

# Mitigation Bank Prospectus

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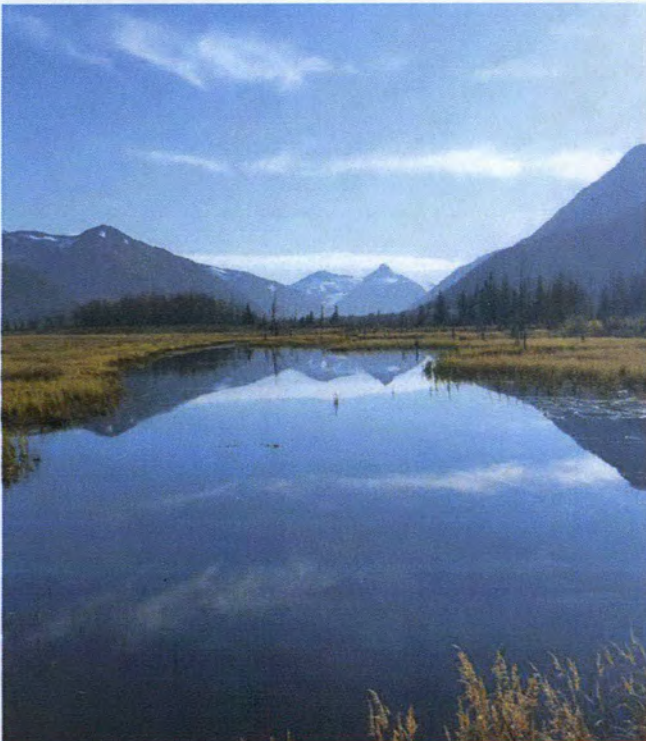
Portage Reserve Mitigation Bank

*Portage, Alaska*

Alaska Railroad Corporation

Prepared by HDR Alaska, Inc.

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# 1.0 Introduction

The Alaska Railroad Corporation (ARRC) seeks to establish a wetland mitigation bank to sell commercially-available wetland credits in accordance with United States Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA) requirements under the 2008 Final Rule on Compensatory Mitigation for Losses of Aquatic Resources (2008 Mitigation Rule).<sup>1</sup> This Prospectus describes the proposed Portage Reserve Mitigation Bank (Bank), in Portage, Alaska, within the Municipality of Anchorage (MOA; Figures 1 and 2).

The Bank consists of 268.1 acres within the Portage Reserve (Reserve) along the ARRC main line. The Bank extends south of the existing developments along Portage Glacier Road to the Reserve's southern boundary, and is approximately 0.24 mile wide and 1.7 miles long. The Placer River runs parallel to the main line, less than a mile to the west of the Bank. If established, the Bank will restore aquatic resources that have been impacted or degraded by development, and permanently protect those restored resources under an appropriate site protection instrument. ARRC, a public corporation owned by the State of Alaska, is the Bank Sponsor.

## 1.1 Watershed Approach

The location for the Bank was selected from all ARRC-owned land using a watershed approach. The 2008 Mitigation Rule requires the use of a watershed approach to compensatory mitigation site selection in order to ensure that selected compensatory mitigation sites maintain and improve the quality and quantity of aquatic resources within watersheds that are impacted by activities authorized by USACE under Section 404 of the Clean Water Act (CWA) or Section 10 of the Rivers and Harbors Act of 1899. In addition to considering how selected compensatory mitigation sites will contribute to the sustainability of aquatic resource functions within a watershed, a watershed approach considers the habitat of important species, habitat loss or conversion trends, sources of watershed impairment, and current development trends.<sup>2</sup>

ARRC owns approximately 36,000 acres of land along its 467 miles of main line and 54 miles of branch lines. This land is widespread across Southcentral and Interior Alaska; the main line stretches from Fairbanks to Seward and crosses 15 U.S. Geological Survey (USGS) 8-digit Hydrologic Unit Code (HUC) watersheds and six Level II ecoregions (as established in the Ecoregions of Alaska mapping).<sup>3</sup> In order to identify areas that would provide the best opportunities for compensatory mitigation under a watershed approach, ARRC evaluated its lands concentrating on the current health of the watershed(s), important natural resources, and the threat of development within each watershed.

The Reserve was selected from all ARRC-owned land for establishment of a mitigation bank. The Reserve comprises approximately 1,200 acres at the junction of the ARRC main line and Whittier

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<sup>1</sup> 33 Code of Federal Regulations [CFR] §332 (2008)

<sup>2</sup> 33 CFR §332.3(c)(2)(iv) (2008)

<sup>3</sup> From north to south: Yukon-Tanana Uplands, Tanana-Kuskokwim Lowlands, Alaska Range, Cook Inlet Basin, Chugach-St. Elias Mountains, and Gulf of Alaska Coast. Nowacki, G., P. Spencer, T. Brock, M. Fleming, and T. Jorgenson. 2001. *Ecoregions of Alaska and neighboring territory [map]*. U.S. Geological Survey, Reston, VA.



Branch line. It is located in the area where Twentymile River, Portage Creek, and Placer River enter Cook Inlet at the head of Turnagain Arm, and contains large complexes of wetlands, waterbodies, and streams located where riverine, estuarine, and palustrine systems converge. These aquatic resources are of high ecological value and contribute to the sustainability of the regional watershed (see Section 8.0 Ecological Suitability).<sup>4</sup> These resources perform many functions, and notably they support the federally listed endangered Cook Inlet Distinct Population Segment (DPS) of beluga whales and are adjacent to federally designated critical habitat for the population.<sup>5</sup> There are also opportunities for re-establishment and rehabilitation of aquatic resource functions within the Reserve that meet the needs of the regional watershed, including needs that have been identified in planning and management documents (see Section 5.1 Needs of the Watershed). The regional watershed of the Reserve includes the MOA, which has experienced considerable historical and ongoing loss and degradation of aquatic resources. These factors contributed to selection of the Reserve as the site for a mitigation bank under a watershed approach.

A watershed approach was used to select the Reserve from all ARRC-owned land as the location for a mitigation bank and to develop and plan the Bank. This Prospectus describes how the establishment and operation of the Bank, including the planned restoration activities, proposed service area, and long-term management strategy, will maintain and improve the quality and quantity of aquatic resources within the regional watershed.

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<sup>4</sup> For the purposes of a watershed approach, the regional watershed was considered to be the area for which a mitigation bank would effectively compensate for adverse environmental impacts resulting from activities authorized by Section 10/404 permits (33 CFR §332.3(c)(4)).

<sup>5</sup> 50 CFR §226.220 (2011)



## 2.0 Bank Objectives (33 CFR §332.8(d)(2)(i))

The primary goal of the Bank is to restore and preserve aquatic resources and their functions impacted by previous placement of gravel fill for the ARRC rail embankment and a microwave tower. The Bank will accomplish this goal via the following four objectives:

- **Restoration (re-establishment)** of functions to wetlands within the Reserve that have been impacted by previous development.
- **Restoration (re-establishment and rehabilitation)** of functions to salmon-bearing streams within the Reserve that have been impacted by under-performing culverts.
- **Restoration (rehabilitation)** of functions to wetlands, waterbodies, and waterways within the Reserve, the larger Portage Valley ecosystem, and Turnagain Arm.
- **Preservation** of restored wetlands, waterbodies, waterways, and upland buffers under a deed restriction and restrictive covenants.

The preservation area excludes the right-of-way for the ARRC mainline, as this operational land cannot be preserved under a deed restriction. Restoration of functions to streams within the right-of-way will generate compensatory mitigation credits under the Bank Instrument, but the area of these streams within the right-of-way will not be preserved. Long-term sustainability and viability of these restored streams will be assured under the long-term management strategy for the Bank, as discussed in Section 6.2 Long-Term Management. The acres of resources that will be restored and/or preserved within the Bank are shown in Table 1.

**Table 1. Resources to be Restored and/or Preserved within the Proposed Portage Reserve Mitigation Bank.**

Objective	Acres
Restoration (re-establishment) and preservation of wetlands	2.2
Restoration (re-establishment and rehabilitation) of streams	0.2
Restoration (rehabilitation) and preservation of wetlands, waterbodies, waterways, and upland buffers	265.7
<b>Total</b>	<b>268.1</b>

The Bank will generate compensatory mitigation credits from these restoration and preservation activities that can be used to offset permitted impacts to aquatic resource functions from ARRC projects in Southcentral Alaska. Additionally, these credits will be sold to public and private applicants for Section 10/404 permits that will result in impacts to aquatic resource functions within the service area. ARRC is not using any state or federal funds to plan, set-up, or establish the Bank. Once established, the Bank will be one of the few mitigation banks in Alaska (to date) to restore aquatic resource functions as a form of compensatory mitigation.



## 2.1 Preservation

The 2008 Mitigation Rule states that preservation should be used in conjunction with aquatic resource restoration, establishment, and/or enhancement activities, providing that five criteria are met.<sup>6</sup> Preservation of aquatic resources within the Bank will satisfy these criteria, as follows:

*1. The resources to be preserved provide important physical, chemical, or biological functions for the watershed.<sup>7</sup>*

The aquatic resources within the Bank that will be preserved are of high ecological value. They include large complexes of wetlands, waterbodies, and streams, and are located where riverine, estuarine, and palustrine systems converge. They provide high value habitat to wildlife and fish, including spawning and rearing habitat for salmon. They receive tidal input and provide important water quality enhancement, hydrologic regulation, and nutrient export functions that support Turnagain Arm. These functions also support the Cook Inlet DPS of beluga whales. The ecological significance of the aquatic resources within the Bank is discussed further in Section 8.2 Wetland and Stream Characteristics.

*2. The resources to be preserved contribute significantly to the ecological sustainability of the watershed.<sup>8</sup>*

The Bank is within the Placer River Watershed (10-digit HUC 1902030203), which is mostly undisturbed. However, the resources that will be preserved within the Bank are in close proximity to the developments that do exist within the watershed, and are most likely be impacted by any future development in the area. The resources are also similar types and of relatively equivalent value to the resources that have previously been altered by existing developments. This includes areas that provide valuable migratory bird stopover habitat and salmon spawning and rearing habitat.

Preservation of the resources within the Bank will be self-sustaining and will not require any active management, such as maintenance of water control structures. The large size of the area that will be preserved will also contribute to watershed sustainability. How the Bank will contribute to the ecological sustainability of the watershed is discussed further in Section 5.1 Needs of the Watershed.

*3. Preservation is determined by the district engineer to be appropriate and practicable.<sup>9</sup>*

The Bank will re-establish historical functions to former aquatic resources and rehabilitate functions to degraded aquatic resources. The restored resources will be preserved, along with the adjacent wetlands, waterbodies, and buffering uplands. These adjacent resources will serve as buffers to the restored resources, protecting them from existing or future physical, chemical,

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<sup>6</sup> 33 CFR §332.3(h)(2) (2008)

<sup>7</sup> 33 CFR §332.3(h)(1)(i) (2008)

<sup>8</sup> 33 CFR §332.3(h)(1)(ii) (2008)

<sup>9</sup> 33 CFR §332.3(h)(1)(iii) (2008)



hydrological, or other disturbances. It will be both appropriate and practicable to preserve these areas to ensure the success and sustainability of the restoration activities.

