National Park Service
U.S. Department of the Interior

Denali National Park and Preserve
Alaska

Finding of No Significant Impact

Eldorado Creek Mining Plan of Operations

June 2016

Recommended: _____ 6/10/16
Superintendent, Denali National Park and Preserve — Date

Approved: _____ 6/14/2016
Regional Director, Alaska — Date

FINDING OF NO SIGNIFICANT IMPACT

Eldorado Creek Mining Plan of Operations
Denali National Park and Preserve, Alaska
June 2016

The National Park Service (NPS) prepared an environmental assessment (EA) to evaluate impacts of approving a mining plan of operations on the Liberty Claims on Eldorado Creek in the Kantishna Hills areas of Denali National Park and Preserve (DENA).

The NPS has selected **Alternative 2 – Authorize the Proposed Mining Operations on the Liberty Claims with National Park Service Stipulations (Proposed Action with Stipulations)**, with the mitigation measures. Under Alternative 2, the NPS will approve the mining plan of operations (MPO) for ten years on the Liberty unpatented placer claims. A re-authorization will require a new MPO at that time. This authorization will include NPS stipulations for resource protection. These stipulations will constitute a mitigation plan designed to minimize and/or prevent potential environmental impacts to park resources and values and will be conditions to the authorization to mine.

Responses to public comments are found in Attachment A**.**

ALTERNATIVES

The following two alternatives were evaluated in the EA.

Alternative 1: ***No Action*** (Environmentally Preferable Alternative)
Under the No Action alternative, the NPS would not approve the operator's proposed mining plan of operations. As a result, authorized mining would not occur on the Liberty claims on Eldorado Creek..

Alternative 2: ***Authorize the Proposed Mining Operations on the Liberty Claims with National Park Service Stipulations (Proposed Action with Stipulations)***
Under Alternative 2, Kris DeVault will be approved for ten years for the purpose of accessing and conducting a suction dredge placer gold mining operation on the Liberty #9 and Liberty #13 through #18 (Liberty) unpatented mining claims located in the Kantishna Hills area of Denali National Park and Preserve.

Access to the claims during the approximate 100 day mining season will consist of driving along the Denali Park Road to Kantishna, fording Moose Creek on a right-of-way easement on property owned by Doyon LTD, and then driving upstream on the Eldorado Creek access road for 1.5 miles to the mining claims. The access road will be used for about two miles while working on the claims. The access road to and through the claims (about 3 miles total) was damaged by the powerful June 2014 flood and will be repaired by the permittee.

An average of 15 road Denali Park Road travel permits will be requested by the permittee to support the mining operations per season. While on the claims, trucks and ATVs used to conduct mining operation will travel along the access road as necessary. Standards for maintenance of the access road are included in the plan stipulations. Annual access road maintenance and brush clearing during mining operations will keep the access road in usable condition and will be the responsibility of the mining operator.

The access road will be repaired for use by trucks and ATVs. See Appendix G of the EA for a list of proposed repairs and see Appendix H of the EA for related photographs. An excavator will be used to clear debris, level the road bed, move boulders, smooth out the approaches to creek crossings, and move the stream back into the streambed in two places where it had captured the road. In some areas material from the streambed will be removed to help level the access road or help lower the channel so that the stream stays in the channel and not in the access road. Chainsaws will be used for brushing the access road to a 9-10 foot width clear of branches.

These repairs include about 2,045 feet of light grading and 300 feet of moderate grading on the 6,864 feet of access road to reach the claim block, and another 1,993 feet of light grading and 995 feet of moderate grading and improvements on the 8,448 feet of access road on the claim block. At the three Option Areas presented in Appendix G of the EA, the two option areas downstream of the claims (Options 9 and 13) will drive in the old creek bed. At Option 22, on Liberty #15 (see Figures 6 and 7 of the EA), the roadbed will be reclaimed and the creek diverted back into its pre-2014-flood channel. The excavator will be a 160 to 220 size model, 30,000 to 55,000 pounds and will burn 6 to 10 gallons of diesel an hour. It will have a bucket/thumb combination with a blade for grading.

A spike camp will be set up prior to initial road work about ¼ mile west of Kantishna, and then a primary work camp will be set up near the historic Comstock Cabin on the claims, using temporary structures and a site-built small bathhouse, fuel storage building, and an equipment storage building. The Comstock Cabin will be rehabilitated for use under the supervision of the park's cultural resources manager.

Suction dredging of the stream bed will include using the following main tools: 4", 6" and 8" hoses and associated pumps and floating sluice boxes to suction small gravels and gold from the upper bedrock at the bottom of the streambed and run that material through the sluice box; a Gold Cube to further classify/reduce the concentrates found in the sluice box; and a winch – off a chain saw or truck – to pull bucket loads of larger cobbles and boulders back out of the pool that is being dredged; 5.5 to 232 hp generators; air compressors; and a handheld metal detector. No more than two dredges may operate at a time. The dredges will be roped to trees on the bank. One year's progress upstream will run from 100 to 800 linear feet of streambed.

Up to 200 gallons of gasoline will be stored in 55 gallon and smaller containers. Fuel will be stored in an 8'x10' storage building which will be located over 100 feet from Eldorado Creek. All fuel used for suction dredge equipment will be stored in 5 gallon

containers. Up to 500 gallons of diesel fuel in 55 gallon containers will be placed in a secondary containment container or berm, initially near the beginning of the Eldorado Creek mining route and at least 100 feet from the creek.

All suction dredging will be done within the normal high water level of Eldorado Creek and instream. No undercutting of stream banks will occur at any time during operations. Reclamation of dredging operations will coincide with the dredging activity.

During sampling and production phases, a power winch will be used several times a day for the purpose of moving rocks, cobbles and boulders from the dredge area. This material will remain in the creek and will be placed within 50 feet of the dredging area in such a manner that it will appear as though they were placed there by high water or floods.

Production will be accomplished with either the 6" or 8" dredge. The operator will construct a small rock wall 1 to 2 feet high across the active stream channel. This will create a temporary impoundment to allow the dredge to float. The miner will submerge the intake nozzle into the gravel streambed. Water and gravel will be drawn into the intake hose by the suction pump. The material will be pumped into the sluice box to separate the gold from the gravel. The processed gravel and used water will then be discharged from the sluice box into the impoundment/stream. Depending on the size of the dredge being used, all gravels 5 (or 7) inches and smaller will be processed through the floating sluice box. Material larger than 5 (or 7) inches will be moved out of the way by hand and then moved back into the dredge hole. After overburden (barren gravel/alluvium) is dredged, the operator will use hand tools to break open fractured bedrock and use the dredge to extract concentrates from the bedrock. As operations move upstream, the dredge will redeposit smaller gravels over the mined bedrock surface. In this fashion reclamation will be concurrent with the rest of the operation.

