

Gravina Access Project

Appendix H

Draft Section 404/10 Permit Application

Draft Section 404(b)(1) Analysis

Wetland Finding

Wetland and Waterbody Reevaluation

Memorandum

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Gravina Access Project

Appendix H

Draft Section 404/10 Permit Application

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**U.S. ARMY CORPS OF ENGINEERS
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT**
33 CFR 325. The proponent agency is CECW-CO-R.

OMB APPROVAL NO. 0710-0003
EXPIRES: 28 FEBRUARY 2013

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please **DO NOT RETURN** your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETED
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(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME First- John Middle- Last- Barnett Company- Alaska Department of Transportation & Public Facilities E-mail- john.barnett@alaska.gov		8. AUTHORIZED AGENT'S NAME AND TITLE <i>(an agent is not required)</i> First- Middle- Last- Company- E-mail-	
6. APPLICANT'S ADDRESS 6860 Glacier Highway, Juneau, AK, 99801		9. AGENT'S ADDRESS	
7. APPLICANT'S PHONE NOS. W/AREA CODE a. Business (907) 465-4504 b. Fax (907) 465-2016		10. AGENT'S PHONE NOS. W/AREA CODE a. Business b. Fax	

11. STATEMENT OF AUTHORIZATION I hereby authorize _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application. _____	
APPLICANT'S SIGNATURE	DATE

NAME, LOCATION AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE <i>(see instructions)</i> Gravina Access Project	
13. NAME OF WATERBODY, IF KNOWN <i>(if applicable)</i> Tongass Narrows	14. PROJECT STREET ADDRESS <i>(if applicable)</i> City: Ketchikan State: AK Zip: 99901
15. LOCATION OF PROJECT Latitude: °N 55.358927 Longitude: °W -131.702567	

17. DIRECTIONS TO THE SITE-
The site is located at the Ketchikan International Airport. Proceed out of the airport following the pedestrian walkway to the Gravina Island Ferry Terminal and ride the ferry to access the Revillagigedo Island Ferry Terminal.

18. Nature of Activity (*Description of project, include all features*)

The proposed action would involve continued operation of the existing airport ferry for vehicles and passengers under its current schedule and along its existing route. Improvements to the existing ferry terminal on Revillagigedo Island would include reconstruction of the ferry transfer bridge and ramp, a passenger waiting facility, expansion of paved parking areas, lighting, security, water and sewer utility upgrades, covered walkways, fencing, landscaping, a parking meter system, sidewalk construction, and Tongass Highway access improvements. Shuttle vans would be provided to carry both pedestrians and their luggage from the existing ferry terminal on Revillagigedo Island to the airport terminal on Gravina Island. On Gravina Island construction would include reconstruction of the ferry terminal transfer bridge, a new heavy freight barge mooring facility, replacement of the ferry layup dock and transfer bridge, reconstruction of the Airport Creek Bridge to be 36 feet wide, and reconstruction of Seley Road as a 36-foot wide gravel surface from Lewis Reef Road to approximately the north end of the Airport Reserve. Reconstruction of Seley Road would include the placement of fish passage culverts in all fish-bearing streams and drainage culverts, where appropriate and practicable. For additional details on the nature of the activity see the 2017 Preliminary Final Supplemental Environmental Impact Statement (EIS).

19. Project Purpose (*Describe the reason or purpose of the project, see instructions*)

The purpose of the project, as defined in the 2017 Preliminary Final Supplemental EIS, is to improve surface transportation between Revillagigedo Island and Gravina Island. The need for improving access is threefold:

- To provide the Borough and its residents more reliable, efficient, convenient, and cost-effective access for vehicles, bicycles, and pedestrians to Borough lands and other developable or recreation lands on Gravina Island in support of the Borough's adopted land use plans.
- To improve convenience and reliability of access to Ketchikan International Airport for passengers, airport tenants, emergency personnel and equipment, and shipment of freight.
- To promote environmentally sound long-term planning and economic development on Gravina Island.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge:

Project Component	Reason(s) for Discharge
Revillagigedo Island Ferry Berth Upgrades	Discharge would occur below Mean High Water (MHW) in order to prepare one piling socket (for a 24-inch diameter piling) and rock anchor.
Gravina Island Ferry Berth Upgrades	Discharge would occur below MHW in order to prepare 19 piling sockets (for 18- to 30-inch diameter pilings) and rock anchors.
Gravina Island Layup Dock Replacement	Discharge would occur between High Tide Line (HTL) and MHW in order to excavate area for the new layup dock transfer bridge abutment, construct the piling-supported abutment for the layup dock transfer bridge, armor the abutment with shot rock and Class III rip-rap, and prepare one piling socket (for an 18-inch diameter piling) and rock anchor. Discharge would occur below MHW to armor the abutment with shot rock and Class III rip-rap, and to prepare 20 piling sockets (for 30- and 36-inch diameter pilings) and rock anchors.
Gravina Island Heavy Freight Mooring Facility	Discharge would occur between HTL and MHW in order to construct a section of the freight barge mooring ramp and armor it with shot rock and Class III rip-rap. Discharge would occur below MHW to excavate the area to the desired width and grade, armor the freight ramp with shot rock and Class III rip-rap, and to prepare 23 piling sockets (for 18- to 30-inch diameter pilings) and rock anchors.
Seley Road Reconstruction and Airport Creek Bridge Replacement	Discharge would occur in wetlands in order to excavate and construct the new portions of the Seley Road embankment and the new Airport Creek Bridge abutments. Discharge would occur below Ordinary High Water (OHW) in three streams (West Fork North Airport Creek, Unnamed Stream #1, and Unnamed Stream #2) in order to construct the road embankment and place fish passage culverts through the embankment.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Amount of Material Discharged

Project Component	Type	Cubic Yards
Gravina Island Layup Dock Replacement	Shot Rock Between HTL and MHW	71
	Class III Rip-Rap Between HTL and MHW	98
	Shot Rock Below MHW	17
	Class III Rip-Rap Below MHW	86
Gravina Island Heavy Freight Mooring Facility	Shot Rock Between HTL and MHW	355
	Class III Rip-Rap Between HTL and MHW	136
	Concrete Planks or Asphalt Between HTL and MHW	86
	Shot Rock Below MHW	640
	Class III Rip-Rap Below MHW	631
	Concrete Planks or Asphalt Below MHW	210
Seley Road Reconstruction and Airport Creek Bridge Replacement	Grading D-1	933
	Selected Material, Type A	4,663
	Selected Material, Type B	17,080
Total Fill Discharged		25,006

Amount of Material Excavated

Project Component	Type	Cubic Yards
Revillagigedo Island Ferry Berth Upgrades	Excavation Below MHW	1
Gravina Island Ferry Berth Upgrades	Excavation Below MHW	18
Gravina Island Layup Dock Replacement	Excavation Between HTL and MHW	124
	Excavation Below MHW	60
	Excavation Below MHW	59
Seley Road Reconstruction and Airport Creek Bridge Replacement	Excavation in Wetlands	30,409
Total Excavation		30,671

22. Surface Area in Acres of Wetlands or Other Waters Filled (*see instructions*)

Project Component	NWI Type	Acres
Gravina Island Layup Dock Replacement	E2USN	<0.1
Gravina Island Heavy Freight Mooring Facility	E2USN	0.7
Seley Road Reconstruction and Airport Creek Bridge Replacement	PFO4B	2.1
	PFO4/EM1B	3.4
	PSS4B	<0.1
	PSS4/EM1B	<0.1
	PEM1C	0.1
	PEM1B	0.3
	R3UBH	<0.1
	R4SBC	<0.1
Road and Bridge Subtotal		5.9
Total		6.6

Please see Table 4-13 in Section 4.14 and Table 4-15 in Section 4.15.4.4 of the 2017 Preliminary Final Supplemental EIS for additional details.

23. Description of Avoidance, Minimization and Compensation (*see instructions*)

For information on avoidance, minimization, and compensatory mitigation of impacts to Waters of the U.S. please see Sections 4.14.1.3, 4.30.1.4, and 4.30.2.9 of the 2017 Preliminary Final Supplemental EIS. Additional information on avoidance and minimization of impacts to Waters of the U.S. can be found in Sections 4.12.3 and 4.12.4.3 of the 2017 Preliminary Final Supplemental EIS.

24. Is Any Portion of the Work Already Complete? Yes _____ No X IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

- a) State of Alaska, 550 W. 7th Avenue, Suite 1050 A
Anchorage, AK, 99501
- b) Ketchikan Gateway Borough, 1900 1st Avenue
Ketchikan, AK, 99901

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application

None.

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT

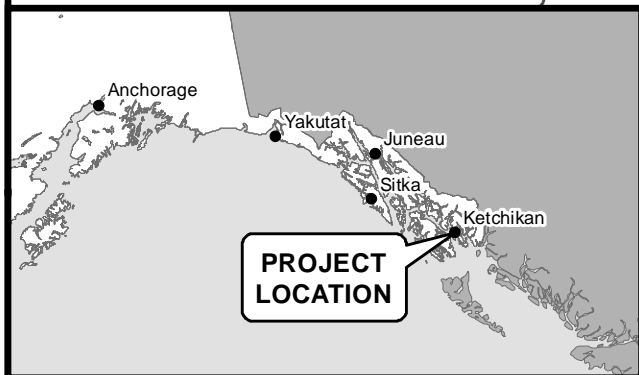
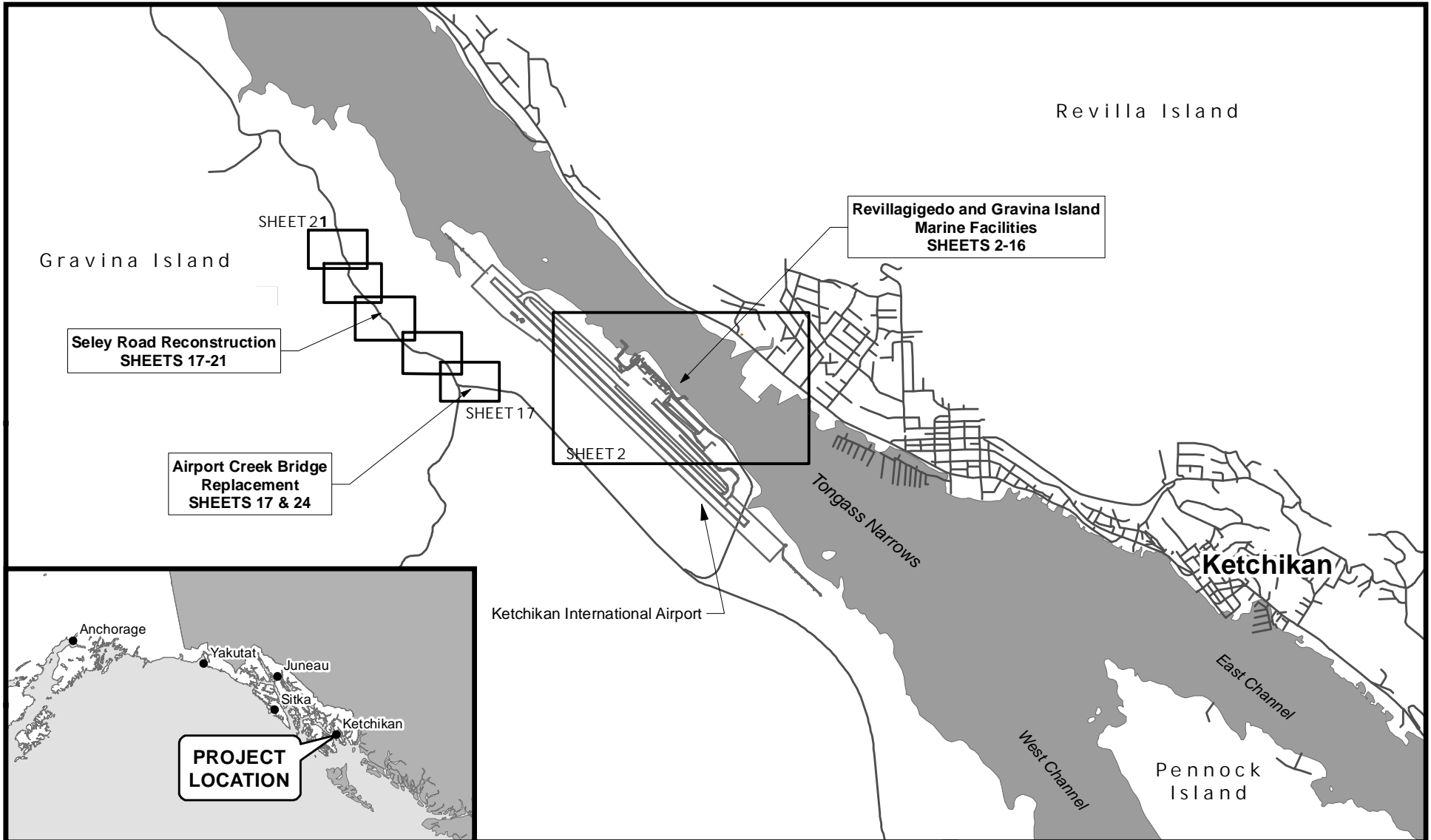
DATE

SIGNATURE OF AGENT

DATE


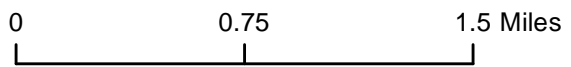
The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.



ADJACENT LANDOWNERS: See attached table

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska

Vicinity Map

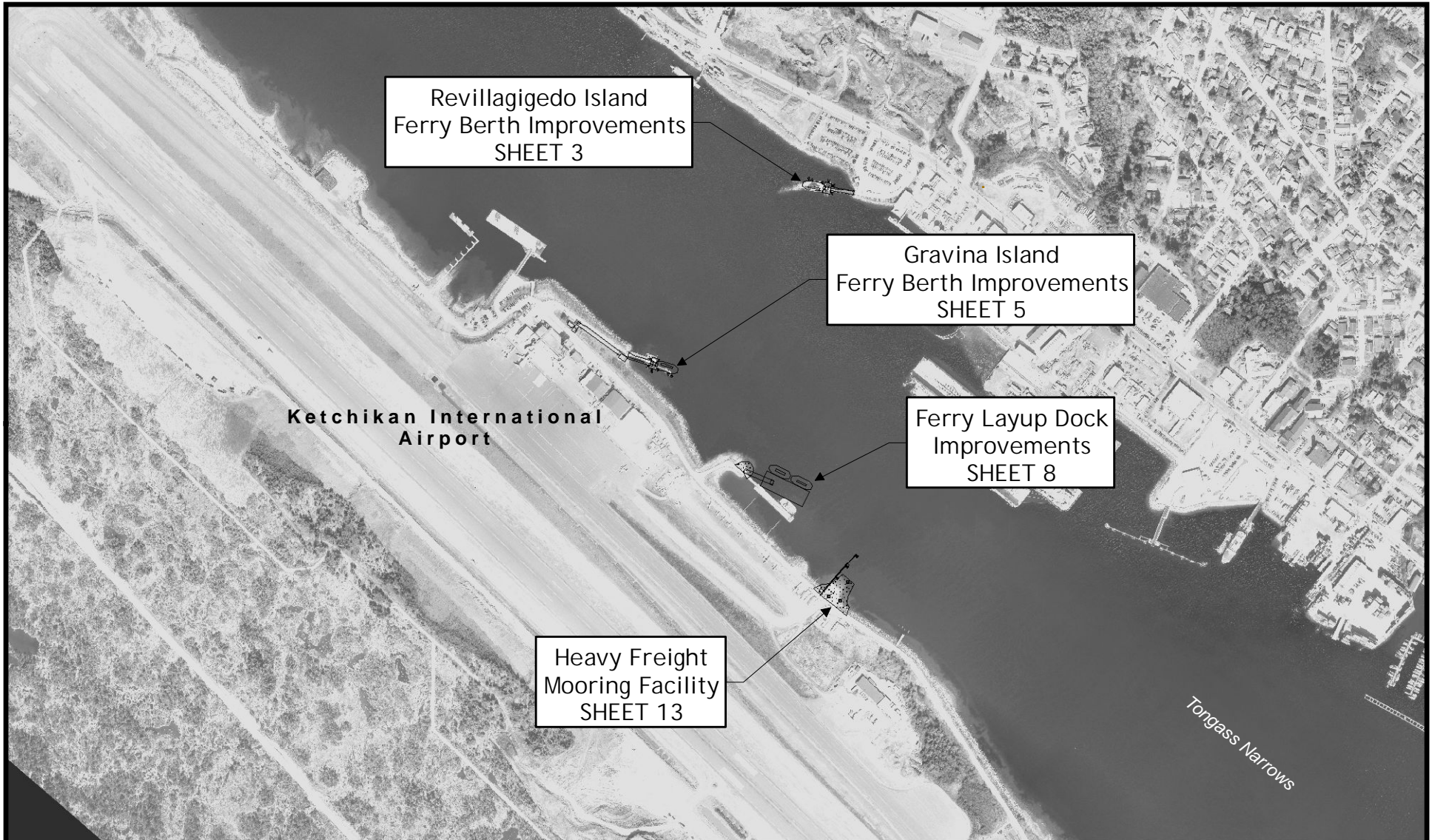
SCALE 1" = 4,000'

APPLICATION BY:

State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

GRAVINA ACCESS PROJECT
POA: 9-2000-0152
Tongass Narrows

IN: TONGASS NARROWS
 AT: KETCHIKAN, ALASKA
 SHEET 1 of 28 DATE: March 17, 2017



Revillagigedo Island
Ferry Berth Improvements
SHEET 3

Gravina Island
Ferry Berth Improvements
SHEET 5

Ferry Layup Dock
Improvements
SHEET 8

Heavy Freight
Mooring Facility
SHEET 13

**Ketchikan International
Airport**

Tongass Narrows

ADJACENT LANDOWNERS: See attached table

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
SEC 01 T76S R90E
SEC 29, 30, 31, 32 T75S R91E
SEC 06 T76S R91E
Copper River Meridian, Alaska



0 250 500 Feet

Marine Facilities Plan View

APPLICATION BY:

State of Alaska Department of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801-7999

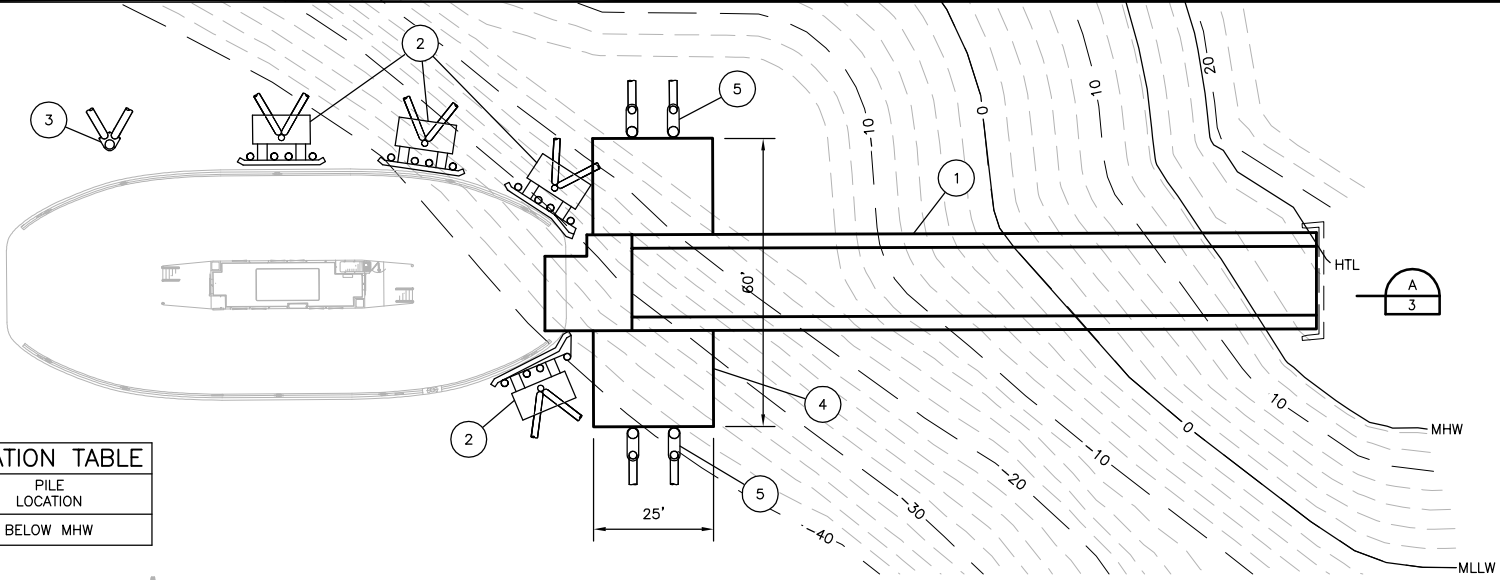
GRAVINA ACCESS PROJECT

**POA: 9-2000-0152
Tongass Narrows**

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 2 of 28 DATE: March 21, 2017

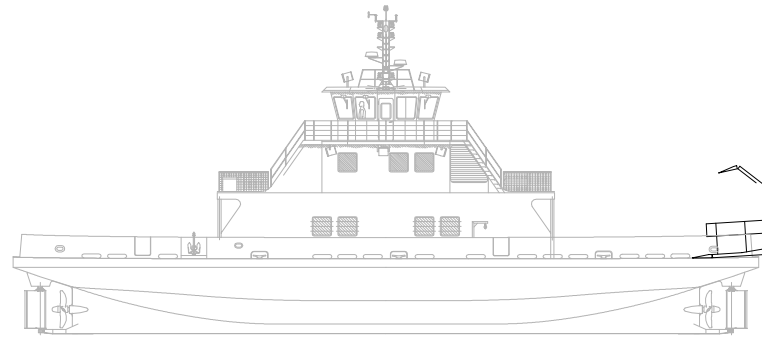


NEW PILE INFORMATION TABLE

PILE DIA.	QUANTITY	PILE LOCATION
24"	1	BELOW MHW

PLAN - REVILLA

SCALE: 1" = 40'



ELEVATION - REVILLA

SCALE: 1" = 30'



- 1 REMOVE, REFURBISH AND RE-INSTALL BRIDGE.
- 2 REPLACE RUBBER FENDER ELEMENTS AND FENDER PANELS ON EXISTING DOLPHINS (SEE SHEET 4).
- 3 REPLACE EXISTING 24" DIA. VERTICAL PILE ON EXISTING 3-PILE FLOATING FENDER. (SEE SHEET 7 FOR 3-PILE FLOATING FENDER DOLPHIN CONFIGURATION).
- 4 REPLACE BRIDGE FLOAT W/ CONCRETE OR STEEL FLOAT WITH SIMILAR DIMENSIONS.
- 5 EXISTING PILE RESTRAINT DOLPHINS TO REMAIN.

ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska

**Revilla
 Airport Ferry Berth Improvements**

SCALE AS NOTED

APPLICATION BY:

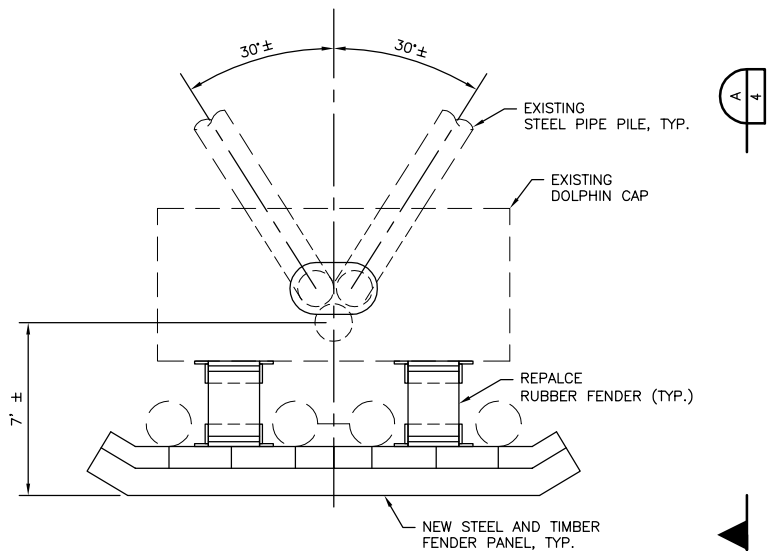
State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
 POA: 9-2000-0152
 Tongass Narrows**

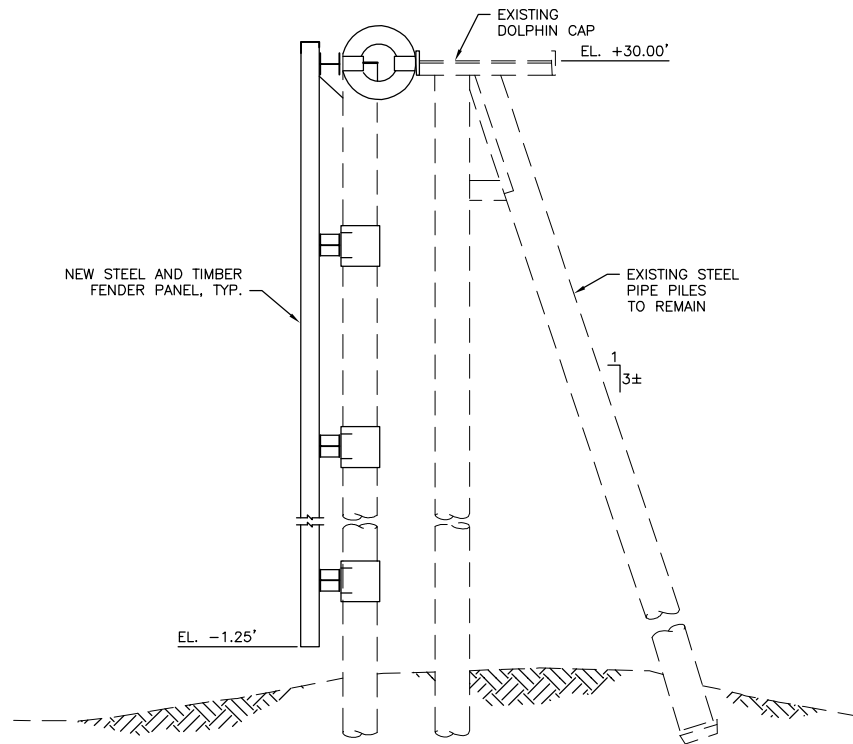
IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 3 of 28 DATE: March 17, 2017



PLAN
EXISTING BREASTING DOLPHIN 1
4
 SCALE: 1/8" = 1'-0"



ELEVATION
EXISTING BREASTING DOLPHIN A
4
 SCALE: 1/8" = 1'-0"

ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska

**Existing Revilla
 Breasting Dolphin Refurbishment Details**

SCALE AS NOTED

APPLICATION BY:

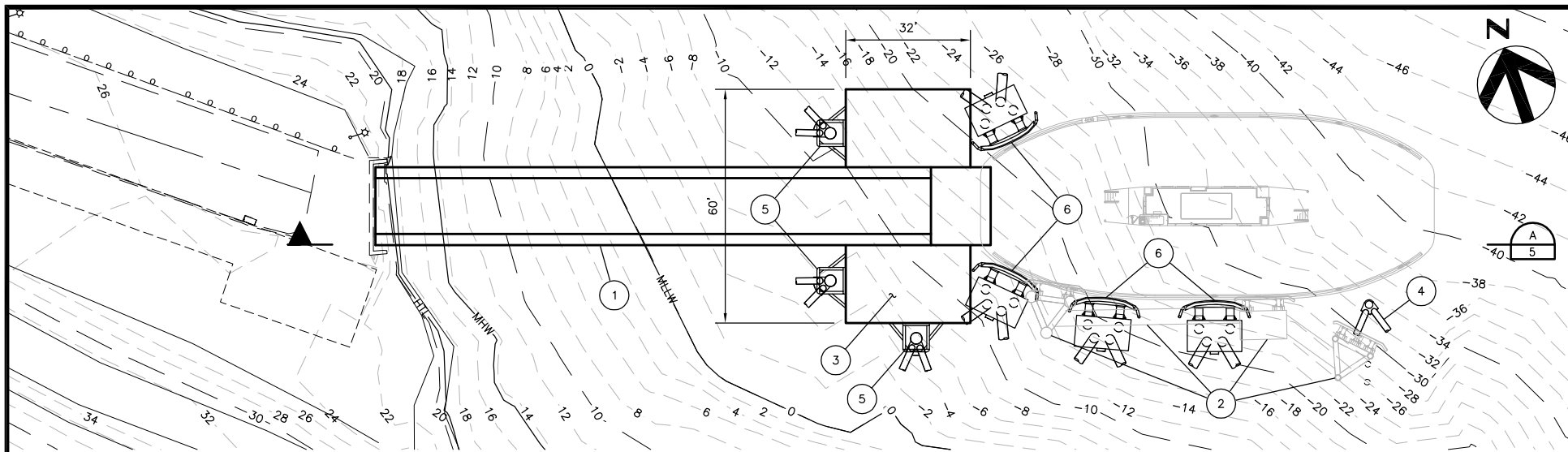
State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
 POA: 9-2000-0152
 Tongass Narrows**

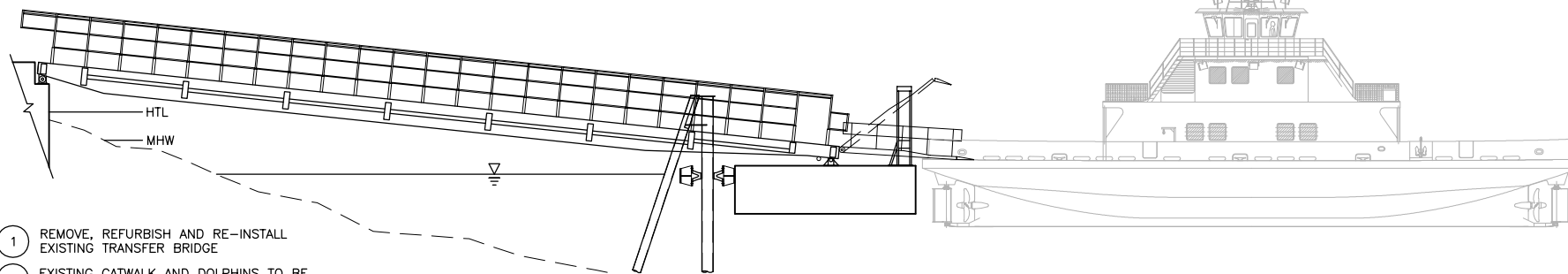
IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 4 of 28 DATE: March 17, 2017



PLAN — GRAVINA 1
5
SCALE: 1" = 40'



ELEVATION — GRAVINA A
5
SCALE: 1" = 30'

- ① REMOVE, REFURBISH AND RE-INSTALL EXISTING TRANSFER BRIDGE
- ② EXISTING CATWALK AND DOLPHINS TO BE REMOVED
- ③ REPLACE BRIDGE FLOAT W/ CONCRETE OR STEEL FLOAT WITH SIMILAR DIMENSIONS.
- ④ CONSTRUCT NEW 3-PILE FLOATING FENDER DOLPHIN (SEE SHEET 7)
- ⑤ EXISTING FLOAT RESTRAINT DOLPHINS TO REMAIN
- ⑥ CONSTRUCT NEW 4-PILE BREASTING DOLPHIN STRUCTURES (SEE SHEET 6)

NEW PILE INFORMATION TABLE		
PILE DIA.	QUANTITY	PILE LOCATION
30"	16	BELOW MHW
24"	1	BELOW MHW
18"	2	BELOW MHW

ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska

Gravina Airport Ferry Berth Improvements

SCALE AS NOTED

APPLICATION BY:

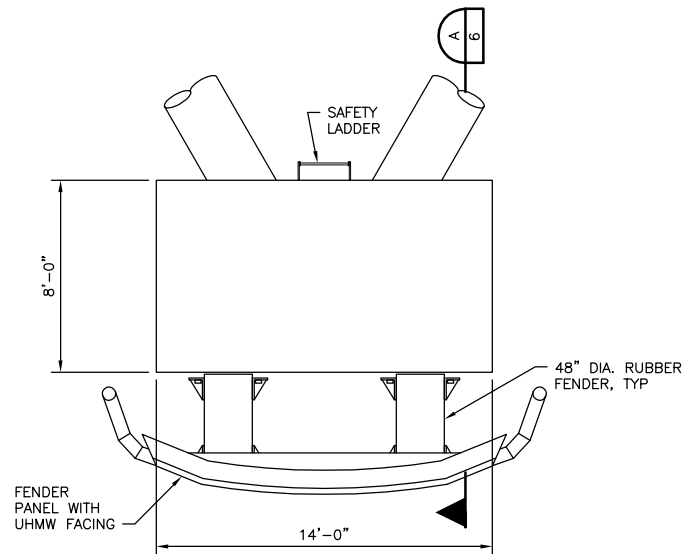
State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

GRAVINA ACCESS PROJECT
POA: 9-2000-0152
Tongass Narrows

IN: TONGASS NARROWS

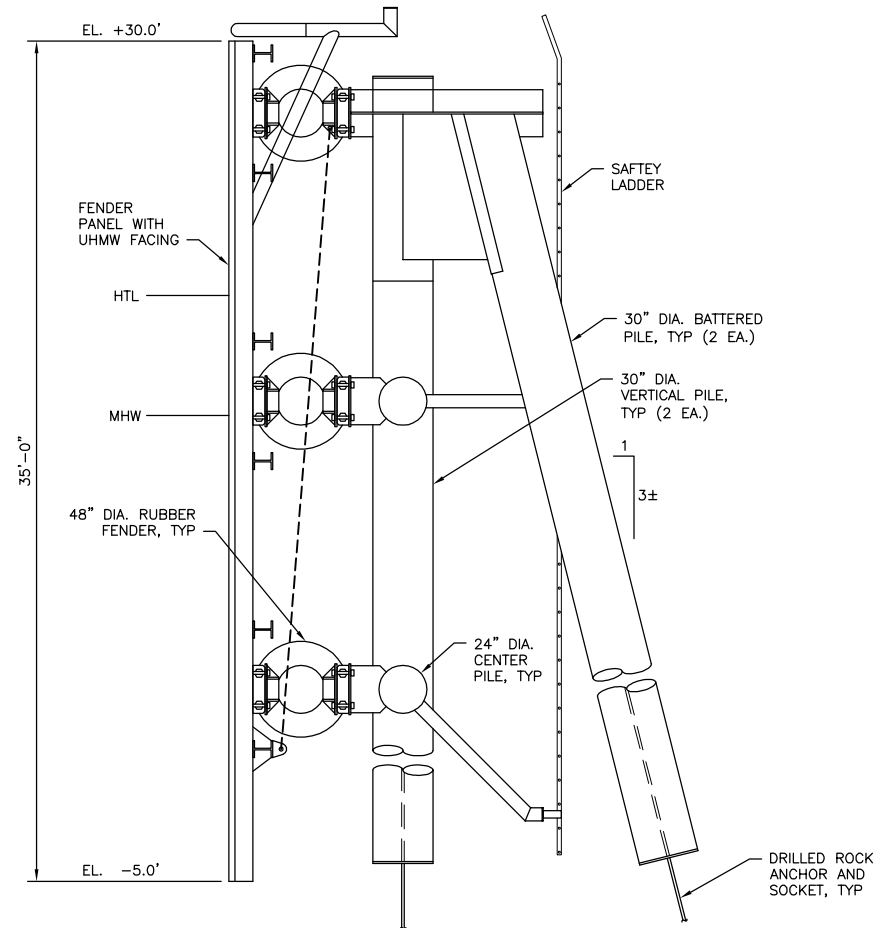
AT: KETCHIKAN, ALASKA

SHEET 5 of 28 DATE: March 17, 2017



PLAN - 4 PILE BREASTING DOLPHIN

SCALE: 1/8" = 1'-0"



SECTION - 4 PILE BREASTING DOLPHIN

SCALE: 1/8" = 1'-0"



ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska

**Gravina
 New 4 - Pile Breasting Dolphin Details**

SCALE AS NOTED

APPLICATION BY:

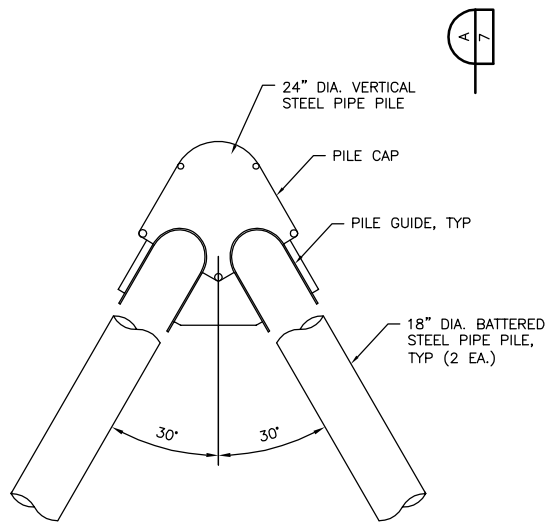
State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
 POA: 9-2000-0152
 Tongass Narrows**

IN: TONGASS NARROWS

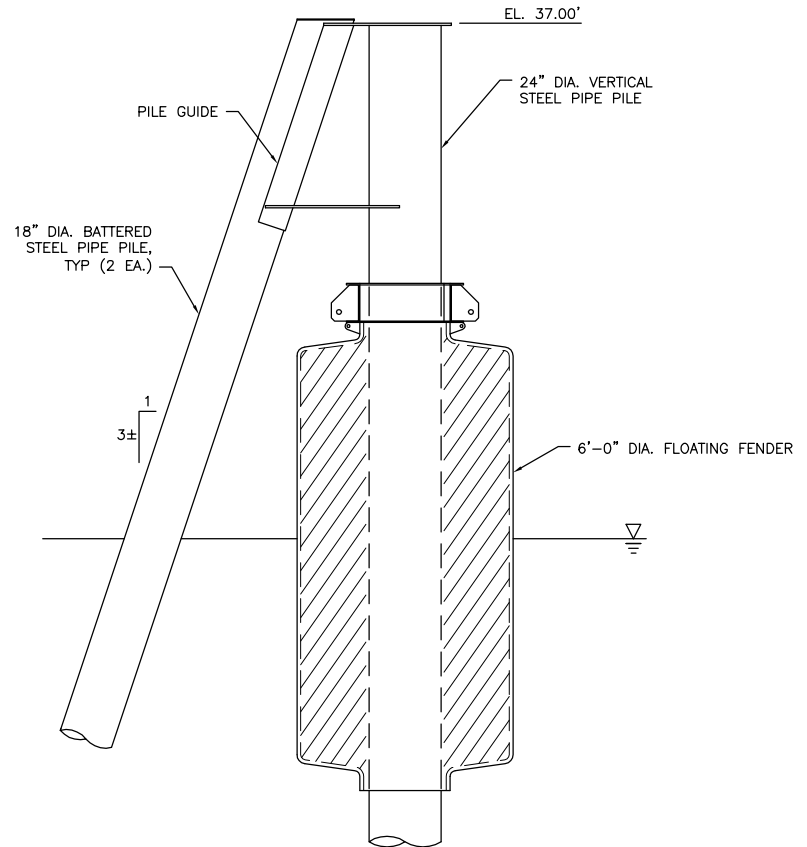
AT: KETCHIKAN, ALASKA

SHEET 6 of 28 DATE: March 17, 2017



PLAN - 3 PILE
FLOATING FENDER DOLPHIN

SCALE: 3/16" = 1'-0"



ELEVATION - 3 PILE
FLOATING FENDER DOLPHIN

SCALE: 3/16" = 1'-0"

ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
SEC 01 T76S R90E
SEC 29, 30, 31, 32 T75S R91E
SEC 06 T76S R91E
Copper River Meridian, Alaska

3 - Pile Floating Fender Dolphin Details

SCALE AS NOTED

APPLICATION BY:

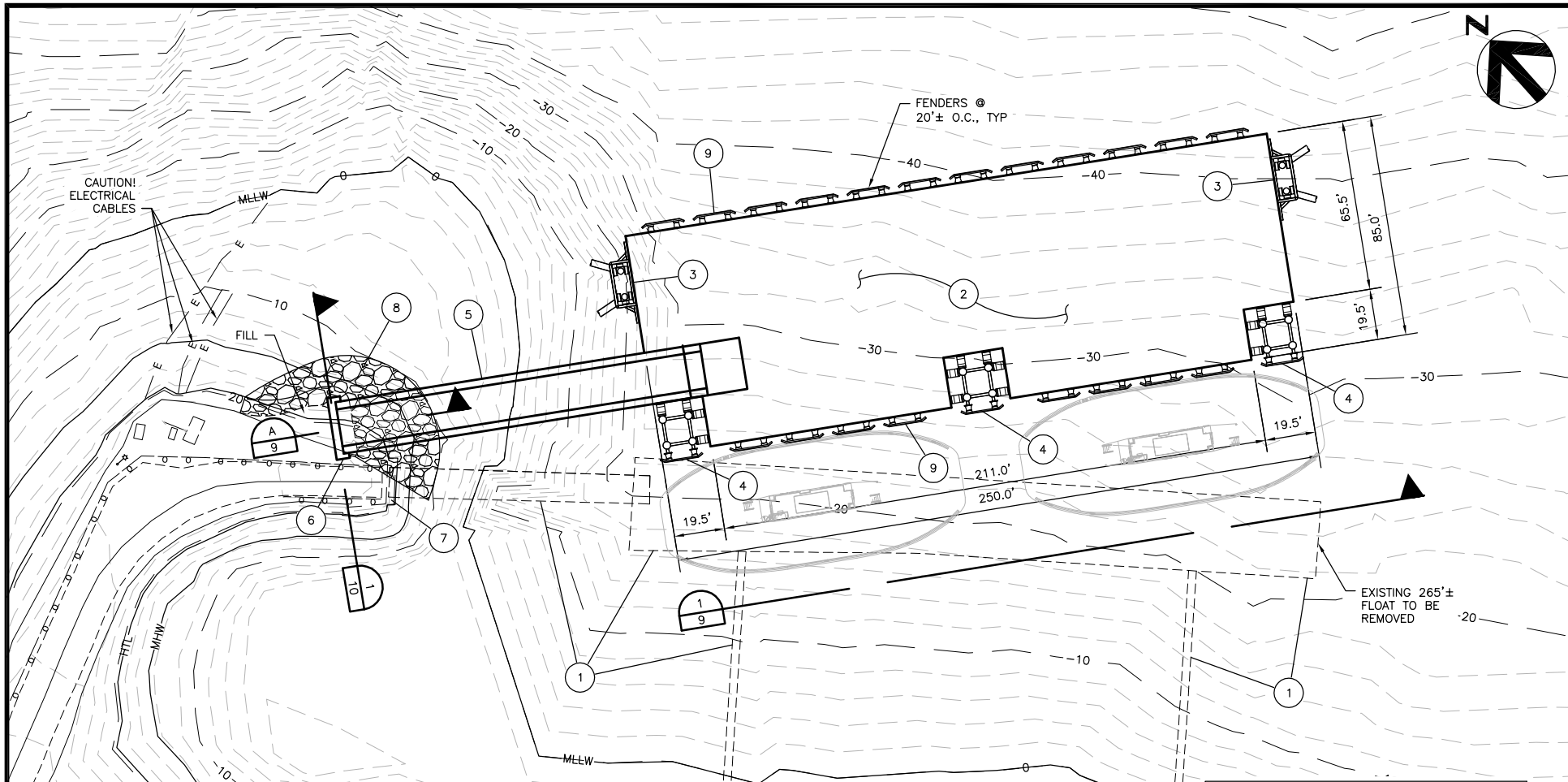
State of Alaska Department of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801-7999

GRAVINA ACCESS PROJECT POA: 9-2000-0152 Tongass Narrows

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 7 of 28 DATE: March 17, 2017



- ① REMOVE EXISTING 265'± FLOATING DOCK, MOORING STRUCTURES AND TRANSFER BRIDGE.
- ② CONSTRUCT NEW 250'x85' CONCRETE OR STEEL FLOATING DOCK
- ③ CONSTRUCT NEW 4-PILE SIDE RESTRAINT FLOAT DOLPHINS (SEE SHEET 11)
- ④ CONSTRUCT NEW 4-PILE CORNER AND MID RESTRAINT FLOAT DOLPHINS (SEE SHEET 12)
- ⑤ CONSTRUCT NEW 20'x140' STEEL TRANSFER BRIDGE
- ⑥ CONSTRUCT NEW CONCRETE/PILE SUPPORTED BRIDGE ABUTMENT
- ⑦ DEMOLISH EXISTING CONCRETE ABUTMENT
- ⑧ REMOVE, RELOCATE, AND REPLENISH EXISTING ROCK SLOPE
- ⑨ DOCK MOUNTED FENDERS, TYP

PLAN - LAYUP DOCK 1
8
SCALE: 1" = 60'

NEW PILE INFORMATION TABLE		
PILE DIA.	QUANTITY	PILE LOCATION
36"	16	BELOW MHW
30"	4	BELOW MHW
18"	1	BETWEEN HTL-MHW
18"	2	ABOVE HTL

ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska

Plan Gravina Layup Dock Improvements

SCALE AS NOTED

APPLICATION BY:

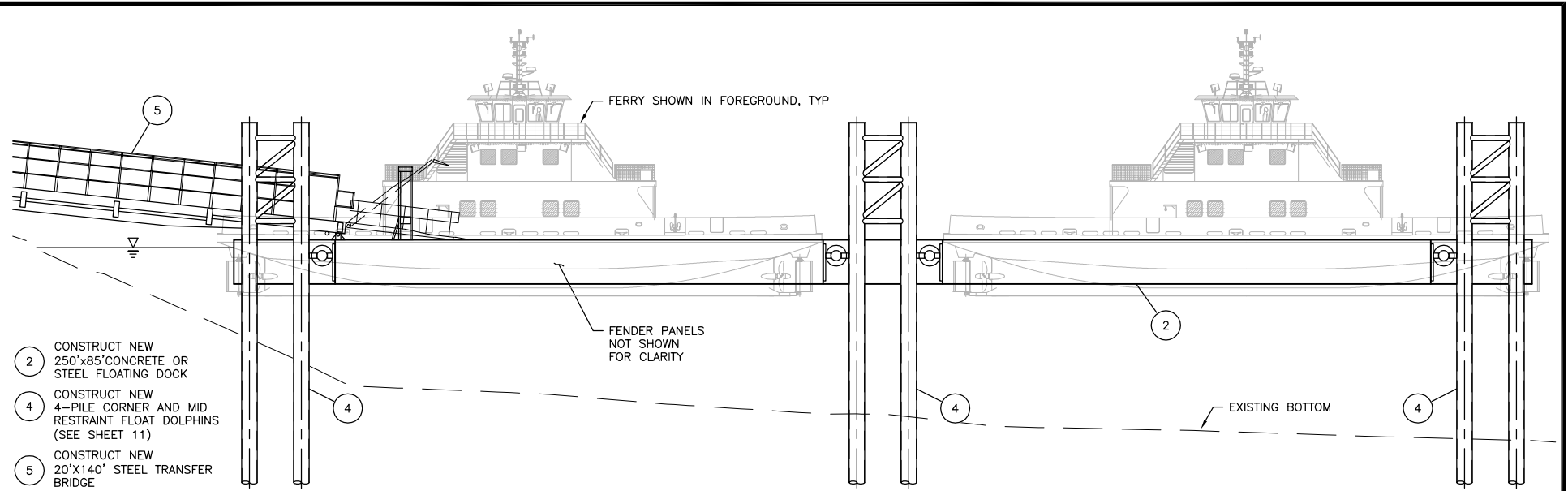
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**GRAVINA ACCESS PROJECT
 POA: 9-2000-0152
 Tongass Narrows**

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 8 of 28 DATE: March 17, 2017

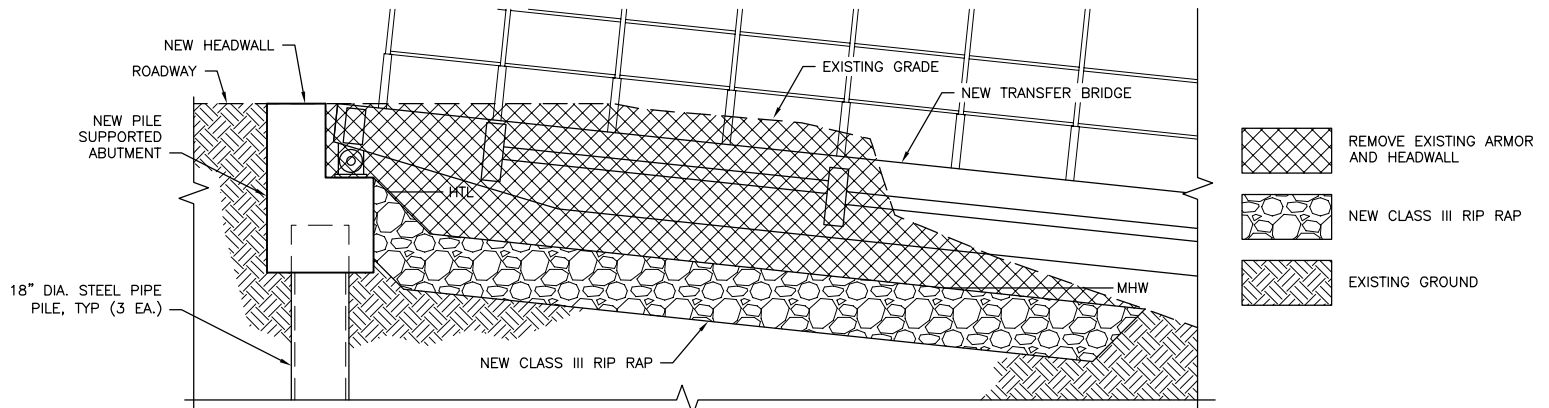


- 2 CONSTRUCT NEW 250'x85' CONCRETE OR STEEL FLOATING DOCK
- 4 CONSTRUCT NEW 4-PILE CORNER AND MID RESTRAINT FLOAT DOLPHINS (SEE SHEET 11)
- 5 CONSTRUCT NEW 20'x140' STEEL TRANSFER BRIDGE

ELEVATION – LAYUP DOCK 1
9
SCALE: 1" = 30'

QUANTITY TABLE		
ITEM:	BETWEEN HTL-MHW	BELOW MHW
SHOT ROCK	71 CY	17 CY
EXCAVATION	123 CY	42 CY
RIP RAP	98 CY	86 CY

Note: CY = Cubic Yards



SECTION – LAYUP DOCK RIP RAP A
9
SCALE: 1" = 10'

ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
SEC 01 T76S R90E
SEC 29, 30, 31, 32 T75S R91E
SEC 06 T76S R91E
Copper River Meridian, Alaska

Elevation Gravina Layup Dock Improvements and Transfer Bridge Rip Rap Section

SCALE AS NOTED

APPLICATION BY:

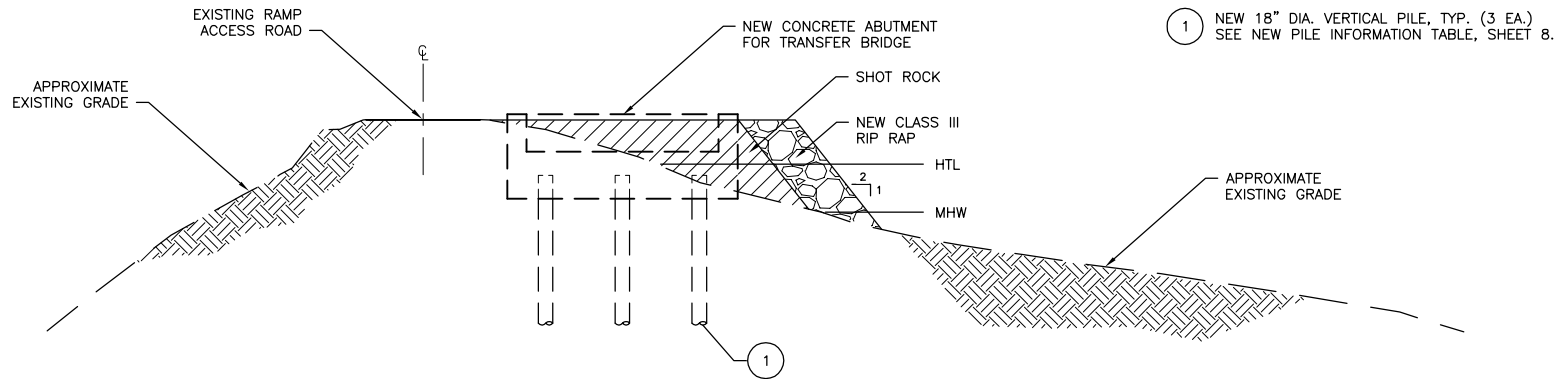
State of Alaska Department of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801-7999