*4. The resources are under threat of destruction or adverse modifications.*<sup>10</sup>

The resources that will be preserved are all on land currently owned in fee simple by ARRC. The land within the Bank was deeded to ARRC by the federal government to provide ARRC with the land base to provide transportation services into the future, and to generate income through real estate development revenue. As a state-owned corporation, ARRC must generate sufficient revenue from train and real estate services to cover its maintenance and operation expenses. If a Bank is not established, ARRC intends to develop the land within the Reserve either as operating land to support its train services, or as non-operating land leased to other entities.

Operating lands are those that support and maintain ARRC's freight and passenger train services. The rail right-of-way and the Portage Section House are currently considered operating land. Numerous plans to develop the rest of the Reserve as operating land have been considered since its establishment. In 1972, a preliminary design was advanced for the area that included a balloon track and an "in-motion" unloading facility. The Portage Reserve site was selected because its location adjacent to the Seward Highway and the flat terrain.<sup>11</sup>

The Portage Reserve has also been historically identified for use as a large classification yard. Currently, ARRC's headquarters and main rail yard is located along Ship Creek within the Anchorage Reserve, the majority of which has already been developed by ARRC and long-term lease holders such as the Port of Anchorage. ARRC's operating land within the Anchorage Reserve cannot be expanded due to existing developments and constraints. If ARRC requires additional operations and facilities within the MOA in the future, they would be developed within the Bank.

ARRC's Portage Section House is directly adjacent to the proposed Bank. The Section House is a facility that is responsible for maintaining a section of railroad track, houses maintenance facilities, and has a permanent workforce. Development of the Section House and expansion of the facilities poses a threat to the adjacent Bank. The gravel pad for the Section House has recently been expanded in 2008 and in 2011 (authorized under USACE authorizations POA-2005-827-M1 and POA-2005-827-M2).

Non-operating lands are those that are not dedicated to rail-specific and transportation uses. ARRC is prohibited by Alaska State Statute from selling, exchanging, or conveying a complete interest in its land. However, it leases non-operating lands, such as those within the Bank, for up to 95 years for commercial, industrial, and public uses. ARRC is currently offering the Portage Reserve as an available property for development.<sup>12</sup> The location of the Reserve along the

<sup>10</sup> 33 CFR §332.3(h)(1)(iv) (2008)

<sup>11</sup> Alaska Transportation Corridor Study. Design Criteria Cost Estimates Oil Transportation Study. Interim Report 5. April 1972. Prepared for Federal Highway Administration, U.S. Department of Transportation. Prepared by Tudor-Kelly-Shannon, Alaska Transportation Corridor Consultants.

<sup>12</sup> Alaska Railroad Corporation. 2015. "Available Properties." Accessed on February 17, 2017. <https://www.alaskarailroad.com/real-estate/available-properties>.



Seward Highway, a major transportation route that connects the population centers of Southcentral Alaska, make it attractive to tourism-related development or wayside services. As recreation infrastructure and opportunity have increased in the Portage, Twentymile and Placer valleys, ARRC has received increased interest in land within the Reserve from potential developers. These meeting and negotiations with potential developers have occurred under non-disclosure agreements between ARRC and the interested parties.

One current tenant, Chugach Electric Association, Inc., who leases land directly adjacent to the Bank has already indicated a desire to expand their facilities into the Bank.<sup>13</sup>

All of the land within the Bank has been zoned by the MOA as Public Lands and Institutions (PLI; Figure 20). This land district includes areas of significant public open space, major public and quasi-public institutional uses and activities and land reserves for which a specific use or activity is not defined.<sup>14</sup> Allowed uses of PLI lands include utility and transportation facilities, as well as commercial recreational uses, including commercial and residential uses associated with such commercial recreation uses. These allowed uses are governed by Anchorage Municipal Code and subject to approval of the planning and zoning commission.

The trend towards development of the area is also apparent on Figure 21, which shows aerial photography beginning in 1950. Since 1950, in the area directly adjacent to the northern end of the Bank there has been development of multiple gravel fill pads along the Seward Highway, the Alaska Wildlife Conservation Center, a road and homestead site, the Portage Section House, and the Chugach Electric substation (including microwave tower site). To the east of the Bank, there has been development of a road and trails to recreational cabins as well as the Portage Valley Cabins and RV Park. The location of the proposed wetlands bank, at the busy connection of the Portage Highway with the Seward Highway, has limited property available for further development beyond what is owned by the railroad. As the area continues to develop, additional pressures to develop the proposed bank site is expected to receive even greater development pressure.

*5. The preserved site will be permanently protected through an appropriate real estate or other legal instrument.<sup>15</sup>*

The 2008 Mitigation Rule provides flexibility for state agencies in determining the appropriate real estate instrument or other mechanism to provide for long-term protection of a Bank.<sup>16</sup> ARRC will use a deed restriction and restrictive covenants to ensure the long-term protection and sustainable management of the Bank (see Section 6.0 Ownership and Long-Term Management and Appendix B). Although ARRC is prohibited from transferring property interests to another entity for more than 95 years without legislative approval, it does have the ability to manage the development of its lands by its own authority. The proposed deed restriction and restrictive

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<sup>13</sup> Email from Chugach Electric Association, Inc. (Karen Keesecker) to Danielle Knight commenting on the PRMB Prospectus dated May 24, 2017.

<sup>14</sup> Anchorage Municipal Code 21.40.0202

<sup>15</sup> 33 CFR §332.3(h)(1)(v) (2008)

<sup>16</sup> 33 CFR §332.7(a)(1) (2008)



covenants was based on the USACE Charleston District's Model Restrictive Covenant.<sup>17</sup> The Bank will be sequestered from development by the ARRC in accordance with USACE requirements under the 2008 Mitigation Rule.

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<sup>17</sup> <http://www.sac.usace.army.mil/Missions/Regulatory/Compensatory-Mitigation/>



## 3.0 Establishment and Operation (33 CFR §332.8(d)(2)(ii))

The Bank will be established and operated to supply commercially-available mitigation credits in accordance with the 2008 Mitigation Rule.

### 3.1 Establishment

#### 3.1.1 Interagency Review Team

Following submittal of this Prospectus, USACE will establish an Interagency Review Team (IRT) to provide guidance on the establishment and management of the Bank. The IRT is also responsible for reviewing all documentation for the Bank. ARRC expects that the Prospectus review will adhere to the process and timeline outlined in the 2008 Mitigation Rule.<sup>18</sup>

USACE will seek to include in the IRT all agencies with a substantive interest in the establishment of the Bank, but retains final authority over its composition.<sup>19</sup> The IRT may include:

- Chair: USACE, Alaska District
- EPA, Region 10
- National Oceanographic and Atmospheric Administration, National Marine Fisheries Service Habitat Conservation Division (NOAA/NMFS)
- U.S. Fish and Wildlife Service (USFWS), Conservation Planning Assistance Program
- U.S. Forest Service (USFS), Chugach National Forest, Glacier Ranger District
- U.S. Department of Agriculture Natural Resources Conservation Service
- Alaska Department of Natural Resources (ADNR)
- Alaska Department of Environmental Conservation (ADEC)
- Alaska Department of Fish and Game (ADF&G)

#### 3.1.2 Instrument

Following public comment, IRT review, and USACE's initial evaluation of this Prospectus, ARRC will prepare a draft Portage Reserve Mitigation Bank Instrument (Instrument). The Instrument will provide authorization for the Bank to provide credits to satisfy compensatory mitigation requirements to applicants for Section 10/404 permits within the Bank service area. The Instrument will describe the Bank elements as required by the 2008 Mitigation Rule.<sup>20</sup> ARRC expects that the Instrument review will adhere to the process and timeline outlined in the 2008 Mitigation Rule.<sup>21</sup>

<sup>18</sup> 33 CFR §332.8(d)(4) (2008)

<sup>19</sup> 33 CFR §332.8(b) (2008)

<sup>20</sup> 33 CFR §332.8(d)(6) (2008)

<sup>21</sup> 33 CFR §§332.8(d)(7)-(8) (2008)



## 3.2 Operation

Compensatory mitigation activities of the Bank will center on projects designed to restore aquatic resource functions. Under consultation with ADF&G, ARRC has identified five restoration projects within the Bank. These projects will restore wetland functions by removing previously placed fill, restore stream functions by replacing under-performing culverts with bridges, and restore stream and wetland functions by increasing hydrologic connectivity and tidal influence and allowing unimpeded fish passage. ARRC has no other commitments to perform these projects and these projects will only occur as part of the Bank or other permittee-responsible project. The culvert replacement projects will prevent scouring, channel migration, sedimentation, and other adverse impacts that frequently result from undersized and poorly functioning culverts. In tandem with these five projects, the restored wetlands, waterbodies, waterways, and uplands that provide important functions and buffering services within the Bank will be preserved.

### 3.2.1 Proposed Restoration Projects

The five proposed restoration projects identified within the Bank are described below and shown in Figure 3. The projects are presented from north to south, and the listed order of the projects is not intended to represent the order in which the projects will be completed (see Section 3.2.3 Credit Release Schedule).



### 3.2.1.1 RESTORATION PROJECT 1 - FILL REMOVAL AND WETLAND RE-ESTABLISHMENT

This is a wetland re-establishment project that will remove an abandoned gravel road and microwave tower pad (Inset 1; Figure 4). The road is approximately 2,600 feet long and extends south from Portage Glacier Road approximately 0.15 mile east of the Seward Highway. The road's current primary use is as a ski trail in winter. The project will re-establish wetland functions to 2.17 acres of wetlands that were previously filled and converted to upland for the road and pad, and will also re-establish hydrologic connectivity within the larger wetland complex. The limits of the roadway to be removed are shown on Figure 4.

The existing fill (approximately 15,000 cubic yards) will be removed through the use of excavators, dump trucks, and other heavy equipment as necessary. Excavating would begin in the spring or early summer. The fill would be excavated to the original ground surface, with the undisturbed wetland adjacent to the road fill serving as a reference. A site survey would be conducted and a grading plan would be developed prior to excavation. Over-excavation may be needed to remove all of the fill material if the original ground surface has been compacted below the original elevation. Compacted soils would be loosened by mechanical means. Clean topsoil or stockpiled peat soils from off-site sources may be used to backfill and recontour over-excavated areas. Hydrology is expected to reestablish in equilibrium with the adjacent wetlands.

Following construction and final grading, the site would be allowed to revegetate naturally. Performance standards would be established within the Mitigation Plan and will be based on hydrology and cover of native plants.



Inset 1. Abandoned microwave tower pad. September 6, 2016.