The samples and the production concentrates will be run through the Gold Cubes in a recirculating system to greatly reduce gravels and gold concentrates. Panning and drying are the final steps. Clean-up will be at or around a 20'x10' canopy near the cabin and storage building.

Further reclamation will consists of breaking down or leveling any dams that were constructed to a natural/pre-mining contour and grade when the dredge is moved or at the end of the season. Any oversized rocks removed from the dredging area by hand will also be returned to the dredged area. Suction dredge mining operations will occur in areas normally covered by water within the submerged portion of the active stream area. During flood events, high discharge and increased turbidity levels cause suction dredge operations to shut down due to safety and visibility concerns.

A metal detector and hand tools will be used in previously disturbed areas. The operator will use a metal detector for the purpose of prospecting and sniping nuggets in exposed bedrock areas. Metal detector activities will occur anywhere within the 118 acres encompassed by the claims. A hand-excavated exploratory hole will typically be less

than 1 cubic foot. If the metal object causing the signal is not gold or other precious metals, it will be reburied into the small excavation. No vegetation will be removed or disturbed. Dug with a shovel or hand spade, a prospect hole is generally less than a 1 foot in diameter and less than 1 foot deep. All sites will be reclaimed (filled back in) at cessation of operations at that site. The annual total surface disturbance will be 100 to 200 square feet.

The mining season will be approximately June 10th to September 15th.

The Comstock Cabin will be rehabilitated as living quarters for the miners. All rehabilitation work will meet the Secretary of Interior's Standards for Historic Preservation. No new penetrations of the walls or roof will be allowed. The cabin will be lifted off the ground and a new treated wood foundation will be installed. The door and windows will be repaired or replaced with historically appropriate replacements. A wood stove will be installed with approved piping and spark arrestor. All firewood to be used will be brought into the park from an outside source. None of the features at the site (rock walls, adits, etc.) will be disturbed.

A 12'x24' temporary equipment storage building will be constructed using standard building materials for storing dredges, ATVs, equipment, tools, water, food and supplies. It will be built near the cabin. An 8'x10' temporary fuel storage building will be located approximately 650 feet south of the cabin and will provide a safe 100 foot distance from any waterway.

A 4'x4'x8' outhouse on skids will be built and placed near the fuel storage building. It will be at least 100 feet from Eldorado Creek. A 3'x3'x3' pit will be dug at location for human waste.

A 6'x8'x8' temporary sauna/bath/shower house on skids will be built. A wood stove will be installed with approved piping and spark arrestor. All wood to be used will be brought into the park from an outside source.

A temporary 10'x10' canopy with mosquito netting will be put up and taken down upon entry and exit to the operation on an as needed basis for shelter from mosquitoes. It will be placed on a disturbed location such as the access road.

A temporary 20'x10' canopy will be used next to the storage building or the cabin. It will be put up and taken down at the start and end of each mining season. Its purpose will be for shelter for running phase 3 (Clean up and processing of gold concentrates) and also for ATV parking out of the weather during operations.

At times a 12'x12' wall tent or similar shelter will be erected for temporary living quarters next to the cabin. It will be used during times of the rebuilding of the cabin or as needed.

A small rain water catch system will be used for potable water. Storage will be in one or two 55 gallon containers and will consist of a simple rain gutter and piping attached to the 12'x24' storage building.

All trash will be removed from the claims and the park every 7 to 14 days and will coincide with re-supply trips.

PUBLIC INVOLVEMENT

The EA was issued for public review and comment from May 4, 2016 to June 2, 2016. Paper copies of the EA or notices of the EA's availability were sent by mail or email to more than 200 government agencies, interest groups, and individuals. The EA was posted on the NPS Planning, Environment, and Public Comment (PEPC) website at http://parkplanning.nps.gov/projectHome.cfm?projectID=59089 and on the park's webpage. The park issued a press release about the availability of the EA and the open comment period on May 5, 2016.

Nineteen written comments were received. Sixteen of the comments favored the action alternative, one comment requested additional stipulations, and two of the comments favored Alternative 1, No Action, with request for additional plan stipulations.

The public comments received did not change the conclusions in the EA about the environmental effects of the action. The NPS responses to substantive public comments are found in Attachment A.

DECISION

The NPS decision is to select **Alternative 2,** *Authorize the Proposed Mining Operations on the Liberty Claims with National Park Service Stipulations (Proposed Action with Stipulations).* Additional and revised stipulations pursuant to public comment are addressed in Attachment A. Alternative 2 includes the following mitigating measures:

Mitigating Measures

The following mitigation measures apply to the selected alternative, **Alternative 2,** *Authorize the Proposed Mining Operations on the Liberty Claims with National Park Service Stipulations (Proposed Action with Stipulations)*:

General

A detailed list of conditions that will be attached to the permit are included in Attachment C. Vehicular access to the Eldorado Creek valley will not be available until June 10th of the year, in order to protect the migration of Arctic grayling to the productive fish habitat of Upper Eldorado Creek. Annual suction dredge reclamation will be completed by September 14th of each year in order to provide adequate timing for downstream migration of the grayling to the wintering habitat in Moose Creek. These dates will be reviewed annually to incorporate information from additional fish surveys.

Fuel Management

Fuel storage sites will be bermed and lined with an impermeable layer such as visqueen or fuel may also be stored in a secondary fuel containment container. Two 55 gallon and two 5 gallon spill kits will be on hand at all times. A 5 gallon spill kit will be on location where any 5 gallon container of fuel is being used. All miners will be trained on responsible use of refueling and spill kit usage. Fuel absorbing pads will be in place when refueling any dredge that is instream. Any used absorbing pads or spill kits will be removed from the park at the time of resupplying and immediately replaced.

Mining Equipment

Reclamation of mining sites will be concomitant with operations. It will include concurrent back-filling with tailings, removing any dams, and leveling tailings piles to an approximate pre-mining topography and natural condition. The original grade and contour will be reestablished. Tailings will be redeposited immediately into the excavation, when feasible or shortly thereafter. Bedrock and large boulders which are removed during the operations will be replaced in the hole as the dredge advances.