GRAVINA ACCESS PROJECT
POA: 9-2000-0152
Tongass Narrows

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 9 of 28 DATE: March 17, 2017



1 NEW 18" DIA. VERTICAL PILE, TYP. (3 EA.)
SEE NEW PILE INFORMATION TABLE, SHEET 8.

SECTION —
LAYUP DOCK TRANSFER BRIDGE ABUTMENT 1
SCALE: 1:20 10

- SHOT ROCK
- NEW CLASS III RIP RAP
- EXISTING GROUND

ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
SEC 01 T76S R90E
SEC 29, 30, 31, 32 T75S R91E
SEC 06 T76S R91E
Copper River Meridian, Alaska

**Gravina
Layup Dock Transfer Bridge
Abutment Section**

SCALE AS NOTED

APPLICATION BY:

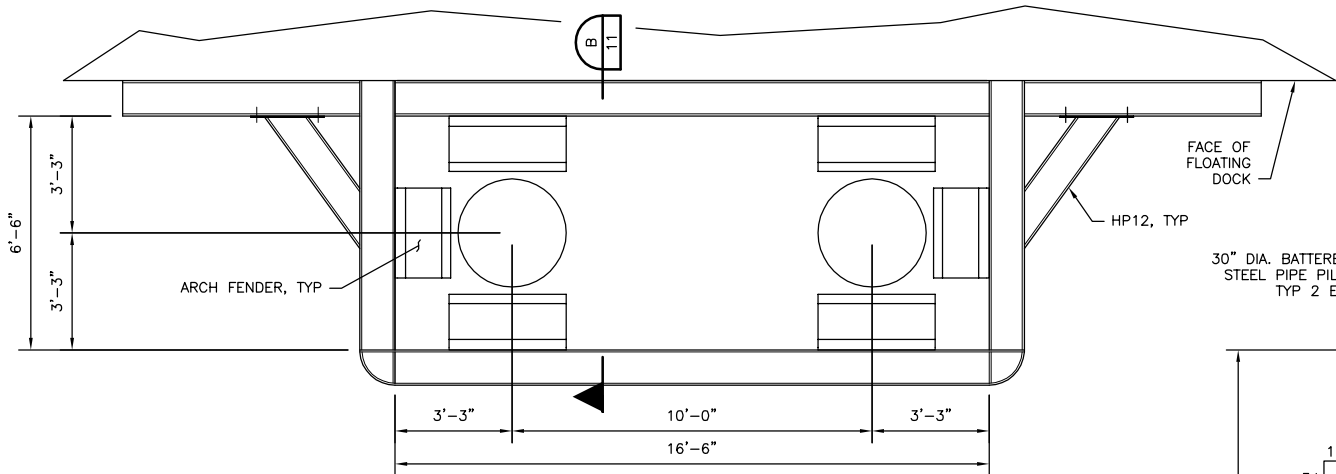
State of Alaska Department of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
POA: 9-2000-0152
Tongass Narrows**

IN: TONGASS NARROWS

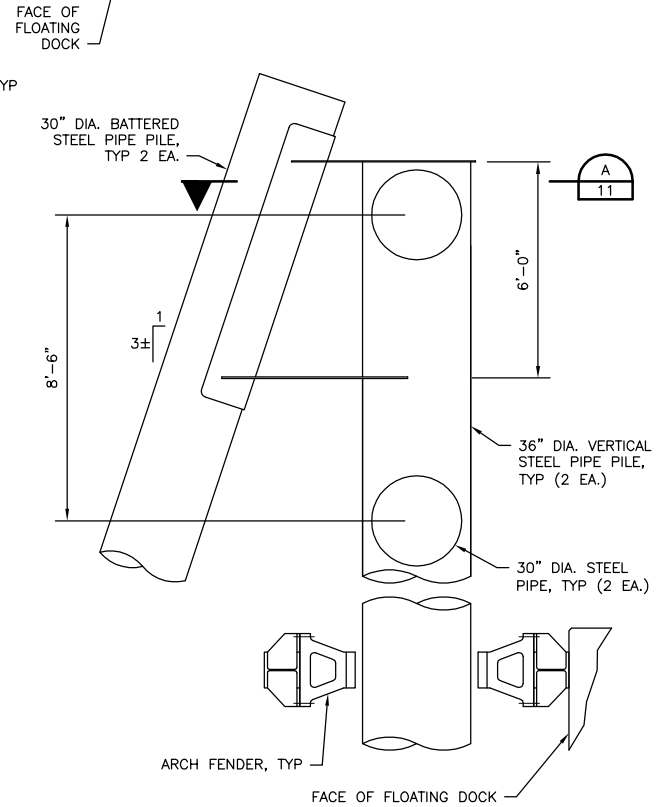
AT: KETCHIKAN, ALASKA

SHEET 10 of 28 DATE: March 17, 2017



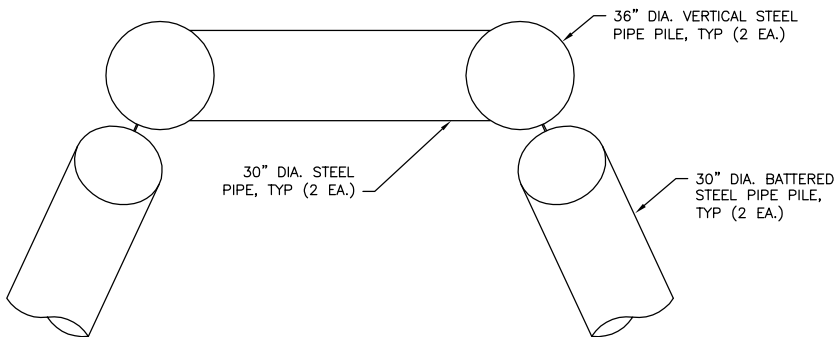
**PLAN – 4 PILE
SIDE RESTRAINT FLOAT DOLPHIN**

SCALE: 3/16" = 1'-0"



**SECTION – 4 PILE
SIDE RESTRAINT FLOAT DOLPHIN**

SCALE: 3/16" = 1'-0"



**SECTION – 4 PILE
SIDE RESTRAINT FLOAT DOLPHIN**

SCALE: 3/16" = 1'-0"



ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
SEC 01 T76S R90E
SEC 29, 30, 31, 32 T75S R91E
SEC 06 T76S R91E
Copper River Meridian, Alaska

4-Pile Side Restraint Float Dolphin Details

SCALE AS NOTED

APPLICATION BY:

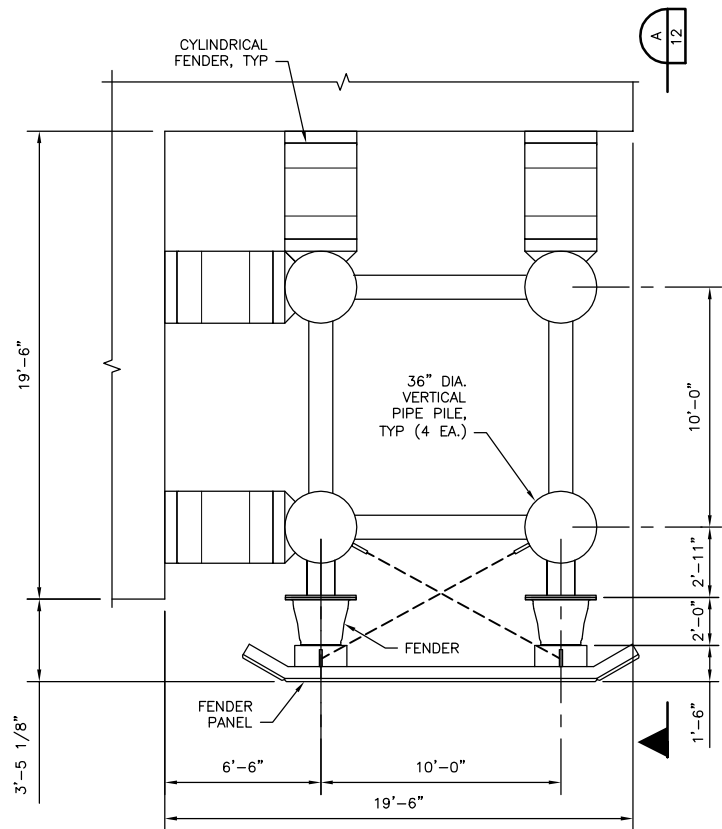
State of Alaska Department of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
POA: 9-2000-0152
Tongass Narrows**

IN: TONGASS NARROWS

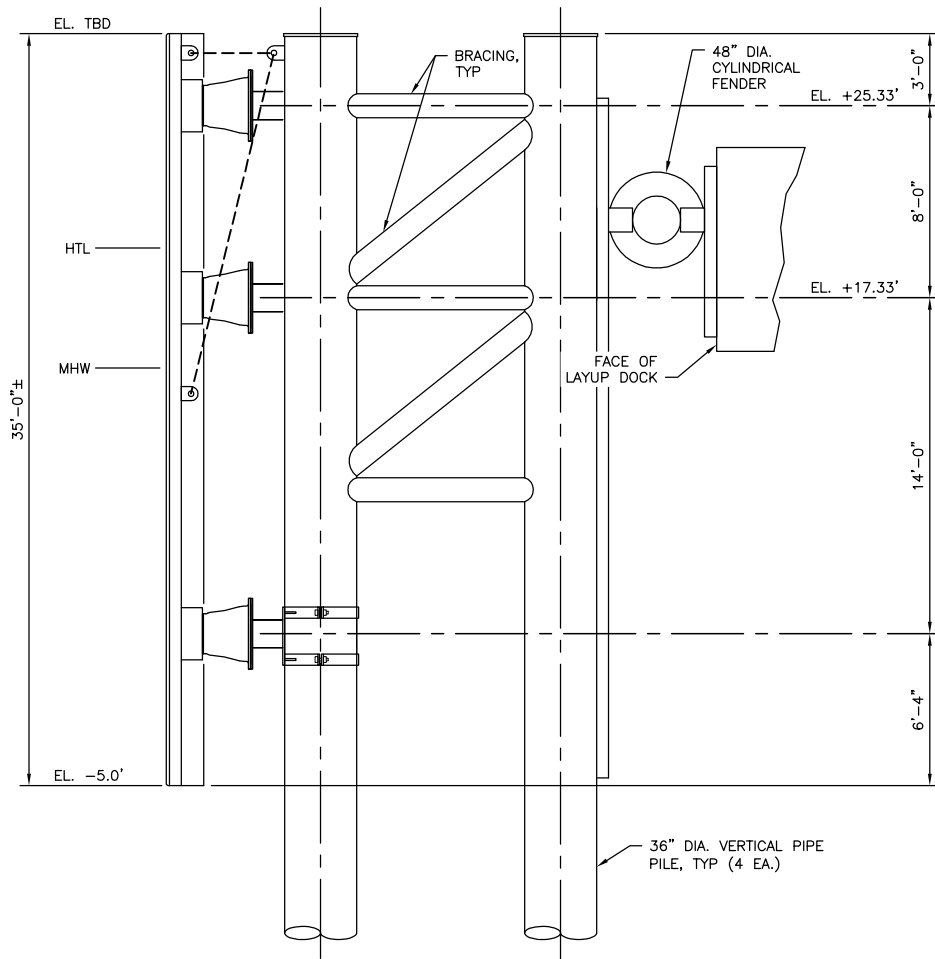
AT: KETCHIKAN, ALASKA

SHEET 11 of 28 DATE: March 17, 2017



**PLAN – 4 PILE
CORNER AND MID RESTRAINT FLOAT DOLPHIN**

SCALE: 1/8" = 1'-0"



**ELEVATION – 4 PILE
CORNER AND MID RESTRAINT FLOAT DOLPHIN**

SCALE: 1/8" = 1'-0"



ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
SEC 01 T76S R90E
SEC 29, 30, 31, 32 T75S R91E
SEC 06 T76S R91E
Copper River Meridian, Alaska

**4-Pile Corner and Mid Restraint
Float Dolphin Details**

SCALE AS NOTED

APPLICATION BY:

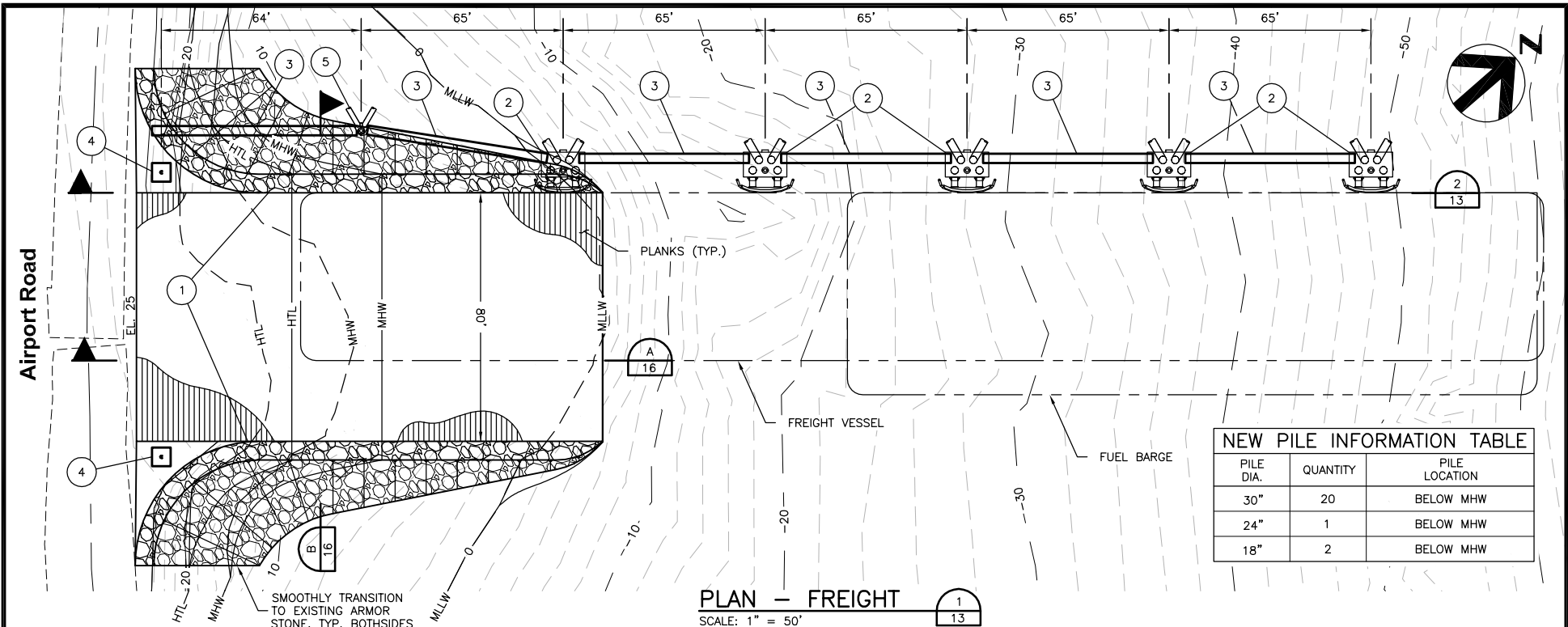
State of Alaska Department of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
POA: 9-2000-0152
Tongass Narrows**

IN: TONGASS NARROWS

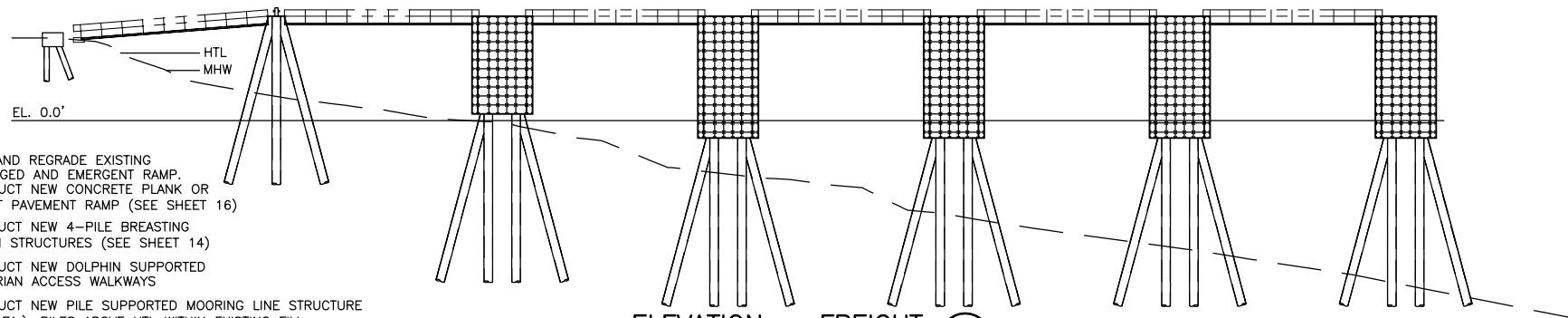
AT: KETCHIKAN, ALASKA

SHEET 12 of 28 DATE: March 17, 2017



NEW PILE INFORMATION TABLE		
PILE DIA.	QUANTITY	PILE LOCATION
30"	20	BELOW MHW
24"	1	BELOW MHW
18"	2	BELOW MHW

PLAN - FREIGHT
SCALE: 1" = 50'



ELEVATION - FREIGHT
SCALE: 1" = 50'

- ① WIDEN AND REGRADE EXISTING SUBMERGED AND EMERGENT RAMP. CONSTRUCT NEW CONCRETE PLANK OR ASPHALT PAVEMENT RAMP (SEE SHEET 16)
- ② CONSTRUCT NEW 4-PILE BREASTING DOLPHIN STRUCTURES (SEE SHEET 14)
- ③ CONSTRUCT NEW DOLPHIN SUPPORTED PEDESTRIAN ACCESS WALKWAYS
- ④ CONSTRUCT NEW PILE SUPPORTED MOORING LINE STRUCTURE TYP (2 EA.). PILES ABOVE HTL WITHIN EXISTING FILL.
- ⑤ CONSTRUCT NEW (3) PILE MOORING DOLPHIN STRUCTURE (SEE SHEET 15)

ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska

**Gravina
Heavy Freight Barge Mooring Facility**

SCALE AS NOTED

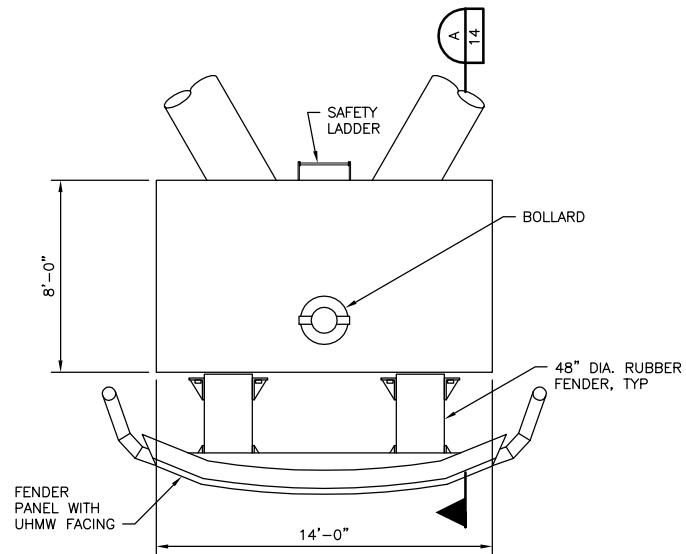
APPLICATION BY:
 State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
POA: 9-2000-0152
Tongass Narrows**

IN: TONGASS NARROWS

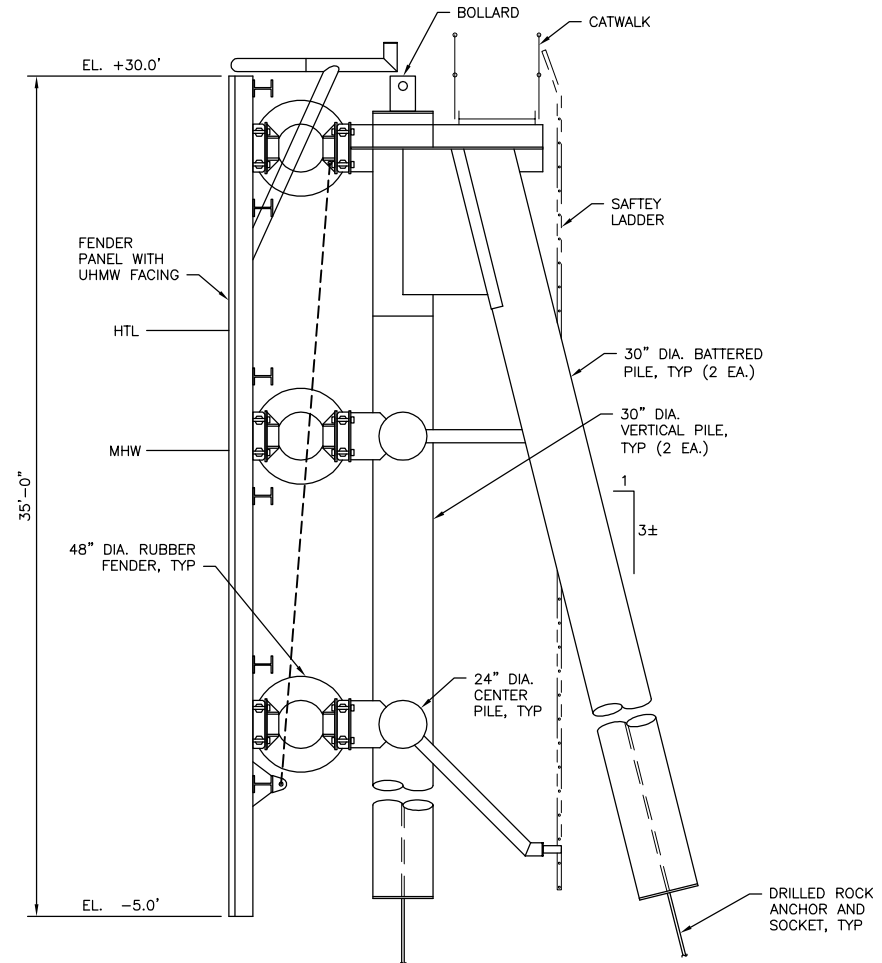
AT: KETCHIKAN, ALASKA

SHEET 13 of 28 DATE: March 17, 2017



PLAN - 4 PILE BREASTING DOLPHIN

SCALE: 1/8" = 1'-0"



SECTION - 4 PILE BREASTING DOLPHIN

SCALE: 1/8" = 1'-0"



ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska

**Freight Mooring Facility
 4-Pile Breasting Dolphin Details**

SCALE AS NOTED

APPLICATION BY:

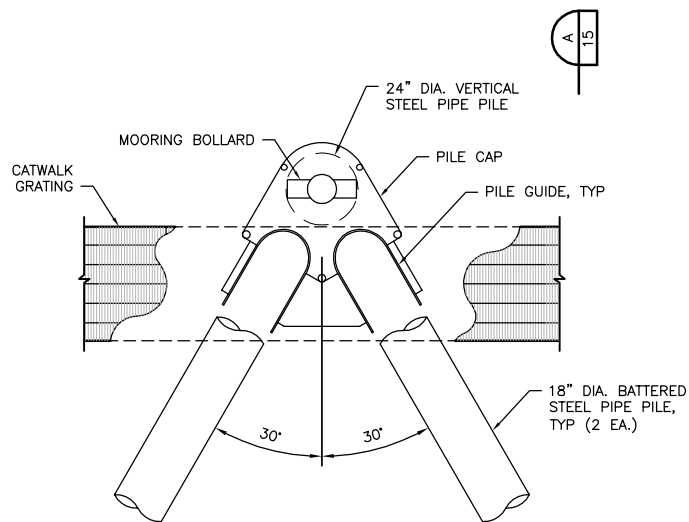
State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
 POA: 9-2000-0152
 Tongass Narrows**

IN: TONGASS NARROWS

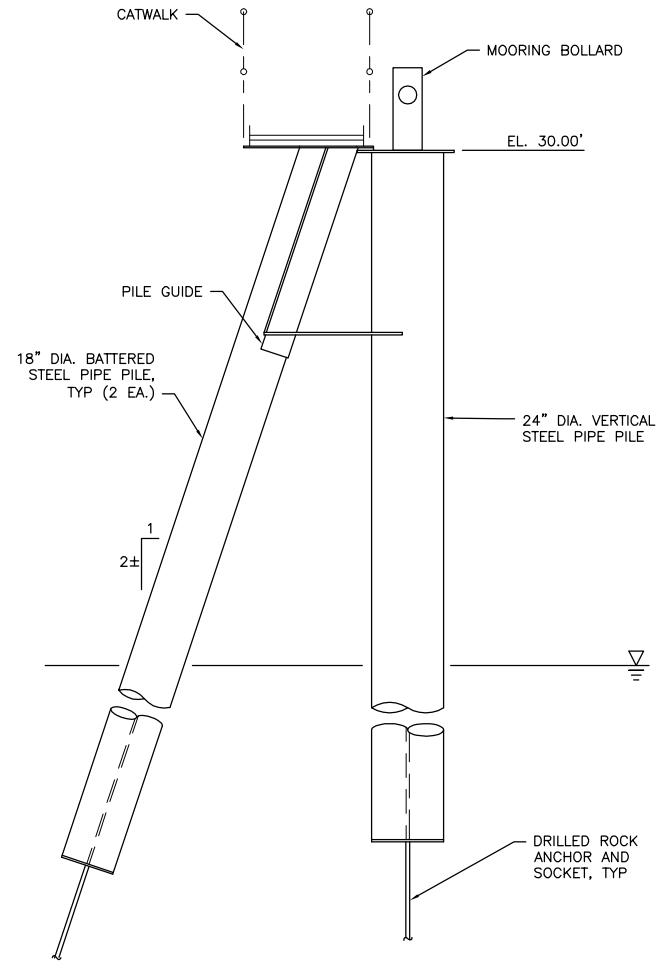
AT: KETCHIKAN, ALASKA

SHEET 14 of 28 DATE: March 17, 2017



**PLAN - 3 PILE
MOORING DOLPHIN**

SCALE: 3/16" = 1'-0"



**ELEVATION - 3 PILE
MOORING DOLPHIN**

SCALE: 3/16" = 1'-0"



ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
SEC 01 T76S R90E
SEC 29, 30, 31, 32 T75S R91E
SEC 06 T76S R91E
Copper River Meridian, Alaska

**Freight Mooring Facility
3-Pile Mooring Dolphin Details**

SCALE AS NOTED

APPLICATION BY:

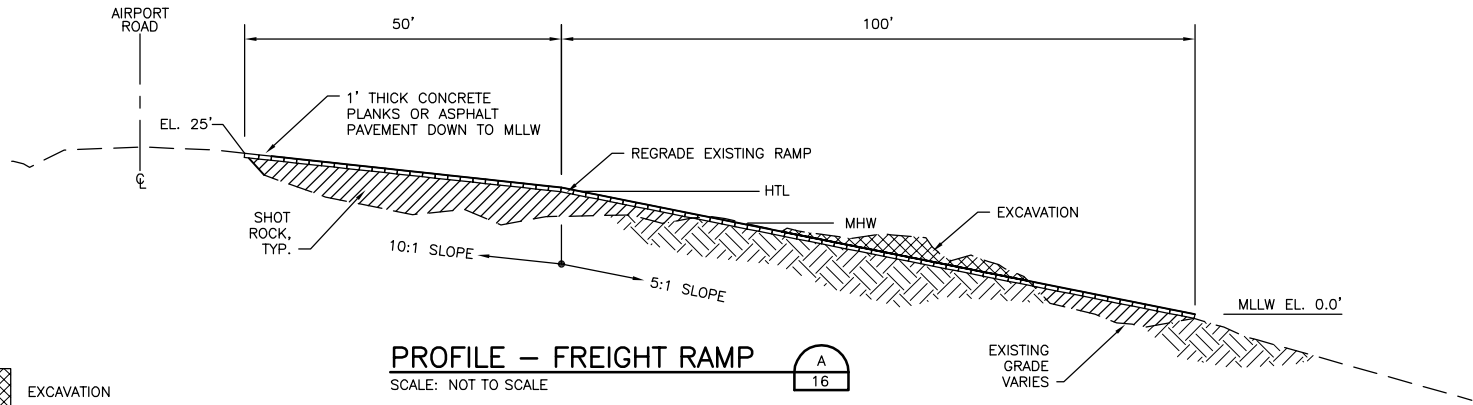
State of Alaska Department of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801-7999





**GRAVINA ACCESS PROJECT
POA: 9-2000-0152
Tongass Narrows**

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 15 of 28 DATE: March 17, 2017

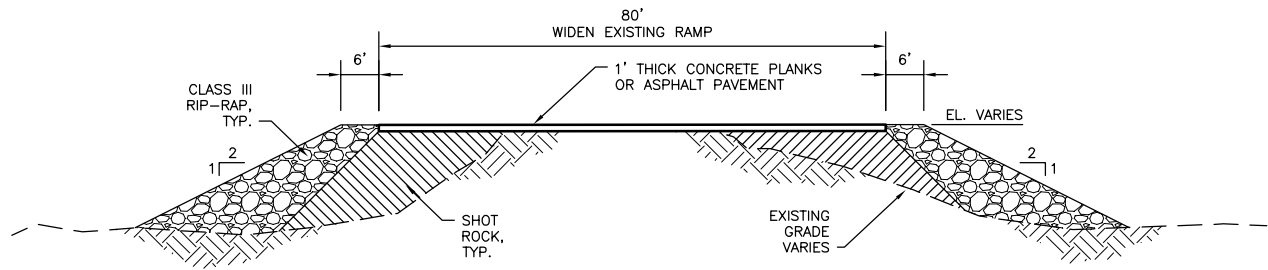


-  EXCAVATION
-  SHOT ROCK
-  NEW CLASS III RIP RAP
-  EXISTING GROUND

PROFILE - FREIGHT RAMP

SCALE: NOT TO SCALE

A
16



SECTION - FREIGHT RAMP

SCALE: NOT TO SCALE

B
16

QUANTITY TABLE		
ITEM:	BETWEEN HTL-MHW	BELOW MHW
SHOT ROCK	355 CY	640 CY
EXCAVATION	0 CY	36 CY
RIP RAP	136 CY	631 CY
CONCRETE PLANKS	86 CY	210 CY

Note: CY = Cubic Yards

ADJACENT LANDOWNERS: SEE ATTACHED TABLE

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska

Heavy Freight Facility Mooring Ramp Sections

SCALE AS NOTED

APPLICATION BY:

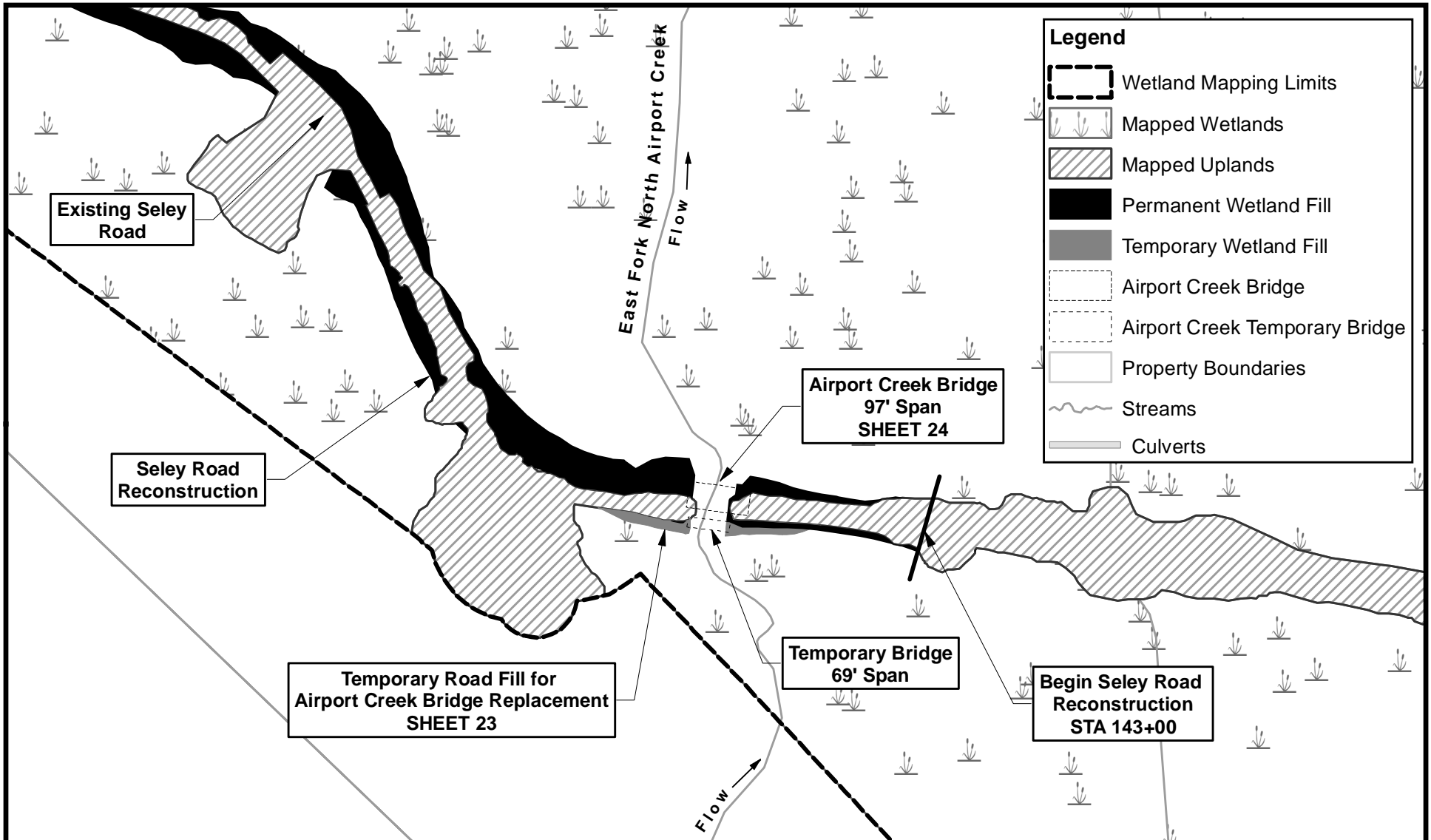
State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
 POA: 9-2000-0152
 Tongass Narrows**

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 16 of 28 DATE: March 17, 2017



ADJACENT LANDOWNERS: See attached table

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska



0 250 500 Feet

Seley Road Reconstruction and Airport Creek Bridge Replacement

SCALE 1" = 250'

APPLICATION BY:

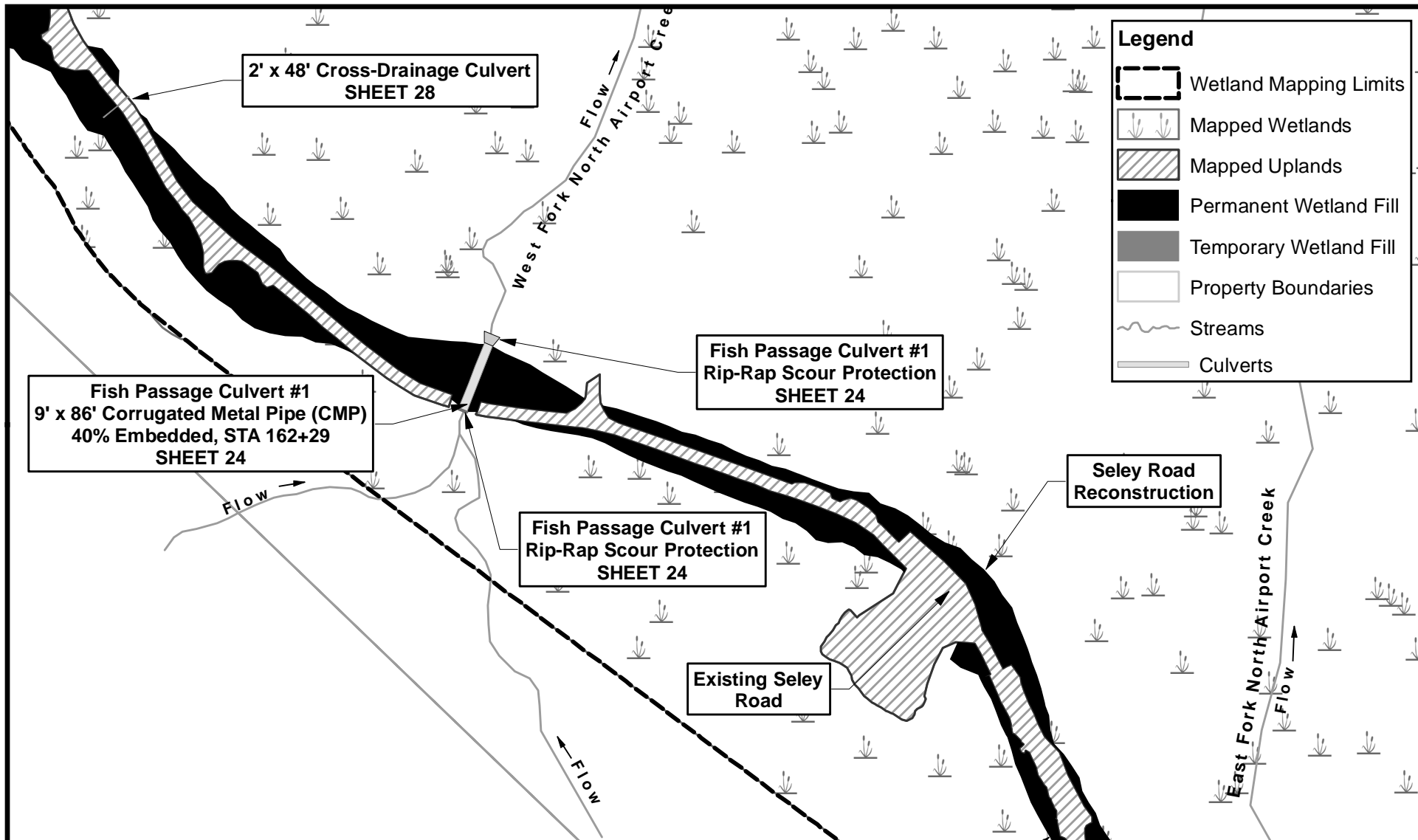
State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
 POA: 9-2000-0152
 Tongass Narrows**

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 17 of 28 DATE: March 21, 2017



Legend

- Wetland Mapping Limits
- Mapped Wetlands
- Mapped Uplands
- Permanent Wetland Fill
- Temporary Wetland Fill
- Property Boundaries
- Streams
- Culverts

ADJACENT LANDOWNERS: See attached table

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska

0 250 500 Feet

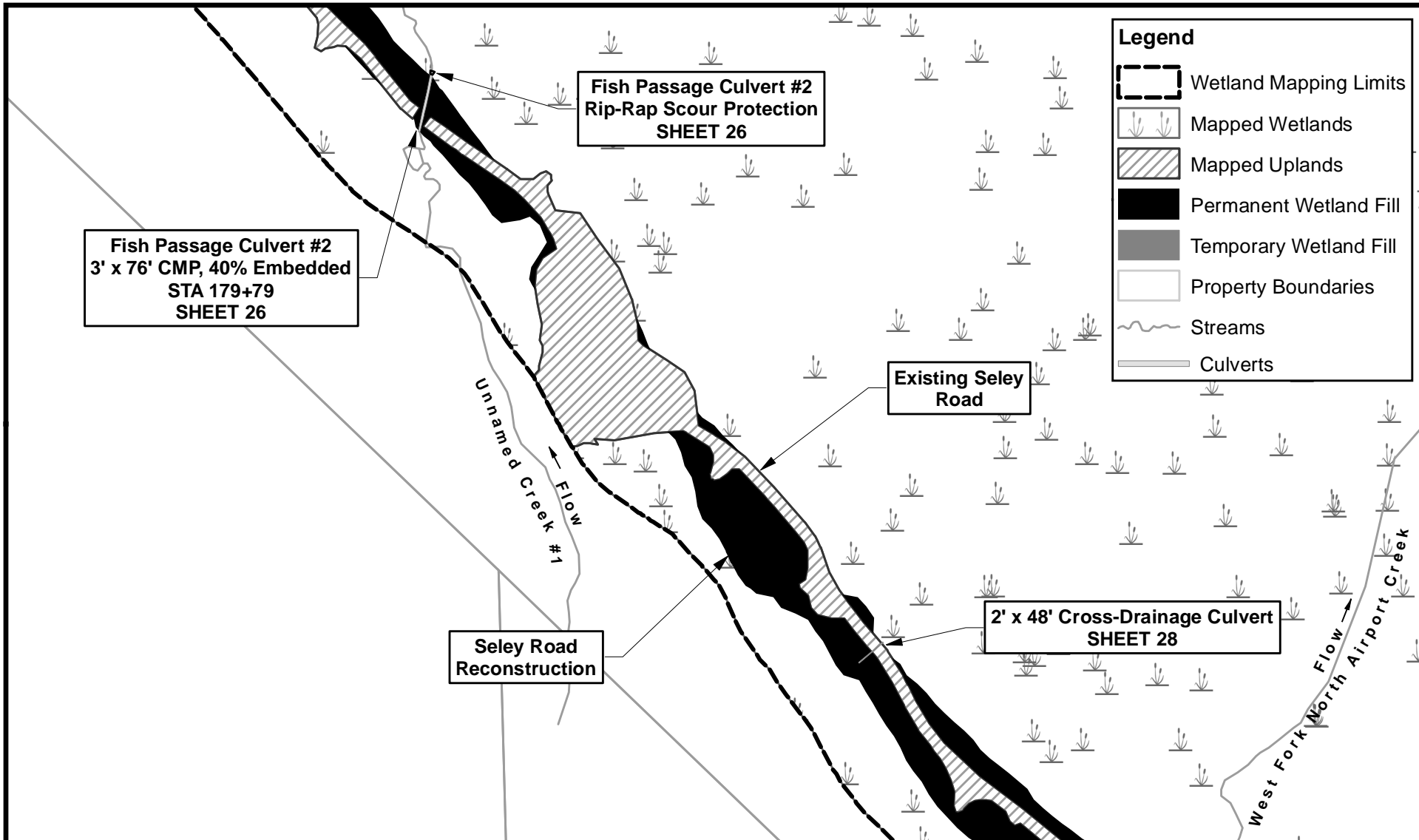
Seley Road Reconstruction

SCALE 1" = 250'

APPLICATION BY:
 State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

GRAVINA ACCESS PROJECT
 POA: 9-2000-0152
 Tongass Narrows

IN: TONGASS NARROWS
 AT: KETCHIKAN, ALASKA
 SHEET 18 of 28 DATE: March 21, 2017



ADJACENT LANDOWNERS: See attached table

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska



0 250 500 Feet

Seley Road Reconstruction

SCALE 1" = 250'

APPLICATION BY:

State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

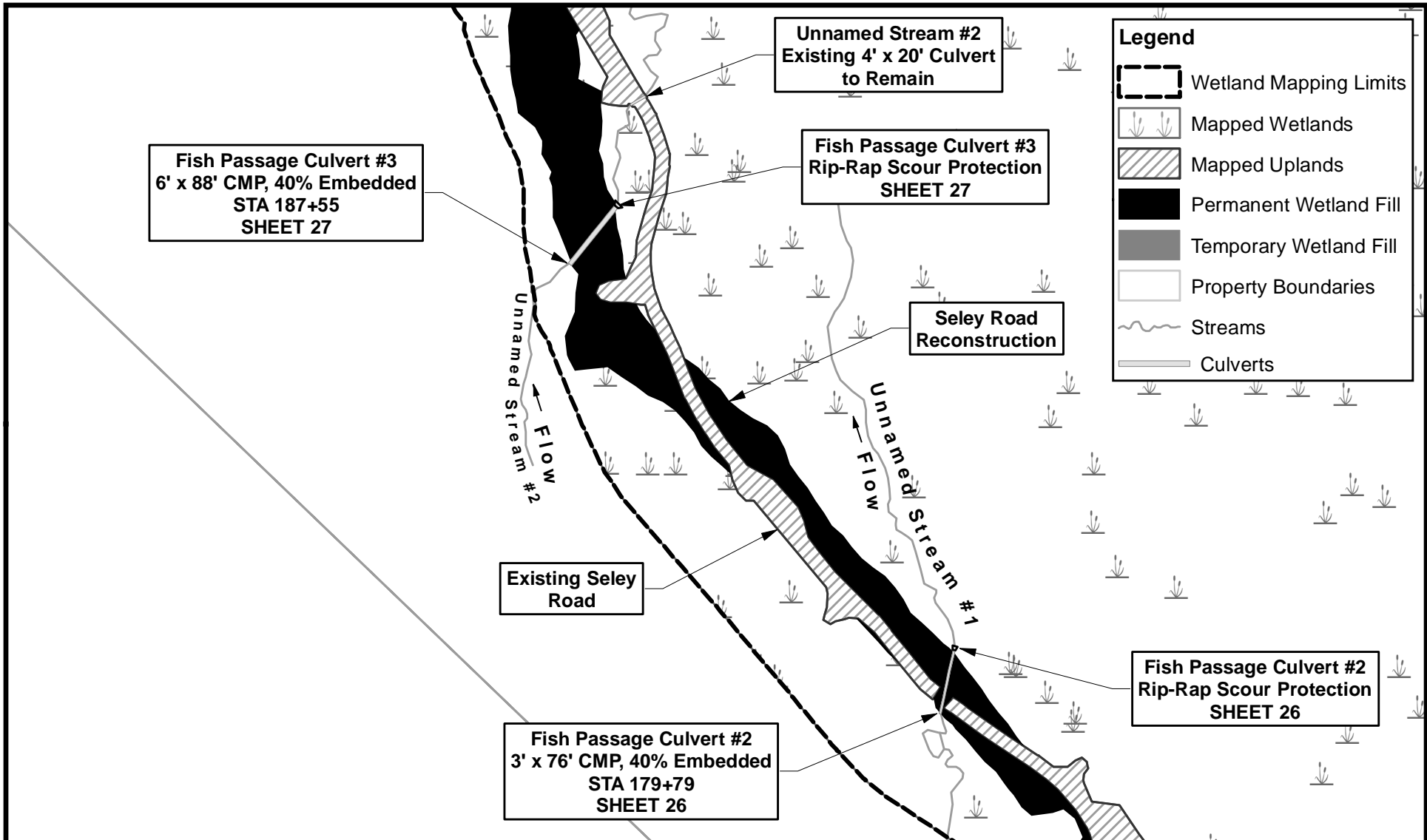
GRAVINA ACCESS PROJECT

POA: 9-2000-0152
 Tongass Narrows

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 19 of 28 DATE: March 21, 2017



ADJACENT LANDOWNERS: See attached table

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska



0 250 500 Feet

Seley Road Reconstruction

SCALE 1" = 250'

APPLICATION BY:

State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

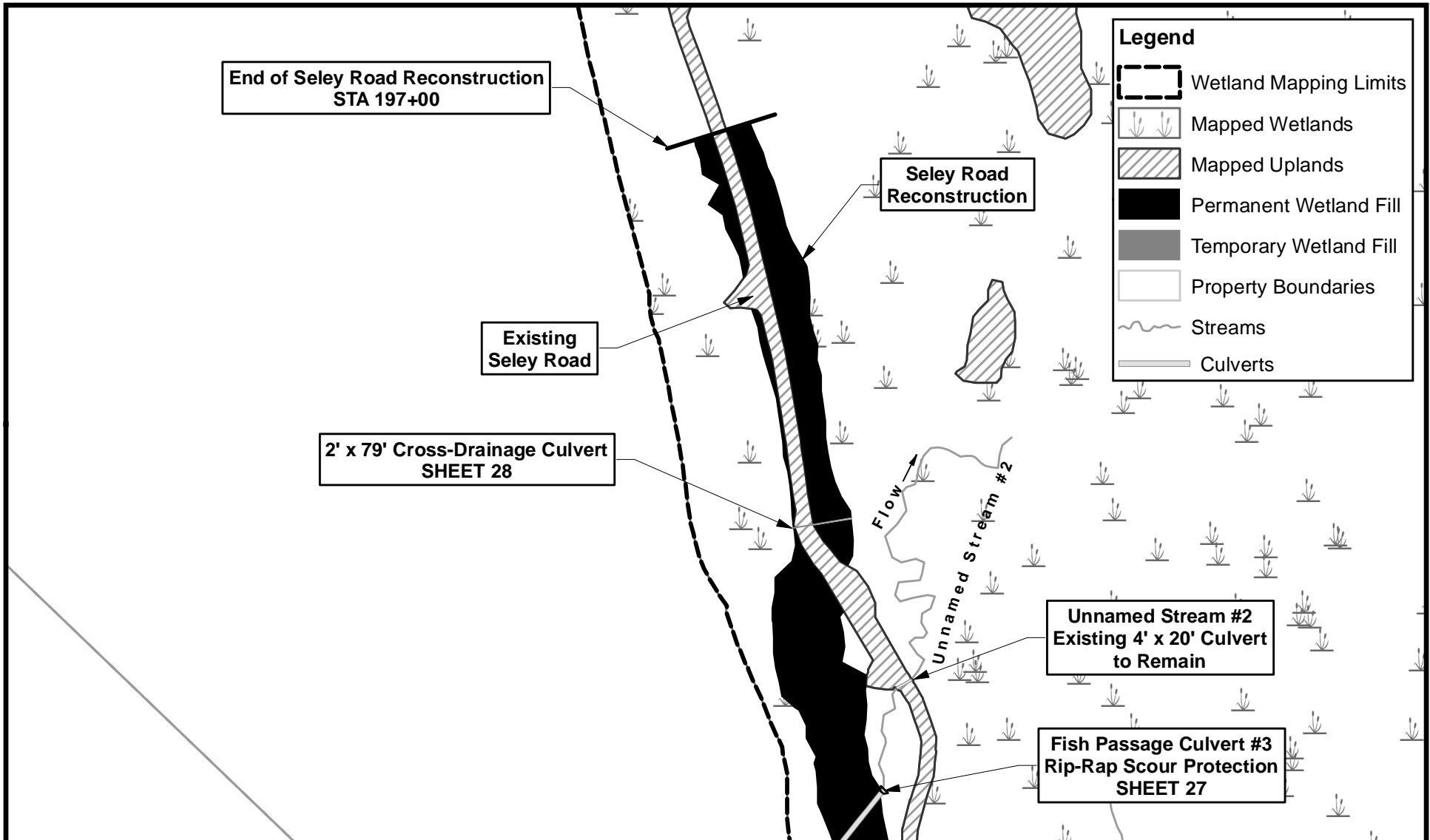
GRAVINA ACCESS PROJECT

POA: 9-2000-0152
 Tongass Narrows

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 20 of 28 DATE: March 21, 2017



ADJACENT LANDOWNERS: See attached table

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska



0 250 500 Feet

Seley Road Reconstruction

SCALE 1" = 250'

APPLICATION BY:

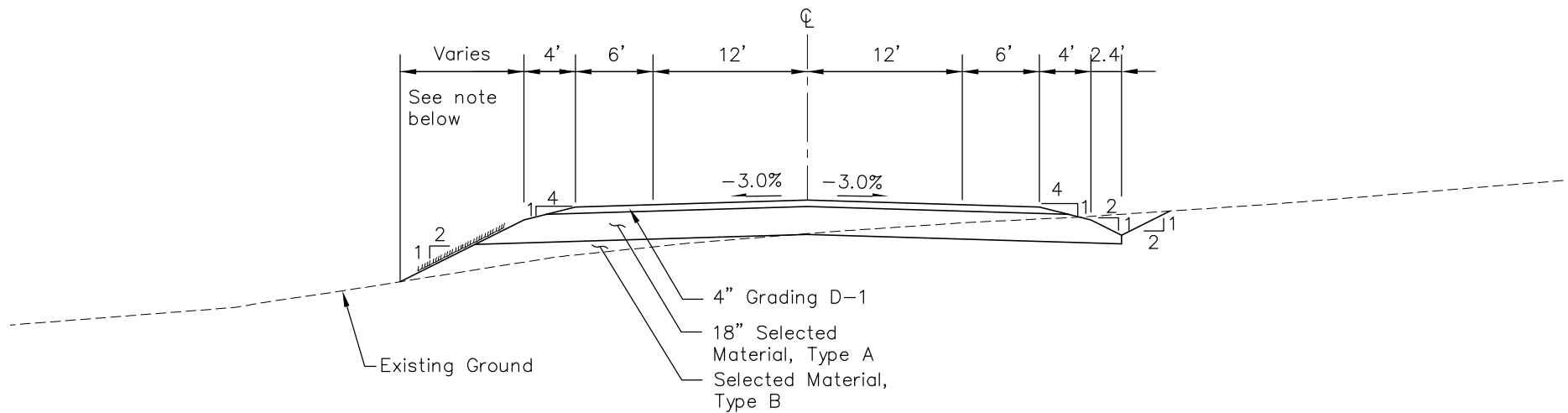
State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

GRAVINA ACCESS PROJECT POA: 9-2000-0152 Tongass Narrows

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 21 of 28 DATE: March 21, 2017



NTS

ADJACENT LANDOWNERS: See attached table

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska

Seley Road Reconstruction Typical Cross-Section

APPLICATION BY:

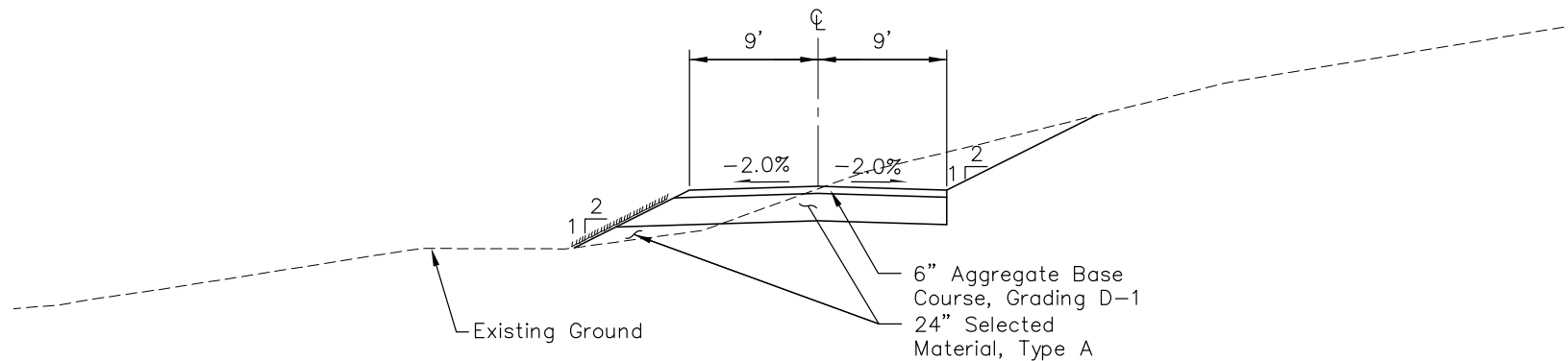
State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
 POA: 9-2000-0152
 Tongass Narrows**

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 22 of 28 DATE: March 17, 2017



NTS

Note:

Wetlands will be stabilized against erosion once construction equipment and temporary fill are removed by reseeding and revegetating the disturbed areas. Seeding of the disturbed areas would conform to Section 618 of the ADOT&PF Standard Specifications for Seeding. Materials used for seeding would conform to the ADOT&PF Standard Specification 724 (Seed), Section 725 (Fertilizer), and Subsection 712-2.01 (Water).