### 3.2.1.2 RESTORATION PROJECT 2 - REPLACE TWO CULVERTS WITH A BRIDGE

This project will replace two 48-inch culverts within the railroad embankment with a 22-foot steel bridge (one 22-foot span) over a tidally-influenced section of Explorer Creek (Figure 5, 6, and 13). Explorer Creek is identified in ADF&G's Anadromous Waters Catalog (AWC) as providing spawning and rearing habitat for coho and sockeye salmon, and habitat for pink salmon (Stream No. 247-06-10210-2015).<sup>22</sup> The culverts within the embankment are perched and undersized, constricting hydrology and limiting fish passage. During a site visit on September 6, 2016, an ADF&G biologist noted that the culverts are perched at approximately three feet during low tide and present a barrier to fish passage (Inset 2; Appendix A). Fish are only able to pass through the culverts during high tides. There is a large scour pool located below the culverts (Inset 3), and during low tides adult sockeye and coho salmon stranded in the pool are subject to poaching by snagging. The attraction of the pool to fishermen also presents a safety hazard as they access the pool by walking along the railroad tracks.

ARRC has installed bridge supports within the railroad embankment for a bridge over Explorer Creek. Replacing the perched culverts with a bridge will remove the fish passage barrier, ensuring salmon have all-tide access to valuable upstream spawning and rearing habitat on Explorer Creek. The perched culverts also limit upstream tidal influence on Explorer Creek. A bridge will allow tidal input to reach further upstream into the Bank, rehabilitating functions to the stream and to connected wetlands and waterbodies.

Bridge construction will likely take place during two construction seasons. ARRC will install the remaining steel piles and sheet-pile abutments into the existing embankment of the main line track (outside the channel) during work windows that minimize disruption of train operations. The track over the bridge section will be removed and set aside, and the fill material under the bridge will be partially excavated so the pile caps and bridge span can be constructed. The track material will then be placed on the new structure the remaining fill material and culverts will be removed and the channel reestablished. An estimated total of 50 cubic yards of fill will be removed. Equipment will be operated from the track or adjacent embankment to the extent possible, but an excavator and bulldozer may be needed to work in the stream for approximately 1 week. There is one identified staging/temporary stockpile area shown on Figure 6. Excess excavated embankment material may be stockpiled temporarily in this upland location until removed permanently from the site as appropriate. Existing utilities (fiber optic cable) will be protected during construction activities and are expected to be relocated to the bridge after the structure is placed in service.

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<sup>22</sup> Alaska Department of Fish and Game, Division of Habitat. "Anadromous Waters Catalog." Accessed on February 11, 2017. <http://extra.sf.adfg.state.ak.us/FishResourceMonitor/?mode=awc>.



During construction, crews will remove vegetation and place it the designated staging area for reuse once construction is completed. This vegetation consists mainly of alders and willows. ARRC will restore the stream to its approximate natural channel width and depth, which will allow tidal cycles to naturally restore the stream bank and riparian areas.



**Inset 2. Perched 48-inch culverts on Explorer Creek, outlet view. October 3, 2016.**



**Inset 3. Scour pool below perched culverts on Explorer Creek. October 3, 2016.**



### 3.2.1.3 RESTORATION PROJECT 3 - REPLACE ONE CULVERT

This project will replace one 60-inch culvert within the railroad embankment with a single span steel bridge over an unnamed, tidally-influenced tributary to Placer River (Figure 7, 8, and 13). The final length of the bridge will be determined during final design. The existing culvert is perched and presents a barrier to fish passage (Inset 4). During the September 2016 site visit, the ADF&G biologist captured five juvenile coho salmon below the culvert (Appendix A). No fish were captured or observed above the culvert. The stream below the culvert will be nominated to the AWC (Stream No. 247-60-10210).

Replacing the existing culvert with a bridge will ensure salmon have all-tide access to valuable upstream habitat. The culvert also limits upstream tidal influence. A bridge will allow tidal input to reach further upstream into the Bank, rehabilitating functions to the stream and to connected wetlands and waterbodies.

The bridge would be constructed similarly to the Explorer Creek bridge. However, it is estimated that approximately 40 cubic yards of fill will need to be removed from the embankment. Figure 8 shows the details of the bridge replacement and identifies the upland staging/temporary stockpile area.



Inset 4. Perched culvert on unnamed tributary to Placer River. September 6, 2016.



#### 3.2.1.4 RESTORATION PROJECT 4 - REPLACE THREE CULVERTS WITH A BRIDGE

This project will replace two 48-inch culverts and one 72-inch culvert within the railroad embankment with a 22-foot steel bridge (one 22-foot span) over an unnamed, tidally-influenced tributary to Placer River (Figure 9, 10, and 13)<sup>23</sup>. One of the 48-inch culverts is non-functioning. The culverts in the railroad embankment are tidally influenced and present a barrier to fish passage (Inset 5). Fish may only be able to pass through the 72-inch culvert during high tide. During the September 2016 site visit, the ADF&G biologist captured five juvenile coho salmon in a pool above the culverts (Appendix A). The stream is not currently listed in the AWC, and will be nominated as rearing habitat for coho salmon.

Replacing the culverts with a bridge will ensure salmon have all-tide access to valuable upstream habitat. The culverts also limit upstream tidal influence. A bridge will allow tidal input to reach further upstream into the Bank, rehabilitating functions to the stream and to connected wetlands and waterbodies.

The bridge would be constructed similarly to the Explorer Creek bridge. However, it is estimated that approximately 60 cubic yards of fill will need to be removed from the embankment. Figure 10 shows the details of the bridge replacement and identifies the upland staging/temporary stockpile area.



Inset 5. Culvert on unnamed tributary to Placer River. September 6, 2016.

<sup>23</sup> Exact bridge dimensions will be determined during final design.



### 3.2.1.5 RESTORATION PROJECT 5 - REPLACE ONE CULVERT

This project will replace one 48-inch culvert within the railroad embankment with a single span steel over an unnamed, tidally-influenced tributary to the Placer River (Figure 11, 12, and 13). The final length of the bridge will be determined during final design. The existing culvert is in poor condition and presents a barrier to fish passage (Inset 6). During the September 2016 site visit, the ADF&G biologist captured one stickleback in a pool below the culvert (Appendix A). No additional sampling was conducted due to heavy brush. There is a large, continuous complex of permanently and semi-permanently flooded wetlands and waterbodies on the upstream side of the railroad embankment that is high value rearing habitat.

Replacing the existing culvert with a bridge will ensure fish have all-tide access to valuable upstream habitat. The culvert also limits upstream tidal influence. A bridge will allow tidal input to reach further upstream into the Bank, rehabilitating functions to the stream and to connected wetlands and waterbodies.

The bridge would also be constructed similarly to the Explorer Creek bridge. It is estimated that approximately 15 cubic yards of fill will need to be removed from the embankment. Figure 12 shows the details of the bridge replacement and identifies the upland staging/temporary stockpile area.



Inset 6. Culvert on unnamed tributary to Placer River. September 6, 2016.



### 3.2.1.6 PRESERVATION OF RESTORED RESOURCES

In 2016, ARRC contracted HDR Alaska, Inc. (HDR) to delineate wetlands and other waters of the U.S. within the Reserve (Appendix C).<sup>24</sup> The mapped resources within the Bank are shown in Figure 3 and discussed in Section 8.0 Ecological Suitability. These resources, outside of ARRC right-of-way, will be preserved under a deed restriction and restrictive covenants. The amount of credit generated from preservation of the restored aquatic resources will be included in the Instrument.

### 3.2.2 Mitigation Plan

A Mitigation Plan will be included in the Instrument. It will include the elements required by the 2008 Mitigation Rule, including the acres of resources that will be restored by each project, credits that will be generated by each project, the performance standards for determining whether the projects are achieving their objectives, and long-term management plans.<sup>25</sup>

A mitigation work plan is one of the elements required in the Mitigation Plan.<sup>26</sup> The Mitigation Plan will include conceptual designs for construction of each project. Detailed mitigation work plans for each project will be prepared and submitted to USACE for review and approval prior to project initiation. The mitigation work plans will include information required by the 2008 Mitigation Rule, such as construction methods, timing, and sequence; proposed grading plans; soil management; erosion control measures; and structure specifications, channel form, and riparian area plantings for the culvert replacement projects.<sup>27</sup>

Additional permits may be required for construction of the proposed restoration projects, including from the following federal and state authorities:

- USACE, CWA Section 10/404 Permit
  - Impacts to waters of the U.S. from the proposed restoration projects may qualify for authorization under one or several Nationwide Permits (NWP)
    - NWP 3 – Maintenance
    - NWP 27 – Aquatic Habitat Restoration, Enhancement, and Establishment Activities
- ADF&G, Fish Habitat Permit
- ADEC, CWA Section 401 Water Quality Certification or Waiver
- ADNR, Temporary Water Use Authorization

All necessary permits will be obtained prior to project initiation.

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<sup>24</sup> HDR Alaska, Inc. (prepared for Alaska Railroad Corporation). February 2017. *Portage Reserve Mitigation Bank Jurisdictional Determination Report and REV Classification*.

<sup>25</sup> 33 CFR §§332.4(c)(2)-(14)

<sup>26</sup> 33 CFR §332.4(c)(7)

<sup>27</sup> *ibid.*



### 3.2.3 Credit Release Schedule

The Mitigation Plan will identify the total number of credits that may potentially be generated by the proposed restoration projects. However, the schedule for completion of the five proposed projects has not yet been determined. The timing of project initiation and the order in which the projects are completed will depend on a number of factors, including design and construction costs, credit demand within the service area, and commitment of resources to other ARRC projects. The Instrument will include a credit release schedule that ties credit release to specific, measurable milestones, allowing for flexibility in operation of the Bank while ensuring that projects undertaken within the Bank have a high likelihood of success.

The Instrument will identify the discrete mitigation activities that will comprise the proposed restoration projects as well as measurable performance standards that will be tracked and monitored after each project is completed. The credit release schedule will determine, either as a number or a percentage of the total potential credits, the credits that will be released upon achievement of each of these milestones. Mitigation activities that will result in credit release may include:

- Placement of site protection instrument
- Fill removal and surface regrading
- Installation of bridges
- Vegetation plantings
- Bank stabilization activities

Performance standards that will result in credit release once they are met may include:

- As-built surveys
- Revegetation monitoring

ARRC will submit documentation of mitigation activities or achievement of performance standards to USACE when requesting credit releases. All credit releases will be approved by USACE.<sup>28</sup>

### 3.2.4 Accounting

The Instrument will include accounting procedures that will be followed during operation of the Bank. ARRC will maintain a ledger to account for all credit transactions, including credits released by mitigation activities or achievement of performance standards, credit sales, and credit sales suspended. ARRC will also prepare an annual ledger report to be submitted to USACE.

### 3.2.5 Reporting

ARRC will prepare reports on the operation of the Bank as required in the 2008 Mitigation Rule. The Instrument will identify reporting protocols and schedules for monitoring reports.

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<sup>28</sup> 33 CFR §332.8(o)(9) (2008)



### 3.2.6 Permittee-Responsible Mitigation

The restoration projects described in Section 3.2.1 could potentially be developed as permittee-responsible mitigation for projects that would result in unavoidable impacts to aquatic resources within the Turnagain Arm area. ARRC has previously held discussions with project sponsors who are developing projects in the vicinity of the Bank that will require compensatory mitigation. If one or more projects within the Reserve were performed as permittee-responsible mitigation prior to Bank establishment, ARRC would carry out the projects and be responsible for their long-term management. ARRC would continue to pursue establishment of the Bank, and any land preserved in conjunction with completed projects would be incorporated into the Bank for long-term management. This would ensure that aquatic resources that are preserved within the Reserve are managed together to ensure long-term sustainability and viability.