Upon cessation of mining, the unfilled portion of all pits will be back-filled by hand with gravel and material removed from the excavation. Reclamation of the dredged site will include spreading gravel and rocks used in dam construction or accumulated piles of processed gravel/tailings on the stream bed at the end of each season to eliminate any obstruction to the stream. Excavations/holes will be backfilled filled. Equipment will be stored at the Support Camp at the end of the season. Debris will be burned or transported out of the park.

Periodic high water flow regimes on Eldorado Creek result in sediment transport that will fill in depressions and reestablish natural grades and conditions. The operator's reclamation in conjunction with and ongoing natural processes will provide for restoration of the stream contour and gradient.

Final reclamation at the end of approved mining operations will consist of removing all equipment and supplies transported to the site to support authorized mining activity (except for the historic cabin maintenance and improvements) and removing and disposing of all garbage, refuse and waste transported to the claims in support of authorized mining activity.

Vegetation

Vegetation cleared for road rehabilitation will not be disposed of in the creek.

Wildlife and Habitat

The mining operators will follow established guidelines in the park's bear-human conflict management plan. The plan requires use of bear-proof containers for food and refuse, and sets up guidelines for temporary closures.

To avoid destroying and/or disturbing occupied bird nests and cavity trees within the project area in accordance with the Migratory Bird Treaty Act (MBTA), park staff will implement appropriate protective measures to protect any occupied bird nest discovered within the project area during the road rehabilitation phase.

Cultural Resources
If cultural resources or items protected by the Native American Graves Protection and Repatriation Act are discovered while working under an approved MPO, all project related activities in the vicinity of the discovery will be stopped and the park archaeologist will be notified immediately. Denali National Park and Preserve, in consultation with the State Historic Preservation Officer and other consulting parties, will determine a course of action per 36 CFR Part 800.13.

Due to the potential for adverse effect, the park archaeologist will determine if periodic monitoring of ground disturbance during road rehabilitation and siting of temporary structures will be needed.

Visitor Experience and Opportunity
Visitors will be advised by NPS of any approved MPO activities.

Rationale for the Decision

The selected action (**Alternative 2, Authorize the Proposed Mining Operations on the Liberty Claims with National Park Service Stipulations (Proposed Action with Stipulations)** best accomplishes the purpose and need for action. The Record of Decision (ROD) for the 1990 DENA Cumulative Impacts of Mining Environmental Impact Statement recommends acquisition of all patented and valid unpatented mining claims in the park. However, the ROD (signed August 21, 1990) also stipulates that until such time as sufficient funds are available for acquisition from willing sellers, the NPS will continue to process mining plans of operations according to the regulations in 36 CFR Part 9A, and approve those plans that meet regulatory requirements. The Liberty claimants own the mineral estate within the claims and are not a willing seller at the appraisal price that the NPS has offered.

The activities included in the MPO will not result in a significant impact to park resources. The streambed gravels, cobbles and boulders of up to 800 feet of stream reach will be overturned and re-mixed by the suction dredge operation each year and put back into the same part of the streambed. No streambed material will be permanently removed from the streambed, except for the produced precious metals. Daily and annual streambed reclamation by the miner will combine with spring breakup and other summer high water events so that the streambed and streambed armoring will appear to look and function the same as it did before mining. This reach of Eldorado Creek is high in heavy metals and low in macroinvertebrate and fish populations. The stipulations will allow a late spring migration of grayling to productive stream reaches upstream and allow fall migration back downstream to wintering habitat. The activity will not permanently reduce habitat for any mammals or birds. Rehabilitation of the Comstock Cabin by the miner will leave it in better condition to survive the elements that presently exist.

With an estimated 20,000-30,000 bank cubic yards of instream gravels and 100 day mining season it could take 65 to 200 years with a 6” suction hose and 33 to 100 years

with an 8" suction hose to dredge the total instream gravels running only one dredge at a time with a 2 to 4 person crew. Running two dredges at a time will reduce the time to mine the whole of the claims.

Alternative 1, *No Action*, would not accomplish the purpose and need of the project. The mining claims have been found valid by the National Park Service and a No Action alternative would deprive the claimants of their legal right to the minerals on the claims. Suction dredging as proposed, is usually considered to be the type of mining with the least impact to the environment.

FINDINGS

The selected alternative complies with the NPS Organic Act (see Attachment C for non-impairment determination), the Alaska National Interest Lands Conservation Act (ANILCA), the Endangered Species Act, the National Historic Preservation Act, and Executive Order 11988 (floodplains) (see Attachment D for a statement of findings). There will be no adverse effect on Native American trust resources or sacred sites. There will be no restriction of subsistence activities as documented by the ANILCA, Section 810(a) Summary Evaluation and Findings in Appendix A of the EA.

The NPS has determined that the selected alternative does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, in accordance with the National Environmental Policy Act of 1969 and regulations of the Council on Environmental Quality (40 CFR 1508.9), an environmental impact statement is not needed and will not be prepared for this project.

ATTACHMENT A

NPS RESPONSES TO PUBLIC COMMENTS AND ERRATA
on the
Environmental Assessment for
Eldorado Creek Mining Plan of Operations

Denali National Park and Preserve

In response to the environmental assessment, the NPS received 19 comment letters. Described below are the substantive comments and the NPS responses. Some responses are errata to the EA and others are minor clarifications.

1. Comment #1. Kris Devault: Propose to replace dredge refueling scenario from use of a 5 gallon container, funnel and catch pan to use of a small battery-operated fuel pump in the 5-gallon can and fuel absorbent pad over the dredge motor fuel tank.

NPS Response and Errata #1: The NPS agrees to this replacement scenario for fueling the dredge.

2. Comment #2. Kris Devault: Propose to replace separation distances of two dredges stated in NPS conditions to the conditions allowed in the EPA Section 402 Clean Water Act permit.

NPS Response and Errata #2: The NPS agrees to accept the relevant conditions in the EPA permit. They are stated in Attachment C.

3. Comment #3. Environmental Group: Request equipment be washed before use in Eldorado Creek to prevent the introduction of invasive plants and animals. Also request that felt-soled waders and boots not be allowed, as the Alaska Department of Fish and Game outlawed their use in 2013 in Alaska's fresh water.

