire flow from the drainage area of the unnamed stream [approximately 1.36 square miles with an estimated mean annual flow of 1.81 cubic feet per second (USGS StreamStats, Ungaged Site Report)] would have flowed out of the south end of the Sackett wetland to Priest Lake because that area had the lowest elevations leading to the lake.

(3) This wetland system is the Kalispell Bay Fen. Fens and bogs are peatland systems which are generally defined as wetlands with waterlogged substrates and at least 30 cm of peat accumulation. These peatlands contain species that are adapted to the unique set of conditions in these habitats (saturated, oxygen-free, nutrient-poor, and acidic conditions which limit microbial breakdown of plant tissue leading to the accumulation of peat). Peatlands are rare in northern Idaho and have great importance because of their rare flora and their role as carbon sinks. Peatlands are also very sensitive to subtle changes in water levels and nutrient inputs from adjacent lands[1]. The Kalispell Bay Fen is a shrub-dominated fen with a number of rare plant occurrences, including small cranberry (*Vaccinium oxycoccos*), arctic starflower (*Trientalis arctica*), poor sedge (*Carex paupercula*), and crested shield-fern (*Dryopteris*

[1] Bursik, RJ and RK Mosely. 1995. Ecosystem Conservation Strategy for Idaho Panhandle Peatlands. Conservation Data Center, Idaho Department of Fish and Game. 37 pp.

cristata)[2]. The Kalispell Bay Fen was ranked number 55 of 200 wetlands throughout Idaho identified as priority wetlands for conservation[3].

(4) Even with Kalispell Bay Road affecting surface flow between the wetlands on the north and south sides of the road, it is evident that shallow subsurface flow is occurring between these wetlands based on the following:

(a) The wetland plant community persists south of Kalispell Bay Road and appears to be the same plant community type (dominated by willow, dogwood, and spirea) that occurs in the wetland on the north side of Kalispell Bay Road.

(b) The area draining into the Sackett wetland does not appear to be sufficient by itself (*i.e.*, without flow from the area north of Kalispell Bay Road) to provide the amount of water necessary to account for the extent of observed wetland hydrology (hill slope to east of Sackett wetland only provides several acres of drainage to the Sackett wetland).

(c) Underlying sands and gravel from granitic outwash typically underlie the stream valleys around Priest Lake[4]. The high permeability of these soils can provide substantial shallow subsurface flow.

(5) The Sackett wetland is adjacent to, but does not abut, the unnamed tributary to Kalispell Creek. The Sackett wetland is separated from the unnamed tributary to Kalispell Creek by Kalispell Bay Road, a man-made barrier. Kalispell Bay Road consists of a paved road surface on top of a road fill measuring approximately 30 feet wide at its base and approximately 3 to 4 feet above the ground elevation of the wetlands on both the north and south sides of the road. This road fill appears to consist of typical road fill material for the area, including gravels, sands, and fine soil material. This road fill acts a barrier to prevent surface water flow from the northern wetland to the Sackett wetland on the south side of the road and to divert that surface water into the unnamed tributary leading to Kalispell Creek. The unnamed tributary to Kalispell Creek is most likely a perennial stream as described above and it is certainly a relatively permanent tributary based on USGS mapping and its flow and channel size and form. Kalispell Creek (Attachment 3, photographs 13 - 15) is a

[2] Jankovsky-Jones, M. 1997. Conservation Strategy for Northern Idaho Wetlands. Conservation Data Center, Idaho Department of Fish and Game. 35 pp.
[3] Hahn, L, C Murphy, A Schmdit, T Fields. 2005. Idaho Wetland Conservation Prioritization Plan. Conservation Data Center, Idaho Department of Fish and Game. 17 pp.
[4] Idaho Department of Environmental Quality. 2001. Priest River Subbasin Assessment and Total Maximum Daily Load. 229 pp.

perennial stream based on USGS mapping, its flow (summer base flow at the mouth of Kalispell Creek is estimated at 15 - 20 cfs[5]), its channel size and form, and Mike's personal knowledge of the stream. To evaluate the significant nexus of the Sackett wetland to the nearest downstream traditional navigable water (Joint Corps of Engineers and EPA Memorandum "Clean Water Act Jurisdiction Following the U. S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States" dated June 5, 2007) requires an evaluation of the relevant reach of the tributary and all wetlands adjacent to that stream reach. The relevant reach of the unnamed tributary near the Sackett wetland is from the upstream location where two first order streams join to form the second order stream downstream to the junction of this second order stream with Kalispell Creek (approximately 3500 linear feet).