## 4.0 Proposed Service Area (33 CFR §332.8(d)(2)(iii))

A service area is "the watershed, ecoregion, physiographic province, and/or other geographic area within which [a] mitigation bank...is authorized to provide compensatory mitigation."<sup>29</sup> The 2008 Mitigation Rule requires use of a watershed approach to select a service area for a mitigation bank. A watershed approach to compensatory mitigation site selection considers the overall ecological functioning of the aquatic resources within an entire watershed, with the goal of maintaining and improving the quality and quantity of aquatic resources within that watershed. Using a watershed approach allows for flexibility in selection of a service area for a mitigation bank as long as the service area selected ensures that the aquatic resources provided by the bank will effectively compensate for adverse environmental impacts resulting from permitted activities across the entire service area.

The 2008 Mitigation Rule states that "the economic viability of the mitigation bank...may also be considered in determining the size of the service area."<sup>30</sup> The proposed service area for the Bank was delimited using a watershed approach to ensure that the aquatic resources that will be restored by the Bank will effectively compensate for adverse environmental impacts resulting from permitted activities across the entire selected area while also taking in to consideration the economic viability of the Bank.

The Bank will restore and preserve aquatic resources and their functions in the lower watershed at the interface of the freshwater, riverine, and estuarine systems. These functions have been impacted by 1) placement of a gravel road and fill pad for a microwave tower and 2) placement of the ARRC gravel embankment.

By removing the gravel road and microwave tower fill pad, the Bank will restore freshwater wetland functions to those areas previously converted to upland (e.g. fill) and restore hydrologic

<sup>29</sup> 33 CFR §332.8(d)(6)(ii)(A) (2008)

<sup>30</sup> *ibid.*



connectivity within the larger wetland complex. Functions performed by these wetlands include wildlife habitat support, water quality enhancement, nutrient cycling, and hydrologic regulation.

By replacing fish barriers with bridges along the ARRC embankment, the Bank will restore functions to freshwater and estuarine aquatic resources watershed that have been bisected by the ARRC's gravel embankment. The Bank will eliminate fish passage constrictions and extend tidal influence upstream. This will provide valuable salmon habitat, support for resident wildlife and migratory bird species, and support of downstream estuarine and marine areas by providing important water quality enhancement, hydrologic regulation, and nutrient export functions. These functions, particularly salmon support functions, support the Cook Inlet DPS of beluga whales. Figure 15 shows the designated critical habitat for the Cook Inlet DPS of belugas.

Similar aquatic resources to those within the Bank are found across the proposed service area. These include palustrine wetlands in the lower portion of the watershed, palustrine wetlands that have been converted to uplands by the placement of fill, streams and adjacent wetlands with limited functions due to downstream restrictions, wetlands that directly and indirectly support anadromous fish habitat, and wetlands that directly and indirectly support the Cook Inlet DPS of beluga whales.

All coastal areas in Upper Cook Inlet, Turnagain Arm, and Knik Arm experience extreme tide ranges that make this area unique. The areas within the proposed service area have the second highest tidal range in North America and are classified as hypertidal, meaning that the spring tides have ranges greater than 6 meters. These areas are dynamic with distinct sedimentation and flow velocity patterns.

The proposed service area has been established to offset impacts to similarly functioning freshwater, riverine and estuarine aquatic resources in the lower portions of watersheds adjacent to Turnagain Arm and Upper Cook Inlet, along the ARRC track and within the MOA.

Future development within the proposed service area will likely have similar impacts to aquatic resources as those restored by the Bank. Future development within the cities within the proposed service area will likely impact palustrine aquatic resources from the construction of and expansion of fill pads for commercial and residential development. Outside of the cities, freshwater and estuarine aquatic resources will likely be impacted by linear transportation projects. Section 5.1 Needs of the Watershed describes the current and future projects within the service area and demonstrates how the Bank could compensate for these impacts to aquatic resources and their associated functions.

The proposed service area for the Bank is an area within the boundaries of the MOA, the USGS 10-digit HUC watersheds within the Upper Kenai Peninsula 8-digit HUC watershed (HUC8 19020302) that are adjacent to Upper Cook Inlet, and a three-mile buffer of the ARRC rail lines between Seward, Whittier, and Wasilla (Figure 14). This area encompasses the coastal watersheds of Turnagain Arm and Upper Cook Inlet. It includes the lower reaches of Knik, Eklutna, Eagle, Twentymile, Portage, Placer, and Kenai rivers as well as the heads of Knik and Turnagain Arms of Cook Inlet. The communities of Wasilla, Anchorage, Eklutna, Eagle River, Girdwood,



Whittier, Hope, Moose Pass, Seward, Nikiski, Kenai, and Soldotna are included in the service area.

In addition to restoring and preserving estuarine habitats, the Bank will also restore and preserve palustrine habitats that have been impacted by fill placement. These types of resources are present in most of the communities within the proposed service area and are most likely to be impacted by construction or expansion of fill pads for commercial and residential developments.

Section 5.1 Needs of the Watershed describes the current and future projects within the service area and demonstrates how the Bank could compensate for these impacts to aquatic resources and their associated functions.

Further justification for the defining the proposed service area as described is presented below.

#### **4.1 10-Digit HUC Watersheds**

The 2008 Mitigation Rule specifies that a USGS 8-digit HUC watershed may be an appropriate service area for a mitigation bank in an urban area, while several contiguous 8-digit HUC watersheds or a single 6-digit HUC watershed may be an appropriate service area for a bank in a rural area.<sup>31</sup> While the Bank is within the boundaries of the MOA, the immediate vicinity of the Bank (Portage Valley) has a rural character. There are few developments in the Portage area and the nearest town, Girdwood, is approximately 12 miles away. Because of its location in a rural subarea of an urban administrative area, neither an entire 6-digit nor an 8-digit HUC watershed was considered to be a suitable service area for the Bank. HUCs were selected that contain a combination of estuarine, freshwater, and riverine wetlands present in the lower portion of the watershed. The 10-digit HUC watersheds within the 8-digit HUC Upper Kenai Peninsula Watershed that are adjacent to Upper Cook Inlet were selected for inclusion within the proposed service area to capture areas with similar landscape positions and types of aquatic resources to the Bank (Figure 16, Table 2).

The Bank is within the Upper Kenai Peninsula 8-digit HUC watershed (Figure 14). This watershed includes the western slopes of the Kenai Mountains and the glacier-fed rivers that drain them as well as the extensive flats of the Upper Kenai Peninsula. The Bank is located in the lower Portage Creek watershed near in the intertidal zone and will restore both freshwater and tidally-influenced aquatic resources. The selected 10-digit HUC watersheds contain palustrine, estuarine, and riverine aquatic resources located within the lower portion of the watershed and with similar to the aquatic resources within the Bank. The freshwater and estuarine aquatic resources within these HUCs all directly or indirectly support downstream Cook Inlet DPS beluga whale critical habitat (Figure 15).

Within the Upper Kenai Peninsula, communities and associated development are concentrated in coastal areas. Most of the communities and developments within the Upper Kenai Peninsula are within these 10-digit HUC watersheds. Freshwater aquatic resource functions that will be restored by the proposed projects within the Bank are similar in nature and location to functions that are likely to be impacted by future development within the communities within these

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<sup>31</sup> 33 CFR §332.8(d)(6)(ii)(A)



watersheds. These projects are typically pad construction and expansion for residential and commercial development.

**Table 2. 10-digit HUC Watersheds within the Larger 8-digit HUC Watershed Included within the Proposed Service Area.**

Watershed	HUC10
Bird Creek	1902030201
Twentymile River	1902030202
Placer River	1902030203
Sixmile Creek	1902030204
Resurrection Creek	1902030205
Glacier Creek-Frontal Turnagain Arm	1902030207
Swanson River	1902030208
Lower Kenai River	1902030218
Bishop Creek-Frontal Cook Inlet	1902030219
Big Indian Creek-Frontal Turnagain Arm	1902030220

## 4.2 Municipality of Anchorage

The 2008 Mitigation Rule states that “[d]elineation of the service area must also consider any locally-developed standards and criteria that may be applicable.”<sup>32</sup> The Bank is within the boundary of the MOA. Due to the high rate of aquatic resource functions lost within the MOA, the MOA Planning Division maintains the *Anchorage Wetlands Management Plan* (AWMP) to inventory aquatic resources within the MOA and manage them in order to guide development to minimize adverse impacts.<sup>33</sup> One of the primary goals of the AWMP, which was updated in 2014, is “to identify and provide protection for wetlands that support important ecological and hydrological functions.”<sup>34</sup> Establishment and operation of the Bank is consistent with the goal of the AWMP to preserve valuable wetlands within the MOA.

Many important aquatic resources within the MOA are similar in location and type to the aquatic resources within the Bank. Streams within the MOA originate in the Chugach Mountains and flow either northwest into Knik Arm or southwest into Turnagain Arm. Large areas of wetlands exist where the palustrine and estuarine systems meet along the coasts of Cook Inlet, and provide support functions to Cook Inlet DPS beluga whale critical habitat (Figure 15).

The majority of previous impacts to aquatic resources within the MOA are of a similar nature to the impacts that will be offset by the Bank. These impacts occur along the coast, and have primarily been associated with the conversion of freshwater wetlands to uplands and the restriction of fish passage. Aquatic resource functions that will be restored by the proposed projects within the Bank are similar in nature and location to functions that are likely to be impacted by future development within the MOA.

<sup>32</sup> *ibid.*

<sup>33</sup> Municipality of Anchorage, Planning Division, Community Development Department. July 2014. *Anchorage Wetlands Management Plan*.

<sup>34</sup> *ibid.*



**Table 3. 10-digit HUC Watersheds in the MOA Included within the Proposed Service Area.**

Watershed	HUC10
Barry Arm-Frontal Port Wells	1902020119
Blackstone Bay-Frontal Port Wells	1902020120
Port Wells-Frontal Prince William Sound	1902020121
Bird Creek	1902030201
Twentymile River	1902030202
Placer River	1902030203
Glacier Creek-Frontal Turnagain Arm	1902030207
Eklutna River	1902040101
Peters Creek	1902040102
Eagle River	1902040103
Ship Creek	1902040104
Campbell Creek	1902040106
Rabbit Creek-Frontal Turnagain Arm	1902040107
City of Anchorage-Frontal Cook Inlet	1902040108
Colony Glacier	1902040208
Lake George Glacier	1902040209
Knik Glacier	1902040210
Marcus Baker Glacier	1902040211
Knik River-Frontal Knik Arm	1902040212

### 4.3 Buffer of ARRC Tracks

One of the goals of the Bank is to generate compensatory mitigation credits that can be used to offset permitted impacts to aquatic resource functions from ARRC projects along its main line and Whittier Branch lines and freight facilities in Southcentral Alaska. A three-mile buffer of the ARRC rail lines between Seward, Whittier, and Wasilla is included in the proposed service area to satisfy this objective. The buffer ends at the terminus of the rail line at Seward and Whittier. In Wasilla, the buffer ends at the Fish Creek 10-digit HUC border (1902040105). The Fish Creek Watershed connects directly to the estuarine waters of Knik Arm. Ensuring that ARRC can utilize credits generated from the Bank for construction and maintenance projects along the tracks is essential for safeguarding the economic viability of the Bank. A list of future ARRC projects within the proposed service area is included in Table 6 in Section 5.1 Needs of the Watershed.

