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4.0 SUMMARY OF ENVIRONMENTAL COMMITMENTS

This Chapter summarizes the environmental commitments that would be a part of each build alternative, unless otherwise indicated. These commitments would be incorporated during final design or project implementation.

4.1 TRANSPORTATION

TC-1 The contractor will be required to perform work in a manner that assures the safety and convenience of the public and protects the residents and property adjacent to the project during construction.

TC-2 The roadway will be maintained in a safe and acceptable condition, including periods when work is not in progress. The contractor will maintain intersections with roads and residences.

TC-3 All zoning and other local regulations apply to impacts from traffic and circulation changes. A traffic management plan would be developed for different stages of construction.

TC-4 Signage and other means of communicating the location and duration of road closures to local residents will be required as part of the construction contract to assist road users in scheduling travel times.

4.2 WATER QUALITY

WR-1 All monitoring data for Fernan Lake Road stormwater runoff through existing or replaced culverts and from construction sites should be made available to water quality studies of the lake, creek, or watershed by agencies or organizations. If a bathymetric map of Fernan Lake is not produced as part of the Fernan Lake Watershed Management Plan, one should be prepared for the north shore and Lilypad Bay before construction to provide a baseline for assessing project effects on lake morphology.

WR-2 An erosion control plan should include BMPs during construction, and new stormwater design would minimize short- and long-term sedimentation impacts on water quality. BMPs, as described in the Standard Specifications for the Construction of Roads and Bridges on Federal Highway Projects (FHWA, 1996), should be implemented during construction. BMPs include erosion and sedimentation control measures, pollution control measures, stormwater management measures, spill prevention control and countermeasures, and construction waste handling procedures. The BMPs described in the Federal Highway Runoff Manual that are applicable to project conditions during construction should be employed. Erosion control measures, such as the use of straw bales, silt fences, detention ponds, infiltration trenches and basins, sand filters, grassed swales, filter strips, porous pavement, and constructed wetlands

should be used to prevent erosion if spoil piles are located near water features. Appropriate de-watering ponds should be provided below all spoil deposits.

WR-3 A monitoring plan for stormwater collection and control should be prepared for IDEQ, addressing contaminants including sediment, metals, Biochemical Oxygen Demand, organic nitrogen, and total phosphorus. Materials (either temporary or permanent) resulting from the excavation should be stored outside of water features and outside the 100-year floodplain.

WR-4 The Coeur d'Alene River Ranger District of IPNF, and IDFG should be notified prior to construction in sensitive areas (e.g., wetlands and creeks). Excavation and fill in water features should not occur when fish (westslope cutthroat trout) are spawning or eggs incubating in gravels (from April 1 to July 30).

WR-5 At least 15 days prior to beginning pile driving, excavation, boring, and filling or any work within the ordinary high water line or the river, the contractor should submit a Spoil and Wastewater Containment Plan for approval by the IDWR, COE, and IDFG. The plan would detail how the existing road and fill would be removed from the lake and where the material would be disposed. The plan should also detail how the proposed realigned channel would be constructed and how and where wastewater from the site would be treated.

WR-6 Work should be accomplished according to plans developed by FHWA and appropriate permits, and approved by IDFG and IDEQ. A copy of these plans should be available on-site during construction.

WR-7 Removal of existing roadway should be accomplished so that material does not enter the water. Every effort should be made to minimize the chances of increased sedimentation to Fernan Lake and Creek. Sediment fencing should be placed between near-lake construction activities and the edge of Fernan Lake. Material should be removed from the roadway fill in Lilypad Bay, for example, in a manner that minimizes sediment production and is acceptable under appropriate regulatory permits. Surface-to-bottom, in-water silt curtains should be used around all in-water activities that disturb the lake bottom and/or shore.

WR-8 If demolition of the existing road is to include blasting, a mitigation plan to significantly reduce or eliminate impacts to fish resources must be submitted during the design phase of the project to the U.S. Fish and Wildlife Service (FWS) and IDFG for approval prior to any blasting. The plan should include timing restrictions to avoid spawning season, measures to remove and/or scare fish from the site, micro-second timing delays in blasting, and damage assessment procedures to monitor impacts to fisheries.