(6) The nearest downstream traditional navigable water (TNW) is Priest Lake. Kalispell Creek enters Priest Lake approximately 1,000 linear feet downstream of where the unnamed tributary enters Kalispell Creek. Priest Lake is a large lake [62 miles of shoreline, surface area of 23,360 acres (36.5 square miles), and a maximum depth of 369 feet[6]] which is navigable in fact[7] and which supports substantial commerce, including boat rentals[8], fishing guides[9] [10], public campgrounds and boat ramps[11], and private marinas[12] [13]. Previous Jurisdictional Determinations performed by the Corps of Engineers around Priest Lake have determined that Priest Lake is a TNW.

(7) An evaluation of the ecological functions that the wetlands adjacent to the relevant reach of the unnamed tributary provide to Priest Lake shows the following:

> (a) Water quality benefits to Kalispell Creek and Priest Lake through sediment retention. Kalispell Creek is listed as impaired for cold water beneficial use due to sediment[14]. Fish sampling data have suggested an impaired salmonid fishery due to excessive stream bedload of sand which has filled aquatic habitats, including pools and spawning gravels. Historically, adfluvial cutthroat trout

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[5] Idaho Department of Environmental Quality. 2001. Priest River Subbasin Assessment and Total Maximum Daily Load. 229 pp.
[6] Idaho Department of Fish and Game. 2007. Fisheries Management Plan 2007 – 2012. 373 pp.
[7] http://www.priestlake.org/recreation/boating.html
[8] http://www.cavanaughbayresort.com/pages/Rentals
[9] http://www.fishingidaho.com/
[10] http://www.wildernesscharters.com/charters.php
[11] http://www.priestlake.org/campground.html
[12] http://www.bluediamondmarina.com/
[13] http://www.cavanaughbayresort.com/
[14] Idaho Department of Environmental Quality. 2001. Priest River Subbasin Assessment and Total Maximum Daily Load. 229 pp.

populations spawned in Kalispell Creek. Excessive sediment, along with significantly suppressed cutthroat populations in Priest Lake and the competitive advantage of the introduced brook trout over native salmonids in sediment impaired waters, have reduced the quality of Kalispell Creek to native salmonids. Although Priest Lake still maintains high water quality, excessive sediment load from tributary streams can impact the biological, physical, and chemical conditions of Priest Lake through modifying the inputs from these tributaries. Because of their location in the landscape (near the bottom of a drainage area) and their topographic relief (flat), the subject wetlands have a high opportunity and function for capturing sediment within the wetland before it enters Kalispell Creek and Priest Lake. Along with retaining sediment, the wetlands adjacent to the relevant reach of the unnamed tributary also have a high opportunity and function for capturing excessive nutrients and other water-borne pollutants from the watershed. Retaining sediments and nutrients in the wetland is especially important so that these materials do not enter Kalispell Creek and cause further impairment to the creek and its aquatic resources, including salmonids. Furthermore, although the water quality in Priest Lake is currently very good, the retention of sediments and nutrients in tributary wetlands plays a very important role in maintaining this water quality and the biological integrity of the lake. Good water quality is the foundation of the lake's ecosystem. The public uses of the lake, especially the water-based recreation including fishing, are dependent on good water quality and the aquatic resources it supports. For example, maintaining this good water quality is a critical component in the efforts to restore the westslope cutthroat trout fishery in the lake.