NPS Response and Errata #3: Requiring measures to prevent invasives from entering the parkon contractor vehicles and equipment is standard practice for park staff and contractors, and it will continue as a standard mitigation measure for this mining plan. Felt-soled waders and boots will not be allowed for this mining operation.

4. Comment #4. Individual: A more extensive reclamation plan should be presented for review.

NPS Response #4: The NPS believes that the reclamation plan proposed by the miner, that is inherent in this type of mining, and that is required under the stipulations imposed under the EPA permit and this plan (see Attachment C) are sufficient to protect park resources.

5. Comment #5. Environmental Group: Suggest that a prompt, willing seller buyout of the claims would better serve park purposes than allowing the mining.

NPS Response #5: The NPS does not disagree. However, there is no law to force a claimant to sell his claims. The NPS cannot offer more money for the claims than what the evaluation was in the appraisal, and that amount was rejected by the claimants. The law does require a review of the plan of operations and the plan can only be approved if it meets the requirements found in the relevant regulations.

6. Comment #6. Environmental Group: The topic of soundscape should have been fully reviewed in the EA.

NPS Response #6: The sounds generated by the work to repair the access road and the sounds from equipment operation during the suction dredging will not be heard from anywhere outside of the Eldorado Creek valley. The road work will only last a few days and will usually only involve one piece of equipment, an excavator. The small motors on the 4" and 6" suction dredge are no larger than those on a lawnmower and the sounds will be buffered upstream and downstream by the sounds of the creek and the valley vegetation.

7. Comment #7. Environmental Group: It is not clear how long after mining that stream fertility will recover.

NPS Response #7: The mining claims section of Eldorado Creek has an existing low level of use by macroinvertebrates and Arctic grayling because of heavy metals input from Slate Creek and from this section of Eldorado Creek. This background won't change because of the suction dredging operation. Once mined by suction dredging, the conditions are good for the recovery of the present fertility because of the extreme population of macroinvertebrates upstream, above Slate Creek, and from grayling that pass through this reach to and from Upper Eldorado Creek. Whether that happens within one year or takes longer could be determined by flood events or other natural processes. The direct impact will be on no more than 800 feet of stream length per year.

8. Comment #8. Environmental Group: Macroinvertebrate populations in the claims area are lower than they were in 1984 and are poorly understood and the impacts of further mining could be significant.

NPS Response #8: The macroinvertebrate sampling site in 2014 (below the claims) was different than in 1984 (above the claims). The sampling in 1984 was done on Eldorado Creek 70 meters below the mouth of Slate Creek, above the claims, to evaluate the effects of the heavy metals in the waters of Slate Creek combined with the ultra-productivity of the waters of Upper Eldorado Creek. Sampling in 2014 was done below the claims, so the sites are very different, and the heavy metals from Slate and middle Eldorado Creek had a lasting negative effect on the productivity downstream in the claims area and below.

9. Comment #9. Environmental Group: The operational limits in the plan of June 1-September 15 might not work for the grayling migration.

NPS Response #9: The stipulations give an active mining season of June 10 through September 14. These seasonal limits will be monitored to see if they should be relaxed or tightened. The limits are conservative and based on observations on Eldorado Creek by an NPS fish biologist in 1983.

10. Comment #10. Environmental Group: The impact on nesting birds is not evaluated.

NPS Response #10: The EA states that the amount of habitat for birds would not be permanently reduced, and "during the rehabilitation of the access road noise and human activity would disturb wildlife and cause animals to be temporarily displaced from the vicinity of the project area. During the suction dredging noise and human activity would be very localized at a short reach of the stream channel, and at the base camp area, and would cause wildlife to be temporarily displaced from nearby areas." The excavator is not likely to work in any one area for more than an hour before moving to a different section of road. The suction dredge work will affect a short segment of stream in any one summer. American dippers are known to stay at suction dredge operations to feed off the macroinvertebrates on overturned rocks.

11. Comment #11. Environmental Group: Who is paying for rehabilitation of the Comstock Cabin?

NPS Response and Errata #11: The claimants will pay for the actions to make the cabin usable, i.e. cleanup, new foundation, wood stove and stovepipe, screen door. The NPS will remove the broken windows, fashion new ones based on evidence and pictures, time permitting, place them in the cabin, and add bear shutters.

12. Comment #12. Environmental Group: Can the claims be patented?

NPS Response #12: Congress has had a moratorium on patenting since the 1990s.

13. Comment #13. Environmental Group: Will the camp be closed to hikers?

NPS Response #13: The claims are open to the public, but the public is not allowed to interfere in the operations, nor are they allowed to use or damage the mining camp facilities.

14. Comment #14. Environmental Group: Will there be limits on airplane landings at Kantishna in support of these operations?

NPS Response #14: There are no limits on inholder use of the Kantishna Airstrip. We do not anticipate much airplane support for these mining operations.

15. Comment #15. Environmental Group: What will the dump truck be used for?

NPS Response #15: The miner says that it will be used in the initial effort to bring in supplies, mostly lumber. It will also be used in conjunction with the excavator in a couple of areas of road work where flood deposits can be placed into the dump truck and be moved to a nearby location to help fill in where the flood washed out the roadbed. A chainsaw winch may be used to pull a sled load of rocks from the front of a pool to the back of a pool. A truck-mounted winch may also be used if the stream water does not cover the truck axles.

16. Comment #16. Environmental Group: How will the winch be used?

NPS Response Errata #16: As per the project's EPA permit (Authorization to Discharge Under the National Pollution Discharge Elimination System; permit effective June 13, 2016), a chainsaw winch may be used to pull a sled load of rocks from the front of a pool to the back of a pool. A truck-mounted winch may also be used if the stream water does not cover the truck axles. This stipulation will be added to Attachment C.

17. Comment #17. Environmental Group: We recommend that a sound station be placed near the mining operations.

NPS Response #17: The NPS will add consideration of this site into the list of places where sound monitoring has priority in the park.

ATTACHMENT B

NON-IMPAIRMENT DETERMINATION
for the
Eldorado Creek Mining Plan of Operations

in Denali National Park

The NPS Organic Act of 1916 prohibits impairment of park resources and values. The 2006 NPS Management Policies use the terms "resources and values" to mean the full spectrum of tangible and intangible attributes for which the park is established and managed, including the Organic Act's fundamental purpose and any additional purposes as stated in the park's establishing legislation. The impairment of park resources and values may not be allowed unless directly and specifically provided by statute. The primary responsibility of the NPS is to ensure that park resources and values will continue to exist in an unimpaired condition that will allow people to have present and future opportunities for enjoyment of them.