WR-9 Necessary tree removal within the ROW and subsequent hauling should not occur during the wet season. Log landing areas should be sited away from creeks and streamside management units, and receive adequate erosion control. Sites should be approved by the IPNF.

WR-10 Improved stormwater management should be implemented under any build alternative. Stormwater drainage ditches should be located along the entire length of the north side of the road and on both sides of the road where topography permits. Dependent on getting a maintenance agreement with the appropriate party, numerous small stormwater detention-ponding basins should be located adjacent to the road (upslope side) to allow road runoff to settle before entering stream channels or the lake. Stormwater ditches should be provided on the south side of the road where possible. Where such placement was not possible, runoff from the road would sheet flow across a vegetated water quality filter shoulder to the lake or stream.

WR-11 To avert slumping possibilities, road drainage should not be concentrated in unstable areas.

WR-12 Wastewater from project activities and water removed from within the work area during construction should be routed to stormwater detention ponds to allow sufficient removal of fine sediment and other contaminants and to meet Kootenai County Stormwater Standards prior to being discharged to stream channels or the lake.

WR-13 Under Alternative G, the new bridge upstream of the existing roadway and fill should be built before the existing road is removed so that the existing road would trap most of the sediment created during construction. During removal of the section of road across Lilypad Bay and construction of new water crossings, a silt curtain should be used in the lake to trap sediment generated during demolition.

WR-14 The proposed bridge and culverts should be designed to pass the 100-year peak flow requirement and to take into account the debris likely to be encountered. Abutments, piers, pilings, sills, approach fills, etc., should not constrict flow or cause any appreciable increase (not to exceed 6 cm [0.2 ft]) in backwater elevation (calculated at the 100-year flood) or channel-wide scour, and should be aligned to cause the least effect on water features.

WR-15 Where aggregate or earth-type material is used for paving or accumulates on the bridge, curbs should be installed and maintained to prevent the loss of this material into the water features. Bridge approach material should be structurally stable and composed of material that, if carried into the water, would not be detrimental to fish. Where possible, rock and large woody debris (timber) from road widening should be used to construct in-stream improvements.

WR-16 Concrete structures should be sufficiently cured prior to contact with water to avoid leaching. Fresh concrete should not be allowed to come into contact with surface waters.

WR-17 Where culverts are to be replaced, work should be limited to the low-flow season (summer, fall, and early winter). Exact timing is determined by water

flow rather than date. In-channel work should be planned to exclude times when critical flow is exceeded. In-stream work should not occur during critical fish windows (April 1 – July 31). Gabions should be used directly below culvert outlets draining into water features. Planted vegetation or jute netting should be used on the side slopes on both sides of the road adjacent to culvert outlets to control erosion. Silt fences should be placed adjacent to all water features (riparian, wetland, lake) and during culvert replacement activities to intercept sediments during construction.

WR-18 The potential for construction-related toxic pollution accidents should be controlled by requiring that all equipment be maintained and refueled on impervious surfaces where potential spills and stormwater runoff can be contained and kept out of the 100-year floodplain. A toxic spill response plan should be designed in order to contain any spills that occur.

WR-19 Equipment used for this project should be free of external petroleum-based products while working around the lake. Equipment should be checked daily for leaks and any necessary repairs completed prior to commencing work activities along or above the river. No storage of fuel, petroleum-based products, or deleterious materials should be allowed on temporary work platforms over the lake. Equipment should be stationed on the existing roadway above the ordinary high water line or on the deck of a temporary or permanent bridge structure above the water but in an area where spills could be contained.

WR-20 Water, not oil, should be used during construction to control dust. Water from the lake or municipal sources should be used to meet construction needs. Water should not be drawn from Fernan Creek.

WR-21 Stabilization of road slopes through hydro seeding should aid control of road surface drainage. Bank sloping should be accomplished in a manner that avoids release of overburden material into the water.

WR-22 Sidecast material, cleared vegetation and debris should be properly disposed of according to state and local agency requirements. Disposal of sidecast material should be avoided in wetlands, surface channels, and the lake.