(b) Contribute base flow to Kalispell Creek with fisheries benefits to Kalispell Creek and Priest Lake. Kalispell Creek has a peak runoff in spring from snowmelt and spring rains estimated at 130 - 150 cubic feet per second (cfs). Summer base flow at the mouth of Kalispell Creek is estimated at 15 - 20 cfs[15]. The wetlands adjacent to the relevant reach of the unnamed tributary include the Kalispell Bay Fen as described above. This peatland has waterlogged substrates and extensive amounts of organic material. These characteristics allow the peatland to hold large amounts of water as peak runoff occurs in the drainage area of the unnamed tributary. Although the drainage area (1.36 square miles) is a relatively small component of the Kalispell Creek watershed (39.4 square miles), the large area of the Kalispell Bay Fen wetland (approximately 30 - 35 acres) provides a significant amount of

[15] Idaho Department of Environmental Quality. 2001. Priest River Subbasin Assessment and Total Maximum Daily Load. 229 pp.

water storage within the drainage area of the unnamed tributary. This reservoir of water held in the wetland during peak runoff provides a more stable and continuous flow (base flow augmentation) to downstream waters through both the unnamed tributary surface flow to Kalispell Creek and the shallow subsurface connection to Priest Lake.

(c) Flow attenuation. In addition to base flow augmentation, the storage of water in the wetland during peak runoff reduces high flow discharges from the unnamed tributary into Kalispell Creek. This reduced flow carries less sediment into Kalispell Creek than higher flows and also reduces the instantaneous flow in Kalispell Creek. Both of these functions help to reduce the sediment load in Kalispell Creek. Reducing sediment load in the creek and to Priest Lake is one of the identified strategies for maintaining the biological integrity of these waters[16].

(d) Provide aquatic food base support through invertebrate production. Aquatic invertebrate production in the wetlands adjacent to the relevant reach of the unnamed tributary is expected to be substantial because of the amount of inundation over the large Kalispell Bay Fen wetland. Such production of invertebrates supports fish and wildlife species that occur within the wetlands and the unnamed tributary (*e.g.*, brook trout, yellow warbler, and waterfowl) and that also occur in or near Priest Lake. In addition, due to hydrologic connectivity, species in downstream waters can be affected if either the species (*e.g.*, salmonids) or their prey (*e.g.*, benthic macroinvertebrates) are affected by food web support in upstream waters. This ecological connectivity can be especially important in headwater stream systems[17] such as the relevant reach of the unnamed tributary.

(e) Fish movement from/to Priest Lake. The direct surface connectivity between the unnamed tributary and Priest Lake allow fish the opportunity to move back and forth between these habitats. Historical populations of cutthroat trout and bull trout in Priest Lake were adfluvial, residing in the lake and entering tributaries to spawn. These populations are substantially depressed. Cutthroat trout continue to persist as resident populations in tributary streams. Brook trout have become the dominant salmonid in many

[16] Idaho Department of Environmental Quality. 2001. Priest River Subbasin Assessment and Total Maximum Daily Load. 229 pp.

[17] Freeman, MC, CM Pringle, and CR Jackson. 2007. Hydrologic Connectivity and the Contribution of Stream Headwaters to Ecological Integrity at Regional Scales. *Journal of the American Water Resources Association* (JAWRA) 43(1):5-14.

tributary streams[18]. Maintaining the hydrologic connectivity between Priest Lake and the unnamed tributary provides the ecological connectivity for fish life stages in the Priest Lake basin. These connections can be especially important for protecting the bull trout and cutthroat trout fishery in Priest Lake. Idaho Department of Fish and Game has identified improving habitat conditions in tributary streams as one of their programs to protect these fish[19].

(8) Specific hydrologic connections of the Sackett wetland to other waters are as follows:

(a) Shallow subsurface flow to Priest Lake due to elevation gradient from the wetland down to Priest Lake, the underlying soils, and the flow gradient from north of Kalispell Bay Road following the historic flow route to Priest Lake (per 1932 USFS aerial photographs). The drainage pipes providing flow to Priest Lake (see 2.F. above) could also be an indication of shallow subsurface flow between the wetland and Priest Lake. Such drainage pipes are typically used to provide drainage for development with high ground water conditions. High ground water conditions would be expected in areas where a wetland has a shallow subsurface connection between the wetland and discharge to a down gradient waterbody. The high ground water at the Sackett wetland, the down gradient slope to Priest Lake, and the drainage pipes between the Sackett wetland and Priest Lake are strong indications of this shallow subsurface flow.