A determination of impairment is made for each of the resource impact topics carried forward and analyzed in the Eldorado Creek Mining Plan of Operations environmental assessment for the selected alternative *(Alternative 2, Authorize the Proposed Mining Operations on the Liberty Claims with National Park Service Stipulations (Proposed Action with Stipulations).* The description of park significance in the park's Foundation Statement was used as a basis for determining if a resource is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impairment determinations are not provided for visitor opportunity, park management, or socioeconomic resources because impairment determinations relate back to park resources and values. These impact areas are not considered to be park resources or values subject to the non-impairment standard.

Vegetation and Soils

Under this alternative less than 0.5 acre of white spruce forest and willow shrub community would be removed for the rehabilitation of the Eldorado Creek mining route. The removal would consist of grading partially vegetated road sections to smooth out the travel surface and brushing branches and spruce and willow boles that extend into the vehicle path on the road. The limited vegetation removal from this alternative would be visible because the route to be cleared is the standard route upstream for any traveler in

the valley, but the amount of vegetation removed would not reach 0.1 percent of the cover, either in the floodplain or in the Eldorado Creek valley as a whole. The gradual changes and increase in the vegetation that would come from natural revegetation of the access road without approval of this plan would be suspended during the life of the mining operations.

Around 1.2 acres (5,333 lineal feet by 10 feet wide) of access road surface would receive either light or moderate grading. No developed soil horizons exist in the access road, and the road work would replace lost gravels and rocks with other gravels and rocks piled up nearby by the flood. Some boulders would be moved to fill in low spots. Short-term effects caused by suction dredge mining within a stream channel include excavating a hole at the upstream end of the operation, processing overburden and fractured bedrock by the suction dredge and hand stacking tailings of oversized material adjacent to and within the dredged area. As operations continue upstream a sufficient distance, the oversized material would be covered by dredge tailings. Fine sediments would mix with the processed gravel and/or would be transported below the site, generally being deposited within 100 feet of operations. Clay and some silt disperse farther downstream, though small suction dredge operations commonly do not exceed turbidity standards within 500 feet or less. The preexisting stream gradient and stream bed class size mixture would be temporarily changed until the stream reclaims itself. Impacts to channel substrate and morphology are temporary; often natural processes remove all physical evidence of suction dredging after the first flood event.

The effects on park white spruce forest vegetation will be minimal relative to the hundreds of thousands of acres of these vegetation types within the Kantishna Hills, and the impact to soils would be intense but temporary and high water events will re-sort the streambed materials to pre-mining functioning, and these impacts will not result in impairment.

Wildlife and Habitat

The acreage of habitat available for large mammals, small mammals, and birds would essentially not be reduced because the surface area of access road disturbance would remain about the same as it has been. During the suction dredging noise and human activity would be very localized at a short reach of the stream channel, and at the base camp area, and would cause wildlife to be temporarily displaced from nearby areas. Little wildlife habitat would be directly affected by this mining plan, though there would be temporary avoidance areas of a couple of acres at any one time for larger mammals. These impacts to wildlife and habitat will not degrade the quality of area-wide biological resources and will not result in impairment.

Aquatic Resources

Fish are not common in the section of Eldorado Creek within the Liberty claims. The high populations of Arctic grayling found in Eldorado Creek above Slate Creek migrate upstream through the claims in middle to late spring and then again downstream in mid-September. The grayling migrations and populations should be little affected due to

limiting the mining season to the period when the grayling are residing in upper Eldorado.

Macroinvertebrate populations in middle Eldorado Creek were recently investigated and found to be at low levels. This could be due to the high levels of heavy metals coming from Slate Creek waters as well as input from the bedrock exposures along middle Eldorado Creek. High populations of macroinvertebrates on Upper Eldorado Creek insure that populations on the section of middle Eldorado Creek being mined would reestablish within a year after mining on that section was completed. The effects from suction dredging on the low levels of aquatic resources on the claims would be of limited area-wide impact and would be reversed within a year and will not result in impairment.

Floodplains

The suction dredging would temporarily impact the habitat function of the stream by re-sorting the rocks and gravels in a small area. As mining moves and the mined area is abandoned, subsequent high water events would tend to re-armor the stream bottom, and the habitat for macroinvertebrates and Arctic grayling would return to normal. High water events in the valley are likely to cause more erosion the more disturbed area is exposed, and turbidity levels downstream during floods would be higher if the mining plan is approved. The affected reaches should return to normal functioning once the area mined has been reclaimed. The adverse effects from suction dredging on floodplain functioning, as a biological substrate and for flood retention, would be of limited area-wide impact and would be reversed within a year and will not result in impairment.

Cultural Resources

Use of the historic Comstock Cabin for living quarters during the mining operation would require various efforts at permanent and temporary rehabilitation and repairs to the cabin. Some permanent repairs include lifting up the cabin to place the whole structure on treated timbers to help prevent additional rotting or warping of the floor. The floor boards would be replaced that have warped around the door. Modern furnishings and trash would be removed. Temporary repairs would include installing temporary windows and a wood stove and stove pipe. These could be removed at the end of mining. Stipulations will be in place to protect associated cultural resources within the cabin's cultural landscape. All rehabilitation and repairs would be required to meet the Secretary of Interior's Standards for the Treatment of Historic Properties and would require consultation with the State Historic Preservation Officer. The permanent rehabilitation of the cabin would ensure a longer life for the structure and would have a beneficial effect on expanding the understanding of the advantages of preserving cultural resources and the impacts from this alternative will not result in impairment.

SUMMARY

The level of impacts to vegetation and soils, wildlife and habitat, aquatic resources, floodplains, and cultural resources from implementing *Alternative 2, Authorize the Proposed Mining Operations on the Liberty Claims with National Park Service Stipulations (Proposed Action with Stipulations)*, will not result in an impairment of the

park resources that fulfill specific purposes identified in the establishing legislation or that are key to the integrity of the park.

ATTACHMENT C

CONDITIONS TO ATTACH TO AUTHORIZATION TO MINE ON THE LIBERTY CLAIMS

All future plans of operation supplements, revisions, modifications and/or amendments shall be submitted, in writing, to the Superintendent for analysis and determination of appropriate action.

