State of Alaska

Department of Transportation & Public Facilities

CATEGORICAL EXCLUSION DOCUMENTATION FORM FOR FEDERAL HIGHWAY ADMINISTRATION PROJECTS

Project Name: S. Tongass Highway Deermount to Saxman Widening and Saxman to Surf Street Pavement Rehabilitation

Project Number (state/federal): Deermount to Saxman – 67685, Saxman to Surf Street – 67571 / Deermount to Saxman MGS-0902(31), Saxman to Surf STP-0902(039)

Date: August 9, 2017

CE Designation: 23 CFR 771.117(d)(13)

List of Attachments:

Figure 1 : Project Area

Attachment A: Environmental Justice Analysis Report

Attachment B: Section 106 Documentation

Attachment C: Wetland and Waterbody Delineation and Aquatic Site Assessment

Attachment D: Essential Fish Habitat Assessment and Coordination with NMFS

Attachment E: Bald Eagle Consultation Documentation

Attachment F: Phase I Environmental Site Assessment Reports

Attachment G: Hydrologic and Hydraulic Report

Attachment H: Section 4(f)/6(f) Documentation

Attachment I: Public and Agency Involvement

I. Project Purpose and Need

Background The South Tongass Highway is

- an undivided, two-lane roadway with many private driveways, limited shoulders, and an adjacent multi-use pathway along most sections, and
- is the only highway on Revillagigedo Island that provides travel connections between the City of Ketchikan and the communities to the south, including the City of Saxman. The South Tongass Highway rehabilitation project starts at the Deermount Street intersection at milepost (MP) 2.6 and ends at MP 5.5, approximately at Surf Street (see Figure 1).

Need DOT&PF has identified the need to resurface, restore, and rehabilitate this portion of the South Tongass Highway and related non-motorized facilities to improve the safe movement of vehicle, bicycle, and pedestrian traffic. Rock slopes along the highway are over-steep and show signs of raveling. Similar conditions have contributed to recent rock slides on other sections of the South Tongass Highway.

In some highway sections sight distance is less than desired and pavement is in need of restoration along the entire length of the project.

The existing multi-purpose path is discontinous south of Saxman. In some areas, the embankments and retaining walls along the existing pathway show varying degrees of distress and failure. These need to be restored for improved structural integrity and safety for path users.

Purpose

The goal of the South Tongass Highway Rehabilitation project is

- to improve operations along South Tongass Highway between Deermount Street and Surf Street in the Ketchikan Gateway Borough (Borough)
- restore structural integrity of the multi-purpose path, and
- construct a portion of new path to make the multi-purpose path continous

II. Project Description

The South Tongass Highway Rehabilitation project would widen the highway to current design standards, reconstruct the multi-use pathway, extend the pathway through Saxman, improve drainage (including new inlets, storm drains, ditches, and culverts), and relocate utilities. Rock cuts may be needed to widen the road in some locations. Bus stop turnouts and shelters would be constructed at locations determined in coordination with the Borough Transit Manager and the City of Saxman.

Exact improvements have not been determined, but the project would include the following components, as necessary:

- Modification of horizontal and vertical alignment where warranted and cost effective to improve safety;
- Rock excavation to accommodate realignment and widening;
- Excavation and reconstruction of the existing embankment at select locations;
- Construction of mechanically stabilized earth walls or other wall structures as appropriate;
- Drainage improvements, including culvert replacement and ditching;
- Removal and replacement of guardrail as warranted;

- Replacement of handrails and chain link fence;
- Replacement of public and private staircases for access to adjacent properties;
- Resolution of right-of-way (ROW) encroachments (removal or permitting);
- Relocation of overhead or underground utilities;
- Construction of bus stop turnout and shelters; and
- Associated lighting replacements/improvements

The project would be accomplished during two construction phases:

- Phase 1: Rehabilitation of the southern portion of the project from Saxman (MP 4.5) to Surf Street (MP 5.5) is planned to occur in 2018.
- Phase 2: Road widening between Deermount Street (MP 2.6) and Saxman (MP 4.5) is anticipated to begin in 2019.

Construction dates are contingent on the availability of funding, acquisition of required permits, and other factors.

III. Environmental Consequences

➢ For each yes, summarize the activity evaluated and the magnitude of the impact.

➢ For any consequence category with an asterisk (*), additional information must be attached such as an alternatives analysis, agency coordination or consultation, avoidance measures, public notices, or mitigation statement.

➢ Include direct and indirect impacts in each analysis.

A. Right-of-Way Impacts	N/A	YES	NO
1. Additional right-of-way required.		☒	☐
• Permanent easements required.	☐	☒	☐
• Estimated number of parcels: 58 temporary and permanent easements			
• Full or partial property acquisition required.	☐	☒	☐
• Estimated number of full parcels: 11 full acquisitions			
• Estimated number of partial parcels: 40 partial acquisitions			
• Property transfer from state or federal agency required. *If yes, list agency in No. 4 below.*	☐	☒	☐
• Business or residential relocations required. If yes, summarize the findings of the conceptual stage relocation study in No. 4 below and attach the conceptual stage relocation study.	☐	☐*	☒
• Number of relocations: 0			
• Type of relocation: Residential: ☐ Business: ☐ Residential (Indicate number: _____) Business (Indicate number: _____)			
• Last-resort housing required.	☐	☐	☒

2. Will the project or activity have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations as defined in E.O. 12898 (FHWA Order 6640.23A, June 2012)? ☐ ☒

   See Attachment A: *Environmental Justice Analysis Report.*

3. The project will involve use of ANILCA land that requires an ANILCA Title XI approval. *If yes, the project is not assigned to the State per the 6004 MOU and the CE must be processed by FHWA.* ☐ ☒

4. Summarize the right-of-way impacts, if any:

   The proposed project would require the acquisition of both fee simple and easement interests to expand the existing DOT&PF ROW for the South Tongass Highway improvements.

   Approximately 40 parcels would be affected by cuts and fills, requiring acquistion of a small portion of each lot. Any acquisitions would conform to the requirements of the Uniform Relocation Assistance and Real Property Acquisition Act. Approximately 58 other parcels may require temporary construction and/or permanent easements for completion of the project.

   The United States Coast Guard (USCG), the State of Alaska Department of Natural Resources, the University of Alaska, and the City of Saxman are public landowners that would be affected by the project. Tatsuda Grocery may need parking lot re-configuration. However no loss of parking spots would occur. No Alaska National Interest Lands Conservation Act (ANILCA) lands (in the form of Conservation System Units) are present in the project area.

   The project would require the full acquisition of 11 parcels. No property displacements (relocations) are anticipated. However, the project would resolve approximately 50 existing ROW encroachments in coordination with the project acquisition phase. Personal and real property located in the existing ROW must be removed or permitted to resolve encroachments.

   According to data available from the U.S. Census 2010-2014 American Community Survey (ACS), the median household incomes in the project area are:

   - $47,409 in Census Tract 3, Block Group 3 (includes the northern portion of the project: Deermount Street to south of the USCG Station Ketchikan)
   - $75,417 in Census Tract 4, Block Group 1 (includes the middle portion of the project area: Forest Park and Saxman)
   - $108,036 in Census Tract 4, Block Group 2 (includes the southern portion of the project area: Saxman to Surf Street)

   These incomes are above the U.S Department of Health and Human Services poverty guidelines for Alaska, which set a 2016 threshold of $25,200 for a family of three (average Borough household size was 2.52 for 2010-2014).

   The project would not result in disproportionately high and adverse human health or environmental effects on minority populations or low-income populations as defined by Executive Order 12898. See Attachment A: *Environmental Justice Analysis Report* for more detail.

   For the reasons described above, no adverse ROW impacts are expected to occur as a result of the proposed project.

B. Social and Cultural Impacts	N/A	YES	NO
1. The project will affect neighborhoods or community cohesion.		☐	☒
2. The project will affect travel patterns and accessibility (e.g. vehicular, commuter, bicycle, or pedestrian).		☒	☐
3. The project will affect school boundaries, recreation areas, churches, businesses, police and fire protection, etc.		☒	☐
4. The project will affect the elderly, handicapped, nondrivers, transit-dependent, minority and ethnic groups, or the economically disadvantaged.		☒	☐
5. There are unresolved project issues or concerns of a federally-recognized Indian Tribe [as defined in 36 CFR 800.16(m)]. *If yes, the project is not assigned to the State per the 6004 MOU and the CE must be processed by FHWA.*		☐	☒

6. Summarize the social and cultural impacts, if any:

The proposed project is intended to improve travel and safety conditions in the project area, resulting in long-term benefits to the traveling public. The proposed project, once constructed, would not alter overall travel patterns, although some driveway ingress or egress may change. The proposed project would improve accessibility in the project area by connecting and improving the multi-use pathway, benefiting pedestrian, bicycle users and persons with disabilities (improvements would conform to ADA design standards). The long-term benefits of improved vehicular and pedestrian facilities with the proposed project would enhance neighborhood and community cohesion by providing a safer travel corridor between communities.

The transportation improvements would also benefit access to schools, recreation areas, churches, and businesses for all social groups. Travel for police, fire protection, and emergency response would be improved.

C. Economic Impacts	N/A	YES	NO
1. The project will have adverse economic impacts on the regional and/or local economy, such as effects on development, tax revenues and public expenditures, employment opportunities, accessibility, and retail sales.		☐	☒
2. The project will adversely affect established businesses or business districts.		☐	☒

3. Summarize the economic impacts, if any:

The proposed project is not expected to adversely affect the regional or local economy. Improved safety and efficiency of travel on the South Tongass Highway is expected to provide long-term economic benefits. Transportation improvements would enhance access to the commercial areas in Ketchikan and along South Tongass Highway, support recreational activities for users of the multi-use pathway, and support any subsistence use of the waterfront with improved access from the multi-use trail. In addition, improved transportation facilities on this segment of South Tongass Highway would support tourism to Totem Park in Saxman and other tourist destinations south of Ketchikan. DOT&PF has identified areas to replace lost parking from partial acquistions however there may be a minimal loss of residential parking.