WR-23 Where riprap materials are necessary for structure protection, angular rock should be installed to withstand the 100-year peak flow. Only clean, inert material should be allowed to contact the water. No earth fill cofferdams should be allowed.

WR-24 Alteration or disturbance of banks and bank vegetation should be limited to that necessary to construct the project.

WR-25 At project completion, all disturbed areas should be protected from erosion using vegetation or other means. The road banks should be revegetated with native or other approved woody and herbaceous species.

WR-26 Because of the potential for impacts during construction, mitigation should include erosion control observation. Duties of the erosion control observer should include daily physical monitoring of all sedimentation control structures and downstream conditions within the project area. The observer, to be identified during the final design and permitting process, should assist the contractor in implementing stream and wetland mitigation plan specifications. The observer should report to the construction inspector, freeing the inspector from the monitoring duties. Erosion control measures should be implemented if work is incomplete at the end of the dry season. The observer should also be the liaison regarding fisheries issues to the county IDFG, COE, FWS and others concerned with stream and wetland mitigation plan implementation and job performance.

4.3 WETLANDS

W-1 If rerouting of the construction ROW around the wetlands is not feasible, the top 15 cm (6 in) of soil would be removed and stockpiled prior to trenching and for no more than 5 days.

W-2 Under Alternatives E, Fm, and G, the construction ROW would be narrowed as much as possible to minimize disturbance to wetland areas.

W-3 Organic soils from affected wetlands would be stockpiled and used in wetland mitigation areas.

W-4 minimize impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts

W-5 rectify the impact by repairing, rehabilitating, or restoring the affected environment

W-6 reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action

W-7 compensate for the impact by replacing, enhancing, or providing substitute resources or environments

W-8 monitor the impact and the compensation project and taking appropriate corrective measures

4.4 CULTURAL RESOURCES

HA-1 During construction, measures to protect remaining structures and minimize site disturbance adjacent to the historic site would be used.

HA-2 If cultural materials are discovered during excavation, construction activities will halt until qualified historians and/or archaeologists have evaluated the materials and site.

4.5 FISH, WILDLIFE, AND VEGETATION

Project Design

FWV-1 BMPs, as described in the Standard Specifications for the Construction of Roads and Bridges on Federal Highway Projects (FHWA, 1996), should be implemented during construction. BMPs include measures for erosion and sedimentation control, pollution control, stormwater management, spill prevention control and countermeasures, and construction waste handling. Each BMP applicable to project conditions should be employed.

FWV-2 Stormwater treatment and detention should capture as much road runoff as practicable, and filter it before it enters water bodies. Stormwater should be diverted away from the lake and creek and into detention/infiltration facilities before entering water bodies. Concentration of road drainage in unstable areas should be avoided. Stormwater facilities should be designed in accordance with applicable state, county, and local agency requirements.

FWV-3 Where the road parallels Fernan Creek and Fernan Lake, future snow storage should be away from the creek and lake. Snow removal should be done in a manner that avoids damage to resources. Snow should not be stored near creeks or where snowmelt would cause erosion. This is contingent upon agreement by ESHD when they accept the completed project.

FWV-4 Where aggregate or earth type material is used for paving or accumulates on the road, every effort should be made to prevent deposits of material into the water bodies.

FWV-5 Approach material should be structurally stable and composed of material that if eroded into water would not be detrimental to fish life.

FWV-6 Stabilization of road slopes through hydro seeding and control of road surface drainage should be implemented. Bank sloping should be accomplished in a manner that avoids release of overburden material into water bodies. Overburden material from the project should be deposited so that it does not re-enter the water.

FWV-7 Riprap materials used for structure protection in the Lilypad Bay area should be clean, angular rock, which should be installed to withstand 100-year peak flow. Fish passage structures should be constructed with rocks, as required by permit stipulations.

FWV-8 Within one year of project completion, road banks should be revegetated with native or other approved woody and herbaceous species. Vegetative cuttings should be planted at a maximum interval of 1 m (3 ft) (on center) and maintained as necessary for three years to ensure 80 percent survival (or as specified in the COE permit or other approvals).