The buffer of ARRC rail lines is also included to capture ARRC-owned land in the proposed service area. ARRC owns large tracts of land in Anchorage and the Kenai Peninsula, including tracts in Seward and Whittier, in addition to right-of-way along the rail lines. ARRC has developed much its land for rail operations and support facilities, and also leases non-operating lands to other entities for commercial, industrial, and public uses. Whittier and Seward, like Portage, are similarly situated at the head of large bays where riverine, estuarine, and palustrine systems converge. Aquatic resource functions that will be restored by the proposed projects within the Bank are similar in nature and location to functions that are likely to be impacted by potential future development on ARRC-owned land, either by ARRC or other entities.



**Table 4. 10-digit HUC Watersheds Adjacent to the ARRC Rail Line Included within the Proposed Service Area.**

Watershed	HUC10
Blackstone Bay-Frontal Port Wells	1902020120
Resurrection River-Frontal Resurrection Bay	1902020205
Bird Creek	1902030201
Twentymile River	1902030202
Placer River	1902030203
Sixmile Creek	1902030204
Glacier Creek-Frontal Turnagain Arm	1902030207
Snow River	1902030209
Trail River	1902030210
Quartz Creek	1902030211
Upper Kenai River	1902030212
Eklutna River	1902040101
Peters Creek	1902040102
Eagle River	1902040103
Ship Creek	1902040104
Fish Creek	1902040105
Campbell Creek	1902040106
Rabbit Creek-Frontal Turnagain Arm	1902040107
City of Anchorage-Frontal Cook Inlet	1902040108
Lower Matanuska River	1902040207
Knik River-Frontal Knik Arm	1902040212

#### 4.4 Proposed Service Area Summary

**Table 5** summarizes all of the full or partial 10-digit HUCs covered by the proposed service area (Figure 16). Future potential projects with the service area that have impacts and aquatic resource types and could potentially be offset by the Bank are included in Section 5.1 Needs of the Watershed.

**Table 5. 10-digit HUC Watersheds within the Proposed Service Area.**

Watershed	Full (F) or Partial (P) Watershed	HUC10
Barry Arm-Frontal Port Wells	P	1902020119
Blackstone Bay-Frontal Port Wells	P	1902020120
Port Wells-Frontal Prince William Sound	P	1902020121
Resurrection River-Frontal Resurrection Bay	P	1902020205
Bird Creek	F	1902030201
Twentymile River	F	1902030202
Placer River	F	1902030203
Sixmile Creek	F	1902030204
Resurrection Creek	F	1902030205
Glacier Creek-Frontal Turnagain Arm	F	1902030207
Swanson River	F	1902030208
Snow River	P	1902030209
Trail River	P	1902030210
Quartz Creek	P	1902030211
Upper Kenai River	P	1902030212



Table 5. 10-digit HUC Watersheds within the Proposed Service Area.

Watershed	Full (F) or Partial (P) Watershed	HUC10
Lower Kenai River	F	1902030218
Bishop Creek-Frontal Cook Inlet	F	1902030219
Big Indian Creek-Frontal Turnagain Arm	F	1902030220
Eklutna River	P	1902040101
Peters Creek	F	1902040102
Eagle River	F	1902040103
Ship Creek	F	1902040104
Fish Creek	P	1902040105
Campbell Creek	F	1902040106
Rabbit Creek-Frontal Turnagain Arm	F	1902040107
City of Anchorage-Frontal Cook Inlet	P	1902040108
Lower Matanuska River	P	1902040207
Colony Glacier	P	1902040208
Lake George Glacier	F	1902040209
Knik Glacier	P	1902040210
Marcus Baker Glacier	P	1902040211
Knik River-Frontal Knik Arm	P	1902040212

## 5.0 General Need and Technical Feasibility (33 CFR §332.8(d)(2)(iv))

### 5.1 Needs of the Watershed

The needs of the watershed were considered when selecting the Reserve as a location for a mitigation bank, identifying restoration projects within the Bank, and delimiting the proposed service area. The needs of the watershed were evaluated based on levels and types of development within watersheds, the types of aquatic resources that are impacted by such developments, and opportunities for reversing or mitigating those impacts.

Development within existing communities and along major transportation corridors is one of the primary sources of impacts to aquatic resource functions across Alaska. Aquatic resources within communities and in areas accessible by highways and rail lines are at risk for conversion, degradation, and fragmentation as residential, industrial, and commercial developments expand. The MOA is the largest population center and urban area in Alaska. Over half of the historical wetland area within the Anchorage Bowl has been lost to date due to development.<sup>35</sup> Data compiled by USACE indicates that over 2,200 acres of wetlands within the MOA were permitted for fill between 1976 and 2004.<sup>36</sup> The Kenai Peninsula Borough (KPB), which includes the communities of Soldotna and Kenai along the Kenai River, is the fourth-most populous borough in Alaska. Road construction, industrial development, and residential development are the primary

<sup>35</sup> Municipality of Anchorage, Planning Division, Community Development Department. July 2014. *Anchorage Wetland Management Plan*.

<sup>36</sup> *ibid*.



drivers of wetland loss in the KPB.<sup>37</sup> Continued growth in these communities will lead to continued loss and degradation of aquatic resources within their watersheds.

Several management and planning documents describe ongoing impacts to aquatic resources in the MOA and KPB. The AWMP notes that within the MOA, construction of residential, industrial, and commercial establishments as well as transportation corridors can cause direct impacts to wetlands and waterbodies that in turn “have the potential to modify natural movements of water, damage or destroy fish and wildlife habitat, adversely affect biological productivity, reduce flood storage capacity, or alter nutrient exchange characteristics.”<sup>38</sup> Reduced water quality and riparian habitat along streams are particular concerns in the MOA. ADF&G has documented reduced anadromous fish populations in streams in the Anchorage Bowl and initiated fish habitat enhancement programs. The now-obsolete *Anchorage Coastal Management Plan* identified shoreline modifications, stream channel alterations, removal of shoreline vegetation, and improper placement of drainage structures as activities of specific concern that adversely impact streams, lakes, and wetlands, and which can directly and secondarily impact water quality and fish and wildlife habitat.<sup>39</sup> The USFWS *Alaska Coastal Program 2012-2016 Strategic Plan* identifies resource extraction, urbanization, and poorly managed increased public access as significant potential threats to coastal resources in Southcentral Alaska.<sup>40</sup>

Many agencies and organizations have also identified key strategies to restore aquatic resources within the MOA and KPB. The USFWS produced the *Alaska Partners for Fish and Wildlife Program 2012-2016 Strategic Plan* to identify and direct habitat improvement and conservation opportunities on private land.<sup>41</sup> This plan identifies anadromous fish streams, riparian habitats, and wetlands as high priority for restoration and protection within the MOA and KPB. Significant challenges to the restoration and protection of aquatic resources are continued habitat loss and fragmentation. Primary strategies listed to combat this loss are removal of fish passage barriers and the restoration of riparian habitats. The Kenai Watershed Forum is a community organization that works to maintain and improve the health of watersheds on the Kenai Peninsula. One of their priorities is reconnecting fragmented aquatic habitats by replacing culverts that block fish passage.<sup>42</sup>

According to USACE, permit actions between 2013 and 2016 within the Bank’s proposed service area required approximately 41.4 credits to be purchased from a mitigation bank or in-lieu fee provider.<sup>43</sup> The USACE-permitted developments were primarily pad construction and expansion

<sup>37</sup> Hall, J.V., and S.E. Kratzer. 2001. *Status and Trends of Wetlands in the Lower Kenai River Area, Alaska*.

<sup>38</sup> Municipality of Anchorage, Planning Division, Community Development Department. July 2014. *Anchorage Wetland Management Plan*.

<sup>39</sup> Municipality of Anchorage, Planning Department. July 2007. *Anchorage Coastal Management Plan*. Prepared by Bristol Environmental & Engineering Services Corporation and LaRoche Associates, Anchorage.

<sup>40</sup> U.S. Fish and Wildlife Service, Conservation Partnerships Program. May 2012. *Alaska Coastal Program Strategic Plan, 2012-2016*.

<sup>41</sup> U.S. Fish and Wildlife Service, Conservation Partnerships Program. June 2012. *Alaska Partners for Fish and Wildlife Program Strategic Plan, 2012-2016*.

<sup>42</sup> Kenai Watershed Forum. 2016. *The Way Forward: Action Plan for 2016-2020*.

<sup>43</sup> USACE response to Alaska Department of Natural Resources Freedom of Information Act request for the 3 years prior data of compensatory mitigation projects. File: FOIA\_Mitigation\_04APR2016.xlsx.



from residential and commercial developments.<sup>44</sup> However, some of the larger projects included a natural gas development project on the Kenai Peninsula<sup>45</sup> and improvements to the Seward Highway along Turnagain Arm.<sup>46</sup> Figure 17 shows the location of the USACE-permitted projects between 2013 and 2016 and the amount of credits USACE required to offset the aquatic resource impacts.

The Bank will address the needs of the regional watershed by restoring areas that have been impacted by two of the primary causes of impacts to aquatic resource functions across the proposed service area: wetland fill and impairment of stream functions. The Bank will also restore aquatic resource functions in anadromous streams and wetlands and waterbodies in the lower watershed near the intertidal zone. These resource types are among the most at-risk for impacts across the proposed service area.

The proposed projects that will be undertaken within the Bank will provide benefit not only within the Bank, but also to aquatic areas upstream and downstream. While the northern portion of the Bank is adjacent to and can be accessed from the Seward Highway and Portage Glacier Road, the majority of the Bank is located in areas where the rail line presents the only impairment to fish passage and the surrounding wetland habitat. Impaired culverts under the ARRC rail line limit upstream fish habitat and riparian support functions, and therefore their replacement will provide far reaching benefits outside the direct footprint of the specific project.

The proposed mitigation projects represent an opportunity to restore functions along streams and throughout wetlands on a large parcel of land within Alaska's most populated area. Focusing on increasing anadromous fish productivity within the MOA will greatly benefit the overall ecosystem, supporting recreational and subsistence salmon fisheries.

Increased anadromous fish productivity in streams directly connected to critical habitat of the Cook Inlet DPS of beluga whales will support conservation efforts of this endangered species as identified by NOAA/NMFS. Four species of Pacific salmon (Chinook, sockeye, chum, and coho), along with five other fish species, have been identified as primary constituent elements essential to the conservation of the Cook Inlet DPS of beluga whales.<sup>47</sup>

Potential future projects within the proposed service area were identified by reviewing the 2016 to 2019 Department of Transportation and Public Facilities Statewide Transportation Improvement Program (STIP), publicly available information, and planned ARRC projects. The STIP lists projects for which partial or full federal funding is approved and that are expected to take place during the four-year duration of the STIP. Altogether, approximately 30 potential projects were identified that may have impacts to aquatic resources with similar functions to those restored by the Bank. These projects and their potential impacts to aquatic resources are listed in Table 6 and shown on Figure 17.