D. Land Use and Transportation Plans	N/A	YES	NO
1. Project is consistent with land use plan(s).	☐	☒	☐
a. Identify the land use plan(s) and date. Ketchikan Gateway Borough Comprehensive Plan 2020 (2009)			
2. Project is consistent with transportation plan(s).	☐	☒	☐
a. Identify the transportation plan(s) and date. Ketchikan's Coordinated Transportation Plan 2015 Update (2015)			
3. Project would induce adverse indirect and cumulative effects on land use or transportation. *If yes, attach analysis.*		☐	☒

4. Summarize how the project is consistent or inconsistent with the land use plan(s) and transportation plan(s):

The proposed project is not specifically identified in the local land use or transportation plans; however, it is consistent with the goals and objectives stated therein. The Ketchikan Gateway Borough Comprehensive Plan 2020 (2009) states that the Borough "supports regulations to include guidelines and criteria consistent with nationally-recognized standards which provide for safe and convenient on-site traffic flow, adequate pedestrian ways and sidewalks, as well as sufficient on-site parking for both motorized and non-motorized vehicles" (Pg. 30).

Ketchikan's Coordinated Transportation Plan 2015 Update (2015) provides a comprehensive review of the City's transportation system. The plan characterizes the importance of the Tongass Highway because it "provides access to residential areas outside the limits of the City of Ketchikan" (pg. 17). The South Tongass Highway connects transit users, pedestrians, cyclists, and drivers to the Ketchikan area and vicinity. The plan states the potential for the walking/biking path on the South Tongass Highway to Saxman. The plan also states the importance of the South Tongass Highway with respect to Saxman community members who rely on public transportation for travel to and from employment, shopping, and other amenities in Ketchikan. Additionally, the plan notes that 7,000 visitors ride the public transportation service to view Saxman's Totem Park each summer. An improved South Tongass Highway in this project area increases safety and connectivity between Ketchikan and Saxman with pedestrian, bicycling, and public and private vehicle use.

E. Impacts to Historic Properties	N/A	YES	NO
1. Does the project involve a road that is included on the "List of Roads Treated as Eligible" in the Alaska Historic Roads PA? *If yes, follow the Interim Guidance for Addressing Alaska Historic Roads.*		☒	☐
2. Does the project qualify as a Programmatic Allowance under the Section 106 Programmatic Agreement? *If yes, attach the Section 106 PA Streamlined Project Review Screening Record approved by the Regional PQI.*		☐*	☒
3. Is a National Register of Historic Places listed or eligible property in the Area of Potential Effect?	☐	☒	☐

4. Date Consultation/Initiation letters sent: April 10, 2013 *Attach copies to this form.*

5. a. List consulting parties:

   Alaska State Historic Preservation Officer (SHPO)
   Organized Village of Saxman
   Ketchikan Indian Community
   Cape Fox Corporation
   Central Council of Tlingit and Haida Tribes
   Sealaska Corporation
   City of Ketchikan Planning Commission
   Ketchikan Gateway Borough
   Sealaska Heritage Institute
   Ketchikan Historic Commission
   Historic Ketchikan Inc.

   b. If no letters were sent, explain why not. *Attach "Section 106 Proceed Directly to Findings Worksheet", if applicable.*

6. Date "Finding of Effect" letters sent: March 9, 2017 *Attach copies to this form*
   a. State any changes to consulting parties: None

7. List responding consulting parties, comment date, and summarize:
   There were no responding consulting parties.

8. Are there any unresolved issues with consulting parties? ☐ ☐ ☒
   a. If yes, list:

9. Date SHPO concurred with "Finding of Effect": April 14, 2017 *Attach copy to this form.*

10. Will there be an adverse effect on a historic property? *If yes, attach correspondence (including response from ACHP) and signed MOA. If yes, Programmatic Agreements (PCEs) do not apply.* ☐ ☐ ☒

    Summarize any effects to historic properties. *List affected sites (by AHRS number only) and any commitments or mitigative measures. Include any commitments or mitigative measures in Section VI.*

    A cultural resources investigation was conducted for the proposed project and is summarized in this section (the full *Cultural Resources Investigation Report* is on file with DOT&PF). The investigation included a database search and field survey of the Area of Potential Effects (APE).

    The direct APE for the proposed project consists of all areas of ground-disturbing activities including vegetation clearing, construction and staging, and ingress and egress for the project. The direct APE generally conforms to the alignment of the South Tongass Highway, but is wider in locations where additional project activities may occur. The area included in the direct APE totals 31.9 acres. The indirect APE is larger, totaling 236 acres. It encompasses the area in which visual and audible effects from traffic changes as well as construction and maintenance could affect cultural resources.

    A review of the Alaska Heritage Resource Survey (AHRS) for properties with historical, archaeological, and cultural significance within the APE was conducted in October 2015. Two cultural resources surveys were conducted, in November 2015 and April 2016, in the proposed project area. The AHRS

review process and cultural resource investigation revealed the following sites within the direct APE:

- One National Register of Historic Places (NRHP)-listed site (KET-00060, Saxman Totem Park)
- One NRHP-eligible site (KET-01391, Cannery Bunkhouse)
- Four sites that are not eligible for inclusion in the NRHP (KET-00435, Ketchikan Dump; and KET-01240, 1715 S. Tongass Highway; KET-01249, 2259 S. Tongass Highway; KET-01395, 2191 S. Tongass Highway)

Within the indirect APE, there is one site listed on the NRHP (KET-00343, Chief Kashakes House), six sites have been determined eligible for listing, nine sites remain unevaluated for the NRHP, and 44 sites are not eligible for inclusion in the NRHP.

The South Tongass Highway is considered a "Treated as Eligible" property as stipulated in the Interim Guidance for Addressing Alaska Historic Roads issued by DOT&PF (2012). The interim guidance lists a predefined set of road maintenance and modifications activities that would have either limited potential to affect, no potential to affect, or no adverse effect to historic properties, such as minor road widening, realignment, surface material change, maintenance of drainage features, and culvert replacement. As currently planned, proposed project activities fall within these listed modifications and, therefore, would not adversely impact the South Tongass Highway.

Based on current design, the proposed project would not adversely affect the NRHP-listed and NRHP-eligible sites located within the direct APE (i.e., portions of the Saxman Totem Park and the Cannery Bunkhouse). Project activities are not likely to have a visual or audible adverse effect to NRHP-listed and eligible sites within the indirect APE. Project activities planned within the viewshed of these sites consist primarily of road repaving and improvements. As the sites are currently within the viewshed of a modern asphalt road, project activities will not significantly alter the characteristics that make these resources eligible for the NRHP. Furthermore, the nine unevaluated sites within the indirect APE are not visible or had very limited visibility from the ROW and would, therefore, not be adversely affected by the proposed project.

Section 106 consultation documentation is provided in Attachment B.

F. **Wetland Impacts**	N/A	YES	NO
1. Project affects wetlands as defined by the U.S. Army Corps of Engineers (USACE). *If yes, document public and agency coordination required per E.O. 11990, Protection of Wetlands.*		☒*	☐
2. Are the wetlands delineated in accordance with the *"Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0) Sept. 2007"?*	☐	☒	☐
3. Estimated area of wetland involvement (acres): 0.5 acre			
4. Estimated fill quantities (cubic yards): 380 cy			
5. Estimated dredge quantities (cubic yards): 0 cy			
6. Is a USACE authorization anticipated? *If yes, identify type*: NWP ☒ Individual ☐ General Permit ☐ Other ☐	☐	☒	☐

7. Wetlands Finding. *Attach the following supporting documentation as appropriate:*
   - *Avoidance and Minimization Checklist, and Mitigation Statement*
   - *Wetlands Delineation*
   - *Jurisdictional Determination*
   - *Copies of public and resource agency letters received in response to the request for comments*

Are there practicable alternatives to the proposed construction in wetlands? If yes, the project cannot be approved as proposed.	☐	☐	☒
Does the project include all practicable measures to minimize harm to wetlands? If no, the project cannot be approved as proposed.	☐	☒	☐
Only practicable alternative: Based on the evaluation of avoidance and minimization alternatives, there are no practicable alternatives that would avoid the project's impacts on wetlands. The project includes all practicable measures to minimize harm to the affected wetlands as a result of construction. If no, the project cannot be approved as proposed.	☐	☒	☐

8. Summarize the wetlands impacts and mitigation, if any. *Include any commitments or mitigative measures in Section VI.*

Wetlands in the project area were delineated in 2015 using the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0) Sept. 2007. Results are presented in Attachment C: *Wetland and Waterbody Delineation and Aquatic Site Assessment*. Approximately 2.4 acres of the 73-acre study area consists of wetlands (3.3 percent of the study area). The mapping effort identified two types of forested wetlands and four types of emergent wetlands and other jurisdictional waterbodies. Figure 3 of Attachment C shows the wetlands within the study area. Most of the potentially affected wetlands (2.0 acres) are forested wetlands.

Impacts to wetlands and other jurisdictional waters (including fill into streams and fill on 4 acres below the high tide line (HTL) that are discussed in Section G "Water Body Involvement") would result from the permanent placement of fill required to rehabilitate the highway. The existing alignment is adjacent to existing wetlands and waters; thus, total avoidance was not possible in order to meet the purpose of the project. Impacts would be minimized by using 2:1 side slopes as a recommended minimum for slope stability and traffic safety where practicable.