The operator shall notify the Superintendent, or the Superintendent's designee, prior to operations startup and end of season shutdown to enable park staff to meet with the operator and conduct the required monitoring and compliance investigations.

The operator shall work with park staff in (1) documenting specific sites mined within the claims, (2) conducting field measurements to determine and verify (a) water usage, (b) volume of material processed, and (c) extent of surface area disturbed by operations, and (3) conducting road maintenance and mitigation activities.

An annual report shall be submitted to the Superintendent by the permittee. The report shall be submitted by November 30 of the year in which operations were conducted. Authorization to continue mining operations the following year is subject to the operator's submitting an annual report. The annual report shall include, at a minimum, the following information:

a. Beginning of season arrival date on claims.

b. End of season departure date from claims.

c. Mining operations startup date.

d. Number of days dredging was conducted.

e. Number of days metal detector exploration was conducted.

f. Locations where dredging operations were conducted

g. Felt-soled waders and boots are not allowed.

h. Location on claims where exploration was conducted and methods employed.

i. Volume (cubic yardage) of material mined.

j. Volume processed by dredge.

k. Total linear footage of streambed worked.

l. Total surface area (square yardage) of streambed disturbed.

m. Total surface area (square yardage) of floodplain and uplands disturbed.

n. Average number of hours processing material daily.

o. Map showing locations of areas mined and prospected (explored).

p. Number of dams constructed.

q. Reclamation completed in previously disturbed, unvegetated areas.

r. Number of access trips taken by vehicle and ATV.

s. Condition of and/or problems with the access road.

t. Mitigation performed on access road.

u. Support facilities maintenance/construction conducted.

v. Volume of fuel used during the season.

w. Volume and location of fuel stored on claims over the winter.

x. Cultural resources found (description and map location) which are not on the maps provided in the environmental assessment, including items discovered during mining operations reported to the Superintendent as required under operating stipulations.

y. Operational changes to the approved plan of operations which occurred and may need to be considered as alterations to the plan of operations.

z. Future mining and exploration plans.

Vehicles and equipment shall be pressure washed before entering the park to protect against the introduction of invasive plants or animals. Vehicle (and ATV) use shall be restricted to the single most used (disturbed) track on the existing road. Access from the claims to the park road shall not exceed 50 vehicle and ATV round-trips in support of mining activities per season. Access road maintenance techniques identified by the NPS shall be conducted. A "trip" consists of one round trip. Additional trips require prior approval, in writing, from the Superintendent.

On the Liberty claims vehicle (and ATV) access is restricted to existing roads and ATV trails and to barren disturbed areas on the floodplain. Use of ATVs is limited to those trips necessary to support of mining operations. Recreational or other uses of ATVs is not permitted.

A **chainsaw** winch may be used to pull a sled load of rocks from the front of a pool to the back of a pool. A truck-mounted winch may also be used if the stream water does not cover the truck axles.

Modification or changes in transport vehicle or suction dredge mining equipment requires prior approval, in writing, from the Superintendent. The suction dredge may not be used, or setup for use, as a water jet to move gravel or other material.

Refueling of the suction dredge shall be done with the use of a large funnel and a catch pan under the fuel can, or by using a small AA battery-operated hand fuel pump in the 5 gallon fuel can with a fuel absorbent pad placed over the dredge motor fuel tank. Fuel storage sites shall be bermed and lined with an impermeable layer such as visqueen. Storage of fuels shall be confined to the support camp, at least 100 feet from water, and not in areas subject to flooding. Sorbent pads shall be kept on site. Fuel storage is not permitted during the non-mining season. The maximum fuel storage amount authorized in the Kantishna Hills area in support mining operations is 500 gallons.

Any leakage or spillage of oil based fuels, onto the ground or into the stream, shall be reported as soon as possible to the Superintendent, and to EPA per the NPDES permit. Immediate actions shall be taken to confine the spill to the smallest area.

Waste oil will be secured in bear resistant containers and stored on-site under the same requirements as fuel until the waste oil is transferred out of the park and properly disposed of.

Suction dredge mining operations are restricted to areas normally covered by water within the submerged portions of the active stream channel.

Mining and exploration activities shall not cause deterioration of Eldorado Creek waters exceeding EPA water quality standards.

Mining operations shall be conducted to insure that vegetated areas outside the approved area of operations, areas of cultural significance, and/or stream banks are not subject to increased erosion.

The EPA permit requires a daily visual inspection by the permittee for turbidity in the stream within 500 feet downstream of the suction dredge operation and compliance will be measured within 500 feet downstream of the dredge that is farthest upstream. If 2 dredges are operating more than 500 feet apart, monitoring shall be performed for each dredge and separate records shall be kept. If turbidity is observed beyond 500 feet, the Permit requires the Permittee to modify the operation to meet the permit limitation. If the operation cannot be modified to meet the limitation, the discharge is not authorized.

Construction of small dams to provide sufficient water depth to keep the suction dredge intake nozzle beneath the water is permitted if the dam construction does not significantly reduce water flow downstream or cause increased stream bank erosion. Maximum dam height is restricted to 2.0 feet.

Construction of water diversions are not permitted. Water pumping in support of suction dredge is permitted as these practices essentially return water immediately to the stream and/or floodplain.

Water impoundments shall not utilize any material from historic features nor shall their construction or use impact any cultural features.

Utilization of the historic structures is permissible only in support of the approved mining plan of operations. Repairs and alterations to the structures shall be in keeping

with the Secretary of the Interiors Standards for the Treatment of Historic Properties with oversight and technical assistance provided by NPS. Care shall be exercised to avoid impacts to the historic cultural features in the vicinity of the cabin area. Artifacts located at historic structures shall be left as found.

Care shall be taken during mining operations, including the moving or storage of equipment, while near or adjacent to cultural features or isolated cultural objects to insure no damage to those items would occur. Areas of cultural significance depicted, shall be avoided and no mining operations shall be conducted in those areas.

Metal detection and excavation is not permitted within the boundary of the Neversweat Mine Cultural Landscape (see NPS Cultural Landscape Inventory 2009, Neversweat Prospect, DENA). A new outhouse hole would not be permitted within the Neversweat Mine Cultural Landscape.