(b) Possible hydrologic connection to the outlet channel north of Kalispell Bay Road if the flow and water level north of Kalispell Bay Road is so low (such as through a persistent drought) that the outlet channel would act to carry flow from wetlands both north and south of Kalispell Bay Road through shallow subsurface flows.

(9) Influence of Sackett wetland to Priest Lake through shallow subsurface flow directly to Priest Lake is as follows:

(a) Water quality improvement (runoff to wetland from adjoining areas is improved through sediment retention and nutrient uptake before moving through the shallow subsurface and entering Priest Lake).

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[18] Idaho Department of Environmental Quality. 2001. Priest River Subbasin Assessment and Total Maximum Daily Load. 229 pp.
[19] Idaho Department of Fish and Game. 2007. Fisheries Management Plan 2007 – 2012. 373 pp.

(b) Flow attenuation (retains runoff and upstream shallow groundwater flow during higher flows and releases it slowly to Priest Lake).

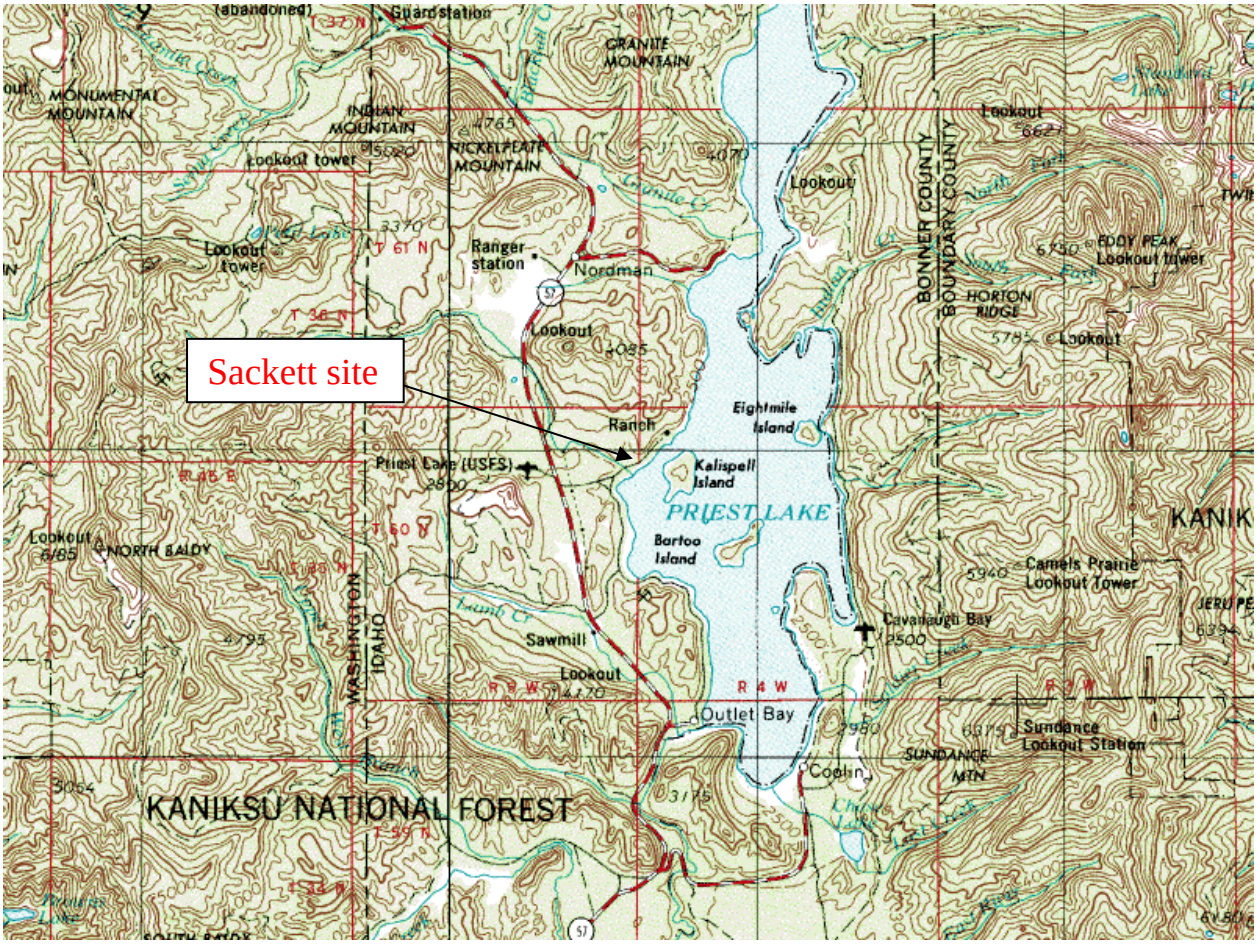
B. Mike stated that there are relatively few of these types of wetlands around the entirety of Priest Lake. U. S. Fish and Wildlife Service National Wetland Inventory mapping[20] shows only approximately four other wetlands along the 62 mile Priest Lake shoreline that are at least as large in size and in similar landscape position as the subject wetlands along Kalispell Bay Road. These wetlands provide important benefits to Priest Lake including water quality improvement through sediment reduction and nutrient retention and uptake, fish and wildlife benefits through habitat and food base support, and hydrologic benefits through flow attenuation and base flow augmentation. With such limited amounts of wetlands on the lake, the functions performed by these wetlands are especially important in maintaining the high quality of Priest Lake's water, fish, and wildlife.