Section 404/10 permit authorization from the USACE to place fill in wetlands and other waters would be sought and obtained prior to construction. Section VI identifies avoidance and minimization measures. The DOT&PF would comply with Section 404(b)(1) mitigation guidelines for impacts to jurisdictional waters that cannot otherwise be avoided.

Summary of Impacts

Type	Impact (acres)
Wetlands	0.5
Other Waters of the US (inter-tidal rocky shore)	4.0

G. Water Body Involvement

	N/A	YES	NO
1. Project affects a water body.		☒	☐

2.	Project affects a navigable water body as defined by USCG (*i.e.*, Section 9).	☐	☒*	☐
3.	Project affects Waters of the U.S. as defined by the USACE, Section 404.	☐	☒*	☐
4.	Project affects Navigable Waters of the U.S. as defined by the USACE (Section 10).	☐	☒*	☐
5.	Project affects fish passage across a stream frequented by salmon or other fish (*i.e.*, Title 16.05.841).	☐	☒	☐
6.	Project affects a cataloged anadromous fish stream, river or lake (*i.e.*, Title 16.05.871).	☐	☒*	☐
7.	Project affects a designated Wild and Scenic River or land adjacent to a Wild and Scenic River. *If yes, the Regional Environmental Manager should consult with the Statewide NEPA Manager (assigned CEs) or FHWA Area Engineer and FHWA Environmental Program Manager (non-assigned CEs) to determine applicability of Section 4(f).*		☐	☒
8.	Proposed water body involvement: Bridge ☐ Culvert ☒ Embankment Fill ☒ Relocation ☐ Diversion ☒ Temporary ☒ Permanent ☒ Other ☐	☐		
9.	Type of stream or river habitat impacted: Spawning ☒ Rearing ☒ Pool ☐ Riffle ☐ Undercut bank ☐ Other ☐	☐		

10. Amount of fill below (cubic yards): OHW 80 cy MHW 34,050 cy HTL 53,730 cy

11. Summarize the water body impacts and mitigation, if any. *Include any commitments or mitigative measures in Section VI.*

Impacts:

Water bodies within the project area are described in Attachment C: *Wetland and Waterbody Delineation and Aquatic Site Assessment* and illustrated in the figures of Attachment D: *Essential Fish Habitat Assessment and Coordination with NMFS.* Approximately 53,730 cubic yards of fill will be placed across approximately 4 acres of jurisdictional waters below the high tide line (HTL) in Tongass Narrows, which is a navigable waterbody as defined by USACE and USCG.

In addition, an estimated 80 cubic yards of permanent fill would be placed in or along approximately 1,125 linear feet of approximately twenty small water bodies under USACE jurisdiction. The fill is associated with actions to install new or replacement culverts. Most of the streams are non-fish bearing drainages. One unnamed perennial stream is identified as anadromous fish stream #101-47-10300 in the Alaska Department of Fish and Game (ADF&G) Anadromous Waters Catalog. As surveyed by ADF&G, the creek measures 14 feet wide at ordinary high water and passes under the highway through a 52-foot long wooden culvert that is 10 feet wide and 8 feet tall. Anadromous fish are not documented upstream of the culvert due to the existing culvert's outlet being perched by 3 feet. The construction contractor would be required to comply with conditions outlined in the ADF&G Title 16 Fish Habitat Permit.

No permanent impacts to navigation or recreational water bodies would result from the proposed project. The project does not involve a bridge over a navigable waterbody; therefore, a USCG permit (Section 9) is not required. Section 404/10 permit authorization from the USACE to place fill in wetlands (0.5 acres, see Section F) and other waters would be sought and obtained prior to construction.

Wetland impacts and mitigation are described above in Section F and Section VI. Impacts to fish and wildlife and related mitigation measures are described in Section H and Section VI.

H. Fish and Wildlife	N/A	YES	NO
1. Anadromous and resident fish habitat. *Any activity or project that is conducted below the ordinary high water mark of an anadromous stream, river, or lake requires a Fish Habitat Permit.*			
a. Database name(s) and date(s) queried: ADF&G *Atlas to the Catalog of Waters Important to the Spawning, Rearing, or Migration of Anadromous Fishes*; ADF&G Alaska Freshwater Fish Inventory Database; ADF&G Culvert Inventory database; National Oceanic and Atmospheric Administration (NOAA) Habitat Conservation EFH Data Inventory and Mapper; NOAA Nearshore Fish Atlas of Alaska and Alaska Shorezone Interactive Mapping program; queried November 2016.			
b. Anadromous fish habitat present in project area.		☒*	☐
c. Resident fish habitat present in project area.		☒*	☐
d. Adverse effect on spawning habitat.	☐	☐*	☒
e. Adverse effect on rearing habitat.	☐	☐*	☒
f. Adverse effect on migration corridors.	☐	☐*	☒
g. Adverse effect on subsistence species.	☐	☐*	☒
2. Essential Fish Habitat (EFH). *EFH includes any anadromous stream used by any of the five species of Pacific salmon for migration, spawning or rearing, as well as other coastal, nearshore and offshore areas as designated by NMFS.*			
a. Database name(s) and date(s) queried: ADF&G *Atlas to the Catalog of Waters Important to the Spawning, Rearing, or Migration of Anadromous Fishes*; NOAA Habitat Conservation EFH Data Inventory and Mapper; NOAA Nearshore Fish Atlas of Alaska and Alaska Shorezone Interactive Mapping program; queried November 2016.			
b. EFH present in project area.		☒	☐
c. Project proposes construction in EFH. *If yes, describe EFH impacts in H.6.*	☐	☒	☐
d. Project may adversely affect EFH. *If yes, attach EFH Assessment.*	☐	☒*	☐
e. Project includes conservation recommendations proposed by NMFS. *If NMFS conservation recommendations are not adopted, formal notification must be made to NMFS. Summarize the final conservation measures in H.6 and list in Section VI.*	☐	☒	☐
3. Wildlife Resources:			
a. Project is in area of high wildlife/vehicle accidents.		☐	☒
b. Project would bisect migration corridors.		☐	☒
c. Project would segment habitat.		☐	☒
4. Bald and Golden Eagle Protection Act. *If yes to any below, consult with USFWS and attach documentation of consultation.*			
a. Eagle data source(s) and date(s) : USFWS, November 21, 2016 (documentation in Attachment E)			
b. Project visible from an eagle nesting tree?		☒*	☐
c. Project within 330 feet of an eagle nesting tree?		☒*	☐
d. Project within 660 feet of an eagle nesting tree?		☒*	☐

e. Will the project require blasting, pile driving, guardrail post driving, or other activities that produce extreme loud noises within 1/2 a mile from an active nest? ☒* ☐

f. Is an eagle permit required? ☒* ☐

5. Is the project consistent with the Migratory Bird Treaty Act? ☒ ☐

6. Summarize fish and wildlife impacts and mitigation, including timing windows, if any. *Include any commitments or mitigative measures in Section VI.*

Anadromous and Resident Fish, Essential Fish Habitat

One anadromous fish stream (#101-47-10300) passes under the South Tongass Highway in the project area through a perched wooden culvert. The *Anadromous Waters Catalog* identifies the stream as habitat for anadromous pink and chum salmon downstream of the culvert; this habitat is therefore EFH for both species. A single juvenile coho salmon was captured downstream of the culvert in 2016, along with Dolly Varden and sculpin (see Attachment D: *EFH Assessment and Coordination with NMFS*). While the wooden box culvert is a barrier to upstream fish passage, resident Dolly Varden and cutthroat trout occur upstream of the culvert (Minnillo 2012; see Attachment D for full reference).

The proposed project would improve fish passage by replacing the perched wooden culvert with a new fish passage culvert. The new culvert would provide upstream access to habitat farther upstream, which is currently inaccessible to most fish; therefore, the project has the potential to increase the amount of available EFH in this stream.

Fill placement would eliminate about 2.67 acres of marine EFH across about 4,000 linear feet of shoreline habitat along the Tongass Narrows' East Channel. Existing substrate under the fill footprint would be permanently replaced. The ecological function of affected habitat would be altered due to the physical change in substrate (size and depth). Portions of the modified shoreline habitat may no longer be optimal or suitable for some managed species. By eliminating shallow, low to moderately sloped nearshore habitat, the project would eliminate habitat currently suitable for rockfish and other groundfish. While alteration of the physical habitat may affect habitat function in some areas, the project would not result in a blockage to juvenile or adult fish migration. Population-level impacts to managed fish species are not anticipated to result from this project. The amount of marine habitat eliminated would not constitute a substantial reduction in the overall amount of EFH available in the surrounding Tongass Narrows waters. The project would avoid placing fill and eliminating nearshore habitat that was mapped as high functioning (Category 1).

DOT&PF completed EFH consultation with NMFS on June 22, 2017, which included the identification of appropriate conservation measures. These include: incorporating 2:1 side slopes to minimize fill in wetlands and waterbodies, where feasible; complying with conditions in the fish habitat permit including any specified in-water work timing windows; re-contouring and re-seeding disturbed stream banks with native vegetation; and maintaining existing drainage patterns. For the full list and additional detail, see Attachment D: *EFH Assessment and Coordination with NMFS*.

Wildlife Resources

Most of the existing DOT&PF ROW is clear of trees and adjacent habitat. Expansion and upgrades to existing road would not create any additional habitat bisection or fragments. The proposed work is occurring on an existing transportation corridor and no increases in traffic would result from the proposed project.