ADJACENT LANDOWNERS: See attached table

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
SEC 01 T76S R90E
SEC 29, 30, 31, 32 T75S R91E
SEC 06 T76S R91E
Copper River Meridian, Alaska

**Temporary Road Fill for Airport Creek Bridge
Replacement Typical Cross-Section**

APPLICATION BY:

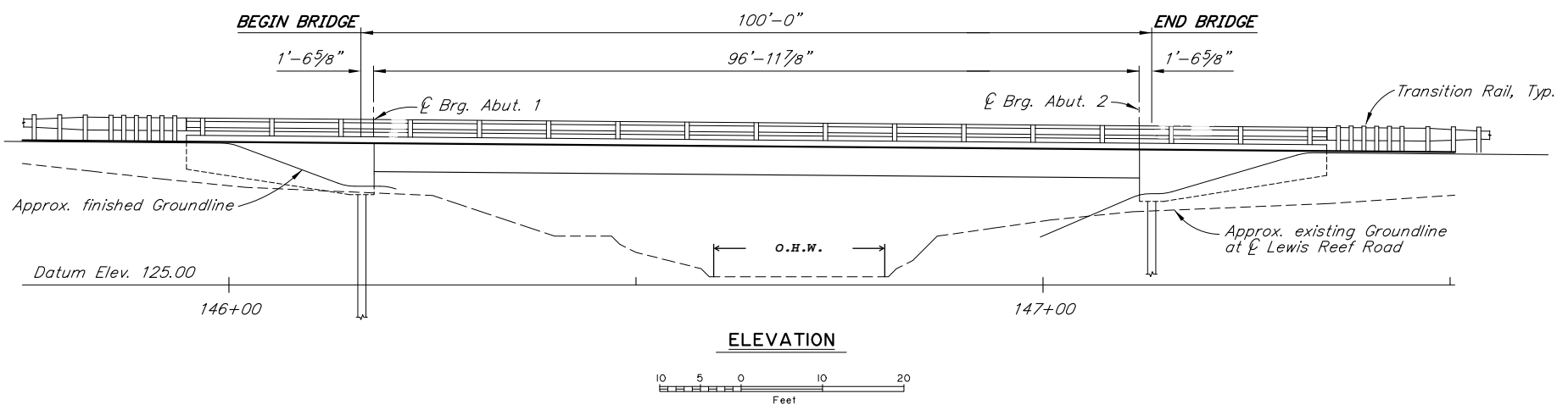
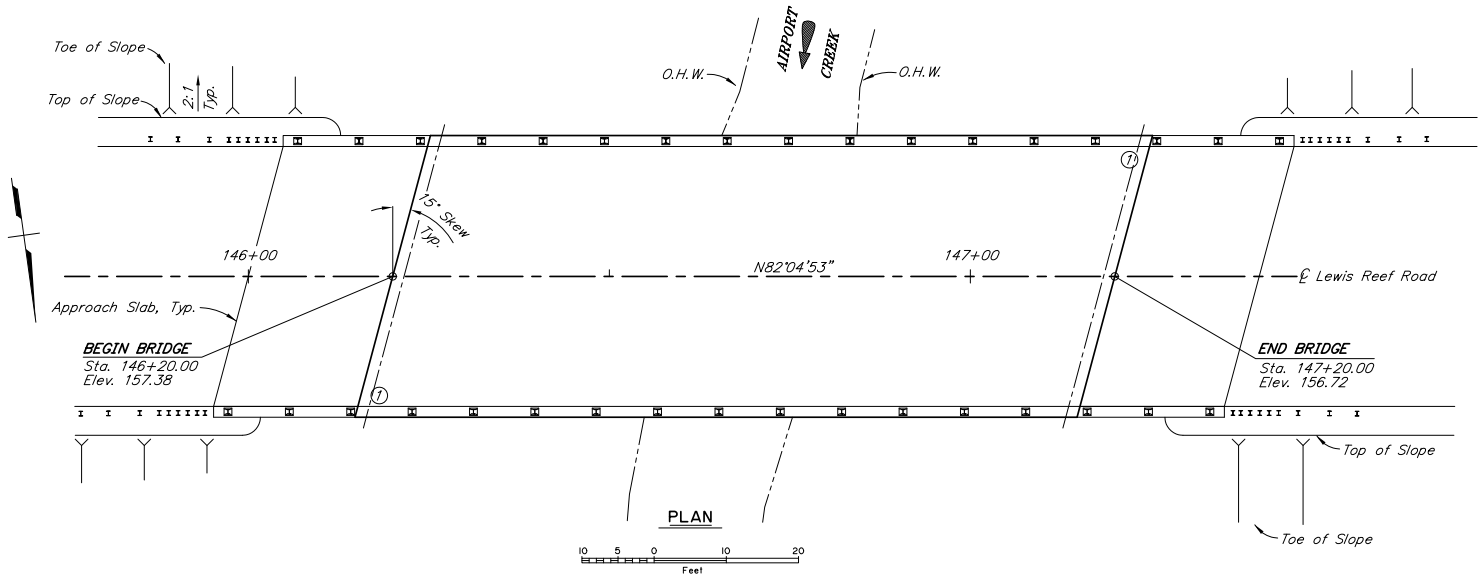
State of Alaska Department of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
POA: 9-2000-0152
Tongass Narrows**

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 23 of 28 DATE: March 17, 2017



ADJACENT LANDOWNERS: See attached table

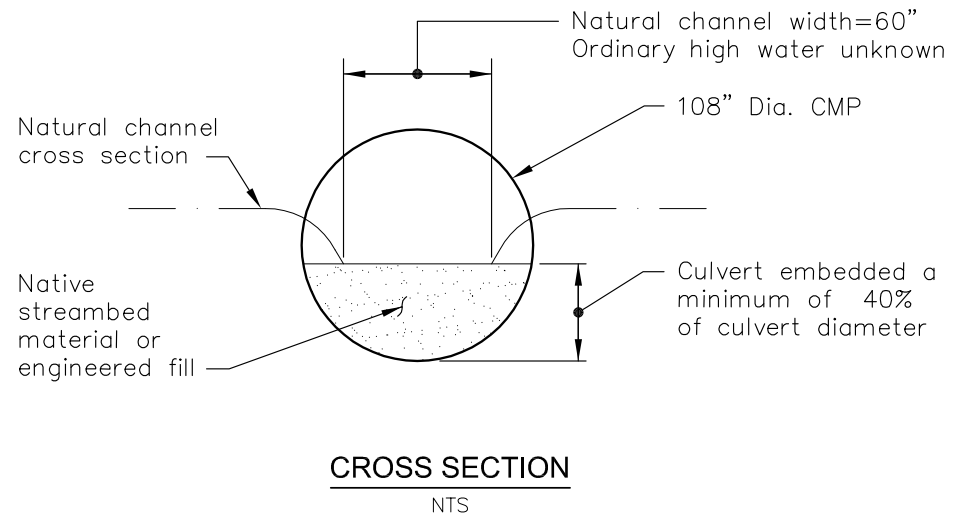
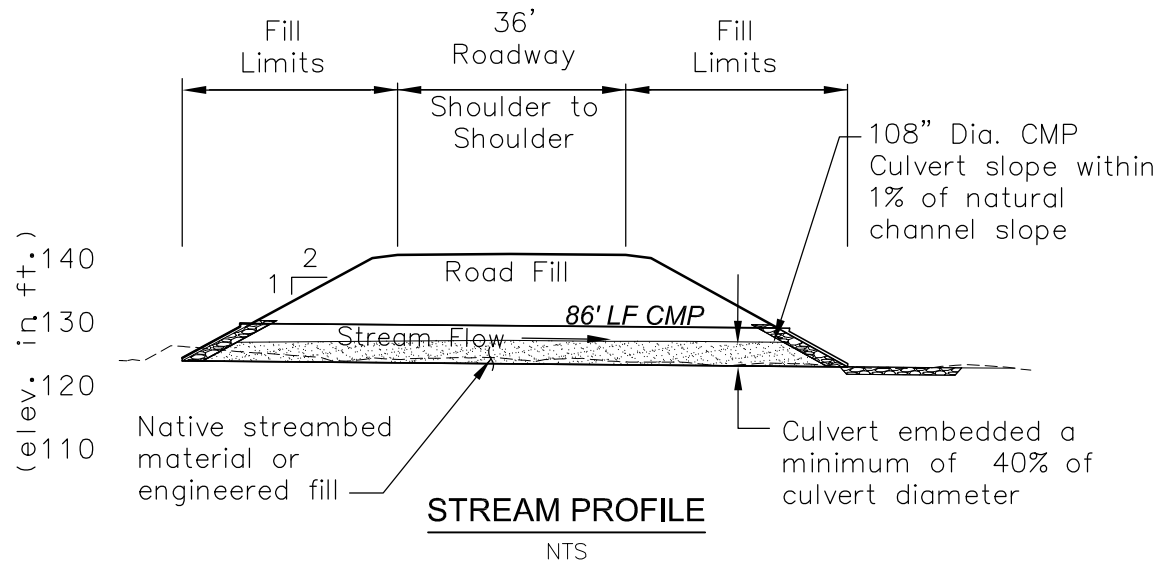
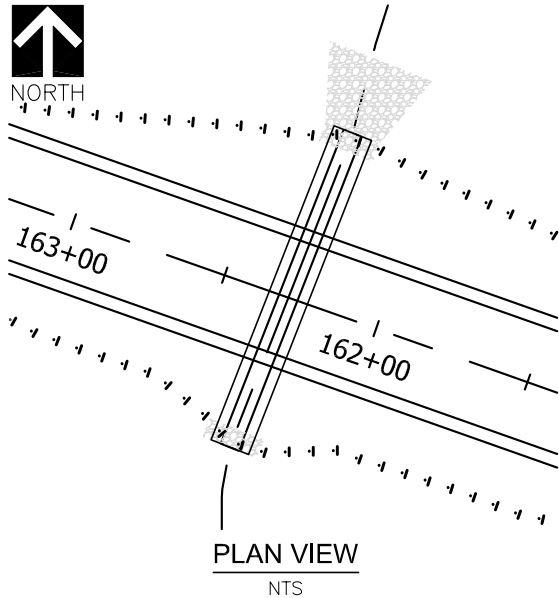
LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
SEC 01 T76S R90E
SEC 29, 30, 31, 32 T75S R91E
SEC 06 T76S R91E
Copper River Meridian, Alaska

Airport Creek Bridge Plan and Elevation

APPLICATION BY:
State of Alaska Department of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801-7999

GRAVINA ACCESS PROJECT
POA: 9-2000-0152
Tongass Narrows

IN: TONGASS NARROWS
AT: KETCHIKAN, ALASKA
SHEET 24 of 28 DATE: March 17, 2017



Notes:

1. Fish passage culvert will be installed per the August 29, 2001 memorandum of agreement (MOA) between ADF&G and DOT&PF for "Design, Permitting and Construction of Culverts for Fish Passage."
2. Contractor may design fish passage culverts to meet Tier 2 requirements per the MOA. This would require further hydraulic analysis to ensure fish passage criteria are met.
3. The contractor will submit Tier 1 or Tier 2 culvert design plans to DOT&PF, ADF&G, DNR, and COE for approval at least 60 days prior to planned construction.

ADJACENT LANDOWNERS: See attached table

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
SEC 01 T76S R90E
SEC 29, 30, 31, 32 T75S R91E
SEC 06 T76S R91E
Copper River Meridian, Alaska

Fish Passage Culvert #1

APPLICATION BY:

State of Alaska Department of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
POA: 9-2000-0152
Tongass Narrows**

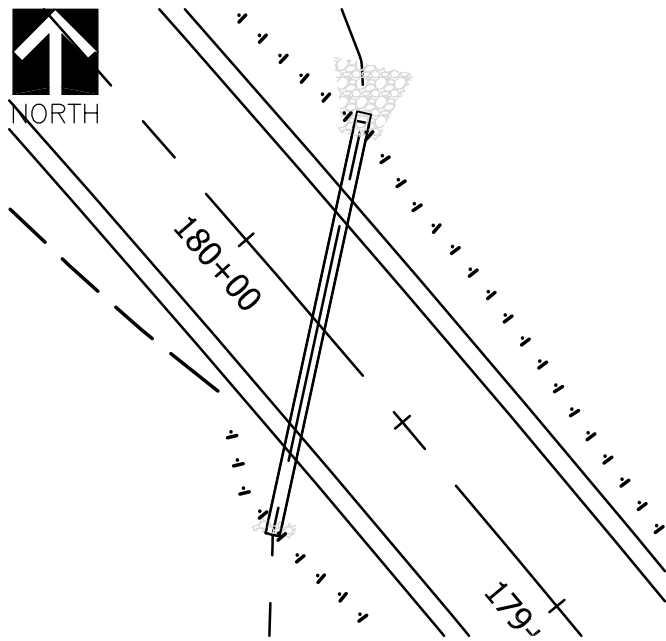
IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 25 of 28 DATE: March 17, 2017

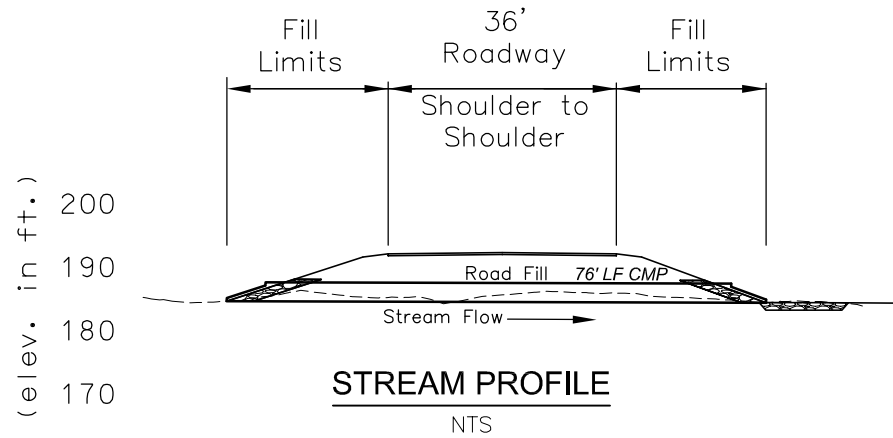


NORTH



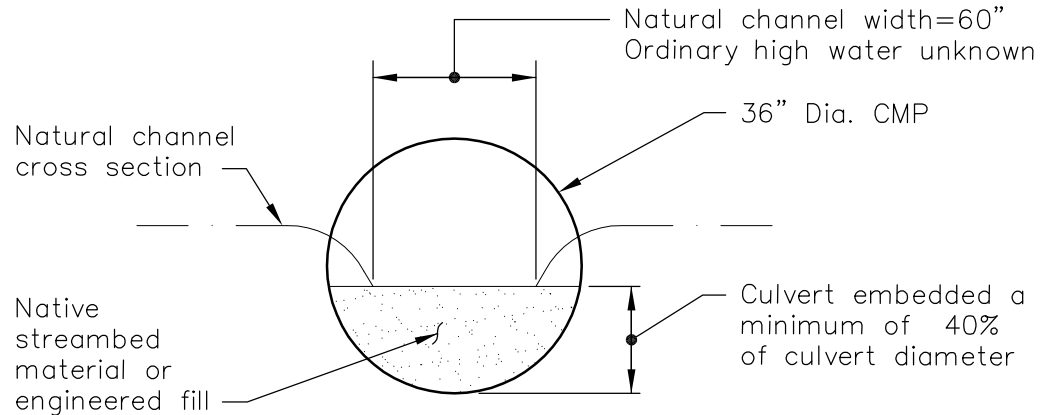
PLAN VIEW

NTS



STREAM PROFILE

NTS



CROSS SECTION

NTS

Notes:

1. Fish passage culvert will be installed per the August 29, 2001 memorandum of agreement (MOA) between ADF&G and DOT&PF for "Design, Permitting and Construction of Culverts for Fish Passage."
2. Contractor may design fish passage culverts to meet Tier 2 requirements per the MOA. This would require further hydraulic analysis to ensure fish passage criteria are met.
3. The contractor will submit Tier 1 or Tier 2 culvert design plans to DOT&PF, ADF&G, DNR, and COE for approval at least 60 days prior to planned construction.

ADJACENT LANDOWNERS: See attached table

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska

Fish Passage Culvert #2

APPLICATION BY:

State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

GRAVINA ACCESS PROJECT

POA: 9-2000-0152
Tongass Narrows

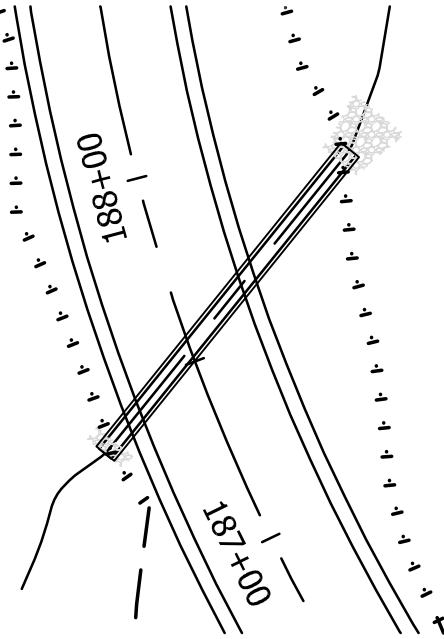
IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 26 of 28 DATE: March 17, 2017

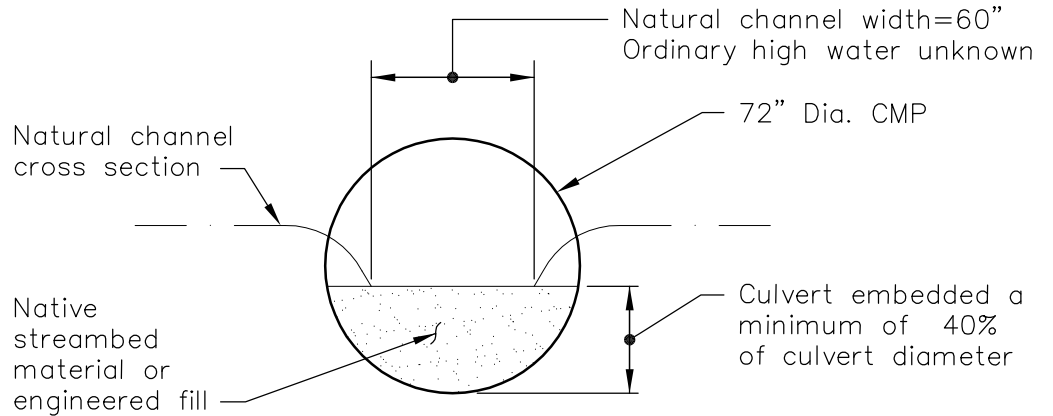
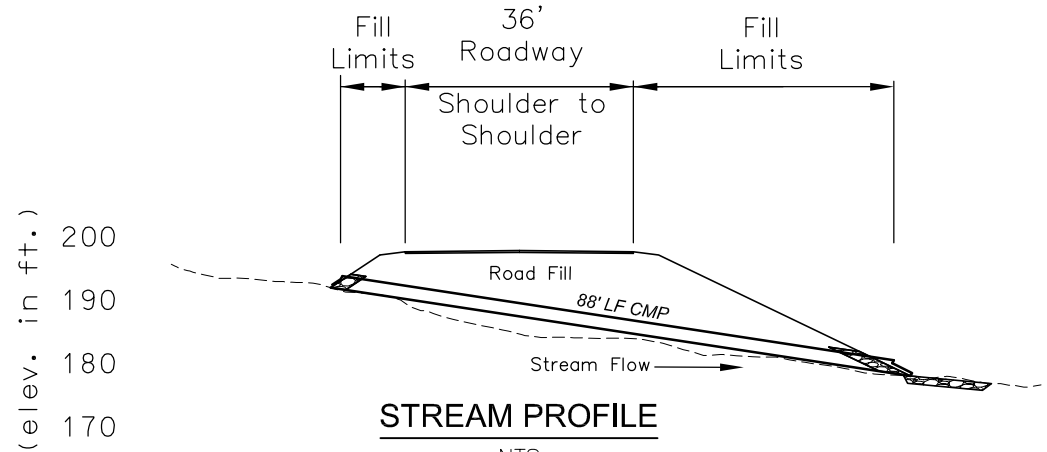


NORTH



PLAN VIEW

NTS



Notes:

1. Fish passage culvert will be installed per the August 29, 2001 memorandum of agreement (MOA) between ADF&G and DOT&PF for "Design, Permitting and Construction of Culverts for Fish Passage."
2. Contractor may design fish passage culverts to meet Tier 2 requirements per the MOA. This would require further hydraulic analysis to ensure fish passage criteria are met.
3. The contractor will submit Tier 1 or Tier 2 culvert design plans to DOT&PF, ADF&G, DNR, and COE for approval at least 60 days prior to planned construction.

ADJACENT LANDOWNERS: See attached table

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
SEC 01 T76S R90E
SEC 29, 30, 31, 32 T75S R91E
SEC 06 T76S R91E
Copper River Meridian, Alaska

Fish Passage Culvert #3

APPLICATION BY:

State of Alaska Department of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801-7999

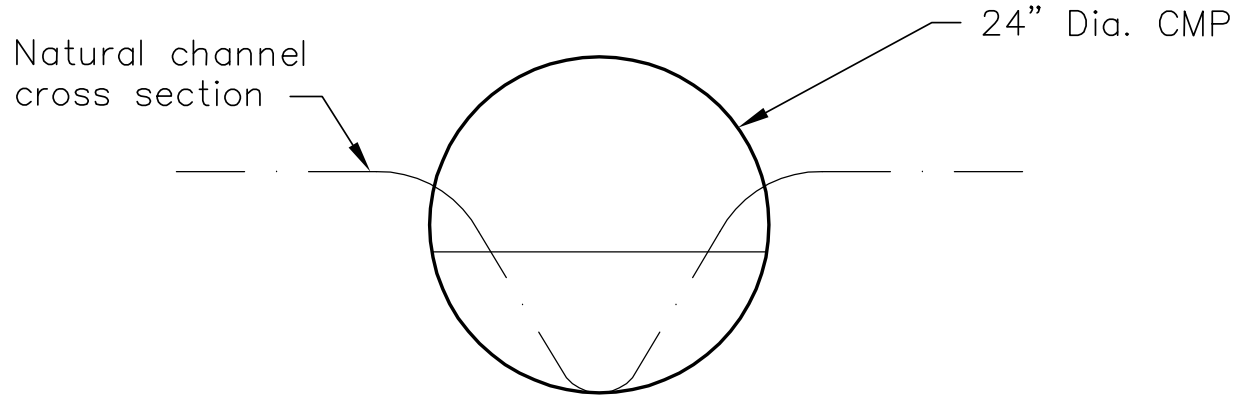
GRAVINA ACCESS PROJECT

**POA: 9-2000-0152
Tongass Narrows**

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 27 of 28 DATE: March 17, 2017



CROSS SECTION

NTS

ADJACENT LANDOWNERS: See attached table

LOCATION: SEC 16, 22, 23, 26, 27, 35 and 36 T75S R90E
 SEC 01 T76S R90E
 SEC 29, 30, 31, 32 T75S R91E
 SEC 06 T76S R91E
 Copper River Meridian, Alaska

**Seley Road Reconstruction Typical Cross-
 Drainage Culvert**

APPLICATION BY:

State of Alaska Department of Transportation and Public Facilities
 6860 Glacier Highway
 Juneau, AK 99801-7999

**GRAVINA ACCESS PROJECT
 POA: 9-2000-0152
 Tongass Narrows**

IN: TONGASS NARROWS

AT: KETCHIKAN, ALASKA

SHEET 28 of 28 DATE: March 17, 2017

Gravina Access Project

Appendix H

Draft Section 404(b)(1) Analysis

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Gravina Access Project Supplemental Environmental Impact Statement Draft Section 404(b)(1) Analysis



**DOT&PF Project 67698
Federal Project ACHP-0922(5)**

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Acronyms and Abbreviations

Acronym/ Abbreviation	Definition
AMHS	Alaska Marine Highway System
Borough	Ketchikan Gateway Borough
CFR	Code of Federal Regulations
cy	cubic yards
DOT&PF	(Alaska) Department of Transportation and Public Facilities
EIS	Environmental Impact Statement
EFH	Essential Fish Habitat
FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Statement
FHWA	(U.S. Department of Transportation) Federal Highway Administration
LEDPA	Least Environmentally Damaging Practicable Alternative
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
O&M	operation and maintenance
SEIS	Supplemental Environmental Impact Statement
TEA-21	Transportation Equity Act for the 21 st Century
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard

1.0 INTRODUCTION

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Highway Administration (FHWA), proposes the Gravina Access Project to improve public access between Revillagigedo Island and Gravina Island. Because all build alternatives for the project would place fill in waters of the U.S. and special aquatic sites, it requires U.S. Army Corps of Engineers (USACE) authorization and evaluation under Subpart b [40 Code of Federal Regulations (CFR) § 230.10(a)-(d)] of the Section 404(b)(1) Guidelines (Guidelines).