During all phases of the mining operation, all federal laws and regulations protecting cultural resources shall apply. Known cultural resources occurring within the vicinity of the claims shall not be altered, destroyed or collected. In the event that concealed cultural and/or scientific resources are encountered during mining operations, the Superintendent or the Superintendent's designee, shall be notified immediately. The discovery shall be left intact and steps shall be taken to protect it.

Reclamation at the end of each mining season shall include spreading the gravel used in dam construction, and any accumulated piles of processed gravel, on the stream bottom to eliminate any obstruction to the stream. Excavated pits shall be filled with tailings. Original stream gradients shall be reestablished. Reclamation of all dams, mined areas and prospect pits upon cessation of operations at that site and by the end of the mining season, is required. Mine and prospect excavation shall be reclaimed when operations cease at that site.

All debris from the mining operation shall be removed from along the streambed each season.

Annual reclamation shall consist of:

A.) Leveling the tailings piles to conditions that approximate the contours and slopes of the adjoining land, floodplain and stream channel. Reestablishing the original gradient of the stream in the mined areas.

B.) Filling in pits and mine cuts/dredged areas to conditions that approximate the contours and slopes of the adjoining land, flood plain and stream channel.

C.) Reclaiming and spreading out the gravel used in dams constructed for the purpose of operating the dredge.

D.) Eliminating any barriers that were constructed to allow for the natural flow of water and free passage of macro and microfauna and stream biomass.

E.) Stabilization of the tailings to prevent their erosion due to subsequent normal occurrences, such as heavy rains or floods.

F.) Placing tailings and fine material in a manner which facilitates natural revegetation of the disturbed area.

G.) Replacing the substrate with a mix of material (gravel, rubble, and/or boulders) to form a streambed that approximates original conditions.

H.) Insuring that reclamation of disturbed areas prevents erosion of the stream bank and stabilizes the area to minimize downstream turbidity.

I.) Upon completion of dredging activities, reclamation shall insure that the channel width and depth are similar to natural conditions and allow for normal stream discharge.

Final reclamation at conclusion of approved mining operations shall consist of:

A.) Removing all supplies and equipment (ATVs, vehicles, mine equipment, fuel, and camp support materials; but not the historic cabin) transported to the claims for the mining operation.

B.) Removing and disposing at an approved location outside the park all garbage, refuse or waste, broken or unused equipment transported to the claims in support of approved operations.

C.) Notifying the NPS as to when reclamation has been completed. Meeting an NPS staff member for afield inspection conducted to evaluate the completed reclamation. Failure to accomplish the required reclamation actions shall result in forfeiture of the performance bond.

Any large animal causing a nuisance, and/or the death of a large mammal or bird of prey occurring in the vicinity of the mine site shall be reported to the Superintendent as soon as possible. All state and federal game regulations shall be adhered to.

Refuse generated by the operator and/or his employees and coworkers shall be removed from the claims and disposed of outside of the park in accordance with State and Federal law. Handling and disposal of all solid waste material shall be conducted according to Alaska State Regulations.

All food, perishables, and organic trash shall be secured from bears in bear proof containers and other wildlife. Burnable non-toxic trash may be burned on the claims. Non-burnable trash shall be backhauled outside the park by the end of the season.

The operator shall obtain all necessary State of Alaska and Federal **permits** prior to commencing operations, and keep them current during the life of the operation.

Compliance with all State and Federal laws and regulations is required.

Authorization to continue mining operations is contingent upon the Liberty claims being maintained as valid existing unpatented mining claims with the BLM.

A performance bond shall be posted and maintained with the National Park Service at the Alaska Regional Office in the amount of $5,000. The performance bond shall be increased to reflect any changes in operations or adjustments for inflation.

APPENDIX D
STATEMENT OF FINDING FOR FLOODPLAIN MANAGEMENT
(EXECUTIVE ORDER 11988: FLOODPLAIN MANAGEMENT)

Liberty Claims on Eldorado Creek Mining Plan of Operations
Environmental Assessment

National Park Service
Denali National Park and Preserve

Recommended: _____ 6/8/2016
Superintendent **Date**

Certification of Technical Adequacy and Servicewide Consistency:

Eva DaDonato, Acting Chief 6/10/16
Chief, NPS Water Resources Division **Date**

Approved: _____ 14 June 2016
Alaska Regional Director **Date**

Introduction
A mining plan of operations for the Liberty placer mining claims along Eldorado Creek in Denali National Park and Preserve (NPP) proposes to use a small suction dredge within the creek to recover placer gold deposits located on bedrock, and in the alluvium near bedrock within the streambed.

Eldorado Creek flows north and northeast on the south flank of the Kantishna Hills. Slate Creek is tributary to Eldorado Creek, and the location of one of the larger antimony deposits in the area where mining operations produced over 1,380 tons of ore throughout the working history of this site. Mining on the Liberty Claims has been limited to small-scale hand mining, and lode mining activities located on the Comstock lode claims, which are over-staked on Liberty #16 and #17. A small collection of historic structures and features associated with the Comstock lode mining, including a historic cabin, are located on these claims. The Comstock lode claims are also referred to as the Bonnell or Neversweat Mines.

The Eldorado Creek drainage basin covers 12.5 square miles (USGS Scientific Investigations Report 2013–5048, Brabets and Ourso, 2013). Floods are fairly common occurrences in the Kantishna Hills due to steep terrain and frequent summer rains. The active stream hydraulics result in scoured stream channels and redistribution of gravels and alluvium within the floodplains of these drainages.

The Liberty claims under consideration for a mining plan of operations (Liberty#9, Liberty#13-#18) are part of the Kantishna Historic Mining District (KHMD). Within the KHMD, most historic mining operations were situated within the floodplains and adjacent riparian zone of the creeks due to the nature of the mineral deposits.

Justification for Use of Floodplain
The proposed action would occur within a 100-year regulatory floodplain. Placer mining operations are by necessity conducted within the active floodplain of the creek and specifically in this case the streambed. The placer gold values located on these claims are concentrated in bedrock, on bedrock, and in the alluvium near bedrock in the stream channel (Validity Examination of Liberty #9 and Liberty #13-20 Placer Mining Claims, Giffen, 1999). All of the direct temporal disturbance would occur within the gravel and cobble zone of the active streambed and floodplain below ordinary high water. As described in the plan of operations, the support facilities for these activities would be situated outside the active floodplain.