Additional vegetative clearing will likely occur on both sides of the highway within the existing and newly acquired DOT&PF ROW. Although this will result in removal of some wildlife habitat, impacts to wildlife are likely to be minimal. No adverse impacts to wildlife or wildlife habitat are expected to occur as a result of the proposed project.

Bald and Golden Eagle Protection Act

There are three eagle nests adjacent to the South Tongass Highway that would be affected by the project. Noise and vibration producing construction activities will be restricted during the breeding season from March 1st to when the eaglets fledge, approximately August 15th. Restricted activities will be coordinated with USFWS and listed in the permit.

Migratory Bird Treaty Act

Migratory birds protected under the Migratory Bird Treaty Act could pass through the proposed project area. While bird species could be affected by vegetation clearing activity, this clearing would be minimal and would follow to the maximum extent possible, the U.S. Fish and Wildlife Service (USFWS) Land Clearing Timing Guidance for Alaska (https://www.fws.gov/alaska/fisheries/fieldoffice/anchorage/pdf/vegetation_clearing.pdf) to protect migratory birds. The recommended time period to avoid tree clearing would be April 15 – July 15, and the time period to avoid shrub clearing would be May 1 to September 15. No adverse impacts to migratory bird species are expected to occur as a result of the proposed project.

Marine Mammal Protection Act

All marine mammals are protected under the Marine Mammal Protection Act (MMPA). According to an April 2017 query of the National Marine Fisheries Service (NMFS), online Endangered Species Act (ESA) and MMPA mapper (https://alaskafisheries.noaa.gov/mapping/esa/), the following eight marine mammal species may use habitat in Tongass Narrows: harbor seal, Steller sea lion, humpback whale, killer whale, Dall's porpoise, Pacific white-sided dolphin, minke whale, and harbor porpoise. Both the Steller sea lion and the humpback whale are ESA-listed, however the distinct population segments that are respectively endangered and threatened are not likely to occur in Tongass Narrows. See Section III, subsection I for more detail.

DOT&PF met with NMFS on May 5, 2017, regarding the MMPA and ESA listed species in Tongass Narrows. DOT&PF described construction activities that could affect these species, noting particularly the proposed placement of fill below HTL. DOT&PF proposes to place the fill during low tide, in dry conditions, to avoid impacts to marine mammals. NMFS stated that DOT&PF, as the action agency, has the authority to make a determination of No Effect to Marine Mammals and Endangered/Threatened Species (see NMFS coordination meeting notes in Attachment D: *EFH Assessment and Coordination with NMFS*).

DOT&PF determined the placement of fill below HTL in dry conditions at low tide events would have No Effect on Marine Mammals or Endangered/Threatened Species (see May 5 meeting log in Attachment D). While the placement of fill in subtidal waters would permanently replace that habitat, the permanent loss of marine habitat is not anticipated to adversely affect marine mammals. Construction noise may temporarily affect marine mammals. In-air maximum noise levels measured at 50 feet were 76 dBA for a dump truck and 81 dBA for an excavator (Washington State Department of Transportation, *Biological Assessment Preparation for Transportation Projects - Advanced Training Manual*, 2015; available online at https://www.wsdot.wa.gov/Environment/Biology/BA/BAguidance.htm#Manual). Given the transmission loss that occurs when sound passes from air into water, and that typical noise levels from construction equipment are anticipated to be less than these maxima, underwater noise levels from placement of fill at low tide during dry conditions are not expected to disturb marine mammals.

I. Threatened and Endangered Species (T&E)

1. Database name(s) and date(s) queried:	N/A	YES	NO
ADF&G Refuges, Sanctuaries, Critical Habitat Areas and Wildlife Ranges database; ADF&G State of Alaska Special Status State Endangered Species database; and USFWS Information for Planning and Conservation (IPaC) database. These databases were accessed at http://www.adfg.alaska.gov/ and https://ecos.fws.gov/ipac on February 3, 2017. The online ESA/MMPA mapper maintained by the NMFS was accessed on April 3, 2017 at https://alaskafisheries.noaa.gov/mapping/esa/. See also NMFS, Alaska Region. Occurrence of Endangered Species Act (ESA) Listed Humpback Whales off Alaska, revised December 12, 2016.			
2. Listed threatened or endangered species present in the project area.		☒*	☐
3. Threatened or endangered species migrate through the project area.		☒*	☐
4. Designated critical habitat in the project area.		☐*	☒
5. Proposed species present in project area.		☐*	☒
6. Candidate species present in project area.		☐*	☒
7. What is the effect determination for the project? *Select one.*			
1. Project has no effect on listed or proposed T&E species or designated critical habitat.		☒	
2. Project is not likely to adversely affect a listed or proposed T&E species or designated critical habitat. *Informal Section 7 consultation is required. Attach consultation documentation, including concurrence from the Federal agency, to this form.*		☐	
3. Project is likely to adversely affect a listed or proposed T&E species or designated critical habitat. *If yes, consult the FHWA Area Engineer (non-assigned projects) or Statewide NEPA Manager for 6004-assigned projects.*		☐	

8. Summarize the findings of the consultation, conferencing, biological evaluation, or biological assessment and the opinion of the agency with jurisdiction, or state why no coordination was conducted. *Include any commitments or mitigative measures in Section VI.*

The USFWS, NMFS, and ADF&G databases were reviewed to determine if any threatened, endangered, proposed or candidate species under the federal Endangered Species Act or endangered species under Alaska Statute 16.20.190 are present within the proposed project corridor. Based on that database review, no species under USFWS jurisdiction or state listed species or critical habitat occurs within the proposed project corridor.

The NMFS database identifies Tongass Narrows as within the general distribution for the Steller sea lion and humpback whale. Steller sea lions in Alaska are comprised of two distinct population segments (DPS): the Western DPS and the Eastern DPS. Most Steller sea lions that occur in Southeast Alaska are from the Eastern DPS. Only the Western DPS of Steller sea lion is listed (endangered) and, based on its typical range, would not likely occur in the Tongass Narrows as it rarely occurs in or south of Sumner Strait. Two humpback whale DPSs that occur in Southeast Alaska: the Hawaii DPS and the Mexico DPS. Only the Mexico DPS is listed (threatened). Most humpback whales that occur in Southeast Alaska belong to the Hawaii DPS. A recent study estimated the probability of encountering humpbacks in Southeast Alaska from the Mexico DPS as 6.1 percent (per NMFS, Alaska Region. Occurrence of Endangered Species Act Listed Humpback Whales off Alaska, revised December 12, 2016).

No consultation or coordination with USFWS, or ADF&G was warranted for the proposed project. DOT&PF's T&E coordination with NMFS led to DOT&PF's determination that the project would have no effect on Mexico DPS of humpback whales.

J. Invasive Species	N/A	YES	NO

1. Database name(s) and date(s) queried:

Alaska Natural Heritage Program (ANHP) Invasive Plants Mapper; University of Alaska Anchorage (UAA) Alaska Exotic Plants Information Clearinghouse (AKEPIC). Accessed June 29, 2016. A field survey was conducted August 9–12, 2016, to identify and map the presence and distribution of invasive plant species in the project corridor.

2. Does the project include all practicable measures to minimize the introduction or spread invasive species, making the project consistent with E.O. 13112 (Invasive Species)? *If yes, list measures in J.3.* ☒ ☐

3. Summarize invasive species impacts and minimization measures, if any. *Include any commitments or mitigative measures in Section VI.*

Several invasive plant species were identified within the project area along the existing ROW corridor. The DOT&PF will comply with E.O. 13112 by requiring the construction contractor to follow DOT&PF's Invasive Species Disposal and Control protocols to minimize the spread of invasive species during construction. The protocols include providing a map of known invasive species presence and guidance for construction staff to determine means and methods for controlling invasive species within the project footprint.

K. **Hazardous Waste**	N/A	YES	NO
1. Database name(s) and date(s) queried: Alaska Department of Environmental Conservation (ADEC) Contaminated Sites Database and Mapper website; ADEC Underground Storage Tank Database Facility Search, reviewed June 20, 2016.			
2. There are potentially contaminated sites within or adjacent to the existing and/or proposed ROW.		☒	☐
3. There are identified contaminated sites within or adjacent to the existing and/or proposed ROW.		☒	☐
4. Extensive excavation is proposed adjacent to, or within, a known hazardous waste site, or the potential for encountering hazardous waste during construction is high. *If yes, attach the hazardous waste investigation report and approved ADEC Corrective Action Plan.* Corrective Action Plans may be needed for properties in the second construction phase; i.e., road widening between Deermount Street (MP 2.6) and Saxman (MP 4.5), which is anticipated to begin in 2019. Control Plans for those sites will be developed prior to final design.		☒*	☐

5. Summarize the hazardous waste impacts and mitigation, if any. *Include any commitments or mitigative measures in Section VI.*

Based on a review of database information, eight facilities were identified as having the potential for near-surface soil and groundwater contamination that may adversely affect the project area. Phase I Environmental Site Assessments (Phase I ESAs) were completed for the eight properties, in accordance with ASTM International (ASTM) Practice E1527-13 (see Attachment F). The Phase I ESAs identified impacts to soil and groundwater at seven of the eight facilities that could affect the South Tongass Highway Rehabilitation project. The results of the Phase I ESAs, and the identified and potential impacts to soil and groundwater in the project area, are described below.