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<sup>44</sup> Example of residential and commercial pad construction permit actions between 2013 and 2016 within the proposed service area: POA-2013-00541, POA-2015-00356, and POA-2012-00876.

<sup>45</sup> POA-2009-01228

<sup>46</sup> POA-2014-00412

<sup>47</sup> 50 CFR §226.220 (2011)



Table 6. Potential Future Projects in the Proposed Service Area

Potential Future Projects within Proposed Service Area	Project Description	Wetland Types Impacted			Types of Impacts			
		Palustrine	Riverine	Estuarine	Fill Placement	Culvert or Bridge Placement/ Extension	Direct or Indirect Impacts to Fish Habitat	Direct or Indirect Impacts to Beluga Whale Habitat
<b>DOT&amp;PF 2016-2019 Statewide Transportation Improvement Program Projects</b>								
Seward Highway MP 75-90 Ingram Creek to Girdwood Road and Bridge Rehabilitation	The project includes rehabilitation of the highway including passing lanes, parking facilities, and construction of three replacement bridges at Glacier Creek, Virgin Creek, and Petersen Creek.	X	X	X	X	X	X	X
Seward Highway MP 99-105 Bird and Indian Improvements	Project includes passing lanes and bike/pedestrian trail. Includes replacement of bridge over Indian Creek.	X	X	X	X	X	X	X
Seward Highway MP 105-115 Passing Lanes Indian to Potter	The project includes improvements in the Windy Corner area of the Seward Highway to consisting of highway realignment, auxiliary lanes, safety improvements, wildlife viewing turnouts, and railroad relocation as needed.	X	X	X	X	X	X	X
Seward Highway MP 17-22.5 Rehabilitation Snow River to Lawing	This project will replace the bridge at Victor Creek, rehabilitate both bridges over Snow River, rehabilitate the roadway and may include widening shoulders and the construction of passing lanes.	X	X		X	X	X	
Seward Highway MP 25-36 Rehabilitation Moose Pass to Sterling Wye	Rehabilitate roadway and or upgrade as needed. Project to include passing lanes.	X	X		X	X	X	



Potential Future Projects within Proposed Service Area	Project Description	Wetland Types Impacted			Types of Impacts			
		Palustrine	Riverine	Estuarine	Fill Placement	Culvert or Bridge Placement/ Extension	Direct or Indirect Impacts to Fish Habitat	Direct or Indirect Impacts to Beluga Whale Habitat
Glenn Highway MP 34-42 Reconstruction – Parks to Old Glenn Highway	Reconstruct to four lanes, pathway and shoulders. Accommodate turning movements and add traffic, safety, and intersection improvements as necessary.	X	X		X	X	X	
Seward Highway MP 77-81 Placer River to Twenty Mile River	The project consists of highway rehabilitation from including minor realignment and replacement of the following bridges: Placer River Overflow, Placer River Main Cross, Portage Creek, and Twenty Mile River.	X	X	X	X	X	X	X
Seward Road Improvements	Rehabilitate or improve various City Streets or roads. May include widening, paving, resurfacing, drainage improvements, and ditching.	X	X		X	X	X	
Sterling Highway MP 60-79 Skilak Lake Road to Sterling Rehabilitation and Passing Lanes	Resurfacing, minor widening and passing lanes as needed	X	X		X	X	X	
Sterling Safety Corridor Improvements MP 82.5-94	Projects will expand the highway as a 4 lane divided highway with median or center two-way left turn lane where appropriate. Also included are a pathway and continuous illumination.	X	X		X	X	X	
Kenai Spur Road Rehabilitation – Phase 2	This project will construct a 5-lane highway to increase capacity and improve safety from Sports Lake Road to Robin Street (MP 2.4 to MP 5.2).	X	X		X	X	X	



Potential Future Projects within Proposed Service Area	Project Description	Wetland Types Impacted			Types of Impacts			
		Palustrine	Riverine	Estuarine	Fill Placement	Culvert or Bridge Placement/ Extension	Direct or Indirect Impacts to Fish Habitat	Direct or Indirect Impacts to Beluga Whale Habitat
<b>ARRC Projects</b>								
Replace the Seward Passenger Dock	The passenger dock is nearing the end of its serviceable life and requires major rehabilitation or replacement.	X	X	X			X	
Expand the Seward Freight Dock	The demand for berthing at the freight dock exceeds current availability. Improvements may include lengthening the freight dock, dredging the barge basin, and expansion of handling/storage/staging areas.	X	X	X	X		X	
Track raise along Salmon Creek MP 3-5 with bank-protection	Track improvements to respond to aggrading stream beds.	X	X		X	X	X	
Multiple slope protection/re-alignment projects between MP 18 and MP 25	Minor modification to track alignment and embankment stabilization along 7 miles of main line track adjacent to Lower Trail Lake	X	X		X	X	X	
Multiple slope protection projects along the Snow River between MP 14-18	Embankment stabilization along 4 miles of main line track.	X	X		X	X		
Bridge 25.7 Rehabilitation	Bridge rehabilitation at Lower Trail River	X	X		X	X	X	
MP 32-37 Multiple bank protection projects along the Placer River	Embankment stabilization along 5 miles of main line track.	X	X		X	X	X	
Bridge 56 replacement	Replacement of an aging bridge at a Placer River tributary.	X	X		X	X	X	
Bridge 58.7 replacement	Replace aging timber trestle bridge.	X	X		X	X	X	



Potential Future Projects within Proposed Service Area	Project Description	Wetland Types Impacted			Types of Impacts			
		Palustrine	Riverine	Estuarine	Fill Placement	Culvert or Bridge Placement/ Extension	Direct or Indirect Impacts to Fish Habitat	Direct or Indirect Impacts to Beluga Whale Habitat
Bridge 64.7 replacement	Replacement of bridge at Twenty Mile River.	X	X		X	X	X	
Brookman Siding extension	Extension of the Brookman siding along Turnagain Arm.	X			X			
Rainbow Siding extension	Extend the 1,055 siding along Turnagain Arm to increase operational efficiency.	X			X			
Bridge 86.6 replacement	Replacement of aging bridge at Bird Creek.	X	X		X	X	X	
MP 133 re-alignment	Minor re-alignment adjacent to Fire Creek to improve operational efficiency	X	X		X	X	X	
Bridge 147.5 replacement	Convert steel thru-girder bridge into a ballast deck span.	X	X	X	X	X	X	X
South Wasilla re-alignment	Realignment of approximately 4 miles of track to enhance safety and improve efficiency. Includes bridge over Wasilla Creek.	X	X		X	X	X	
<b>Oil and Gas Development</b>								
Alaska LNG	The project would construct a liquefaction facility in Nikiski as well as place a pipeline across Upper Cook Inlet.	X	X	X	X		X	X
<b>Port Projects</b>								
Port of Anchorage Modernization Project	The project will reconstruct the ports aging infrastructure within Knik Arm.			X	X		X	X



## 5.2 Technical Feasibility

The 2008 Mitigation Rule prioritizes restoration projects because “the likelihood of success is greater...and the potential gains in terms of aquatic resource functions are greater.”<sup>48</sup> The proposed restoration projects that will be accomplished within the Bank will re-establish and rehabilitate wetland and stream functions to conditions similar to those that existed prior to placement of the rail line embankment. These projects are considered technically feasible with a high likelihood for success.

The gravel fill removal and wetland re-establishment project will restore the area to a naturalized condition. The area surrounding the gravel road and pad is an intact wetland complex with semi-permanently and seasonally flooded hydrologic regimes. **Re-establishment of natural hydrology to the area after fill removal is expected to occur without any management interventions.** Native plant species will be used to re-vegetate the area.

Replacement of under-performing culverts with fish-passage structures will re-establish fish support functions and rehabilitate hydrologic functions of streams within the Bank. Fish-passage structures will be appropriately designed for the hydrology of the stream. They will ensure adult and juvenile fish can move unimpeded through the passage at all tides, increase tidal input to the areas above the embankment, and prevent scouring, channel migration, sedimentation, and other adverse impacts that frequently result from undersized and poorly functioning culverts. ADF&G and other agencies with applicable knowledge and expertise will be consulted to ensure the fish-passage structures are designed and installed to provide maximum functional lift. The ADF&G Fish Passage Improvement Program and its partners have successfully completed 33 culvert replacement projects across Alaska to date.<sup>49</sup> ARRC regularly repairs and replaces culverts as a part of regular maintenance along the rail line and has technical staff experienced in the design and construction of such projects.

The restoration of tidal inundation upstream of the proposed mitigation projects was modelled in the Hydrologic Engineering Center’s River Analysis System (HEC-RAS). Figure 18 illustrates the tidal inundation under current conditions as well as the extent of tidal inundation after construction of the proposed bridges. The current tidal influence conditions were determined using MOA’s 2015 LiDAR, the accompanying imagery data set to determine land roughness, existing culvert structures in the railroad embankment, and a stage hydrograph representing a low to high tide cycle. The proposed tidal inundation area uses the same data sets, except with bridges in the railroad embankment. This preliminary analysis isolates the influence of the conveyance structures in the railroad embankment to determine the resulting tidal inundation limits.

The long-term success of the projects and preservation of the Bank will be enhanced by the large size of the Bank and compatible surrounding land uses. The Bank is adjacent to the Chugach National Forest (see Section 8.3.3 Adjacent Land Uses).

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<sup>48</sup> 33 CFR §332.3(a)(2) (2008)

<sup>49</sup> Alaska Department of Fish and Game. 2017. “Fish Passage Improvement Program.” Accessed on February 13, 2017. <http://www.adfg.alaska.gov/index.cfm?adfg=fishpassage.restorationprojects>.



## 6.0 Ownership and Long-Term Management (33 CFR §332.8(d)(2)(v))

### 6.1 Ownership

ARRC owns the surface and subsurface rights to the land within the Reserve fee simple. The original intent of the Reserve was to provide ARRC with sufficient land to develop a large classification yard to support its operations, as space to expand yard operations in Anchorage is severely limited. However, ARRC has the ability to restrict unto itself any development upon its property.

ARRC will place a deed restriction and restrictive covenants on the land to be preserved at the mitigation site (Appendix B). ARRC is prohibited by Alaska State Statute from selling, exchanging, or conveying a complete interest in its land. However, ARRC has the ability to restrict unto itself any development upon its property. The deed restriction will cover 267.9 acres (Figure 3). This area comprises the resources within the Reserve that will be preserved under this mitigation plan. The deed restriction will prohibit activities not compatible with the objectives of the proposed mitigation activities, including “filling, draining, flooding, dredging, impounding, clearing, burning, cutting or destroying vegetation, cultivating, excavating, erecting, constructing, releasing wastes, or otherwise doing any work on the Property; introducing exotic species into the Property (except biological controls preapproved in writing by [USACE] and any State of Alaska agency with jurisdiction over such controls); and from changing the grade or elevation, impairing the flow or circulation of waters, reducing the reach of waters, and any other discharge or activity requiring a permit under clean water or water pollution control laws and regulations.” These requirements are similar to the requirements of other USACE districts and are based on the Model Restrictive Covenants for the USACE Charleston District.