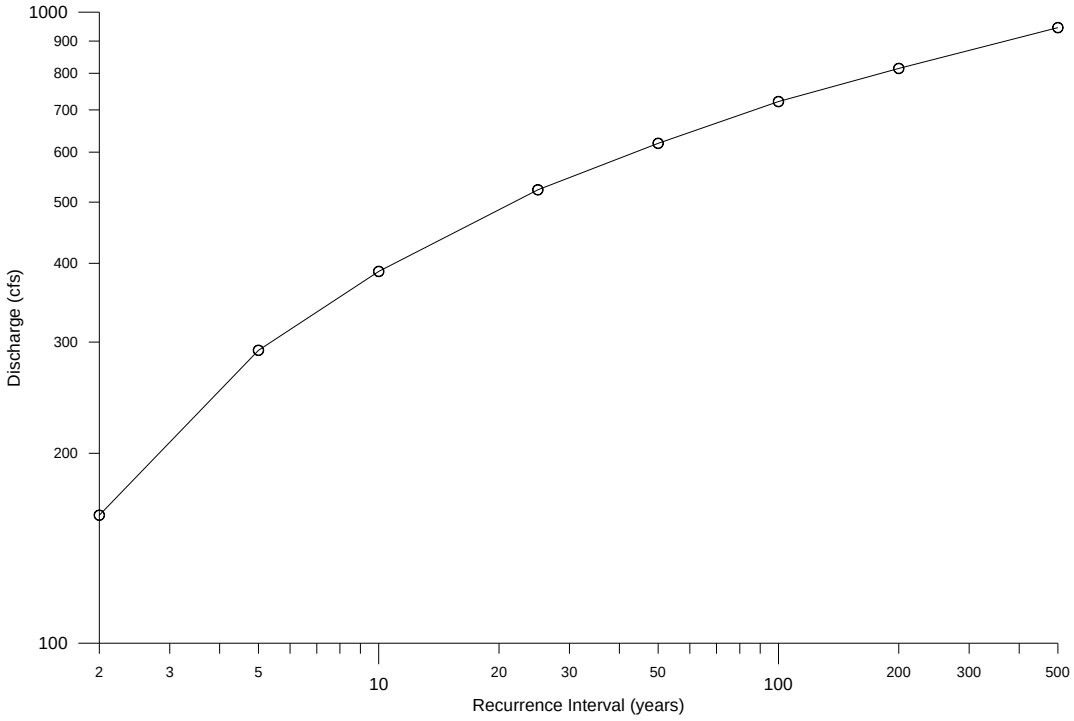
The activities described in the plan do not give cause to anticipate any measurable long-term changes in natural floodplain values such as ecosystem quality, soils, vegetation, and wildlife habitat or ground water recharge. There would be no risk to property, natural, or cultural resources or humans from flooding. The proposed mining action was chosen over the no action alternative because it is unlikely to cause any significant short or long-term impacts to the floodplain or natural resources, and allows the claimants to exercise their mineral rights. NPS would actively monitor mining operations.

Description of Site-Specific Flood Risk

The Liberty Claims contain approximately 118 acres in total. The area that may be subject to flooding from Eldorado Creek ranges from 20 to 200 feet wide along the length of the claims. The floodplain is widest on the lower reaches of the creek, where the estimated hydraulic gradient is 2.9 % immediately above the confluence with Moose Creek. The farthest upstream location has a steeper estimated gradient of 4.89%. Stream gravels located on the claims are composed of silt, sand, gravel, cobbles, and boulders up to 10 inches across, mixed with glacially deposited boulders up to 6 feet in diameter. Bedrock occurs at depths ranging from 3 to 8 feet. A thin, gravelly soil, 2 to 8 inches deep, has formed beneath vegetation adjacent to the creek. (Data from Giffen, 1999)

No continuous stream flow records exist for Eldorado Creek, nor is flood frequency and discharge documented. Discharges were measured periodically as part of the Brabets study (2013), those measurements were recorded as increasing from low early summer flows of 7.2 cubic feet per second (cfs) to flows of 19.2 cfs in late summer. Seasonal flooding frequently occurs in late spring to early summer due to combined effects of spring snowmelt and rains, but may occur late summer as well.

Based on the published USGS (1993) equations for ungauged basins and the basin characteristics for Eldorado Creek a graph was created to show the recurrence intervals for the 2-, 5-, 10-, 25-, 50-, 100-, 200-, and 500-year floods.



Flash flooding is rare and generally limited to very early heavy rains that occur when the ground is still frozen or rain on snow events. Most rainfall comes with sufficient warning

to mitigate flood risks and rain on snow events are only likely to occur before the mining season.

Mitigation of Harm and Risk
Two alternatives are considered in the Environmental Assessment. These include a no action alternative, and the approval of the mining plan of operations with mitigation measures protective of resources. The environmental consequences of both alternatives were analyzed in detail for floodplains and related resources, including water resources, wildlife, vegetation, soils, and wetlands.

The proposed mining operations may affect approximately 9,200 linear feet of creek bed within the floodplain on the claims, and another 6,864 linear feet which constitutes the access road to the claims. Floodplain function would be temporarily and minimally impacted during operations due to access and minor daily modifications associated with suction dredging, such as small in-stream rock dams and temporary pool construction. With daily reclamation of the area of operations, impacts to the floodplain would be negligible. The NPS would monitor operations to assure compliance with mitigation measures identified to minimize harm to life, property and natural values, and preserve floodplain values.

NPS does not anticipate any short-term impacts from the proposed action that will result in any long-term threat to property or resources. This proposed action is consistent with NPS guidance for compliance with Executive Order 11988 (Floodplain Management found at Director's Order #77-2.

Summary:
There is no practical or feasible alternative to approving the proposed placer mining activities on the Liberty claims on Eldorado Creek as described and evaluated. The proposed action would have temporary direct affects within the streambed of Eldorado Creek, and to a much lesser extent, the floodplain of Eldorado Creek. These effects have been evaluated in an EA. The proposed action would not pose any significant threats to NPS resources, facilities, or human life. Although temporary effects to the streambed and floodplain may occur, no significant impacts to floodplain values are anticipated. Other alternatives were evaluated. This included a discussion of the no-action alternative. The proposed action was chosen because it offers a high level of protection to park resources including the floodplain, while enabling the claimant to exercise his rights under applicable law and regulation. The action reduces the potential for flood-related hazards to private property, and adheres to NPS management policies for floodplain management found at Directors Order #77-2.