- **Anderes Oil, 900 Stedman Street, Ketchikan, Alaska.** The facility consists of a bulk petroleum facility with five large aboveground storage tanks (ASTs) within a concrete-lined secondary containment unit, several associated buildings, and a pier. According to historical documents, the property was first depicted as a bulk petroleum facility in 1969. Releases of petroleum products were reported in state databases. Based on the historic use of the property as a bulk petroleum facility since at least 1969, reported releases of petroleum products, and the potential for unreported releases of petroleum products to surface soils and/or groundwater during the facility's long operational history, impacts to the project area are considered likely. In addition, volatile organic compounds (VOCs) from petroleum products may be present in subsurface and could pose a vapor intrusion risk to construction workers if trenching is conducted in the area.
- **The Cleaners, 636 Stedman Street, Ketchikan, Alaska.** The Cleaners is a dry cleaning and commercial laundry facility located in a multi-tenant building. According to historical documents, the property was part of the Fidalgo Island Packing Company from at least 1927 to 1946, and a web tarring rack and tar vat occupied the site. By 1969, the property consisted of a welding building and a shop and pipe rack building. Based on the historic and current use of the facility, it is possible that subsurface contaminants may have impacted the property. Contaminants commonly associated with these uses include polycyclic aromatic hydrocarbons (PAHs), VOCs, petroleum constituents, and metals. VOCs in subsurface could also pose a vapor intrusion risk to construction workers if trenching is conducted in the area.

- **Ketchikan Tank Farm, 4 Mile Stedman Street, Ketchikan, Alaska.** The facility consists of a petroleum bulk facility with nine large ASTs within a concrete secondary containment unit. According to historical documents, the facility has been used as bulk petroleum storage since at least 1927. Underground petroleum pipelines connect Ketchikan Tank Farm with the Petro Marine facility located to the southeast. Petroleum-impacted soil was excavated from the facility multiple times in the 1990s, and shallow, petroleum-impacted groundwater was also discovered beneath portions of the site. Soil that exceeded the tank farm "above-liner clean level," established by the Alaska Department of Environmental Conservation (ADEC) as the cleanup concentration below which soils could be placed above the facility protective liner, was transported for offsite disposal in 1998. Although the facility received No Further Action (NFA) status with institutional controls in 2000, residual contamination may remain. In addition, use of the property as a bulk petroleum facility since at least 1927, and the potential for unreported releases of petroleum products to surface soils and/or groundwater during the facility's long operational history, may have resulted in undiscovered impacts to the project area. VOCs from petroleum products may also be present in subsurface and could pose a vapor intrusion risk to construction workers if trenching is conducted in the area.

- **Petro Marine Services, 1100 Stedman Street, Ketchikan, Alaska.** The facility consists of a bulk petroleum facility with 13 large ASTs in a concrete-lined secondary containment unit, several associated buildings, and two piers. According to historical documents, Petro Marine Services has been a bulk petroleum facility since at least 1948. Numerous spills were reported at the facility between 1998 and 2016. According to ADEC files, historical leakage has contaminated soil and groundwater at the facility. ADEC and Petro Marine Services coordinated development of a long-term monitoring, sampling, and analysis plan for the surface water-groundwater interface discharge at the seawall. Based on the existing contamination, the active institutional controls at the facility, and the potential for additional unreported releases of petroleum products to surface soils and/or groundwater during the facility's long operational history, impacts to the project area are considered likely. In addition, VOCs from petroleum products may be present in subsurface and could pose a vapor intrusion risk to construction workers if trenching is conducted in the area.

- **South Tongass Service Station, 2852 South Tongass Highway, Ketchikan, Alaska.** The facility consists of an active gas station, including two ASTs, aboveground and underground piping, dispensers, and a convenience store. Information regarding this facility was included in the Floyd's Onsite Repair Phase I ESA. In spring 1995, petroleum product was observed seeping from a rock retaining wall behind the main building. Three 5,000-gallon underground storage tanks (USTs) and piping appurtenance were removed. In June 2010, ADEC determined that cleanup actions excavated and adequately remediated contaminated soil and groundwater at the site. DOT&PF personnel noted surface water in a drainage near the facility had a petroleum odor during a June 2016 site walk. Based on the potential for residual contamination from the UST releases, and the proximity of the ASTs and piping to the potential acquisition area, impacts to the project area are considered likely. In addition, VOCs from petroleum products may be present in subsurface and could pose a vapor intrusion risk to construction workers if trenching is conducted in the area.

- **Tesoro Unocal Bulk Plant, 1010 Stedman Street, Ketchikan, Alaska.** According to historical documents, the facility was used as bulk petroleum storage between at least 1927 and 1999. It was first identified as a National Oceanic and Atmospheric Administration facility in 2013. One 500-gallon heating oil UST is currently in use. Several spills and emergency response notifications for the property were identified in the state database. Releases of diesel and gasoline into Tongass Narrows were recorded in 1995 and 1999, and there was a 10-gallon release of gasoline into soil in 1991 during maintenance pressure testing of a pipeline. Based on the historic use of the property as a bulk petroleum facility between at least 1927 and 1999, and the potential for unreported releases of petroleum products to surface soils and/or groundwater during the facility's long operational history, impacts to the project area are considered likely. In addition, VOCs from petroleum products may be present in subsurface and could pose a vapor intrusion risk to construction workers if trenching is conducted in the area.

- **United States Coast Guard (USCG) Base Ketchikan, 1300 Stedman Street, Ketchikan, Alaska.** USCG Base Ketchikan has been at its current location since at least 1948. The facility consists of barracks, a rifle range, boat storage, wharf and dry dock, several warehouses, hazardous material storage, and administration buildings, and is located on both sides of Stedman Street. Soils were excavated from the former small arms firing range (SAFR) in 2003 and 2004. Remaining lead concentrations in soil at the SAFR resulted in institutional controls. Leaking tanks located near the Commanding Officer's Quarters (diesel) and barracks (gasoline, metal, and polychlorinated biphenyls) are in the Voluntary Cleanup Program. Based on the existing contamination, and the potential for additional unreported releases of petroleum products to surface soils and/or groundwater during the facility's long operational history, impacts to the project area are considered likely. In addition, VOCs from petroleum products may be present in subsurface and could pose a vapor intrusion risk to construction workers if trenching is conducted in the area.

- **Henderson's Auto Service, 133 Forest Park Drive, Ketchikan, Alaska.** No indications of release to soil or groundwater were identified at Henderson's Auto Service, and the facility is not likely to have impacted the project area.

All seven of those sites are within the construction phase 2 portion of the project; i.e., road widening between Deermount Street (MP 2.6) and Saxman (MP 4.5). Contamination is expected to be encountered during construction. RP's are responsible to remove, store and dispose of contaminated soil prior to construction. DOT&PF will work with RP's and DEC during the ROW phase of the project to develop control plans in the event contamination is encountered. Contaminated soils will be stored by RP's in DEC approved stockpiles.

Sampling of surface water adjacent to South Tongass Service Station will also occur in prior to construction.

Additional Phase II Site Assessments are not planned at this time. DOT&PF would perform PID testing to indicate the presence of contamination. Further testing would be performed by the RP's. Contaminated soil and/or groundwater will be handled in accordance with the DEC publication, *Managing Petroleum-Contaminated Soil, Water, or Free Standing Product during Public Utility and Right of Way Construction and Maintenance Projects.*

Consultation with DEC is included at the end of Attachment F.

L. Air Quality (Conformity)	N/A	YES	NO
1. The project is located in an air quality maintenance area or nonattainment area (CO or PM-10 or PM-2.5). *If yes, indicate CO ☐ or PM-10 ☐ or PM-2.5 ☐, and complete the remainder of this section.*		☐	☒
2. The project is included in a conforming Long Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP).	☒	☐	☐
a. List dates of FHWA/FTA conformity determination: _____			
3. The project is exempt from an air quality analysis per 40 CFR 93.126 (Table 2 and Exempt Projects). *If no, a project-level air quality conformity determination is required for CO nonattainment and maintenance areas, and a qualitative project-level analysis is required for both PM-2.5 and PM-10 nonattainment and maintenance areas.*	☒	☐	☐
4. Has there been a significant change in the scope or the design concept as described in the most recent conforming TIP and LRTP? *If yes, describe changes in L.8. In addition, the project must satisfy the conformity rule's requirements for projects not from a plan and TIP, or the plan and TIP must be modified to incorporate the revised project (including a new conformity analysis).*	☒	☐	☐
5. A CO project-level analysis was completed meeting the requirements of Section 93.123 of the conformity rule. The results satisfy the requirements of Section 93.116(a) for all areas or 93.116(b) for nonattainment areas. *Attach a copy of the analysis.*	☒	☐*	☐
6. A PM-2.5 project-level air quality analysis was completed meeting the requirements of Section 93.123 of the conformity rule. The results satisfy the requirements of Section 93.116. *Attach a copy of the analysis.*	☒	☐*	☐

7. A PM-10 project-level air quality analysis was completed meeting the requirements of Section 93.123 of the conformity rule. The results satisfy the requirements of Section 93.116. *Attach a copy of the analysis.*	☒	☐*	☐
8. Summarize air quality impacts, mitigation, and agency coordination, if any. *Include any commitments or mitigative measures in Section VI.*			

Proposed project elements (e.g., pavement resurfacing and/or rehabilitation, shoulder improvements, and bicycle and pedestrian facilities) are exempt from air quality analysis per 40 CFR 93.126 (Table 2). The proposed project would not result in permanent change of traffic patterns, traffic volumes, or other factors that would result in a permanent change of air quality in the region.