A Draft Environmental Impact Statement (EIS) for the Gravina Access Project was published on August 6, 2003, with the Final EIS published on July 30, 2004. Appendix L of the Final EIS contained the *Draft Section 404/10 Permit Application*, *Draft Section 404(b)(1) Evaluation*, and the *Wetlands Finding* (DOT&PF 2004). The Federal Highway Administration's (FHWA's) *Record of Decision* (ROD) for the project was signed September 10, 2004 and identified Alternative F1/F1-R, two bridges across the East and West Channels of Tongass Narrows, with a roadway link on Pennock Island and a highway connection to Ketchikan International Airport on Gravina Island, as the selected alternative. This project was one of 17 high-priority infrastructure projects in the State of Alaska to be federally funded under the federal Transportation Equity Act for the 21st Century (TEA-21), enacted in 1998. The TEA-21 authorized approximately \$20 million for construction of a bridge joining Gravina Island to the community of Ketchikan on Revillagigedo Island.¹

In 2006, the USACE authorized permit POA-2000-152-2, Tongass Narrows under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act for anticipated impacts to wetlands and waters of the U.S. (USACE 2006a). The USACE permit authorized the discharge of 726,100 cubic yards (cy) of fill material into 77.2 acres of waters of the U.S., including wetlands.

Accompanying the permit, the USACE issued a Record of Decision, which included their Guidelines analysis (USACE 2006b). In the USACE Guidelines analysis, all ferry alternatives were eliminated due to their inability to meet the project's purpose and need through expanded service. Several bridge alternatives were also considered not practicable in light of navigational issues, airspace conflicts, and cost considerations. Ultimately, Alternative F1/F1-R was selected as the Least Environmentally Damaging Practicable Alternative (LEDPA), with the USACE concluding (emphasis added):

Alternative F1/F1-R (Applicant's proposal) remains as the only practicable alternative. As long as enough money is available to build it, this alternative meets the project purpose without affecting navigation or creating an airspace conflict. Development opportunities on Gravina Island would not be limited by access, and airport businesses could proceed and expand as needed. No other alternative would achieve all of these goals.

Following FHWA's Record of Decision and after securing permits for the project, the DOT&PF began the first phase of implementing Alternative F1/F1-R: the construction of the highway connection to Ketchikan International Airport on Gravina Island. Construction of the highway, known as the Gravina Island Highway, was completed in 2008.

On September 21, 2007, due to rapidly escalating costs, then-Governor Sarah Palin directed the DOT&PF to identify the most fiscally responsible alternative for the Gravina Access Project

¹ Public Law 105-178, Subtitle F (High-Priority Projects), Section 1602 (Project Authorizations).

rather than proceed with Alternative F1/F1-R. This directive generated the need for FHWA to review its obligations under the National Environmental Policy Act (NEPA) with respect to the project and re-analyze the alternatives that were previously considered to not meet the project's purpose and need.

Based on relevant regulations and guidance documents, FHWA and DOT&PF determined that a Supplemental EIS (SEIS) should be prepared for the Gravina Access Project. On July 2, 2008, FHWA issued a notice of intent to re-examine alternatives in an SEIS and identify and select a different preferred alternative. The purpose of and need for the project has not changed. The alternatives under consideration in the Final SEIS include alternatives considered in the 2004 Final EIS (FEIS) that have been updated to reduce costs and minimize environmental impacts. This Draft *Section 404(b)(1) Analysis* supports the 2017 Final SEIS effort and updates the USACE's Guidelines analysis with changes that have occurred since the 2008 permit issuance, including:

- Updated bridge and ferry cost estimates
- Updated anticipated funding levels
- Updated analysis of improved convenience, efficiency, and reliability of access to Gravina Island to achieve the project's purpose and need
- Updated impacts to aquatic resources

2.0 PURPOSE AND NEED

Under the Guidelines, defining the purpose of a project involves two determinations: the basic purpose of the project and the overall purpose of the project.

2.1 Basic Purpose

The definition of the basic purpose is used to determine if the activity associated with the placement of fill material is 'water dependent' [40 CFR 230.10(a)(3)]. Where the activity associated with the placement of fill material in a special aquatic site does not require access or proximity to or siting within these sites to fulfill its basic purpose, the Guidelines require two presumptions to be conclusively rebutted:

- 1) Practicable alternatives not involving wetlands are presumed to be available; and
- 2) Practicable alternatives not involving discharges to wetland are presumed to have less adverse impact on the aquatic ecosystem.

Since the project has multiple components that require placement of fill material in wetlands, the basic purpose of each component requiring USACE authorization needs to be defined separately. These components are:

- Reconstruction of the existing Revillagigedo Island ferry berth and passenger transfer bridge
- Reconstruction of the existing Gravina Island ferry berth and passenger transfer bridge
- Construction of the ferry layup dock
- Construction of the heavy freight mooring facility
- Replacement of the Airport Creek Bridge, which would require construction of abutments in wetlands
- Reconstruction of Seley Road between Lewis Reef Road and approximately the end of the Airport Reserve through wetlands

Each of the first four components listed above are water dependent. The basic purpose of each of these components is to aid vessels that use the waters of the Tongass Narrows to reach Revillagigedo or Gravina Islands and require facilities to offload passengers and freight. Therefore, the two presumptions presented above do not apply to these project components.

The construction of abutments to support the Airport Creek Bridge replacement and the reconstruction of Seley Road are not water dependent activities. The basic purpose of abutments is to support a structural crossing of a waterway. The basic purpose of a road is to provide ground transportation. Neither of these activities necessarily requires the placement of fill material into waters of the U.S., including wetlands, to fulfill their basic purpose. The FHWA and DOT&PF prepared the *Wetlands Finding* (Appendix H of the Final EIS) that shows there are no practicable alternatives not involving filling wetlands for either of these components due to the prevalence of wetlands on Gravina Island.

2.2 Overall Purpose

The overall project purpose is used in the determination of practicable alternatives since the Guidelines define practicable to mean "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes" (40 CFR 230.0(q)). The overall project purpose, as defined by USACE, remains unchanged from the 2006 USACE Record of Decision (USACE2006b): to provide improved (more convenient and cost-effective) access to Gravina Island, and to improve the reliability of access to Ketchikan

International Airport for passengers, airport tenants, emergency personnel and equipment, and shipment of freight, and provide for economic development of the Ketchikan Borough.

3.0 ALTERNATIVES CONSIDERED

The alternatives evaluated in the 2004 EIS and the alternatives identified during the Draft SEIS scoping² comprise the 15 action alternatives that DOT&PF, in consultation with FHWA, evaluated in the screening process to identify reasonable alternatives for the Draft SEIS.

3.1 Screening of Alternatives

The screening factors for alternatives include cost, purpose and need, Section 4(f) impacts, and environmental or social impacts that would be unacceptable or unpermissible as defined by agencies having regulatory authority over those resources. The screening criteria are described in Table 3-1.

Table 3-1: Screening Criteria for Gravina Access Project SEIS Alternatives

Criterion 1 – Costs: Each alternative was screened on the basis of construction costs.^a FHWA and DOT&PF have determined that an alternative with estimated construction costs in excess of \$305 million is not reasonable, based on potentially available funds.^b

Criterion 2 – Purpose and Need: The purpose of the Gravina Access Project is to improve surface transportation between Revillagigedo Island and Gravina Island. Alternatives screened under Criterion 2 were examined in the following context:

- Convenience and efficiency to users in the form of travel time to the airport and land that is or could be developed for residential, recreational, or commercial uses
- Reliability of transit across Tongass Narrows; e.g., frequency of access closures for any reason
- Ability to support Ketchikan Gateway Borough planned economic development on Gravina Island, expressed in terms of areas or road extensions likely to be developed, as conceived in the Borough's *Gravina Island Plan*

Criterion 3 – Environmental or Socioeconomic Impacts Large Enough to Preclude Consideration: This criterion focuses on the environmental or social impacts that would be unacceptable or unpermissible as defined by agencies having regulatory authority over those resources. Three primary impact categories were considered: impacts to wildlife and/or habitat, impacts to marine navigation, and impacts to aviation.

Criterion 4 – Section 4(f) Impacts: FHWA and other federal DOT agencies generally avoid the use of land from publicly owned parks, recreation areas, wildlife or waterfowl refuges, or historic sites unless:

- There is no feasible and prudent alternative to the use of land.
- The action includes all possible planning to minimize harm to the property resulting from use.

If at least one otherwise reasonable alternative avoids all Section 4(f) properties, or can be modified to avoid such properties, an alternative that does use Section 4(f) property was eliminated as not reasonable.

^a Construction costs used in the screening process were derived from the July 2009 *Construction Cost Estimate Report of the Alternatives to be Considered in the SDEIS Screening Process*, which is available on the project website (http://dot.alaska.gov/sereg/projects/gravina_access/index.shtml).

^b See Appendix A for a letter from the DOT&PF Commissioner dated September 17, 2009.

Following the screening process in Table 3-1, six permanent bridge alternatives, two moveable bridge alternatives, and one tunnel alternative were eliminated (i.e., found not reasonable) due to cost, levels of adverse environmental impacts, or inability to meet the purpose and need. Two permanent bridge alternatives (C3-4 and F3) and four ferry alternatives (G2, G3, G4, and G4v) were considered reasonable alternatives and were evaluated in detail in the Gravina Access Project Final SEIS, along with the No Action Alternative.

² *Gravina Access Project Pre-screening Alternatives Memorandum*, dated February 6, 2009; distributed to cooperating, participating, and interested agencies on February 10, 2009, with a request for comments by March 9, 2009; distributed to the public on March 5, 2009, with a request for comments by April 6, 2009.

4.0 ALTERNATIVES CONSIDERED REASONABLE

4.1 No Action Alternative

Under the No Action Alternative, no bridge would be constructed and no additional ferry service would be provided between Revillagigedo and Gravina Islands. No improvements to roadways or bridges on Gravina Island would be made. The only public access between the islands would continue to be provided by the existing airport ferry service across Tongass Narrows, supplemented by private boats and floatplanes. There would be no improvements to the existing ferry terminals, located 2.8 miles north of downtown Ketchikan on Revillagigedo Island and on the waterfront, adjacent to the airport terminal on Gravina Island.

The Borough would continue to operate and maintain the airport ferry service. The ferry service would continue to operate 16 hours per day, and the frequency of service would remain the same, with departures every 30 minutes during the winter and every 15 minutes during the peak hours (8:00 a.m. to 4:00 p.m.) in summer.

4.2 Alternative C3-4

Alternative C3-4 was developed as a lower cost variant of Alternatives C3(a) and C4, which were analyzed in the 2004 FEIS. On Revillagigedo Island, travelers would access this alternative from North Tongass Highway by using the existing Don King Drive. The alternative would begin at the intersection of Don King Drive with Rex Allen Drive. No new construction is proposed along Don King Drive. Alternative C3-4 would follow the alignment of Rex Allen Drive around the Walmart store and continue to traverse the hillside southward along an existing topographic bench, gain elevation, and then make a right angle turn southwest, toward Gravina Island. By taking off from Don King Drive and making use of a topographic bench on Revillagigedo Island, the cost of providing a curved structure on the east side of the bridge is eliminated. The roadway would transition onto the bridge, cross over the North Tongass Highway and Tongass Narrows, and turn southward parallel to the airport runway. The bridge would cross over the seaplane facilities adjacent to the airport and ultimately touch down (i.e., reach the ground surface) on Gravina Island north of the airport terminal at the existing parking lot. The curve on the west approach to the bridge can be constructed using precast concrete girders, further reducing costs. The bridge would be supported by piers and would not require fill in Tongass Narrows other than the pier footings (i.e., there would be no fill placement in the airport seaplane basin). Bridge abutments would be constructed on fill in uplands. There would be no need to permanently relocate airport seaplane facilities; however, temporary relocation may be required during construction. The total length of the Alternative C3-4 alignment is 1.9 miles.

The following improvements would be made to Gravina Island roadways under Alternative C3-4:

- The Airport Creek Bridge would be replaced with a new bridge constructed to be 36 feet wide.
- Seley Road would be constructed as a 36-foot-wide, gravel surface road from Lewis Reef Road to approximately the end of the Airport Reserve.

4.3 Alternative F3

This is the same Alternative F3 as was analyzed in the 2004 FEIS, with a slight modification to the alignment at the Gravina Island touchdown point to connect with the existing Gravina Island Highway. The East Channel Bridge would connect directly to South Tongass Highway on Revillagigedo Island approximately 1.5 miles south of downtown Ketchikan between the U.S.

Coast Guard (USCG) Station and the Forest Park subdivision. From this terminus, the bridge would cross the East Channel to Pennock Island. The roadway would cross Pennock Island, climbing in elevation to the West Channel Bridge. The roadway on Pennock Island would be approximately 4,500 feet long between the East Channel and West Channel bridge abutments. From Pennock Island, the West Channel Bridge would connect to the Gravina Island Highway, approximately 3 miles south of the airport on Gravina Island. The total road distance between Revillagigedo Island and the airport passenger terminal is 5.87 miles.

The following improvements would be made to Gravina Island roadways under Alternative F3:

- Gravina Island Highway would be widened to 40 feet and paved along its entire length.
- The bridge over Gravina Creek would be widened to 40 feet and paved.
- The bridge over Government Creek would be widened to 40 feet and paved.
- Airport Access Road would be widened to 40 feet and paved along its entire length (the tunnel under the runway safety area would remain unchanged).
- The Airport Access Road/Gravina Island Highway intersection would be reconstructed to eliminate the curve and create a straight T-intersection.
- The Airport Creek Bridge would be replaced with a new bridge constructed to be 36 feet wide.
- Seley Road would be constructed as a 36-foot-wide, gravel surface road from Lewis Reef Road to approximately the end of the Airport Reserve.

4.4 Alternative G2

Alternative G2 entails continued operation of the existing airport ferry and new ferry service for vehicles and passengers between Peninsula Point on Revillagigedo Island and Lewis Point on Gravina Island. This alternative would cross Tongass Narrows approximately 2.0 miles north of the airport passenger terminal from Peninsula Point to Lewis Point and would have a sailing distance of approximately 0.8 miles. Two new ferry vessels and construction of a new ferry terminal on each side of Tongass Narrows would be required for this alternative. Dredging may be required to provide adequate navigational depth for the ferry berth on Gravina Island—approximately 1,400 cubic yards of material would be removed from an area of approximately 0.3 acres.

An 0.8-mile-long, 40-foot-wide paved access road would be constructed on Gravina Island to connect the ferry terminal site to Seley Road. The following improvements would be made to Gravina Island roadways under Alternative G2:

- Seley Road would be constructed as a 36-foot-wide, gravel road north from the ferry terminal access road to approximately the Airport Reserve boundary.
- Seley Road would be constructed as a 40-foot-wide, paved road from the ferry terminal access road to Lewis Reef Road.
- The Airport Creek Bridge would be replaced with a new bridge constructed to be 40 feet wide and paved.
- Lewis Reef Road would be widened to 40 feet and paved from Seley Road to Airport Access Road.
- The Airport Access Road/Gravina Island Highway intersection would be reconstructed to eliminate the curve and create a straight T-intersection.

- Airport Access Road would be widened to 40 feet and paved along its entire length (the tunnel under the runway safety area would remain unchanged).

4.5 Alternative G3

Alternative G3 entails continued operation of the existing airport ferry and new ferry service for vehicles and passengers between Ketchikan (near the Plaza Mall at Bar Point) on Revillagigedo Island and a location near Clump Cove on Gravina Island. This alternative would cross Tongass Narrows approximately 1.3 miles south of the airport passenger terminal and would have a crossing distance of approximately 1.3 miles. This alternative would require construction of a new ferry terminal on each side of Tongass Narrows and two new ferry vessels. Dredging may be required to provide adequate navigational depth for the ferry berths on Revillagigedo and Gravina Islands—approximately 18,600 cubic yards of material in total would be removed from an area of approximately 2.2 acres. The existing breakwater would be incorporated into the design of the ferry terminal parking lot and pier.

A 0.2-mile-long, 40-foot-wide paved access road would be constructed on Gravina Island to connect the ferry terminal site to the Gravina Island Highway. The following improvements would be made to Gravina Island roadways under Alternative G3:

- Gravina Island Highway would be widened to 40 feet and paved from the ferry access road to the intersection with the Airport Access Road.
- The bridge over Government Creek would be widened to 40 feet and paved.
- The Airport Access Road/Gravina Island Highway intersection would be reconstructed to eliminate the curve and create a straight T-intersection.
- Airport Access Road would be widened to 40 feet and paved along its entire length (the tunnel under the runway safety area would remain unchanged).
- The Airport Creek Bridge would be replaced with a new bridge constructed to be 36 feet wide.
- Seley Road would be constructed as a 36-foot-wide, gravel surface road from Lewis Reef Road to approximately the end of the Airport Reserve.

4.6 Alternative G4

Alternative G4 would include continued operation of the existing airport ferry for vehicles and passengers and new ferry service adjacent to that operation. New ferry berths would be located at the existing airport ferry terminals adjacent to the existing ferry berths, and new ferries would operate on an adjacent ferry route from Charcoal Point on Revillagigedo Island to the airport on Gravina Island.

This alternative would cross Tongass Narrows approximately 2.8 miles north of downtown. The crossing distance is approximately 0.25 mile. This alternative would require two new ferry vessels and construction of a new ferry berth on each side of Tongass Narrows adjacent to the existing airport ferry berths. No dredging would be needed for the ferry berths. The following improvements would be made to Gravina Island roadways under Alternative G4:

- The Airport Creek Bridge would be replaced with a new bridge constructed to be 36 feet wide.
- Seley Road would be constructed as a 36-foot-wide, gravel surface road from Lewis Reef Road to approximately the end of the Airport Reserve.

4.7 Alternative G4v

Alternative G4v was added as a lower cost alternative to Alternative G4 to address immediate needs for improved shoreside facilities for airport travelers and heavy freight movement. Alternative G4v would include the continued operation of the existing airport ferry for vehicles and passengers, with no additional ferry vessels providing service across Tongass Narrows.

Like the other ferry alternatives, Alternative G4v includes the passenger waiting facility, shuttle vans, new heavy freight mooring facility, reconstructed airport ferry transfer bridges, upgraded sidewalks and ramps, continued toll collection, and replacement of the ferry layup dock. Improved access would only relate to the benefits provided by shoreside amenities.

This alternative would cross Tongass Narrows approximately 2.8 miles north of downtown. The crossing distance is approximately 0.25 mile. There would be no reduction in travel time. The following improvements would be made to Gravina Island roadways under Alternative G4v:

- The Airport Creek Bridge would be replaced with a new bridge constructed to be 36 feet wide.
- Seley Road would be constructed as a 36-foot-wide, gravel surface road from Lewis Reef Road to approximately the end of the Airport Reserve.

4.8 Comparison of Impacts to Waters of the U.S. and Essential Fish Habitat

Table 4-1 describes the types and amounts of impacts to Waters of the U.S., including wetlands, and Essential Fish Habitat (EFH) that would occur from each of the reasonable alternatives identified above.

Table 4-1: Summary of Aquatic Ecosystem Impacts by Alternative^a

Impact Categories	Gravina Access Project Alternatives						
	No Action	Bridge Alternatives		Ferry Alternatives			
		C3-4	F3	G2	G3	G4	G4v
Permanent wetland habitat losses (acres)							
Forested	0	2.2	11.2	8.2	4.2	2.2	2.2
Shrub/Scrub	0	0	10	3.0	1.0	0	0
Muskeg	0	3.8	4.8	4.8	3.8	3.8	3.8
Intertidal marshes/meadows	0	0	0	1.2	2.9	0	0
• Between HTL and MHW	0	0	0	0.6	1.1	0	0
• Below the MHW mark	0	0	0	0.6	1.8	0	0
Total	0	6.0	26.0	17.2	11.9	6.0	6.0
Approximate amount of fill placed in wetlands (thousand cubic yards)	0	623	880	91	85	56	56
Temporary freshwater wetland disturbance (acres) ^b	0	1.0	12.1	9.1	5.1	0.1	0.1
Temporary fill in wetlands (acres)	0	1.0	12.1	9.1	5.1	0.1	0.1
Volume of temporary fill (cubic yards)	0	29,550	59,550	11,550	11,550	2,550	2,550

Table 4-1: Summary of Aquatic Ecosystem Impacts by Alternative^a

Impact Categories	Gravina Access Project Alternatives						
	No Action	Bridge Alternatives		Ferry Alternatives			
		C3-4	F3	G2	G3	G4	G4v
Essential Fish Habitat losses (acres)							
Marine ^c	0	1.9	15.7	2.1	5.1	1.4	1.1
• Eelgrass ^d	0	0	0.9	0	0.7	0	0
• Kelp ^e	0	0	0	0	0.5	0.1	0
Fresh water	0	0	0	0	0	0	0
Number of anadromous stream crossings ^{f, g}	0	0	6	0	1	0	0
Number of piers in Tongass Narrows ^h	0	12	6	0	0	0	0
Discharge of fill in marine waters of Tongass Narrows							
• Quantity (cubic yards)	0	0	0	24,500	21,500	3,500	3,500
• Area (acres)	0	0	0	1.9	3.6	0.7	0.7
Dredging/removal of sediment from marine waters of Tongass Narrows							
• Quantity (cubic yards)	0	0	213,000	1,400	18,600	0	0
• Area (acres)	0	0	14.8	0.3	2.2	0	0

^a Impacts from construction of the Gravina Island Highway have already occurred, are part of each alternative, and are not included in this table.

^b Does not include areas where only vegetation clearing would occur.

^c Includes loss of marine EFH due to pilings and piers.

^d Acreage impacts to eelgrass beds are subsets of the marine EFH total.

^e Acreage impacts to kelp beds are subsets of the marine EFH total.

^f Number of crossing does not include Tongass Narrows.

^g No permanent loss of EFH would occur at anadromous stream crossing because bridge and culvert design would preserve EFH.

^h Pilings for the ferry alternatives are not included.

5.0 PRACTICABILITY EVALUATION

The practicability test, described in Subpart B § 230.10(a) of the Guidelines in 40 CFR Part 230, is one step in identifying the LEDPA. The Guidelines provide a two part definition of a “practicable” alternative:

- 1) A practicable alternative “is available and capable of being done after taking into consideration cost, existing technology, and logistics...” For this *Draft Section 404(b)(1) Analysis*, the criteria used to evaluate practicability include project purpose, capital and operating costs, travel time, wetland impacts, and Essential Fish Habitat (EFH) impacts.
- 2) The three practicability criteria (cost, existing technology and logistics) apply, “in light of overall project purposes.” Thus, in order to be practicable, an alternative must not only meet the three criteria but must also fulfill the overall project purpose. The overall project purpose, defined in the USACE Record of Decision (USACE 2006b) is “to provide improved (more convenient and cost-effective) access to Gravina Island, and to improve the reliability of access to Ketchikan International Airport for passengers, airport tenants, emergency personnel and equipment, and shipment of freight, and provide for economic development of the Ketchikan Borough.”

Practicability evaluations occurred in the 2004 FEIS in Appendix L and in the 2006 USACE Record of Decision. Much of the information concerning technology and logistics provided in the USACE’s Guidelines analysis in their Record of Decision remains relevant. However, due to the elimination of the preferred alternative in the 2006 Record of Decision from the list of reasonable alternatives, updated cost estimates and information on logistical factors for each current reasonable alternative has been developed. This information is presented in Table 5-1 and discussed below in relation to practicability.