[20] Jankovsky-Jones, M. 1997. Conservation Strategy for Northern Idaho Wetlands. Conservation Data Center, Idaho Department of Fish and Game. 35 pp.

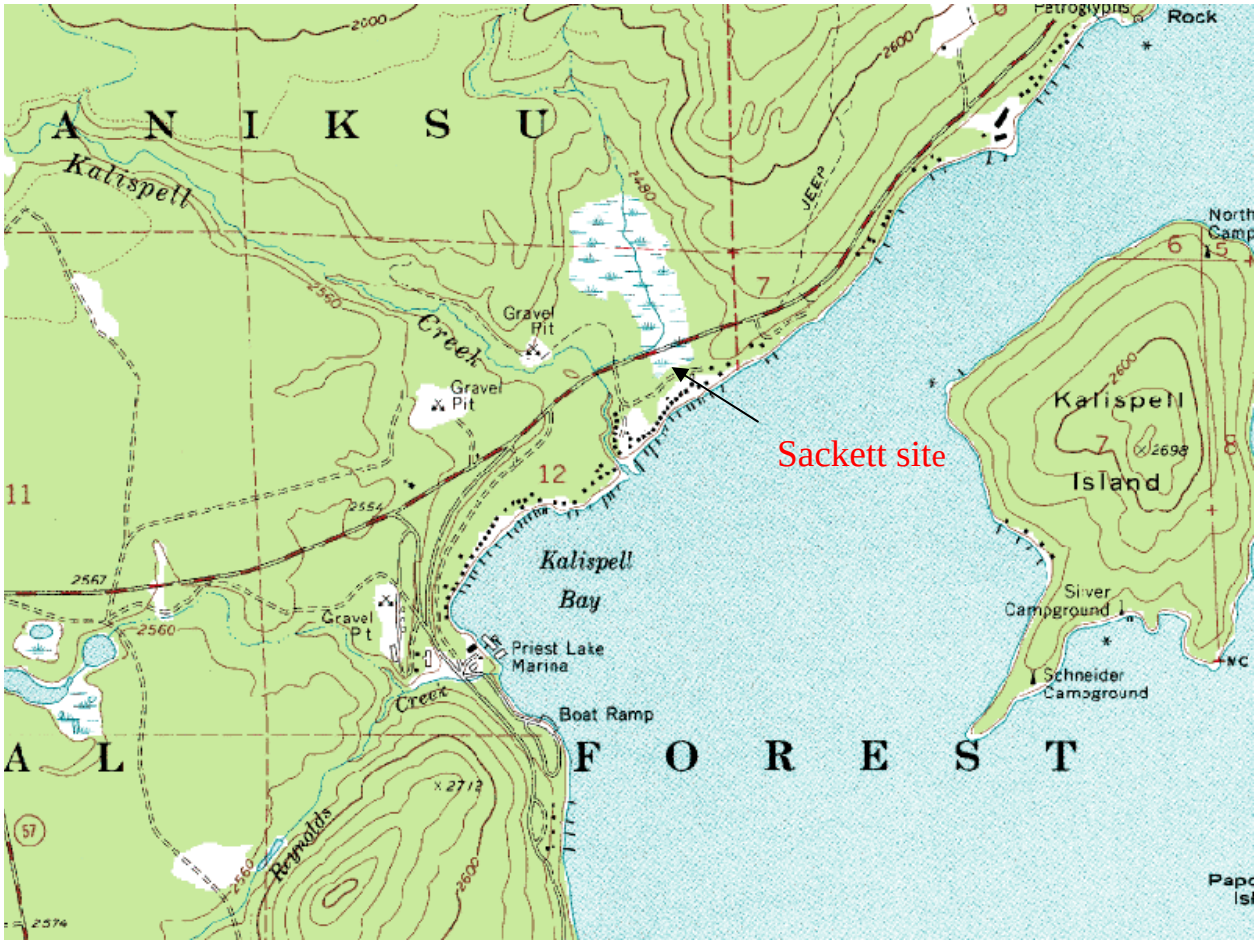
ATTACHMENT 1 - SITE LOCATION

Chantell and Michael Sackett, 1604 Kalispell Bay Road
NE ¼ Section 12, T 60 N, R 5 W, B. M. in Bonner County, Idaho