M. **Floodplain Impacts (23 CFR 650, Subpart A)**	N/A	YES	NO
1. Project encroaches into the base (100 year) flood plain in fresh or marine waters. Identify floodplain map source and date: Flood Insurance Rate Map (FIRM) Panel 020003 0002B, April 16, 1990, Ketchikan Gateway Borough. *If yes, attach documentation of public involvement conducted per E.O. 11988 and 23 CFR 650.109. Consult with the regional or Statewide Hydraulics/Hydrology expert. Attach the required location hydraulic study developed per 23 CFR 650.111. Answer questions M.1.a through d.* *If no, skip to M.2.*		☒*	☐
a. Is there a longitudinal encroachment into the 100-year floodplain?	☐	☒*	☐
b. Is there significant encroachment as defined by 23 CFR 650.105(q)? *If yes, the project cannot be approved as proposed without a finding that the proposed action is the "Only Practicable Alternative" as defined in 23 CFR 650.113. Attach the finding for approval.*	☐	☐*	☒
c. Project encroaches into a regulatory floodway.	☐	☐*	☒
d. The proposed action would increase the base flood elevation one-foot or greater.	☐	☐*	☒
2. Project conforms to local flood hazard requirements.	☐	☒	☐
3. Project is consistent with E.O. 11988 (Floodplain Protection). *If no, the project cannot be approved as proposed.*		☒	☐

4. Summarize floodplain impacts and mitigation, if any. *Include any commitments or mitigative measures in Section VI.*

None of the creeks spanned by the South Tongass Highway have been identified as having 100-year base flood elevations in the Flood Insurance Study (FIS) for the Ketchikan Gateway Borough (dated April 16, 1990).

The Borough identifies the coastal floodplain associated with Tongass Narrows as having a base flood elevation at or below the 22-foot Mean Lower Low Water (MLLW) level. The FIS does not contain any reports of flooding along the South Tongass Highway, while only localized, non-riverine flooding was reported by DOT&PF maintenance and operations personnel.

Modifications to the non-motorized path may extend below the approximate floodplain elevation of 22 feet MLLW; however, placing fill into the coastal environment is not anticipated to impact flood elevations within the localized area. See Attachment G, the Hydrologic and Hydraulic Report, Section 8, last paragraph, prepared for this project. This report was reviewed and approved by the Regional Hydraulic Engineer.

N. Noise Impacts (23 CFR 772)	N/A	YES	NO
1. Does the project involve any of the following? *If yes, complete N.1.a.*		☐	☒
If no, a noise analysis is not required. Skip to section O.			
• Construction of highway on a new location.			
• Substantial alteration in vertical or horizontal alignment as defined in 23 CFR 772.5.			
• An increase in the number of through lanes.			
• Addition of an auxiliary lane (except a turn lane).			
• Addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange.			
• Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane.			
• Addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot or toll plaza.			
a. Identify below which category of land uses are adjacent: *A noise analysis is required if any lands in Categories A through E are identified, and the response to N.1 is 'yes'.*			
Category A: Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.	☐	☐	☐
Category B: Residential. *This includes undeveloped lands permitted for this category.*	☐	☐	☐
Category C (exterior): Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings. *This includes undeveloped lands permitted for this category.*	☐	☐	☐
Category D (interior): Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit	☐	☐	☐

institutional structures, radio studios, recording studios, schools, and television studios.

Category E: Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not listed above. *This includes undeveloped lands permitted for this category.* ☐ ☐ ☐

2. Does the noise analysis identify a noise impact? *If yes, explain in N.3.* ☐ ☐
3. Summarize the findings of the attached noise analysis and noise abatement worksheet, if applicable:

O. Water Quality Impacts	N/A	YES	NO
1. Project would involve a public or private drinking water source. *If yes, explain in O.7.*		☐	☒
2. Project would result in a discharge of storm water to a Water of the U.S. (per 40 CFR 230.3(s)).		☒	☐
3. Project would discharge storm water into or affect an ADEC designated Impaired Waterbody. *If any of the Impaired Waterbodies have an approved or established Total Maximum Daily Load, describe project impacts in O.7*		☐	☒

a. List name(s), location(s), and pollutant(s) causing impairment:

N/A

4. Estimate the acreage of ground-disturbing activities that will result from the project?

28.1 acres

5. Is there a municipal separate storm sewer system (MS4) APDES permit, or will runoff be mixed with discharges from an APDES permitted industrial facility?		☐	☒
6. Would the project discharge storm water to a water body within a national park or state park; a national or state wildlife refuge? *If yes and Alaska Construction General Permit applies to the project, consultation with ADEC is required at least 30 days prior to planned start of construction activities.*		☐	☒

a. If yes, list APDES permit number and type: N/A

7. Summarize the water quality impacts and mitigation, if any. *Include any commitments or mitigative measures in Section VI.*

According to the ADEC Drinking Water Protection Map website, the proposed project area is not in a location where it would increase risks or threats to the drinking water within protected zones.

The ADEC Impaired Waters mapper indicates that none of the receiving waters in the project area are impaired.

Stormwater runoff and snow meltwater within the project area drains to adjacent wetlands and water bodies via roadside ditches and overland flow. Existing drainage patterns would be maintained. Properly sized and designed culverts would be used in appropriate locations to maintain the natural flow patterns to adjacent wetlands and waters.

P. Construction Impacts	N/A	YES	NO
1. There will be temporary degradation of water quality.		☒	☐
2. There will be a temporary stream diversion.		☒	☐
3. There will be temporary degradation of air quality.		☒	☐
4. There will be temporary delays and detours of traffic.		☒	☐

5. There will be temporary impacts on businesses. ☒ ☐
6. There will be temporary noise impacts. ☒ ☐
7. There will be other construction impacts. ☒ ☐

8. Summarize construction impacts and mitigation for each 'yes' above. *Include any commitments or mitigative measures in Section VI.*

Temporary Water Quality Impacts

Construction activities could cause short-term direct and indirect water quality impacts as a result of clearing and grading, and other ground-disturbing activities. These construction activities expose soils to erosive forces and increased sedimentation in adjacent water bodies. There may be a temporary degradation of water quality and aquatic habitats due to ground-disturbing activities and storm water runoff. Other construction impacts to surface waters could include a temporary increase in turbidity levels during in-water work. During construction, best management practices (BMPs) would be in place to protect water quality, including erosion prevention and slope stabilizing measures. DOT&PF would prepare an Erosion and Sediment Control Plan as a guide for the construction contractor. A Stormwater Pollution Prevention Plan (SWPPP) would be prepared by the construction contractor to detail BMPs planned for the construction effort, as required by the APDES Construction General Permit for Storm Water Discharges from Large and Small Construction Sites.

Temporary Stream Diversion

Streams may need to be temporarily diverted to isolate the work areas from flowing water during construction. For example, the anadromous stream (#101-47-10300) would need to be temporarily diverted during culvert replacement. Temporarily diverting stream flow may result in temporary, localized, and relatively minor impacts to EFH (see Attachment D for more detail). Temporarily diverting flow from this fish stream may temporarily impair the function of affected habitat. Impacts to fish passage would be minor since the existing culvert is a passage barrier. To minimize potential impacts, the contractor would follow Title 16 permit stipulations and adhere to BMPs during construction, such as those outlined in the SWPPP.

Temporary Air Quality Impacts

The proposed project would result in localized construction-related exhaust emissions and airborne dust. These air quality impacts would be temporary and will be abated through watering disturbed surface areas for dust control during dry weather periods.

Temporary Delays and Detours of Traffic

Road users may be temporarily affected by construction. Construction activities would cause temporary traffic delays as a result of lane closures and reduced travel speeds in construction zones. The construction contractor would be required to develop and implement a Traffic Control Plan to protect and control vehicular, bicycle, and pedestrian traffic. The Traffic Control Plan would include measures to minimize temporary traffic impacts that may include delays and access limitations. The traffic control measures would include providing advance notice to the public and timing lane closures for off-peak hours.

Temporary Impacts to Businesses

Access between communities may be temporarily affected by the proposed project during construction. At least one lane of traffic would be open as practicable. Road closures during blasting would be limited to 1 hour, as practicable. Several businesses within the project area may be affected by changes in travel patterns and delays during construction. Construction near Deermount Street would affect egress/ingress at the IGA grocery store (Tatsuda's). This and other businesses adjacent to the construction zone may be impacted by delays of commercial traffic. Tourism travel, such as bus tours to Saxman Totem Park and Herring Bay, would also be affected by construction delays. Such delays could affect tour schedules and may reduce the numbers of tour participants. However, such impacts caused by the proposed project would be temporary, and access would be maintained throughout the construction process.

Temporary Noise Impacts

Temporary noise impacts would result from the operation of heavy equipment, the presence of construction crews, and other associated construction activities. Temporary noise impacts from construction equipment would be reduced through proper maintenance. Mufflers would be required. Blasting activity would be limited to daytime hours with adjacent businesses and residents provided advanced notice of the construction noise activity.

Other Construction Impacts

Temporary Impacts from Placing Fill in Marine Waters

Placing fill in marine waters may result in temporary, localized, and relatively minor impacts to EFH (see Attachment D for more detail). While most fill would be placed during low tidal stages to minimize impacts, placing fill in subtidal waters may bury marine organisms since those habitats would be inundated by water during fill placement. Placing fill may also result in a temporary increase in turbidity in surrounding waters, which has the potential to harm fish and temporarily reduce habitat quality. Impacts to fish and EFH from a temporary increase in turbidity are anticipated to be relatively minor, be localized, and not affect managed fish species at the population level. Impacts would be minimized by adhering to BMPs during construction, as outlined in the SWPPP, to prevent erosion and runoff from entering aquatic habitats.

Temporary Impacts to Marine Mammals

Impacts to fish prey species would be minor and would not affect their ability to feed in the area. The construction contractor will be limited to placing fill below HTL during low tide events in dry conditions to minimize potential temporary construction impacts on marine mammals. Underwater sound pressure levels from construction activities would not exceed marine mammal harassment thresholds (see Section H6).