Table 5-1: Summary of Practicability Factors by Alternative^a

Impact Categories	Gravina Access Project Alternatives						
	No Action	Bridge Alternatives		Ferry Alternatives			
		C3-4	F3	G2	G3	G4	G4v
Cost Factors							
Construction and Project Development (\$ million)	0	305	354	122	107	91	46
Life-cycle (\$ million) ^b	35	222	286	331	314	301	182
Total life cost (\$ million)	929	391	576	1,330	1,262	1,207	1,050
Purpose and Need Factors							
<u>Reliability of Access</u>							
Hours of operation per day ^c	16	24	24	16	16	16	16
Round Trips (RT) per hour (summer/winter)	4 RT/ 2 RT	NA	NA	4 RT/ 2 RT	4 RT/ 2 RT	4 RT/ 2 RT	4 RT/ 2 RT
Restricts hazmat	Yes	No	No	Yes	Yes	Yes	Yes

Table 5-1: Summary of Practicability Factors by Alternative^a

Impact Categories	Gravina Access Project Alternatives						
	No Action	Bridge Alternatives		Ferry Alternatives			
		C3-4	F3	G2	G3	G4	G4v
transport and oversized/overweight ^d vehicles? (Yes/No)							
<u>Efficiency & Convenience of Access</u>							
Vehicular travel time (in minutes) to airport from:							
• Downtown Ketchikan	28	14	13	43	35	25	28
• Carlanna Creek	19	6	22	34	33	16	19
• Ward Cove	25	8	28	34	39	22	25
Vehicular travel time (in minutes) to developable land from:							
• Downtown Ketchikan	32	17	11	35	29	29	32
• Carlanna Creek	24	8	19	26	28	21	24
• Ward Cove	30	11	25	26	34	27	30
<u>Economic Development</u>							
Projected development on Gravina Island (in acres):							
• Residential	13	308	308	40	40	40	13
• Industrial/commercial	3	23	23	3	3	3	3
Projected development on Pennock Island (in acres):							
• Residential	0	0	12	0	0	0	0
• Industrial/commercial	0	0	0	0	0	0	0
Social and Economic Impacts							
Private Property impacts (# of parcels; total acres)	0	19 parcels; 42 acres	7 parcels; 4 acres	0	6 parcels; <1 acre	0	0
Estimated number of affected parcels	0	24	14	7	11	5	5
Total construction jobs ^e	0	1,560	1,780	470	510	470	120
Annual O&M jobs (without toll for bridge alternatives) ^f	13	2	3	28	28	28	13
User economic benefits (\$ million)	0	63.6	50.6	(29.5)	(29.2)	(25.2)	(1.5)
Transportation Impacts							

Table 5-1: Summary of Practicability Factors by Alternative^a

Impact Categories	Gravina Access Project Alternatives						
	No Action	Bridge Alternatives		Ferry Alternatives			
		C3-4	F3	G2	G3	G4	G4v
Intrusion into Part 77 airspace? (Yes/No)	No	Yes	No	No	No	No	No
Obstruction for seaplanes? (Yes/No)	No	Yes	Yes	No	No	No	No
Cultural Resources Impacts							
Eligible historic/archaeological properties in direct area of potential effect	N/A	1	7	1	1	0	0
Relationship to Select Federal Laws and Policy							
Section 10/404 Clean Water Act permit required?	No	Yes	Yes	Yes	Yes	Yes	Yes
USCG Section 9 of the Rivers and Harbors Act permit required?	No	Yes	Yes	No	No	No	No
Section 103 of the Marine Protection, Research and Sanctuaries Act permit required?	No	No	No	Yes	Yes	Yes	No

^a Impacts from construction of the Gravina Island Highway have already occurred, are part of each alternative, and are not included in this table.

^b Lifecycle costs reported are for the no toll option.

^c Hours of operation and downtimes would be the same for all ferry alternatives.

^d Ferry service is typically limited to vehicles less than 20 feet in length. The weight limit is 30,000 pounds.

^e Assumes a three year construction period. Jobs can be full-time, part-time or seasonal.

^f Number of jobs represents one full-time employee.

5.1 No Action Alternative

The information on technology and logistics for the No Action Alternative presented in the 2006 USACE Record of Decision remain relevant to this *Draft Section 404(b)(1) Analysis*. Updated information on project purpose and cost factors is provided in Table 5-1.

Overall Project Purpose

The No Action alternatives would not construct any new facilities to allow for more convenient access to Ketchikan International Airport or to developable and recreational land on Gravina Island.

Cost

Updated cost estimates are taken from the *Gravina Access Project Supplemental EIS Cost Estimate Report* (DOT&PF 2012) and are presented in Table 5-1 for the No Action Alternative.

Technology

No technological factors concerning the No Action Alternatives have changed since issuance of the 2006 USACE Record of Decision.

Logistics

The current problems concerning passenger waiting time, ferry service interruptions, and lack of dedicated freight service would remain unresolved under the No Action Alternative.

5.2 Bridge Alternatives (C3-4 and F3)

Overall Project Purpose

Bridge Alternatives C3-4 and F3 would provide unrestricted access to Ketchikan International Airport from Revillagigedo Island and developable and recreational land on Gravina Island.

Cost

Updated cost estimates are taken from the *Gravina Access Project Supplemental EIS Cost Estimate Report* (DOT&PF 2012) and are presented in Table 5-1 for each bridge alternative.

Technology

No technological factors concerning the bridge alternatives have changed since issuance of the 2006 USACE Record of Decision.

Logistics

Both bridge alternatives would still provide the quickest access between Revillagigedo and Gravina Islands, as described in the 2006 USACE Record of Decision.

Air Navigation: At the time of the screening analysis to identify reasonable alternatives, consultation with the Federal Aviation Administration (FAA) concerning the potential hazards associated with bridging Tongass Narrows revealed that, with appropriate marking and lighting, Alternative C3-4 would not be a hazard to air navigation and Alternative F3 would neither penetrate any airspace surfaces nor have any effect on approaches or departures from Ketchikan International Airport. While these bridge alternatives would affect seaplane operations, the impacts on seaplane operations would not preclude Alternatives C3-4 and F3 from consideration as reasonable alternatives.

In 2014, FAA conducted an aeronautical study under the provisions of 14 CFR Part 77 concerning the potential hazard of the Alternative C3-4 Bridge with respect to navigable

airspace at Ketchikan International Airport (Appendix G of the Final SEIS). Based on that study, FAA determined that Alternative C3-4 would have substantial adverse effect on the safe and efficient utilization of the airport's navigable airspace. However, in their *Determination of Hazard*, the FAA stated that their determination was made based on a preliminary design of the Alternative C3-4 bridge, which necessitated the use of several assumptions to come to a conclusion. Further, FAA states, "...the proposed structure, if not amended, altered, or removed, has an adverse effect if it would require a VFR operation, to change its regular flight course or altitude." With FAA's "determination of hazard to air navigation" for Alternative C3-4, FHWA and DOT&PF would need additional consultation with FAA to identify appropriate mitigation if that alternative were selected as the preferred alternative.

Marine Navigation: Concerning marine navigation, Alternative C3-4 would be designed with navigational clearances that would support passage of all vessels currently transiting Tongass Narrows. DOT&PF modified Alternative F3 in response to USCG concerns over potentially hazardous navigation conditions in the West Channel for large cruise ships. With these modifications, DOT&PF does not consider Alternative F3 to pose a substantial adverse effect to marine navigation through the West Channel.

5.3 Ferry Alternatives (G2, G3, G4, and G4v)

Overall Project Purpose

Based on the determination made by FHWA and DOT&PF, in conjunction with scoping comments from the Borough provided in the Final SEIS, all ferry alternatives would provide facilities that allow for more convenient travel between Revillagigedo Island and Ketchikan International Airport, and access to developable and recreational land on Gravina Island.

Cost

Updated cost estimates are taken from the *Gravina Access Project Supplemental EIS Cost Estimate Report* (DOT&PF 2012) and are presented in Table 5-1 for each alternative.

Technology

No technological factors concerning ferry alternatives have changed since issuance of the 2006 USACE Record of Decision.

Logistics

Marine Navigation: Alternatives G2, G3, and G4 would introduce a new perpendicular route of frequent, regular, ferry travel across Tongass Narrows, which is also used by in- and outbound cruise ships, Alaska Marine Highway System (AMHS) ferries, tugs and barges, USCG vessels, and National Oceanic and Atmospheric Administration (NOAA) vessels. However, given the regularity of the ferry schedules and the current general compatibility of the airport ferry and other marine traffic at the existing airport ferry location, the new ferry operations would not substantially affect marine vessels transiting north-south through Tongass Narrows. These alternatives would not adversely affect any shoreside facilities associated with cruise ships, AMHS ferries, tugs and barges, or USCG and NOAA vessels. The heavy freight mooring facility associated with all ferry alternatives would provide improved access for barges landing on Gravina Island. Alternative G4v would not alter existing marine traffic and, therefore, would have no effect on marine navigation.

Air Navigation: None of the ferry alternatives would impact air navigation.

Hours of Service: The schedule of the new ferry service with Alternatives G2, G3, and G4 would be similar to that of the existing ferry service: one vessel would operate during the winter (16

hours per day, crossing every 30 minutes), and both vessels would operate during the summer (one ferry operating 8 hours per day from approximately 6:00 a.m. to 8:00 a.m. and from 4:00 p.m. to 10:00 p.m., crossing every 30 minutes; and two ferries operating 8 hours per day from approximately 8:00 a.m. to 4:00 p.m., crossing every 15 minutes). The cost estimates assume that the ferry vessels would be replaced after 35 years.

Vehicle Access and Travel Time: Only Alternative G4 would have a beneficial effect on travel time due to the co-location of the two ferries that would reduce waiting time. Alternatives G2 and G3 would benefit vehicle access to Gravina Island through the addition of an access point. Alternative G4v would not provide any additional vehicle access to Gravina Island or reduce travel time.

To address concerns with delays during peak season, the passenger waiting facility and shuttle vans would be provided under all ferry alternatives and give comfort to travelers making the airport ferry crossing on foot. Improved sidewalks and covered walkways would also benefit pedestrians.

Freight Transport: All ferry alternatives would construct a heavy freight mooring facility, which was not considered in the 2006 USACE Record of Decision. This would allow airport employers to move parts, supplies, and personnel between Revillagigedo and Gravina Islands more safely and efficiently by eliminating the need to use the existing ferries for these purposes. The heavy freight mooring facility would be operational at all times, as opposed to the set ferry schedule.

6.0 PRACTICABILITY CONCLUSIONS

Due to changes in the level of funding available, the only practicable alternative presented in the 2006 USACE Record of Decision (Alternative F1/F1-R) was eliminated from consideration as a reasonable alternative. To address funding concerns, lower-cost bridge alternatives that were previously considered in the 2004 FEIS were reconsidered and determined to be reasonable through the screening criteria presented in Section 3.0. The practicability conclusions reached for each reasonable alternative with respect to the two-factor definition of 'practicable' in the Guidelines is presented below.

6.1 No Action Alternative

Based on the information provided above, the No Action Alternative clearly does not meet the purpose and need of the proposed project because it would not provide more convenient and cost-effective access to Ketchikan International Airport for passengers, airport tenants, emergency personnel and equipment, and shipment of freight; and would not provide for economic development of the Borough.

6.2 Bridge Alternatives (C3-4 and F3)

Alternatives C3-4 and F3 would meet the overall project purpose and are found practicable from a cost, technology, and logistical perspective. Alternative F3 would not have adverse effect on the safe and efficient utilization of Ketchikan International Airport's navigable airspace. Without appropriate mitigation developed in consultation with FAA, Alternative C3-4 would have an adverse effect on the safe and efficient utilization of Ketchikan International Airport's navigable airspace. Both alternatives would not have significant adverse effects to marine navigation and efficiency through West Channel. Both bridge alternatives have greater impacts to waters of the U.S., including wetlands, compared to each ferry alternative (Table 4-1).

6.3 Ferry Alternatives (G2, G3, G4, and G4v)

After taking into the consideration cost, technology, and logistics, all Gravina Access Project ferry alternatives meet the project purpose and are found practicable. Each ferry alternative has an estimated cost that is within the level of funding available to DOT&PF; would not interrupt cruise ship or AMHS ferry navigation through Tongass Narrows; and would meet the overall project purpose of providing improved access to Ketchikan International Airport, as well as developable and recreational lands on Gravina Island.

As shown in Table 4-1, Alternative G4 and G4v have the least amount of wetland impacts, but Alternative G4v has less EFH impacts. Therefore, Alternative G4v is the LEDPA.

7.0 EVALUATION OF COMPLIANCE WITH THE SECTION 404(B)(1) GUIDELINES

a. Alternatives Test

i. Based on the discussion in the SEIS, are there available, practicable alternatives having less adverse impacts on the aquatic ecosystem and without other significant adverse environmental consequences that do not involve discharges into “waters of the U.S.” or at least other locations within these waters? Yes No

ii. Based on the discussion in the SEIS, if the project is in a special aquatic site and is not water dependent, has the applicant clearly demonstrated that there are no practicable alternative sites available? Yes No

b. Special restrictions on discharge. Will the discharge:

i. Violate state water quality standards? Yes No

ii. Violate toxic effluent standards? Yes No

iii. Jeopardize endangered or threatened species or their critical habitat? Yes No

iv. Violate standards set by the Department of Commerce to protect marine sanctuaries?

Yes No

v. Evaluation of the information in the SEIS indicates that the proposed discharge material meets testing exclusion criteria for the following reasons:

Based on the above information, the material is not a carrier of contaminants.

The levels of contaminants are substantially similar at the extraction and disposal sites and the discharge is not likely to result in degradation of the disposal site and pollutants will not be transported to less contaminated areas.

Acceptable constraints are available and will be implemented to reduce contamination to acceptable levels within the disposal site and prevent contaminations from being transported beyond the boundaries of the disposal site.

c. Other restrictions. Will the discharge contribute to significant degradation of “waters of the U.S.” through adverse impacts to:

i. Human health or welfare, through pollution of municipal water supplies, fish, shellfish, wildlife, and special aquatic areas? Yes No

ii. Life stages of aquatic life and other wildlife? Yes No

iii. Diversity, productivity, and stability of aquatic life and other wildlife or wildlife habitat loss of the capacity of wetland to assimilate nutrients, purify waters, or reduce wave energy?

Yes No

iv. Recreational, aesthetic, and economic values? Yes No

d. Actions to minimize potential adverse impacts (mitigation). Will all appropriate and practicable steps (40 CFR 230.70-77, Subpart H) be taken to minimize the potential adverse impacts to the discharge on the aquatic ecosystem? Yes No

8.0 FACTUAL DETERMINATIONS (40 CFR § 230.11)

The Guidelines (40 CFR Part 230, Subpart B, § 230.11) require determination of the potential short- and long-term effects of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment. These factual determinations are presented below and are an update to those presented in the 2004 Final EIS and 2006 USACE permit and Record of Decision (2006a; 2006b). All EIS references are to sections contained in the Final SEIS.

The determinations of potential short- or long-term effects of the proposed discharges of dredged or fill material on the physical, chemical, and biological components of the aquatic environment, including items a-h below, are used in making a finding of compliance or non-compliance. There is minimal potential for short- or long-term significant adverse environmental effects of the proposed discharge as related to:

- a. Physical substrate determinations Yes No
- b. Water circulation, fluctuation, and salinity determinations Yes No
- c. Suspended particulates/turbidity determinations Yes No
- d. Contaminant determinations Yes No
- e. Aquatic ecosystem structure and function determinations Yes No
- f. Proposed disposal site determinations Yes No
- g. Determination of cumulative effects on the aquatic ecosystem Yes No
- h. Determination of secondary effects on the aquatic ecosystem Yes No

9.0 TECHNICAL EVALUATION FACTORS (40 CFR § 230 SUBPARTS C-F)

a. Potential impacts on physical and chemical characteristics of the aquatic environment (Subpart C)

	Potential Impacts on Physical and Chemical Characteristics of the Aquatic Environment	EIS Section Reference	Significant	Not Significant	N/A
1	Substrate	3.9.1, 3.9.2, 3.15.1, 3.15.2, 3.15.3, 4.9.1, 4.9.2, 4.15.1, 4.15.2, 4.15.3, 4.25.7, 4.25.11, 4.25.12, 4.27.8, 4.27.9, 4.30.1, 4.30.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Suspended particulates/turbidity	3.12, 4.12, 4.25.10, 4.25.12, 4.26.8, 4.30.1, 4.30.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Water	3.12, 4.12, 4.15.2, 4.15.3, 4.25.10, 4.25.12, 4.26.8, 4.26.9, 4.26.10, 4.27.7, 4.27.8, 4.27.9, 4.30.1, 4.30.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Alteration of current patterns and water circulation	3.14.1, 3.15.1, 4.14.1, 4.15, 4.15.3, 4.25.12, 4.26.8, 4.26.9, 4.26.10, 4.27.8, 4.27.9, 4.27.10, 4.30.1, 4.30.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Alteration of normal fluctuations/hydro period	3.14.1, 3.15.1, 4.14.1, 4.15, 4.25.11, 4.25.12, 4.26.8, 4.26.9, 4.26.10, 4.27.9, 4.27.10, 4.30.1, 4.30.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Salinity gradients		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

b. Potential impacts on the biological characteristics of the aquatic ecosystem (Subpart D)

	Potential Impacts on Physical and Chemical Characteristics of the Aquatic Environment	EIS Section Reference	Significant	Not Significant	N/A
1	Threatened and endangered species	3.15.4, 4.20, 4.25.15, 4.30.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Aquatic food web	3.15.4, 4.15.1, 4.15.3, 4.15.4, 4.25.12.3, 4.26.10.2, 4.30.1, 4.30.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Other wildlife	3.15.4, 3.15.5, 3.15.6, 3.15.7, 4.15.4, 4.15.5, 4.15.6, 4.15.7, 4.25.12, 4.26.10, 4.27.9, 4.30.1, 4.30.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

c. Potential impacts on special aquatic sites (Subpart E)

	Potential Impacts on Physical and Chemical Characteristics of the Aquatic Environment	EIS Section Reference	Significant	Not Significant	N/A
1	Sanctuaries and refuges	3.1.3, 4.1.3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Wetlands	3.3.7, 4.3.7, 4.14.1, 4.25.11, 4.26.9, 4.27.8, 4.30.1, 4.30.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Mudflats		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Vegetated shallows	3.15.4.4, 4.14.1, 4.15.4.4, 4.30.1, 4.30.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Coral reefs		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Riffle and pool complexes	3.15, 4.15, 4.30.1, 4.30.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

d. Potential effects on human use characteristics (Subpart F)

	Potential Impacts on Physical and Chemical Characteristics of the Aquatic Environment	EIS Section Reference	Significant	Not Significant	N/A
1	Effects on municipal and private water supplies	3.3.8, 4.3.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Effects on recreational and commercial fisheries	3.3.4, 3.3.7, 4.3.4, 4.3.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Effects on water-related recreation	3.3.4, 4.3.4, 4.25.2.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Aesthetics	3.23, 4.23, 4.25.18, 4.26.15, 4.27.11	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Effects on parks, national and historic monuments, national seashores, wilderness areas, research sites, and similar preserves		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Effects on archaeological and historic resources	3.21, 4.21	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

10.0 EVALUATION OF DREDGED OR FILL MATERIAL (SUBPART G, 40 CFR § 230.60)

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material: (check boxes that apply)

1. Physical characteristics
2. **Not Applicable** Hydrography in relation to known or anticipated sources of contaminants
3. **Not Applicable** Results from the previous testing of the material or similar material in the vicinity of the project
4. **Not Applicable** Known, significant sources of persistent pesticides from land runoff or percolation
5. Spill records for petroleum products or designated hazardous substances
6. Other public records or significant introduction of contaminants from industry, municipalities, or other sources
7. **Not Applicable** Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by human-induced discharge activities

Note: Most of the project area is currently undeveloped or not substantially developed. **No areas with any known history of contamination are included within the proposed action.** A Phase I Initial Site Assessment for contamination was conducted and is included in the SEIS.

b. An evaluation of the information above indicates that the proposed dredged or fill material is not a carrier of contaminants, or that levels of the contaminants are substantively similar at extraction and disposal sites. The material meets the testing exclusion criteria. Yes No

Note: Fill material is not expected to carry contaminants. Material compliance with the testing exclusion criteria is not known at this time. Dredging is not proposed.

11.0 DISPOSAL SITE DETERMINATION [40 CFR § 230.11(F)]

a. The following factors, as appropriate, will be considered in evaluating the disposal site:

1. Depth of water at the disposal site
2. Current, velocity, direction, and variability at the disposal site
3. Degree of turbulence
4. Water column stratification
5. **Not Applicable** Discharge vessel speed and direction
6. Rate of discharge
7. **Not Applicable** Dredged material characteristics
8. Other factors affecting rates and patterns of mixing

Note: The proposed action does not include open water dumping (no channel dredging is proposed). Material disposal will only occur in properly permitted upland locations. The only work in marine waters is placement of piles for marine facility construction and the placement of fill at an existing boat ramp for the heavy freight mooring facility. The discharged fill material will be spread across a 0.7-acre area and not confined to a single discharge point.

b. An evaluation of appropriate factors in 11.0 a. above indicates that the disposal site and/or size of the mixing zone area are acceptable: Yes No

12.0 ACTIONS TO MINIMIZE ADVERSE EFFECTS (SUBPART H, 40 CFR § 230.70)

All appropriate and practicable steps would be taken to ensure minimal adverse effects of the proposed discharge.

During the preliminary design phase, impacts to waters of the U.S, including wetlands, were avoided wherever practicable. Alternative G4v avoidance measures include designing the roadway with a minimum-width fill footprint, maximizing use of the existing roadway, increasing the angle of fill slopes, maintaining natural flow patterns by installing culverts through the fill, eliminating the use of wetlands for staging and storage areas, limiting the area of allowable disturbance during construction, minimizing temporary fill in wetlands, and restoring wetlands that are temporarily disturbed. Using appropriate erosion control practices (including the installation of silt fences and sedimentation basins, as well as seeding and stabilizing road slopes) and implementing a storm water pollution prevention plan would minimize water quality impacts associated with construction of Alternative G4v to waters of the U.S., including wetlands. Specific water quality mitigation measures that would be implemented are described below.

- Designing and constructing the roadway with a low-profile embankment to maximize use of existing roadway and minimize the fill footprint
- Increasing, where practicable, the angle of fill slopes to reduce encroachment into adjacent wetlands
- Using rock to stabilize toes of slopes to limit the erosion of fine-grained material into adjacent waters and wetlands
- Applying topsoil to the surface of road slopes to aid in the reseeding process, which would reduce erosion
- Using plant species indigenous to the area for vegetating road slopes wherever possible to protect the integrity of the natural plant communities
- Designing roadside swales to keep surface water within the natural drainage basins to allow sediment-laden water to clear before its discharge to adjacent wetlands and waters
- Installing ditch checks to reduce bank erosion
- Locating all staging, fueling, and equipment-servicing operations at least 100 feet away from all streams
- Having spill response equipment readily available and ensuring that construction personnel are trained in spill response to contain accidental leaks of oil or fuel from construction equipment
- Recontouring stream banks at all stream crossings (both culverts and bridge crossings) to approximate original conditions.
- Reseeding recontoured stream banks with native seed and annual rye to minimize erosion, as recommended in the DNR *Coastal Revegetation and Erosion Control Guide* (Wright and Czapla 2011)

Construction of the clear span bridge at Airport Creek and the culvert at the West Fork of North Airport Creek would require a Title 16 Fish Habitat Permit. Coordination with National Marine Fisheries Service has been on-going during the planning of this project for impacts in marine waters. The following conservation measures would be incorporated to avoid, minimize and mitigate impacts to EFH and marine species:

- All culvert crossings involving streams containing resident fish would be designed to provide fish passage, per DOT&PF's memorandum of agreement with ADF&G.
- No blasting or dredging would occur within Tongass Narrows.
- In-water work in Tongass Narrows would be restricted as follows:
 - General use of boats and barges could occur year round for general survey work.
 - Except for pile driving, other work in marine waters could only occur between July 1 and February 28.
 - As further described below, pile driving could only occur between November 1 and February 28.
- When pile driving in Tongass Narrows, a vibratory hammer would be used to drive steel pilings instead of an impact hammer, and piles would be driven during low tide when in intertidal and subtidal areas.
- Fueling and servicing operations would be conducted at least 100 feet away from all streams and water bodies, and fuel would be stored at least 100 feet away from all wetlands and water bodies.
- All permit stipulations would be incorporated into the construction contract specifications.
- The perimeter of the disturbance area (20 feet from toe of slope) would be staked in wetlands prior to construction to prevent additional impact from construction activities.
- Gravels and streambed material would be used in the bottoms of fish passage culverts to emulate natural streambed conditions.
- Stream bank stabilization would be provided as necessary to maintain stream bank integrity, and would include the use of bioengineering techniques to improve habitat value of the riprap by incorporation of willow stakes or other locally available vegetation.

DOT&PF proposes to compensate for unavoidable adverse impacts to wetlands through the creation of a Compensatory Mitigation Plan developed during the Section 404/10 permitting process in coordination with the USACE. The Compensatory Mitigation Plan would likely involve payment of in-lieu fee and/or permittee-responsible enhancement, restoration, and preservation mitigation projects developed using a watershed approach.

13.0 FINDINGS OF COMPLIANCE OR NON-COMPLIANCE (40 CFR § 230.12)

- a. **The proposed disposal site for discharge or dredged or fill material complies with Section 404(b)(1) Guidelines.**
- b. **The proposed disposal site for discharge or dredged or fill material complies with Section 404(b)(1) Guidelines with the inclusion of the following conditions (to be determined if selected)**
- c. **The proposed disposal site for discharge or dredged or fill material does not comply with Section 404(b)(1) Guidelines for the following reasons:**
 - i. There is a less damaging practicable alternative.
 - ii. The proposed discharge will result in significant degradation of the aquatic ecosystem.
 - iii. The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem.
 - iv. There does not exist sufficient information to make a reasonable judgment as to whether the proposed activity will comply with these Guidelines.

14.0 REFERENCES

- Alaska Department of Transportation & Public Facilities (DOT&PF). 2004. *Draft Section 404/10 Permit Application, Draft Section 404(b)(1) Evaluation, and the Wetlands Finding*. Appendix L in the Gravina Access Project Final Environmental Impact Statement.
- , 2012. *Gravina Access Project Supplemental EIS Cost Estimate Report*. Prepared by HDR Alaska, Inc.
- U.S. Army Corps of Engineers (USACE). 2006a. Permit for Gravina Access Project - POA-2000-152-2. Issued June 2006.
- , 2006b. Record of Decision – Gravina Access Project. Alaska District. POA-2000-152-2. June 2006. 45 pp.
- Wright, Stoney J., and Philip K. Czapla. 2011. *Alaska Coastal Revegetation and Erosion Control Guide*. Alaska Department of Natural Resources, Division of Agriculture, Plant Materials Center. Palmer, Alaska.

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Gravina Access Project

Appendix H Wetland Finding

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Wetlands Finding

A finding of the Alaska Department of Transportation and Public Facilities and the Federal Highway Administration

The Alaska Department of Transportation and Public Facilities (DOT&PF) and the Federal Highway Administration (FHWA) are pursuing the Gravina Access Project. Executive Order (E.O.) 11990, "Protection of Wetlands," mandates that federally funded projects are to avoid construction in wetlands unless (1) there is no practicable alternative and (2) the proposed action includes all practicable measures to minimize harm to wetlands. In compliance with E.O. 11990, the FHWA and DOT&PF have determined that there are no action alternatives meeting the purpose and need of the project that would avoid construction in wetlands and that Alternative G4v includes all practicable measures to minimize impacts to wetlands. Information about alternatives and their impacts provided in this document summarizes information presented in the Gravina Access Project Supplemental Environmental Impact Statement (SEIS).