FWV-9 Riparian areas should be replanted at a 1:1 ratio with in-kind plant species. A mitigation monitoring plan would be developed for COE approval. Monitoring parameters may include water quality, fish habitat, riparian vegetation, and bank stability conditions in the creek after project completion for three years or as stipulated in the COE permit.

Construction

FWV-10 Side casting of old asphalt should not be permitted. Old roadbed materials should either be recycled on site or removed to a suitable disposal area. Removal of the existing roadway should be accomplished so that structure and associated material does not re-enter water bodies.

FWV-11 Vegetation clearing (including selected tree removal within the ROW) and subsequent hauling should not occur during the wet season, if possible, and should be completed prior to May 1 (prior to bird nesting season).

FWV-12 If possible, some of the trees removed from the ROW during construction should be placed in the edge of the lake to add structure to the shallow water habitat.

FWV-13 Only clean, inert material should be allowed to contact water bodies. No earth fill cofferdams should be allowed.

FWV-14 Alteration or disturbance of banks and bank vegetation should be limited to the minimum necessary to construct the project. Within seven calendar days of project completion, all disturbed areas should be protected from erosion using vegetation or other means.

FWV-15 Spoil piles from excavation should be stored outside the 100-year floodplain, not within water features, or hauled to an approved site. Appropriate de-watering ponds should be provided below all spoil deposits.

FWV-16 Excavation and fill in the lake and creek channel should not occur when fish such as westslope cutthroat trout are spawning or when eggs are incubating in gravels (from April 1–July 30) if such activities could potentially impact spawning areas.

FWV-17 When practicable, surface-to-bottom in-water silt curtains should be used around all in-water sediment disturbance activities, as stipulated by IDL and other permits. Silt fences should be placed adjacent to all water features (riparian, wetland, and lake) during culvert replacement activities to intercept sediments during construction.

FWV-18 When practicable, gabions should be used directly below culvert outlets draining into perennial streams, creeks, and lakes.

FWV-19 When conditions allow, planted vegetation or jute netting should be used on side slopes adjacent to culvert outlets to control erosion.

FWV-20 The Coeur d'Alene River Ranger District and the IDFG should be notified prior to construction in sensitive areas such as creeks, wetlands, and lakes.

FWV-21 A blasting plan should be submitted to appropriate agencies for approval prior to any blasting activities. The plan should address any tactics needed to remove and/or scare fish from the site, micro-second timing delays in blasting, and damage assessment procedures.

FWV-22 The possibility of toxic pollution should be controlled by requiring that, when practicable, all equipment be maintained and refueled on impervious surfaces out of the 100-year floodplain, so as to contain potential spills and stormwater runoff. A Spill Prevention Control and Countermeasures Plan should be developed, approved, and implemented to contain any spills that occur.

FWV-23 The contractor should implement all stipulations and conditions contained in the permits acquired by FHWA.

FWV-24 Equipment used for this project should be free of external petroleum-based products while working around the lake or creek. Equipment should be checked daily for leaks and necessary repairs should be completed prior to commencing work activities along or above water bodies. No fuel, petroleum-based products, or deleterious materials should be stored on temporary work platforms over the lake or creek.

FWV-25 Municipal water should be used during construction to control dust. Oil should not be used. Water from Fernan Lake, but not from Fernan Creek, could be used to meet construction needs if municipal water is not available.

FWV-26 A Stormwater Pollution Prevention Plan (SWPPP) should be part of the permit applications (IDEQ, IDL, IDFG, etc.). The SWPPP should include a provision for monitoring during construction.

FWV-27 Heavy equipment should not be operated outside construction limits in areas with soil moisture limitations.

FWV-28 Erosion control observation should occur on a weekly or daily basis during construction, depending on precipitation. The observer should be responsible for monitoring all temporary and sedimentation control structures and downstream conditions in the project area. Erosion control measures should be implemented if work is incomplete at the end of the dry season. The FHWA construction engineer should also be a liaison between the project and the county, IDFG, COE, FWS, and other agencies for issues related to fisheries, stream and wetland mitigation.