Two Chugach Electric overhead power lines are within the Bank. An area directly underneath the currently operating Chugach Electric power poles will have provisions allowing Chugach Electric access for maintenance activities. The abandoned overhead lines to the old microwave tower will be removed prior to placement of the deed restriction. The draft Deed Restriction and Declaration of Restrictive Covenants is included as Appendix B.

Under Alaska Statute if the ARRC ceases to exist, all ARRC-owned assets revert to the State.<sup>50</sup> The Alaska Department of Natural Resources (ADNR) manages all state-owned land. Thus, in the unlikely event that ARRC were to be dissolved, management of the mitigation site would be transferred to the ADNR. The deed restriction and restrictive covenants would remain on the mitigation site. ADNR manages approximately 100 million acres of land and 60 million acres of tidelands, shorelands, and submerged lands across Alaska for a variety of purposes, including resource extraction, recreation, and conservation. ADNR has submitted a prospectus for an in-lieu fee program to USACE that will generate compensatory mitigation credits on state-owned land. If management of the mitigation site is ever transferred to ADNR, the mitigation site will be

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<sup>50</sup> Alaska Statute 42.40.950



managed with other state-owned parcels that have been preserved as part of their in-lieu fee program.

## 6.2 Long-Term Management

Long-term management will be provided by ARRC, a state-owned entity. The long-term management strategy for the mitigation bank will be to ensure protection of the site through the deed restriction attached in Appendix B and to ensure long-term sustainability and viability of the restored and preserved aquatic resources. The 2008 Mitigation Rule allows state entities to hold site-protection instruments,<sup>51</sup> as well as to provide for long-term management.<sup>52</sup>

ARRC currently owns and manages approximately 36,000 acres of land across Alaska, and has full-time staff whose responsibilities include real estate, land management, permitting, and environmental analysis. The ARRC Real Estate and Facilities Department manages all leases and permitted activities on ARRC property. The mitigation bank will be included in their land management portfolio and monitored according to conditions outlined in the deed restriction.

As part of the long-term management of the site, ARRC will install signs restricting access along the property boundary at a minimum of every 1,000 feet.<sup>53</sup> Access restrictions will be enforced by ARRC personnel. The mitigation bank is located along ARRC's main line directly adjacent to ARRC's Portage Section House, which is typically staffed by ARRC personnel daily, year round. Posters will be placed within Portage Section House that notify ARRC personnel of the presence of the mitigation bank boundaries and advise them to contact the Real Estate and Facilities Department if any unauthorized activities are observed. ARRC actively manages their right-of-way to prevent trespass or unauthorized encroachments with its own sworn police force, supplementing local, state, and federal law enforcement agencies.

If unallowable activities occur within the boundaries of the mitigation site subject to the deed restriction, ARRC will enforce conditions outlined in the deed restriction. If enforcement activities do not result in rectification of conditions, funding will be sought in ARRC's subsequent year operating budget.

ARRC is concurrently developing permittee-responsible mitigation projects within Bank area. Depending on the timing of approval of the Bank or the permittee-responsible mitigation projects, long-term management of the permittee-responsible mitigation site would be transferred to the Bank, where ARRC would manage the entire Bank area as a whole. Transfer of the long-term management to the Bank would absolve the applicant of the permittee-responsible mitigation project from future responsibilities associated with the long-term management of the mitigation site. Transfer of the long-term management would require 60-day advance notice to the USACE District Engineer.

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<sup>51</sup> 33 CFR §332.7(a) (2008)

<sup>52</sup> 33 CFR §332.7(d) (2008)

<sup>53</sup> See Item 8 in the Draft Deed Restriction and Declaration of Restrictive Covenants (Appendix B).



A detailed long-term management plan for the Bank will be included in the Mitigation Plan in the Instrument. The long-term management plan will identify management and monitoring activities, performance standards, reporting, maintenance, and stewardship.

## 7.0 Sponsor Qualifications and Contact Information (33 CFR §332.8(d)(2)(vi))

ARRC is the Sponsor of the Bank. HDR is ARRC's primary consultant, and will assist ARRC in developing the Instrument.

ARRC is a state-owned corporation with a long history managing large projects and real estate in Alaska. In addition to managing a full-service freight and passenger railroad, ARRC manages land and real estate, collaborates with state and federal agencies on land use planning, and participates in community development projects with State and local partners. In its 90 years operating in Alaska, ARRC has safely and successfully designed, developed, and managed many large-scale projects. ARRC will leverage a robust and experienced staff whose expertise includes project management, engineering, supply management, construction management, real estate services, finance and accounting, and legal services for the establishment, operation, and management of the Bank. ARRC will also be able to contract consultants for a variety of services, as required, to ensure success of the Bank.

The Sponsor point-of-contact is:

Brian Lindamood  
327 W. Ship Creek Avenue  
Anchorage, Alaska 99501  
907.265.3095  
[lindamoodb@akrr.com](mailto:lindamoodb@akrr.com)



## 8.0 Ecological Suitability (33 CFR §332.8(d)(2)(vii)(A))

As described below, the Bank site is ecologically suitable to achieve the objectives identified in Section 2.0 of this Prospectus.

### 8.1 Bank Site Description

The Bank is located within the Placer River Watershed (10-digit HUC 1902030203). This watershed drains runoff from snow and glaciers in the Placer River and Portage Creek valleys. The Bank can be found on the Seward D-6 USGS quadrangle located within Sections 5 and 8; Township 8 North, Range 3 East, Seward Meridian. The center of the Bank is located at 60.806544°N, 148.968561°W (NAD83).

### 8.2 Wetland and Stream Characteristics

The 268.1-acre Bank contains large complexes of wetlands, waterbodies, and streams. ARRC contracted HDR to delineate wetlands and other waters of the U.S. within the Reserve.<sup>54</sup> HDR mapped wetlands and classified wetlands using National Wetland Inventory (NWI) codes based on the USFWS's *Classification of Wetlands and Deepwater Habitats of the U.S.*<sup>55</sup> Acreages of wetlands and other waters of the U.S. mapped within the Bank by NWI code are shown in Table 7 and on Figure 3.

Table 7. NWI Codes and Acreage Mapped within the Portage Reserve Mitigation Bank.

NWI Code	Description	Acres <sup>a</sup>
<b>Scrub-Shrub Wetlands</b>		
PSS1C	Seasonally flooded broad-leaved deciduous scrub-shrub wetland	9.90
PSS1/EM1B	Saturated broad-leaved deciduous scrub-shrub/persistent emergent	0.35
PSS1/EM1C	Seasonally flooded broad-leaved deciduous scrub-shrub/persistent emergent wetland	26.95
PSS1/EM1F	Semipermanently flooded broad-leaved deciduous scrub-shrub/ persistent emergent wetland	34.82
PSS1/EM1H	Permanently flooded broad-leaved deciduous scrub-shrub/ persistent emergent wetland	16.78
<b>Total Scrub-Shrub Wetlands</b>		<b>88.80</b>
<b>Emergent Wetlands</b>		
PEM1B	Saturated persistent emergent wetland	0.30
PEM1C	Seasonally flooded persistent emergent wetland	0.49
PEM1F	Semipermanently flooded persistent emergent wetland	19.46
PEM1H	Permanently flooded persistent emergent wetland	105.33
PEM1/SS1C	Seasonally flooded persistent emergent/ broad-leaved deciduous scrub-	11.78

<sup>54</sup> HDR Alaska, Inc. (prepared for Alaska Railroad Corporation). February 2017. *Portage Reserve Mitigation Bank Jurisdictional Determination Report and REV Classification*.

<sup>55</sup> L.M. Cowardin, V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service, Office of Biological Services, FWS/OBS-79-31.



Table 7. NWI Codes and Acreage Mapped within the Portage Reserve Mitigation Bank.

NWI Code	Description	Acres <sup>a</sup>
PEM1/SS1F	Semipermanently flooded persistent emergent/ broad-leaved deciduous scrub-shrub wetland	19.12
PEM1/SS1H	Permanently flooded persistent emergent/ broad-leaved deciduous scrub-shrub wetland	0.73
<b>Total Emergent Wetlands</b>		<b>154.21</b>
<b>Waterbodies</b>		
<b>Streams</b>		
R1UBV	Permanently flooded-tidal unconsolidated bottom stream	1.32
R2UBH	Permanently flooded lower perennial unconsolidated bottom stream	0.46
R2USC	Seasonally flooded lower perennial unconsolidated shore stream	0.04
<b>Ponds</b>		
PABH	Permanently flooded aquatic bed wetland	0.35
PUBH	Permanently flooded unconsolidated bottom wetland	5.52
<b>Total Waterbodies</b>		<b>7.69</b>
<b>Total Wetlands and Other Waters of the U.S.</b>		<b>250.70</b>
<b>Uplands</b>		<b>17.41</b>
<b>Total Bank</b>		<b>268.11</b>

<sup>a</sup> Values have been rounded.

### 8.2.1 Scrub-Shrub Wetlands

Broad-leaved deciduous scrub-shrub (PSS1) wetlands occupy 88.8 acres (approximately 33 percent) of the Bank. These wetlands are found throughout the Bank, particularly in the southern half, adjacent to the rail line. Vegetation is typically dominated by sweetgale (*Myrica gale*), Barclay's willow (*Salix barclayi*), and Sitka alder (*Alnus viridus*). Common herb species include bluejoint reedgrass (*Calamagrostis canadensis*), water horsetail (*Equisetum fluviatile*), tall cotton-grass (*Eriophorum angustifolium*), and mud sedge (*Carex limosa*). Scrub-shrub wetlands mapped within the Bank typically have a semipermanently flooded, seasonally flooded, or permanently flooded hydrologic regime.

### 8.2.2 Emergent Wetlands

Persistent emergent (PEM1) wetlands comprise 154.2 acres (approximately 57 percent) of the Bank. These wetlands are part of large complexes and are found directly adjacent to waterbodies. Vegetation is typically dominated by bluejoint reedgrass, water horsetail, and Northwest Territory sedge (*Carex utriculata*). Approximately 92 percent of emergent wetlands mapped within the Bank have a semipermanently flooded or permanently flooded hydrologic regime.

### 8.2.3 Waterbodies

Waterbodies account for approximately 3 percent or 7.7 acres of the Bank. Waterbodies in the Bank were classified either as streams or ponds.



**8.2.3.1 STREAMS**

Streams within the Bank are both perennial and tidally influenced. Portage is located at the head of Turnagain Arm, which has a significant mean tidal range of 30 feet. These tides result in a fluctuating water level at the mouth of the Placer River and some of the surrounding streams within the Bank. These tidally influenced streams are relatively deep, with steep banks. They are permanently flooded with a silty unconsolidated bottom similar to the mudflats adjacent to Turnagain Arm. The four streams within the Bank that are impeded by under-performing culverts receive some tidal influence. These culverts are perched and undersized, limiting the amount of area upstream that receives tidal input.

Perennial streams in the Bank are either permanently or seasonally flooded with an unconsolidated bottom or shore. These streams flow through the culverts beneath the rail line and connect the wetlands and streams within the Bank to the Placer River as it flows into Cook Inlet.