General location map

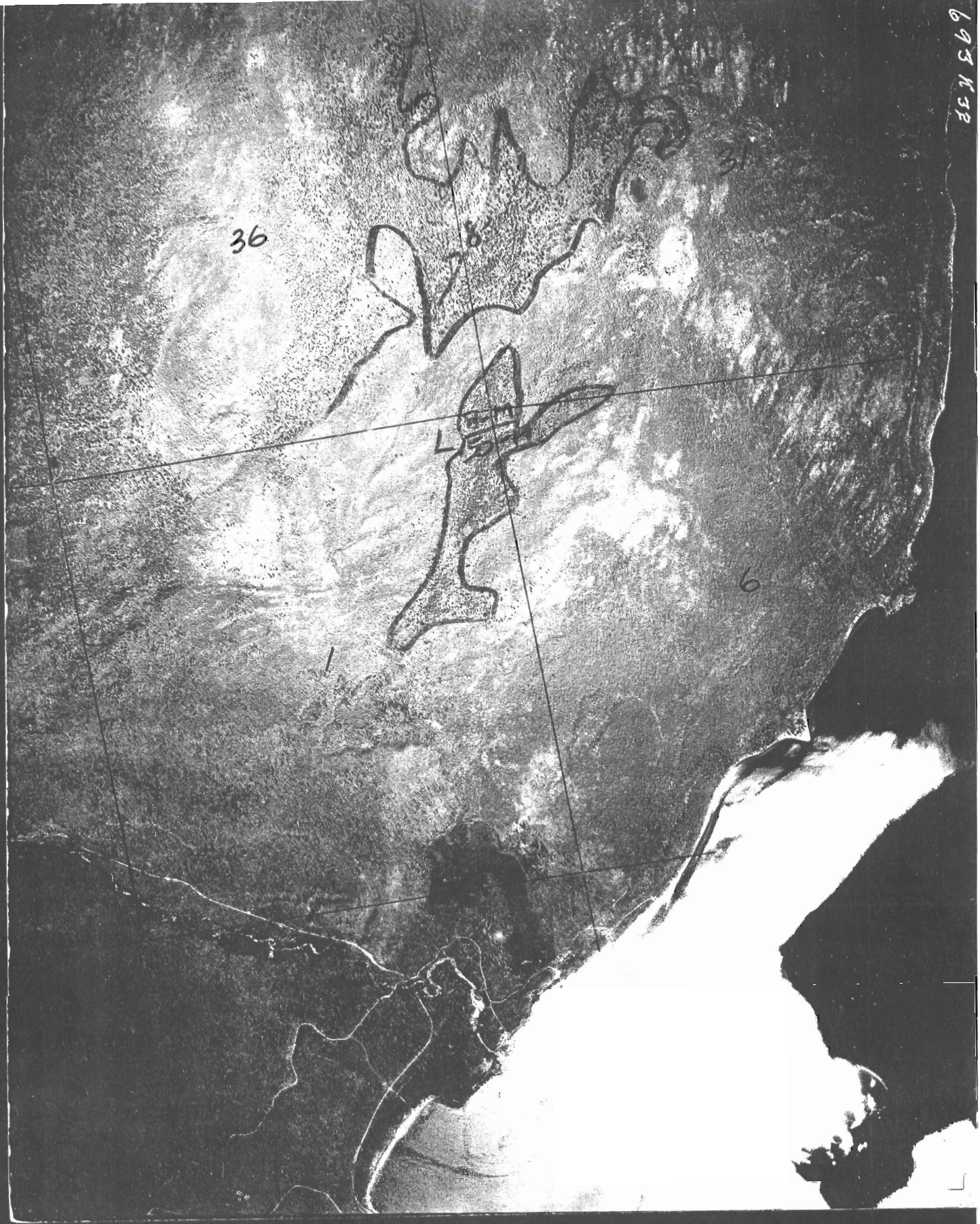


Topographic map – USGS Priest Lake SW, Idaho



Aerial imagery, Google Earth

ATTACHMENT 2 – U. S. Forest Service 1932 Aerial Photographs (photocopies)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31
6
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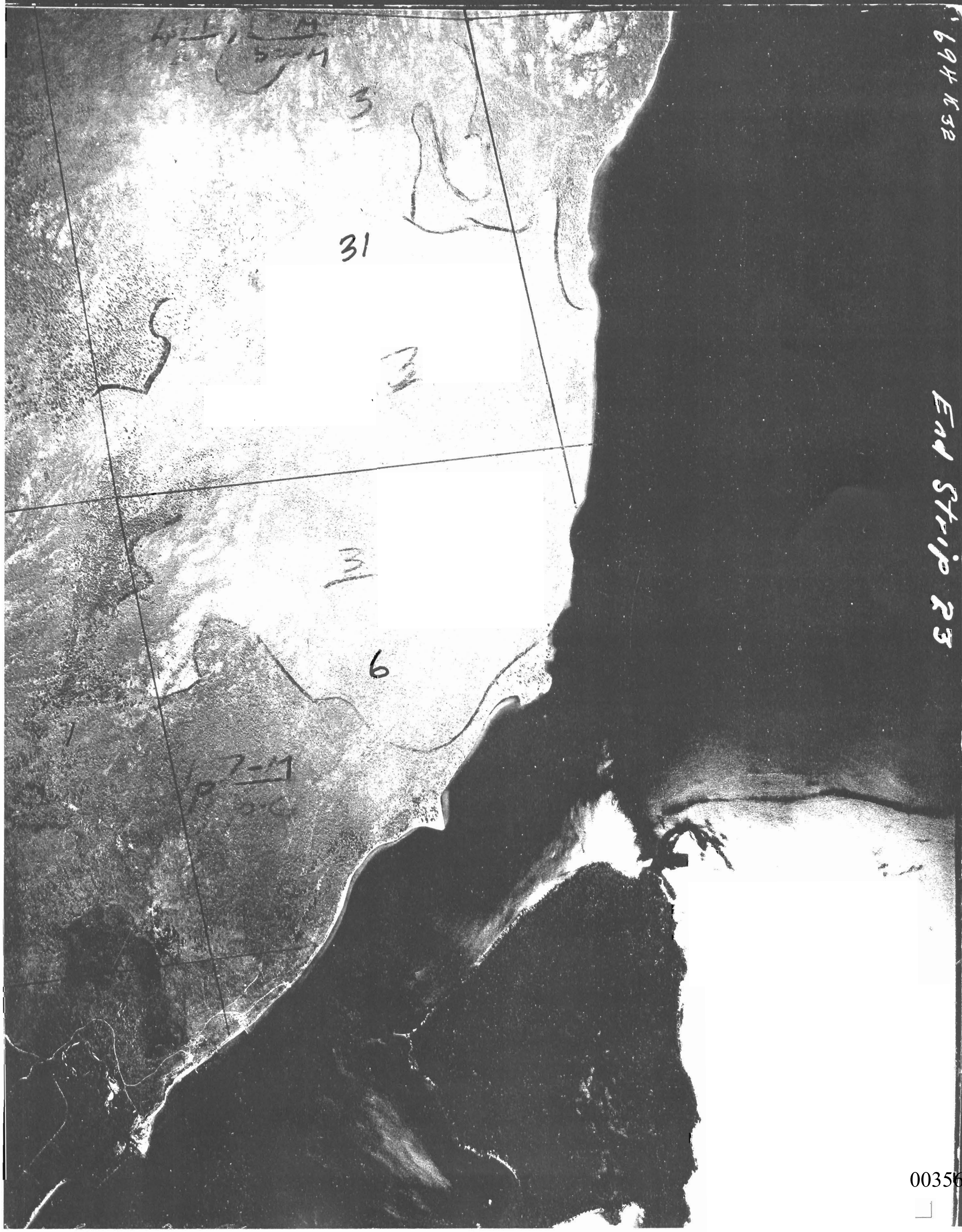
694 K 32
End Strip 23
31
3
3
6