Temporary Impacts to Bald Eagles

Noise and vibration producing construction activities will be restricted during the breeding season from March 1st to when the eaglets fledge, approximately August 15th. Restricted activities will be coordinated with USFWS and listed in the eagle take permit.

Q. Section 4(f)/6(f)	N/A	YES	NO
1. Section 4(f) (23 CFR 774)			
a. Was detailed Section 4(f) resource identification conducted for this project, other than that required for Section 106 compliance? *If no, attach consultation with the Statewide NEPA Manager (assigned CEs) or FHWA Environmental Program Manager (non-assigned CEs) stating further Section 4(f) resource identification was not required.*		☒	☐
b. Does a Section 4(f) resource exist within the project area; or is the project adjacent to a Section 4(f) resource? *If yes, attach consultation with the Statewide NEPA Manager (assigned CEs) or FHWA Environmental Program Manager (non-assigned CEs) to determine applicability of Section 4(f).*	☐	☒	☐
c. Does an exception listed in 23 CFR 774.13 apply to this project? *If yes, attach consultation with the Statewide NEPA Manager (assigned CEs) or FHWA Environmental Program Manager (non-assigned CEs), and documentation from the official with jurisdiction, if required.*	☐	☒	☐
d. Does the project result in the "use" of a Section 4(f) property? *"Use" includes a permanent incorporation of land, adverse temporary occupancy, or constructive use.*	☐	☒	☐
e. Has a *de minimis* impact finding been prepared for the project? *If yes, attach the finding.*		☒	☐
f. Has a Programmatic Section 4(f) Evaluation been prepared for the project? *If yes, attach the evaluation.*		☐	☒
g. Does the project require an Individual Section 4(f) Evaluation? *If yes, the project is not assigned to the State per the 6004 MOU and the CE must be processed by FHWA. Attach the evaluation.*		☐	☒
2. Section 6(f) (36 CFR 59)			
a. Were funds from the Land and Water Conservation Fund Act (LWCFA) used for improvement to a property that will be affected by this project?	☐	☐	☒
b. Is the use of the property receiving LWCFA funds a "conversion of use" per Section 6(f) of the LWCFA? *Attach the correspondence received from the ADNR 6(f) Grants Administrator.*	☒	☐	☐

Summarize Section 4(f)/6(f) involvement, if any:
The analysis of Section 4(f) applicability resulted in a de minimis impact finding for historic sites, specifically Saxman Totem Park. The finding indicated that the proposed project's temporary construction and permanent easements would not directly or indirectly adversely affect potential historic values or compromise attributes of potentially eligible structures of Saxman Totem Park. SHPO concurred with the finding of no adverse effect on historic properties on April 14, 2017. (See Attachment B: Section 106 Documentation). An exemption to 4(f) from temporary occupancies near historic sites (23 CFR 774.13(d) also applies (see Appendix H).

An consultation was conducted on the Joseph C. Williams Sr. Coastal Trail, a Section 4(f) resource and discontinuous pedestrian path primarily used for recreational purposes. The recreational trail wholly exists within the DOT&PF ROW and may be temporarily restricted for public access during construction in the project area. However, the proposed project would improve the Section 4(f) resource overall by creating a continuous pathway and would not cause any adverse effects to the trail and its surrounding environment. The exception to 4(f) approval found in 23 CFR 774.13(f)(3) applies. See

Attachment H for more detail.

DOT&PF has determined that activities to improve the South Tongass Highway, a Treat as Eligible Road, and associated sidewalks meet the conditions for the exception to 4(f) approval found in 23 CFR 774.13(a)

No Section 6(f) properties lie adjacent to the proposed project ROW.

Section 4(f)/6(f) documentation and de minimis finding is provided in Attachment H.

IV. Permits and Authorizations

	N/A	YES	NO
1. USACE, Section 404/10 *Includes Abbreviated Permit Process, Nationwide Permit, and General Permit*		☒	☐
2. Coast Guard, Section 9		☐	☒
3. ADF&G Fish Habitat Permit (Title 16.05.871 and Title 16.05.841)		☒	☐
4. Flood Hazard		☐	☒
5. ADEC Non-domestic Wastewater Plan Approval		☐	☒
6. ADEC 401		☐	☒
7. ADEC APDES		☒	☐
8. Noise		☐	☒
9. Eagle Permit		☒	☐
10. Other. *If yes, list below:*		☐	☒

V. Comments and Coordination

	N/A	YES	NO
1. Public/agency involvement for project. *Required if protected resources are involved.*		☒	☐
2. Public Meetings. Date(s): Tuesday June 21 and Wednesday June 22, 2016; Tuesday December 6 and Wednesday December 7, 2016		☒	☐
3. Newspaper ads. *Attach certified affidavit of publication as an appendix.* Name of newspaper and date: Ketchikan Daily News June 7, 2016, November 11, 2016		☒	☐
4. Agency scoping letters. Date sent: May 4, 2016		☒	☐
5. Agency scoping meeting. Date of meeting: Tuesday June 21 and Wednesday June 22, 2016; Tuesday December 6 and Wednesday December 7, 2016		☒	☐
6. Field review. Date: October 6, 2015		☒	☐

7. Summarize comments and coordination efforts for this project. Discuss pertinent issues raised. *Attach correspondence that demonstrates coordination and that there are no unresolved issues.*

DOT&PF's efforts to coordinate with the public and agencies regarding the project are demonstrated in Attachment H: *Comments and Coordination.* Included in Attachment H are the *Scoping Summary Report* and *Scoping Summary Report Addendum.* These documents include:

- Summaries of the project-specific public open house meetings that occurred June 21-22 and December 6-7, 2016, in Saxman and Ketchikan
- Certified affidavits of publication of meeting notices
- Graphic advertisements used to inform stakeholders of the upcoming open house meeting and on-line open house availability
- Notes from the meetings with stakeholder agencies and organizations
- Public comments on the project and DOT&PF responses to those comments

In addition to hosting the public open house meetings, DOT&PF shared project information on the project website (http://southtongasshighway.com). The website included online open-house meetings, project updates, and opportunities to provide comment.

Comments included expressions of support for the rehabilitation of the South Tongass Highway and improvements to the multi-use pathway along the highway. Comments referenced the need for increased pedestrian and vehicle safety, parking along the South Tongass Highway, and additional turn lanes. There were objections to removing the Stedman Street access and concern for eagle nests along the South Tongass Highway. Comments also provided input on additional signage, bus stops, and pedestrian facilities to be included in the design and construction process. Comments and responses are included in Attachment H.

Agency coordination consisted of a scoping letter sent to resource agencies, local governments, tribes, and native corporations on May 4, 2016. DOT&PF met with local agencies (City of Saxman, City of Ketchikan, and Ketchikan Gateway Borough) and tribes (Organized Village of Saxman and Ketchikan Indian Community) during the days of the public open house meetings. DOT&PF met with USCG representatives on December 6, 2016. The meetings addressed concerns, and DOT&PF adjusted the design, if possible, to address and resolve the issues and concerns and presented. Meeting notes are included in Attachment H.

SHPO and other Section 106 consulting parties were invited to comment on the APE. SHPO was asked to concur with the Finding of Effect. Section 106 documentation is provided in Attachment B. DOT&PF coordinated with USFWS on mitigation for impacts to eagle nests (see Attachment E). DOT&PF coordinated with NMFS on the EFH Assessment (see Attachment D).

There are no unresolved issues.

VI. Environmental Commitments and Mitigation Measures

List all environmental commitments and mitigation measures included in the project:

- Comply with Subsection 107-1.07 specifications for Archeological or Historic Discoveries.
    - If cultural, archaeological, or historical sites are discovered during construction, all work that may affect these resources will stop until DOT&PF consults with the SHPO to determine the appropriate correction action and guidance on how to proceed.
- Comply with SR Special Provision 201-3.01 for the Migratory Bird Treaty Act.
    - In Forested areas clearing is restricted between April 15 and July 15
    - In shrub or open areas clearing is restricted between May 1 and July 15
- Comply with SR Special Provision 201-3.07 Specifications for Control of Invasive Plant Species.
- Comply with Subsection 203-3.01 specifications regarding excavation.
    - The contractor is responsible for obtaining all necessary permits and clearances for materials sites, disposal sites, and staging areas unless DOT&PF has obtained all necessary permits.
- Comply with Section 641 specifications for Erosion, Sediment and Pollution Control.
    - Comply with Subsection 641-2.02 specifications for the Hazardous Materials Control Plan.
- Comply with Section 641 regarding Hazardous Material Control by adding a special provision under 641-2.02 that reads,
    - Any spills of oil or hazardous substance will be reported immediately to the National Response Center, ADEC and DOT&PF Environmental. .
    - The contractor will notify the engineer if any odors, sheens or other conditions are discovered during construction that indicates contamination. The engineer will contact DOT&PF Environmental Section who will in turn notify the Alaska Department of Environmental Conservation (ADEC). Work will cease in the vicinity of possible contamination until the extent of contamination is evaluated. In coordination with ADEC, DOT&PF Environmental will screen soils using a PID and notify the engineer which soils are to be stockpiled for further investigation.
    - As part of the Hazardous Material Control Plan (HMCP), the contractor will stockpile contaminated soils according to the requirements at 18 AAC 75.370. The contractor will not blend suspected contaminated soil with uncontaminated soil and shall store contaminated soil 100 feet or more from surface water, a private water well, a Class C public water system, or a fresh water supply system that uses groundwater or 200 feet or more from a water source serving a Class A or Class B public water system. The contractor will have a liner and cover available during construction that meets the requirements of 18 AAC 75.370 Table D (attached).
    - The contractor shall place contaminated soil on a liner meeting the minimum specifications of 18 AAC 75.370 Table D (attached). Petroleum contaminated

soils will use the short-term specifications. The contractor shall cover and protect the contaminated soil stockpile from weather with no less than a 6-mil, reinforced polyethylene liner or its equivalent, with the edge of the cover lapped over the bottom liner to prevent water running through the soil; and inspect and maintain the contaminated soil stockpile regularly to ensure that the cover remains intact and that the soil and any liquid leachate derived from the soil is contained.