FWV-29 Where the one visible existing culvert is to be removed and the proposed bridge constructed (between MP 2.0 and MP 2.1 under Alternatives E and G), work should be limited as much as possible to the low-flow season (summer, fall, and winter).

FWV-30 Wastewater from project activities and water that may be removed from the work area during construction should be detained to allow removal of fine sediment and other contaminants and to meet Kootenai County Stormwater Standards, prior to being discharged to state waters.

FWV-31 Extra precautions should be taken for equipment operation around water features to prevent contamination.

FWV-32 Structures containing concrete should be sufficiently cured prior to contact with water to avoid leaching. Measures should be used to prevent fresh concrete from coming into contact with state waters.

FWV-33 Temporary, approved toilet facilities should be provided on-site during construction. The temporary toilets should be located away from the lake and creek.

Measures for Alternative G only (Preferred Alternative)

Bridge construction

FWV-34 If possible, the new bridge should be built before the existing road is removed, allowing the existing road to trap most of the sediment created during bridge construction.

FWV-35 The proposed bridge should be constructed so as to pass the 100-year peak flow, with a consideration of debris likely to be encountered.

Mitigation Measures to Protect Terrestrial Resources

FWV-36 Clearing and grubbing of potential nest-bearing vegetation in the project area should not take place during the migratory bird breeding season, which occurs from approximately May 1 to July 15.

FWV-37 Because nesting activity for bald eagles usually occurs from January 1 to August 15, blasting and pile driving within 1.6 km (1 mi) of eagle nests should take place after August 15 or after chicks have fledged if the nest is determined to be active. A biological monitor to be determined by FHWA in conjunction with partner agencies should verify that chicks have fledged prior to construction in the area. Regular construction activities should be limited when within 0.8 km (.50 mile) of the nest. This mitigation measure can be modified following a more detailed noise analysis and discussions with USFWS.

FWV-38 Grass mixes specified for ditches and sideslopes should be used with browse seed mix such as elderberry, oceanspray, mountain maple, and red-stem ceanothus to enhance wildlife habitat on disturbed areas. Seed mix should be approved by the FS and ESHD.

FWV-39 Temporary, approved toilet facilities should be provided onsite during construction. The temporary toilets should be located away from the lake and creek.

FWV-40 Garbage created during construction should be collected and hauled to a proper disposal facility. Food waste should be properly disposed of.

FWV-41 If necessary as determined by the IPNF, snags should be created where snags have been removed for safety reasons.

FWV-42 Where big-game winter ranges overlap the project area, rock crushing, blasting, and other loud noise-generating activity that may disturb wintering big game should be timed to avoid the wintering period, if possible.

FWV-43 Additional surveys for Threatened, Endangered, and Sensitive plant species may be needed according to FWS protocols prior to construction to ensure that no individual species are present.

FWV-44 Meadow areas and wetlands should not be used as staging areas for tree removal or other construction-related activities.

4.6 LAND USE

LVI-1 Traffic management efforts would be coordinated with local residents and recreational organizations such as the Fernan Rod and Gun Club, the snowmobile and ATV clubs, and other fishing and hunting clubs, to ensure their notification prior to and during all construction activities.

LVI-2 Up-to-date information on construction schedules, anticipated delays, and locations would be supplied to emergency service providers. The contractor would be required to provide immediate passage through the construction area for all emergency service vehicles.

LVI-3 For road closures or delays longer than 30 minutes, public notice would be given in advance through the local news media and by information signs. Road closures of up to 4 hours might be needed during construction along the lake.

LVI-4 The contractor would use only approved portions of the ROW for storing material and placing equipment and would not use private property for storage without written permission of the property owner.

LVI-5 Construction would be phased over two or more years. At the end of the construction season, all exposed ground would be covered or planted to protect it from erosion during winter.

4.7 VISUAL/SCENIC

V/S-1 *Road cut slopes.* Adjust final alignment to minimize road cut and fill slopes and retaining walls as much as possible while maintaining safe travel design parameters. Retain existing vegetation between the road and the lake wherever possible. Revegetate with native materials and grass mix compounded specifically for this area as necessary to blend into surroundings. Treat and grade slopes to allow optimum revegetation.