Purpose and Need for Project

The purpose of the Gravina Access Project is to improve public access between Revillagigedo Island and Gravina Island. Improving access between these islands would; 1) provide the Ketchikan Gateway Borough (Borough) and its residents more reliable, efficient, convenient, and cost-effective access for vehicles, bicycles, and pedestrians to Borough lands and other developable or recreation lands on Gravina Island in support of the Borough's adopted land use plans; 2) improve the convenience and reliability of access to Ketchikan International Airport for passengers, airport tenants, emergency personnel and equipment, and shipment of freight; and 3) promote environmentally sound, planned long-term economic development on Gravina Island.

Preferred Alternative

The FHWA and DOT&PF preferred alternative, Alternative G4v, would provide shoreside facilities to improve the reliability, efficiency, and convenience of airport travelers and heavy freight movement. Alternative G4v would address immediate needs for improved facilities for airport travelers and heavy freight movement without adding new ferries or new ferry terminals. Alternative G4v includes reconstruction of the Airport Creek Bridge with a 36-foot wide driving surface and reconstruction of Seley Road as a 36-foot wide, gravel surface road from Lewis Reef Road to approximately the end of the Airport Reserve.

Wetlands Involvement

The vast majority of lands on Gravina Island, including the area directly adjacent to Seley Road, are wetlands. All action alternatives involve improvements to Seley Road with the goal of promoting long-term economic growth on Gravina Island. All action alternatives would therefore have unavoidable impacts to wetlands. Alternative G4v, the FHWA and DOT&PF preferred alternative, would result in the least amount (6.0 acres) of permanent wetland impact of the project action alternatives. Temporary impacts would occur for placement of temporary fill over

0.1 acre of wetlands to construct a temporary road and bridge in order to remove the existing Airport Creek Bridge and construct the new bridge.

Alternatives Considered and Compared

A total of 7 reasonable alternatives are considered in the SEIS, including a no action alternative. The six action alternatives comprise two bridge alternatives, Alternatives C3-4 and F3, and four ferry alternatives, Alternatives G2, G3, G4, and G4v. Alternative G4v has been selected as FHWA and DOT&PF's preferred alternative based on purpose and need factors, marine navigation factors, aviation factors, and other environmental factors. Table 1 provides a comparative summary of the project alternatives.

Table 1. Summary of Impacts by Alternative¹

Impact Categories	Gravina Access Project Alternatives						
	No Action	Bridge Alternatives		Ferry Alternatives			
		C3-4	F3	G2	G3	G4	G4v
Cost Factors							
Construction and Project Development (\$ million)	0	305	354	122	107	91	46
Life-cycle (\$ million) ²	35	222	286	331	314	301	182
Total life cost (\$ million)	929	391	576	1,330	1,262	1,207	1,050
Purpose and Need Factors							
<u>Reliability of Access</u>							
Hours of operation per day ³	16	24	24	16	16	16	16
Round Trips (RT) per hour (summer/winter)	4 RT/ 2 RT	NA	NA	4 RT/ 2 RT	4 RT/ 2 RT	4 RT/ 2 RT	4 RT/ 2 RT
Restrictions to hazmat transport and oversized/overweight ⁴ vehicles? (Yes/No)	Yes	No	No	Yes	Yes	Yes	Yes
<u>Efficiency & Convenience of Access</u>							
Vehicular travel time (in minutes) to airport from:							
Downtown Ketchikan	28	14	13	43	35	25	28
Carlanna Creek	19	6	22	34	33	16	19
Ward Cove	25	8	28	34	39	22	25
Vehicular travel time (in minutes) to developable land from:							
Downtown Ketchikan	32	17	11	35	29	29	32
Carlanna Creek	24	8	19	26	28	21	24
Ward Cove	30	11	25	26	34	27	30
<u>Economic Development</u>							
Projected development on Gravina Island (in acres):							
Residential	13	308	308	40	40	40	13
Industrial/commercial	3	23	23	3	3	3	3

¹ Impacts from construction of the Gravina Island Highway have already occurred, are part of each alternative, and are not included in this table.

² Lifecycle costs reported are for the no toll option.

³ Hours of operation and downtimes would be the same for all ferry alternatives.

⁴ Ferry service is typically limited to vehicles less than 20 feet in length. The weight limit is 30,000 pounds.

Table 1. Summary of Impacts by Alternative¹

Impact Categories	Gravina Access Project Alternatives						
	No Action	Bridge Alternatives		Ferry Alternatives			
		C3-4	F3	G2	G3	G4	G4v
Projected development on Pennock Island (in acres):							
Residential	0	0	12	0	0	0	0
Industrial/commercial	0	0	0	0	0	0	0
Social and Economic Impacts							
Private Property impacts (# of parcels; total acres)	0	19 parcels; 42 acres	7 parcels; 4 acres	0	6 parcels; <1 acre	0	0
Estimated number of affected parcels	0	24	14	7	11	5	5
Total construction jobs ⁵	0	1,560	1,780	470	510	470	120
Annual O&M jobs (without toll for bridge alternatives) ⁶	13	2	3	28	28	28	13
User economic benefits (\$ million)	0	63.6	50.6	(29.5)	(29.2)	(25.2)	(1.5)
Transportation Impacts							
Intrusion into Part 77 airspace? (Yes/No)	No	Yes	No	No	No	No	No
Obstruction for seaplanes? (Yes/No)	No	Yes	Yes	No	No	No	No
Natural Resource Impacts							
Permanent upland habitat losses (acres)	0	9	1	3	2	0	0
Permanent wetland habitat losses (acres)							
Forested	0	2.2	11.2	8.2	4.2	2.2	2.2
Shrub/Scrub	0	0	10	3.0	1.0	0	0
Muskeg	0	3.8	4.8	4.8	3.8	3.8	3.8
Intertidal marshes/meadows	0	0	0	1.2	2.9	0	0
<i>Between HTL and MHW</i>	0	0	0	0.6	1.1	0	0
<i>Below the MHW mark</i>	0	0	0	0.6	1.8	0	0
Total	0	6.0	26.0	17.2	11.9	6.0	6.0
Approximate amount of fill placed in wetlands (thousand cubic yards)	0	623	880	91	85	56	56
Temporary upland habitat disturbance (acres)	0	2.0	1.0	0.0	0.0	0.0	0.0
Temporary freshwater wetland disturbance (acres) ⁷	0	1.0	12.1	9.1	5.1	0.1	0.1
Temporary fill in wetlands (acres)	0	1.0	12.1	9.1	5.1	0.1	0.1
Volume of temporary fill (cubic yards)	0	29,550	59,550	11,550	11,550	2,550	2,550

⁵ Assumes a three year construction period. Jobs can be full-time, part-time or seasonal.

⁶ Number of jobs represents one full-time employee.

⁷ Does not include areas where only vegetation clearing would occur.

Table 1. Summary of Impacts by Alternative¹

Impact Categories	Gravina Access Project Alternatives						
	No Action	Bridge Alternatives		Ferry Alternatives			
		C3-4	F3	G2	G3	G4	G4v
Essential Fish Habitat losses (acres)							
Marine ⁸	0	1.9	15.7	2.1	5.1	1.4	1.1
Eelgrass ⁹	0	0	0.9	0	0.7	0	0
Kelp ¹⁰	0	0	0	0	0.5	0.1	0
Fresh water	0	0	0	0	0	0	0
Number of anadromous stream crossings ^{11, 12}	0	0	6	0	1	0	0
Number of piers in Tongass Narrows ¹³	0	12	6	0	0	0	0
Discharge of fill in marine waters of Tongass Narrows							
Quantity (cubic yards)	0	0	0	24,500	21,500	3,500	3,500
Area (acres)	0	0	0	1.9	3.6	0.7	0.7
Dredging/removal of sediment from marine waters of Tongass Narrows							
Quantity (cubic yards)	0	0	213,000	1,400	18,600	0	0
Area (acres)	0	0	14.8	0.3	2.2	0	0
Cultural Resources Impacts							
Eligible historic/archaeological properties in direct area of potential effect	NA	1	7	1	1	0	0
Relationship to Select Federal Laws and Policy							
Section 10/404 Clean Water Act permit required?	N	Y	Y	Y	Y	Y	Y
USCG Section 9 of the Rivers and Harbors Act permit required?	N	Y	Y	N	N	N	N
Section 103 of the Marine Protection, Research and Sanctuaries Act permit required?	N	N	N	Y	Y	Y	N

Purpose and Need Factors

All six of the proposed action alternatives evaluated in the SEIS would meet the purpose and need of the project.

The bridge alternatives would create a hard-link connection between Gravina and Revillagigedo islands that would improve the convenience and reliability of access to Ketchikan International Airport as well as developable and recreation lands on Gravina Island for most Borough

⁸ Includes loss of marine EFH due to pilings and piers.

⁹ Acreage impacts to eelgrass beds are subsets of the marine EFH total.

¹⁰ Acreage impacts to kelp beds are subsets of the marine EFH total.

¹¹ Number of crossing does not include Tongass Narrows.

¹² No permanent loss of EFH would occur at anadromous stream crossing because bridge and culvert design would preserve EFH.

¹³ Pilings for the ferry alternatives are not included.

residents. This hard-link connection would also promote economic development within the Borough.

All ferry alternatives would improve the shoreside facilities on both Gravina and Revillagigedo islands. These enhancements, which include reconstructed ferry berths, a new heavy freight mooring facility, and a new ferry lay-up dock, would meet the immediate needs of improving access to Ketchikan International Airport and developable land on Gravina Island. The ferry alternatives also include construction of the Gravina Island Highway (already constructed) and improvements to Seley Road and the Airport Creek Bridge, which would promote long-term growth and economic development on Gravina Island.

When comparing ferry alternatives, Alternative G4v is the lowest cost build alternative that would address the purpose and need of the project. Like the other ferry alternatives, Alternative G4v involves the continued operation and maintenance of the existing airport ferry service under its current schedule and along its existing route. Unlike the other ferry alternatives, however, Alternative G4v does not include the addition of new ferries and ferry terminals because traffic projections prepared in support of the SEIS do not indicate a need for increased capacity within the 75-year lifecycle of the project¹⁴. FHWA and DOT&PF have concluded that the added services and facilities for travelers that would result from implementation of Alternative G4v would provide improved access to Gravina Island, even without increased capacity.

Marine Navigation Factors

Alternative F3 and C3-4 would have unavoidable adverse impacts to marine navigation.

Under Alternative F3, the bridge structure over the East Channel would have a vertical navigational clearance of 60 feet above mean higher high water (MHHW) and a horizontal clearance of approximately 350 feet. These navigational clearances would not accommodate cruise ship, AMHS ferries, or tall freight barges that currently use the East Channel as their primary navigational route. The primary users of the East Channel would be limited to smaller tugs and barges, and commercial and recreational vessels with air drafts less than 60 feet. The West Channel bridge would have a vertical navigational clearance of 200 feet above MHHW and a horizontal navigational clearance of approximately 550 feet, which would accommodate one-way passage of cruise ships and two-way passage of most other ships, including AMHS ferries. The U.S. Coast Guard (USCG) indicated that closing the East Channel to large vessel traffic would require additional maneuvering and increased sailing time and would not meet the reasonable needs of navigation in Tongass Narrows.

Safety concerns for large ships navigating under either proposed bridge alternative (Alternative C3-4 or F3) were also noted by cruise ship lines and marine pilots in scoping comments and comments on the Draft SEIS. Longer ships would have an increased risk of collision with bridge piers and taller ships would have to schedule transiting under the bridge with lower tides to have clearance under the bridge deck.

¹⁴ Alaska Department of Transportation and Public Facilities, August 2012. *Gravina Access Project Supplemental EIS Traffic Forecast*. Prepared by HDR Alaska, Inc.

Aviation Factors

Alternative C3-4 would have unavoidable adverse impacts to air navigation.

In 2014, the FAA conducted an aeronautical study under the provisions of 14 CFR Part 77 concerning the potential hazard of the Alternative C3-4 bridge with respect to navigable airspace at Ketchikan International Airport. Based on that study, FAA determined that Alternative C3-4 would have substantial adverse effect on the safe and efficient utilization of the airport's navigable airspace.

Other Environmental Factors

All action alternatives would result in the loss of essential fish habitat (EFH). Alternative G4v, the FHWA and DOT&PF preferred alternative, would have the least impact to EFH, with a loss of 1.1 acres of marine habitat. These EFH impacts are associated with the shading created by the floating layup dock, placement of pilings, and fill associated with the heavy freight mooring facility. Alternative F3 would impact the highest amount of EFH with 15.7 acres of impact, including 0.9 acre of impact to eelgrass. Alternatives G3 and G4 would impact kelp and/or eelgrass beds.

Comparison Summary

The above discussion documents that, to satisfy the project purpose and need, any reasonable alternative will result in the loss of wetlands. Alternatives C3-4, G4, and G4v have the least amount of impact to wetlands. However, Alternative C3-4 would have adverse impacts to air navigation and marine navigation, and Alternative G4 would have greater impacts to marine EFH and no greater benefit for long-term economic development on Gravina Island relative to Alternative G4v. Alternative G4v has the least amount of impact to wetlands, marine and air navigation, and EFH and is therefore the preferred alternative.

Measures to Minimize Harm

Impacts to waters of the U.S., including wetlands, were avoided wherever practicable in the preliminary design phase. Alternative G4v avoidance measures include designing the roadway with a minimum-width fill footprint, maximizing use of the existing roadway, increasing the angle of fill slopes, maintaining natural flow patterns by installing culverts through the fill, eliminating the use of wetlands for staging and storage areas, limiting the area of allowable disturbance during construction, minimizing temporary fill in wetlands, and restoring wetlands that are temporarily disturbed. Using appropriate erosion control practices (including the installation of silt fences and sedimentation basins, as well as seeding and stabilizing road slopes) and implementing a storm water pollution prevention plan would minimize water quality impacts associated with construction of Alternative G4v to waters of the U.S., including wetlands. Specific water quality mitigation measures that would be implemented are described below.

- Designing and constructing the roadway with a low-profile embankment to maximize use of existing roadway and minimize the fill footprint.
- Increasing, where practicable, the angle of fill slopes to reduce encroachment into adjacent wetlands.

- Using rock to stabilize toes of slopes to limit the erosion of fine-grained material into adjacent waters and wetlands.
- Applying topsoil to the surface of road slopes to aid in the reseeded process, which would reduce erosion.
- Using plant species indigenous to the area for vegetating road slopes wherever possible to protect the integrity of the natural plant communities.
- Designing roadside swales to keep surface water within the natural drainage basins to allow sediment-laden water to clear before its discharge to adjacent wetlands and waters.
- Installing ditch checks to reduce bank erosion.
- Locating all staging, fueling, and equipment-servicing operations at least 100 feet away from all streams.
- Having spill response equipment readily available and ensuring that construction personnel are trained in spill response to contain accidental leaks of oil or fuel from construction equipment.
- Recontouring stream banks at all stream crossings (both culverts and bridge crossings), to approximate original conditions.
- Reseeding recontoured stream banks with native seed and annual rye to minimize erosion, as recommended in the DNR *Coastal Revegetation and Erosion Control Guide*¹⁵.

Construction of the clear span bridge at Airport Creek and the culvert at the West Fork of North Airport Creek would require a Title 16 Fish Habitat Permit. Coordination with NMFS has been on-going during the planning of this project for impacts in marine waters. The following conservation measures would be incorporated to avoid, minimize and mitigate impacts to EFH and marine species:

- All culvert crossings involving streams containing resident fish would be designed to provide fish passage, per DOT&PF's memorandum of agreement with ADF&G.
- No blasting or dredging would occur within Tongass Narrows.
- In-water work in Tongass Narrows would be restricted as follows:
 - General use of boats and barges could occur year round for general survey work.
 - Except for pile driving, other work in marine waters could only occur between July 1 and February 28.
 - As further described below, pile driving could only occur between November 1 and February 28.
- When pile driving in Tongass Narrows, a vibratory hammer would be used to drive steel pilings instead of an impact hammer, and piles would be driven during low tide when in intertidal and subtidal areas.
- Fueling and servicing operations would be conducted at least 100 feet away from all streams and water bodies, and store fuel at least 100 feet away from all wetlands and water bodies.

¹⁵ Wright, Stoney J., and Philip K. Czapl. 2011. *Alaska Coastal Revegetation and Erosion Control Guide*. Palmer, Alaska: Alaska Department of Natural Resources, Division of Agriculture, Plant Materials Center.

- All permit stipulations would be incorporated into the construction contract specifications.
- The perimeter of the disturbance area (20 feet from toe of slope) would be staked in wetlands prior to construction to prevent additional impact from construction activities.
- Gravels and streambed material would be used in the bottoms of fish passage culverts to emulate natural streambed conditions.
- Stream bank stabilization would be provided as necessary to maintain stream bank integrity, and include the use of bioengineering techniques to improve habitat value of the riprap, by incorporation of willow stakes or other locally available vegetation.

The DOT&PF proposes to compensate for unavoidable adverse impacts to wetlands through the creation of a Compensatory Mitigation Plan developed during the Section 404/10 permitting process in coordination with the U.S. Army Corps of Engineers. The Compensatory Mitigation Plan will likely involve payment of an in-lieu fee and/or permittee-responsible enhancement, restoration, and preservation mitigation projects developed using a watershed approach.

Only Practicable Alternative Finding

DOT&PF and FHWA have determined that there is no practicable alternative to the proposed construction in wetlands. No substantial impacts from the proposed action are likely to occur due to the inclusion of avoidance and minimization measures, and the remaining wetland impacts will be offset by compensatory mitigation. Based on these considerations, the Proposed Action is determined to be in compliance with E.O. 11990.

Gravina Access Project

Appendix H

Wetland and Waterbody Reevaluation Memorandum

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Memo

Date: Thursday, December 15, 2016

Project: Gravina Access Project

To: Alaska Department of Transportation and Public Facilities

From: HDR, Inc.

Subject: Gravina Access Project Wetland and Waterbody Reevaluation Memorandum

Introduction

This memorandum provides a summary of the existing wetland resources studies that address the Gravina Access Project wetland mapping study area. The existing wetland studies that have been performed include:

- Gravina Access Project Wetlands Evaluation Technical Memorandum (HDR 2002)
- Gravina Access Project Preliminary Jurisdictional Determination (HDR 2003)
- Gravina Access Project Wetlands Reevaluation Report (HDR 2010)
- KTN Gravina – Mill Access Road Wetlands and Streams Delineation Report (Amec Foster Wheeler Environmental & Infrastructure, Inc. [Amec] 2015)

This memorandum is intended to update and combine the existing wetland mapping findings to encompass the current study area for the Gravina Access Project with the best available data. This updated wetland mapping serves as the basis for determining the amount of wetland and waterbody impact of project alternatives for inclusion in the *Gravina Access Project Final Supplemental Environmental Impact Statement* and preparation of a Section 404/10 permit application.

Wetland mapping used for the purposes of jurisdictional determinations (JDs) and permits is generally valid for up to 5 years (USACE 2005). Therefore, the 2015 KTN Gravina – Mill Access Road wetland mapping is currently valid and the 2010 Gravina Access Project Wetlands Reevaluation Report wetland mapping has expired. The U. S. Army Corps of Engineers (USACE) has the authority to extend the term of validity of the JD if there is sufficient evidence to indicate that no change in wetland jurisdictional status has occurred and changes to federal policy have not limited USACE jurisdiction. This memorandum validates the existing Gravina Access Project wetland mapping based on the evaluation of the 2015 wetland mapping and provides evidence that jurisdictional status has not been changed by changes to wetland policy or recent developments.

Previous Wetland Mapping Efforts

In 2000, HDR conducted the first delineation and description of wetland functions within the Gravina Access Project study area (HDR 2002). A wetland field survey was conducted in summer and fall 2000. Mapping of wetland boundaries utilized aerial photography from AeroMap U.S. (taken in 1999, 6-foot pixel resolution) and encompassed a total of 2,226 acres.

HDR reevaluated the findings from the 2002 report in a 2010 report that included fieldwork performed over the course of 3 days in summer 2008 and re-digitizing of wetland boundaries with new, higher resolution aerial photography (taken in 2008, 0.25-foot pixel resolution) within the same 2002 study area. Due to the more accurate and detailed aerial photography, HDR was able to discern more wetland habitat diversity within the study area. This allowed for minimization and avoidance of potentially important wetland habitats in the alternatives development process.

In 2015, Amec conducted a field-surveyed wetland delineation and digitally mapped a total area of 56 acres along a 3.2-mile portion of Seley Road. This KTN Gravina – Mill Access Road study area covers a small portion of the Gravina Access Project study area. Figure 1 displays the extent of each wetland mapping area.

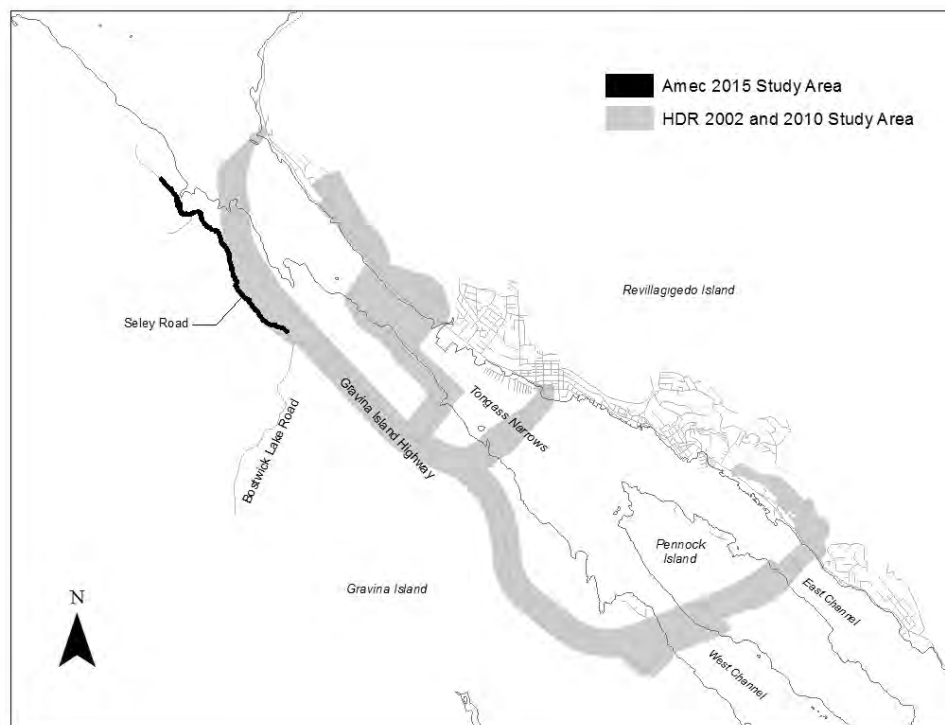


Figure 1. Wetland mapping study areas covering all project alternatives

Wetland Mapping Reevaluation

To perform the reevaluation, HDR undertook a three-step process:

- 1) Review of changes to regulatory policy or procedure since the 2010 Gravina Access Project Wetlands Reevaluation Report.
- 2) Comparison of the overlapping study areas from the 2010 Gravina Access Project Wetlands Reevaluation Report and the 2015 KTN Gravina – Mill Access Road *Wetlands and Streams Delineation Report*.
- 3) Review of developments within the study area that may have changed the jurisdictional status of wetlands or uplands within the study area.

Regulatory Policy

There has been one major change to regulatory policy since 2010. The Environmental Protection Agency and the Department of the Army issued a final rule, the Clean Water Rule, refining the definitions of “waters of the U.S.” on June 29, 2015. The changes involved primarily the definition of adjacent and isolated wetlands, as well as exclusions for types of ditches. The Clean Water Rule was stayed nationwide by the Sixth Circuit U.S. Court of Appeals on October 9, 2015, and is not currently in effect. If it were in effect, it would not impact the jurisdictional status of any wetlands within the study area. The wetlands within the study area are all directly adjacent to Tongass Narrows, a Traditional Navigable Water.

Comparison of the 2010 and 2015 Wetland Mappings

The mapping from the 2015 KTN Gravina - Mill Access Road *Wetlands and Streams Delineation Report* was compared to the mapping from the 2010 Gravina Access Project Wetlands Reevaluation Report in order to validate both data sets and check for errors in the mapping. Approximately 22 acres overlap. The overlapping area adjacent to Seley Road was mapped as wetland by both data sets. Differences in upland or wetland status were only small variations in the boundary located between the road embankment and the adjacent wetlands.

While the wetland status of the mapping datasets was nearly identical, wetland types were mapped at different resolutions. The 2010 wetland mapping was completed at a higher resolution than the 2015 wetland mapping. The 2015 wetland mapping grouped wetland types, while the 2010 wetland mapping mapped wetland types at a smaller scale. For instance, the 2010 wetland mapping delineated small open water ponds and emergent wetlands, which were not mapped separately in the 2015 wetland mapping.

However, the 2015 mapping contains high-resolution mapping of streams and their banks. Due to the fact that the stream boundaries are more detailed and the wetland boundaries are based on newer field data, the 2015 wetland mapping supersedes the 2010 mapping in overlapping areas. Outside of the overlapping areas, both datasets remain valid. Figure 2 shows an example of the combination of the two datasets.

Recent Conversion of Jurisdictional Status

A search for recent public notices for USACE permit applications to discharge fill into “waters of the U.S.” was performed and no public notices in the vicinity of the project were found. Improvements to Seley Road north of the project alternatives were performed; however, those improvements do not change the impact acreages presented in the *Gravina Access Project Final Supplemental Environmental Impact Statement* or the Section 404/10 permit application.

References

- Amec (Amec Foster Wheeler Environmental & Infrastructure). 2015. KTN Gravina – Mill Access Road Technical Report Wetlands and Streams Delineation Report. Prepared for Alaska Department of Transportation and Public Facilities. DOT&PF Project No. 67698. Federal Project No. ACHP-0922(5). Juneau, AK. 32 pp + Appendices.
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- USACE (U.S. Army Corps of Engineers). 2005. Regulatory Guidance Letter No. 05-02: Expiration of Geographic Jurisdictional Determination of Waters of the United States. Department of the Army. June 14, 2005.

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