ATTACHMENT 3 - SITE PHOTOGRAPHS

Chantell and Michael Sackett, 1604 Kalispell Bay Road
NE ¼ Section 12, T 60 N, R 5 W, B. M. in Bonner County, Idaho

Photograph 1 - View south from Kalispell Bay Road along east edge of Sackett property

Photograph 2 - View south from Kalispell Bay Road along west edge of Sackett property

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008

Photograph 3 - View north from Old Schneiders Road of south and east edges of Sackett property

Photograph 4 - View north from Old Schneiders Road of south and west edges of Sackett property

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008

Photograph 5 - View from Kalispell Bay Road of wetland on north side of Kalispell Bay Road

Photograph 6 - View from Kalispell Bay Road of wetland on north side of Kalispell Bay Road

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008

Photograph 7 - View from Kalispell Bay Road of wetland on north side of Kalispell Bay Road

Photograph 8 - View of outlet channel on north side of Kalispell Bay Road flowing west toward Kalispell Creek

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008

Photograph 9 - View of outlet channel on north side of Kalispell Bay Road flowing west toward Kalispell Creek

Photograph 10 - View of outlet channel on north side of Kalispell Bay Road flowing west toward Kalispell Creek

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008

Photograph 11 - View of outlet channel on north side of Kalispell Bay Road flowing west toward Kalispell Creek

Photograph 12 - Mouth of outlet channel at Kalispell Creek on north side of Kalispell Bay Road

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008

Photograph 13 - View upstream of Kalispell Creek at Kalispell Bay Road

Photograph 14 - View downstream of Kalispell Creek at Kalispell Bay Road

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008

Photograph 15 - View downstream of Kalispell Creek at Kalispell Bay Road

Photograph 16 - View of recent beaver activity in outlet channel on north side of Kalispell Bay Road

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008

Photograph 17 - View east along shoreline of Priest Lake south of Sackett property

Photograph 18 - View west along shoreline of Priest Lake south of Sackett property

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008

Photograph 19 - Drainage pipes at shoreline of Priest Lake south of Sackett property

Photograph 20 - Flow from drainage pipes entering Priest Lake south of Sackett property

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008

Photograph 21 - View south to Priest Lake from Old Schneiders Road on south edge of Sackett property. Priest Lake is approximately 300 linear feet from south edge of Sackett property.

Photograph 22 - Public boat dock at Kalispell Boat Launch on Priest Lake

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008

Photograph 23 - Public boat dock at Kalispell Boat Launch on Priest Lake

Photograph 24 - Public boat ramp and dock at Kalispell Boat Launch on Priest Lake

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008

Photograph 25 - Fee station at Kalispell Boat Launch on Priest Lake

Photograph 26 - Priest Lake Marina on Priest Lake

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008

Photograph 27 - Priest Lake Marina on Priest Lake

Photograph 28 - Priest Lake Marina on Priest Lake

All photographs taken by John M. Olson, Wetland Ecologist, USEPA Region 10, on May 15, 2008