**8.2.3.2 PONDS**

Ponds within the Bank are permanently flooded waterbodies with either unconsolidated bottoms or aquatic beds.

**8.2.4 Uplands**

Uplands comprise 17.4 acres (approximately 7 percent) of the Bank. Uplands are areas that lack hydrophytic vegetation, wetland hydrology, and/or hydric soils. Areas mapped as uplands include natural upland vegetation communities as well as developed areas. Natural upland communities within the Bank provide support to wetlands, waterbodies, and streams by acting as buffers that protect the aquatic resources from disturbance and degradation.

**8.2.5 Functional Categorization**

The Bank contains aquatic resources of high ecological value. HDR categorized wetlands based on their Relative Ecological Value (REV) using the Anchorage Debit-Credit Method (ADCM). Table 8 shows the acres of resources mapped within the boundaries of the Bank by REV. These values do not represent the credit-generating area of the Bank; the acreages of wetlands and other resources that will be restored and preserved within the Bank and the credits that will be generated will be included in Instrument.

**Table 8. Acreages of REV Categories Mapped within the Portage Reserve Mitigation Bank.**

REV	Acres				Total
	Wetland	Waterway	Waterbody	Upland	
1	219.3	1.8	5.9	9.0	236.1
2	23.7	-	-	6.0	29.7
4	-	-	-	2.4	2.4
<b>Total</b>	<b>243.0</b>	<b>1.8</b>	<b>5.9</b>	<b>17.4</b>	<b>268.1</b>

The AWMP provides mapping and assessment of wetlands within the MOA, and designates wetlands as “A”, “B”, or “C” based on their ecological value (“A” wetlands are of the highest value). The AWMP does not provide full wetland mapping and designation



for the wetlands within the Bank (the 2014 update notes that full mapping of the wetlands in the Turnagain Arm area is planned pending future funding). However, it does note that wetlands within Portage Valley, including those within the Bank, have value for flood attenuation, habitat, and open space/aesthetic functions.

The Great Land Trust prepared the *Anchorage Wetland Parcel Prioritization Project* in 2010 to identify parcels within the MOA that have the greatest potential for conservation.<sup>56</sup> The AWMP mapping was used as the base data for the prioritization, and thus the wetlands within the Bank were not included. However, REV1 wetlands similar to the REV1 wetlands within the Bank and located 1.5 miles away from the Bank were ranked as the second highest potential for conservation within the Indian/Girdwood area (which includes Portage Valley).

The resources that will be restored and preserved within the Bank contribute significantly to the ecological sustainability of the watershed. While Portage Valley is mostly undisturbed, the resources within the Bank are in close proximity to the developments that do exist within the watershed, and would most likely be impacted by any future development in the area. They are also similar types of resources and of relatively equivalent value to the resources that would have been altered by those existing developments. This includes areas that provide valuable migratory bird stopover habitat and salmon spawning and rearing habitat.

#### **8.2.6 Essential Fish Habitat**

Essential Fish Habitat (EFH) is designated for fish species managed under a federal management plan under the Magnuson-Stevens Fishery Conservation and Management Act. All five Pacific salmonid species are managed under the Alaska Salmon Fisheries Management Plan. The Bank contains EFH as the streams, waterbodies, and inundated wetland complexes within the Bank provide spawning and rearing habitat for coho and sockeye salmon and provide habitat for pink salmon. During a September 6, 2016 site visit, an ADF&G biologist sampled for fish in streams within the Bank. The results of this sampling are discussed in Section 3.2.1 Proposed Restoration Projects, and the trip report is attached as Appendix A.

The culverts that will be replaced within the Bank present barriers to salmon passage. Replacement of these culverts with fish-passage structures will allow more salmon to access the EFH upstream of the railroad embankment.

#### **8.2.7 Wildlife**

Portage Creek and Placer River valleys provide habitat for many species of wildlife. Black and brown bears, moose, mountain goats, wolves, coyotes, wolverines, mink, river otters, beavers, and snowshoe hares range throughout the area.<sup>57</sup> Bird species that occur within the area include eagles, shorebirds, song birds, and waterfowl, which nest along the river

<sup>56</sup> Great Land Trust. March 31, 2010. *Anchorage Wetland Parcel Prioritization Project*. Prepared by Joanne Jones, Anchorage.

<sup>57</sup> U.S. Department of Agriculture Forest Service. 2017. "Habitat of Williwaw Fish Viewing Site." Accessed on February 14, 2017. [https://www.fs.usda.gov/detail/r10/specialplaces/?cid=fsbdev2\\_038740](https://www.fs.usda.gov/detail/r10/specialplaces/?cid=fsbdev2_038740)



channels. The wetlands at the head of Turnagain Arm, including the Bank, also provide important stopover habitat for migrating birds, including many species of geese, ducks, and cranes.

## **8.3 Land Encumbrances and Adjacent Land Uses**

### **8.3.1 Historical Land Use**

The Alaska Central Railroad constructed a rail line from Seward toward the head of Turnagain Arm in 1903. In 1909, the Alaska Northern Railroad Company bought the line and extended it north toward Girdwood, through the Portage area. In 1915, the U.S. government purchased the entire line and established the Alaska Railroad Commission. In 1941 the U.S. Army began construction on the Whittier Branch line to provide a supply link during World War II. The line was completed in 1943, and control of the Whittier Branch line was turned over to Alaska Railroad Commission in 1960. The Federal government's interest in the Alaska Railroad was transferred to the state-owned ARRC in 1985. ARRC continues to maintain and upgrade the Mainline and Whittier Branch lines as needed.

The Reserve is one of several private land parcels located in Portage, within the boundaries of the MOA. The town of Portage was abandoned after the 1964 Good Friday Earthquake, which lowered the elevation of the town and surrounding area by 6 feet. This caused the area to become inundated with saltwater, killing most of the trees. Much of the Portage area floods at high tide. Portage is now comprised of the Portage Section House (owned by ARRC) and the Alaska Wildlife Conservation Center, adjacent to Turnagain Arm.

### **8.3.2 Land Encumbrances**

Although ARRC owns the land within the Bank fee simple, there is some limited development within the Reserve. In the northeast corner of the Bank along Portage Glacier Road there is an electrical substation maintained by Chugach Electric Association. Three power lines cross the Bank from the substation. These facilities are located on railroad property by permit, subject to relocation at the railroad's request. It is anticipated that these facilities will be left in place.



ARRC will maintain a 100-foot right-of-way adjacent to the Bank along the main line in order to maintain the track. The Portage Section House is located in the northwest corner of the Bank at the intersection of Portage Glacier Road and the Seward Highway. ARRC uses this area for equipment storage and maintenance. These areas will not be included in the deed restriction and restrictive covenants.

### 8.3.3 Adjacent Land Uses

The Bank is mostly surrounded by the Chugach National Forest. The Chugach National Forest Revised Land and Resource Management Plan designates specific direction on managing different areas of the Chugach National Forest based on management prescriptions.<sup>58</sup> National Forest lands adjacent to the Reserve have the following management prescriptions:

- Backcountry
- Recreation River (Portage Creek)
- Fish, Wildlife & Recreation
- Transportation/Utility Corridor (Portage Glacier Road)

The allowable activities within these management prescriptions are not incompatible with establishment and operation of the Bank. Any future developments or activities on USFS land near the Bank are not expected to impact the long-term sustainability of proposed restoration projects or the overall functioning of Bank.

The north boundary of the Bank is Portage Glacier Road. The Alaska Department of Transportation and Public Facilities maintains a 100-foot right-of-way on either side of the centerline of the road. The right-of-way for Portage Glacier Road is not included in the Bank area and will not be included in the deed restriction and restrictive covenants.

Two privately-owned parcels border the Reserve south of Portage Glacier Road (Figure 19). A 4-acre parcel at the intersection of Portage Glacier Road and the Seward Highway abuts the Reserve opposite the railroad tracks from the Portage Section House. This parcel is not adjacent to the Bank area. A 90-acre parcel at the end of Wyatt's Windy Road borders the Bank to the east on the southern end. This parcel contains a small recreational cabin along one of the unnamed tributaries to Placer River that flows through the Bank. The parcel adjacent to that contains a commercial RV park and cabin rentals (Portage Valley Cabins and RV Park).

Parcels in the Bank vicinity are shown on Figure 19.

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<sup>58</sup> United States Department of Agriculture, Forest Service. May 2002. *Chugach National Forest Revised Land and Resource Management Plan*. Alaska Region, Chugach National Forest, R10-MB-480c.



## 9.0 Assurance of Water Rights (33 CFR §332.8(d)(2)(vii)(B))

Operation and long-term management of the Bank will not require any maintenance of water control structures. Development within the Portage area has not significantly altered hydrology within the Portage Creek and Placer River valleys. Historical imagery on Figure 21 shows the presence of wetlands and perennially flowing streams through the Bank area for the past 70 years.

Hydrology within the Bank is driven primarily by surface water from perennial streams originating in the Placer River and Portage Creek valleys. These streams are fed by glacier and snow melt, as well as groundwater discharge at the base of the mountains within the Kenai Range that separate these valleys. The Bank also receives tidal input through the culverts within the railroad embankment. This tidal input will be increased by the proposed stream restoration projects. Due to the location of the Bank low in the watershed, between two river systems, and at the tidal interface, the hydrology of the area is well suited to provide for the long-term viability and sustainability of the aquatic resources within the Bank.

All surface and subsurface waters in Alaska are reserved for common use and are subject to appropriation under the Alaska Water Use Act. ADNR grants surface and subsurface water rights as well as instream reservations. There are four water rights and instream reservations in the vicinity of the Bank (Table 9).<sup>59</sup> These existing water rights and reservations do not impact the hydrology within the Bank. Any future applications for water rights that may impact hydrology at the Bank would be required to give public notice, and ARRC would have the opportunity to object.

**Table 9. Existing Water Rights Upstream of the Portage Reserve Mitigation Bank.**

File Number	Category	Customer	Location/Purpose	Status Date	TRS
<b>LAS 28858</b>	Instream Reservation	ADF&G Sportfish Division	Portage Creek from OHWM, including sloughs, from mouth to Turnagain Arm.	January 31, 2017	Sections 3, 4, 5, 9, 10, 11, 13, 14, Range 3E, Township 8N
<b>LAS 2684</b>	Subsurface	Gregory Anderson	Lot 3, U.S. Survey No. 3188 for drilled well.	April 8, 1986	Section 5, Range 3E, Township 8N
<b>ADL 203439</b>	Subsurface	Chugach National Forest	-	November 21, 1981	Section 10, Range 3E, Township 8N
<b>LAS 11933</b>	Surface	Chugach National Forest	Explorer Glacier Creek, impoundment structure.	January 20, 1994	Section 10, Range 3E, Township 8N

<sup>59</sup> Alaska Department of Natural Resources, Mining, Land & Water. "DNR Water Rights & Temporary Use Authorizations Database". Accessed on February 14, 2017. [http://dnr.alaska.gov/mlw/mapguide/water/wr\\_start\\_tok.cfm](http://dnr.alaska.gov/mlw/mapguide/water/wr_start_tok.cfm)