V/S-2 *Rock outcrops in road cut slopes.* Stable rock outcrops would be retained where possible. Allow for a natural, broken-faced effect on new cuts, where consistent with geotechnical conditions.

V/S-3 *Existing roadbed.* Minimize compaction by ripping and scarifying. Blend the roadway into contours of surrounding terrain as far as possible consistent with safety. Using native materials, revegetate disturbed areas to blend roadway into surroundings.

V/S-4 *Guardrails.* Select guardrail materials that complement or blend into the surroundings by utilizing timber or "self-weathering steel" or similar treatment. Consider the use of wire guardrails rather than solid rails to reduce the impact to views from the road along the lake, where consistent with safety.

V/S-5 *Culverts*. Treat culvert ends so as to disguise them. Place rock and soil around culvert ends, or apply flat, black paint or other coatings to eliminate the shiny metallic appearance.

V/S-6 *Retaining walls*. Construct retaining walls of materials that do not create high color or textural contrast to surroundings. Use curvilinear walls to conform with landforms where possible. Preserve existing vegetation where possible, and enhance by new plantings if necessary, to screen walls from sensitive viewer locations. Creating planting pockets in the retaining walls would break up the massive man-made appearance of larger walls.

V/S-7 *Bridge.* Select a bridge type that is as low to the water as possible and utilize low-contrast materials and colors to construct it.

V/S-8 *East Fernan boat dock.* Install new plantings to screen parked vehicles from the view of lake users. Preserve existing vegetation where possible.

4.8 RECREATION

Mitigation measures for land use and traffic and circulation impacts will address recreation impacts as well. No additional measures are proposed.

4.9 SOCIAL AND ECONOMIC

Adverse short-term impacts on land uses are covered under the land use discussion. There are no adverse short-term economic or environmental justice impacts. There will be beneficial short-term economic impacts. No mitigation measures are proposed.

4.10 AIR QUALITY

AQ-1 The contractor would be required to coordinate with utilities to minimize service disruptions.

AQ-2 All construction equipment will be required to be in good working condition. Regular inspection will ensure this.

AQ-3 Equipment would not be idled during periods of inactivity.

AQ-4 More energy-efficient equipment should be used where there is a choice between alternative equipment.

AQ-5 Water would be used during construction to control dust.

4.11 NOISE

There are a number of mitigation measures typically employed by explosives engineers to reduce the noise impacts of blasts. Below are several options that may be available to be used alone or in combination, depending on the site-specific circumstances. The most important mitigation measure is N-1, the requirement for the explosives engineer to develop a comprehensive blast design plan. Acceptance of a blast plan encompassing detailed procedures and all required mitigation measures prior to blasting will ensure that residents and wildlife are protected from the impacts as much as is feasible.

N-1 The explosives engineer will be required to develop a comprehensive blast design plan, including blast monitoring and blast documentation, with acceptance of the plan by FHWA required before any blasting occurs.

N-2 A pre-blast survey of local residents will be performed. Both noise and vibration will be monitored during blasting.

N-3 The explosives contractor will be required to calculate the charge size to maintain the lowest possible powder factor to accomplish the blasting goals.

N-4 The detonation cord on the surface, when used should be covered with a minimum of 6 inches of fill.

N-5 All shots should be fired in pre-drilled or dug holes that are properly stemmed or back-filled.

N-6 Sandbags or other fill should be placed over loaded holes.

N-7 Blasting caps (preferably noiseless) would be used. Cap and fuse techniques are not allowed.

N-8 No two holes should be fired side-by-side simultaneously. Millisecond delays should be used between holes.

N-9 The powder factor should be limited to one-quarter pound of explosives per cubic yard when plastering or air-gapping boulders.

4.12 HUMAN HEALTH (HAZARDOUS MATERIALS)

HZ-1 Prior to construction, the contractor will be required to prepare a Spill Prevention, Control, and Counter Measures Plan stating what actions would be taken in case of a spill or leak of hazardous materials. The plan will also incorporate preventative measures to be implemented, such as the placement of refueling facilities, storage and handling of hazardous materials, etc.