- Comply with Section 641 regarding Hazardous Material Control by adding a Special Provision under 641-2.02 requiring a qualified hazardous materials monitor during excavation in areas adjacent to known hazardous material sites identified in Attachment F
- Comply with Section 643 specifications for Traffic Maintenance.
    - The contractor is responsible for creating a Traffic Control Plan and providing advance notice to the public and businesses of construction activities that could cause delays, cause detours, or affect access to adjacent properties
- As a commitment of the Essential Fish Habitat (EFH) Assessment,
    - the Contractor shall remove visible plastic debris to minimize the potential for these materials to be inadvertently dispersed into marine waters prior to work in the intertidal area.
    - Intertidal fill will be placed during low tide conditions to minimize impacts to federally managed fish species, EFH, and marine mammals.
- Comply with conditions outlined in the ADF&G Title 16 Fish Habitat Permit.
- Comply with the conditions of the USACE Section Nationwide Permit for Fill in Wetlands and Waters of the US
    - Existing drainage patterns would be maintained; properly sized and designed culverts would be used in appropriate locations to maintain the natural flow patterns and timing of surface water inflows to adjacent wetlands and waters.
    - Existing drainage patterns would be maintained; properly sized and designed culverts would be used in appropriate locations to maintain the natural flow patterns and timing of surface water inflows to adjacent wetlands and water.
    - The contractor would use clean, contaminant-free fill material during construction.
- Comply with the provisions of the Bald and Golden Eagle take permit.
    - Noise and vibration producing construction activities will be restricted during the breeding season from March 1st to when the eaglets fledge, approximately August 15th. Restricted activities will be listed in the permit.

VII. Environmental Documentation Approval

	N/A	YES	NO
1. Do any unusual circumstances exist, as described in 23 C.F.R. 771.117 (b)? *If yes, the CE Documentation form cannot be approved.*		☐	☒
2. Does this 6004 Program approval statement apply? "The State has determined that this project has no significant impact(s) on the environment and that there are no unusual circumstances as described in 23 CFR 771.117(b). As such, the project is categorically excluded from the requirements to prepare an environmental assessment or environmental impact statement under the National Environmental Policy Act. The State has been assigned, and hereby certifies that it has carried out, the responsibility to make this determination pursuant to Chapter 3 of title 23, United States Code, Section 326 and a Memorandum of Understanding dated September 18, 2015, executed between the FHWA and the State." *If no, the CE must be approved by FHWA.*		☒	☐
3. **For 6004 projects:** The project meets the criteria of the DOT&PF Programmatic Approval 2 authorized in the December 8, 2015 "Chief Engineer Directive – 6004 Programmatic Categorical Exclusions". *If* yes, *the CE may be approved by the Regional Environmental Manager. If no, the CE must be approved by a Statewide NEPA Manager.*	☐	☐	☒
4. **For non-assigned projects:** The project meets the criteria of the April 13, 2012 "Programmatic Categorical Exclusion for Use on Federal-Aid Highway Projects in Alaska" between FHWA and DOT&PF. *If yes, the CE may be approved by the Regional Environmental Manager. If no, the CE may be approved by the FHWA Area Engineer.*	☒	☐	☐

VIII. Environmental Documentation Approval Signatures

Prepared by: _____ Date: 8-9-17
[Sign] Environmental Impact Analyst

Jim Scholl
[Print Name] Environmental Impact Analyst

Reviewed by: _____ Date: 8/9/17
[Sign] Engineering Manager

David Pyeatt
[Print Name] Engineering Manager

Approved by: _____ Date: 8/9/17
[Sign] Regional Environmental Manager

John Barnett
[Print Name] Regional Environmental Manager

Assigned CE

Approved by: _____ Date: 08/09/17
[Sign] DOT&PF Statewide NEPA Manager

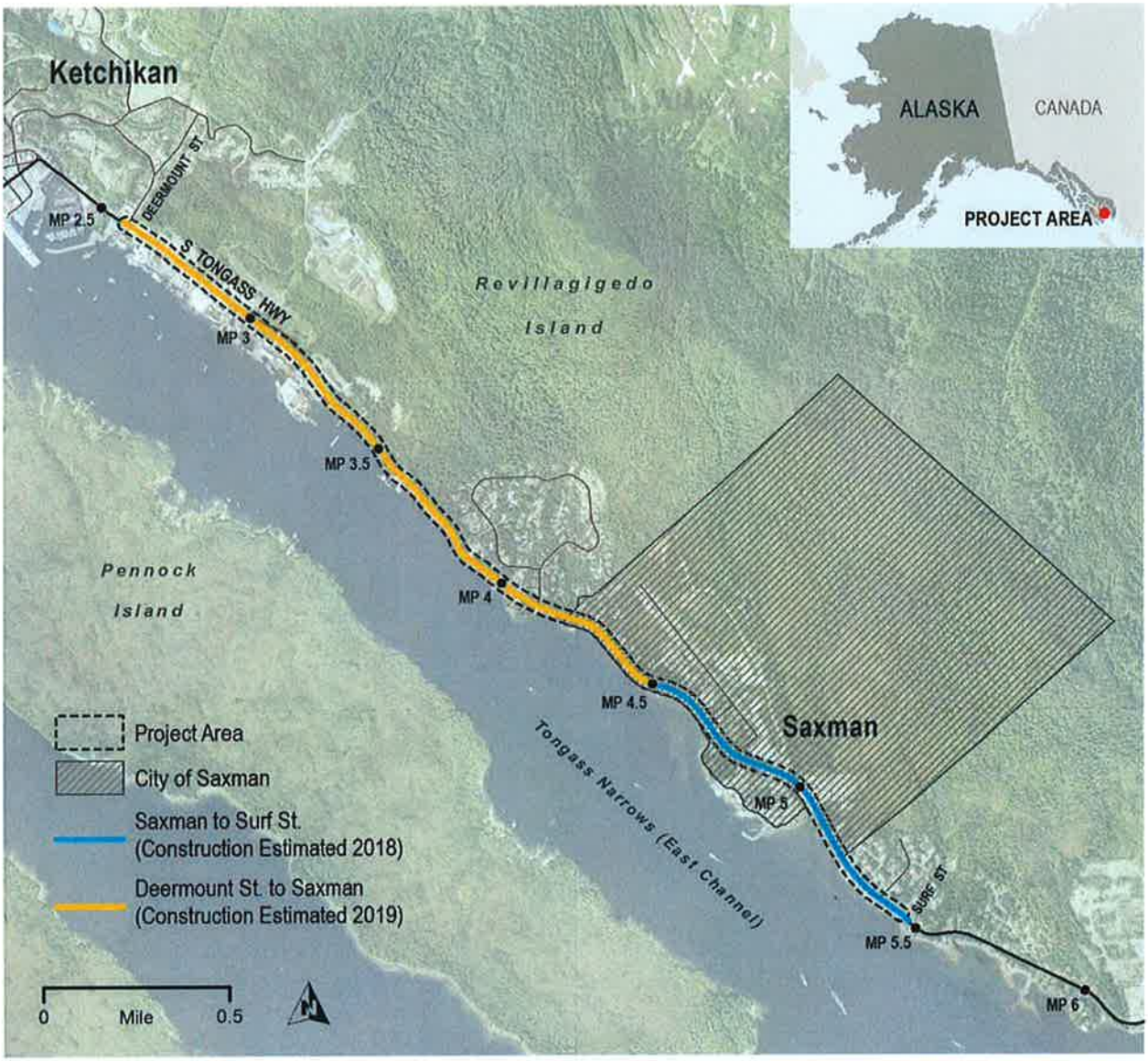
Melissa Goldstein
[Print Name] DOT&PF Statewide NEPA Manager

Non-Assigned CE

Approved by: _____ Date: _____
[Sign] FHWA Area Engineer

_____
[Print Name] FHWA Area Engineer

Figure 1. Project Area



Attachment A: Environmental Justice Analysis Report

Projects: 67685, 67571

Environmental Justice Analysis Report

South Tongass Highway Rehabilitation Project

Alaska Department of Transportation and Public Facilities – Southcoast Region

Ketchikan, Alaska

March 9, 2017

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Acronyms and Abbreviations

ACS	American Community Survey
CEQ	Council on Environmental Quality
DHHS	U.S. Department of Health and Human Services
DOT&PF	Alaska Department of Transportation and Public Facilities
EJ	Environmental justice
EO	Executive Order
FHWA	Federal Highway Administration
KGB	Ketchikan Gateway Borough
ROW	Right-of-way
USDOT	U.S. Department of Transportation

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1.0 Introduction

This report describes the existing conditions of minority and low-income and populations in the environmental justice (EJ) study area for the South Tongass Highway Rehabilitation Project and the expected impacts to these populations.

Environmental justice is a term used to describe the fair and equitable treatment of minority and low-income people with regard to federally funded projects and activities. Fair treatment means that no minority or low-income population should be forced to shoulder a disproportionate share of adverse environmental effects from a project. Fair treatment also includes meaningful involvement and opportunities for minority and low-income people to participate in the decision-making process.

1.1. Project Description

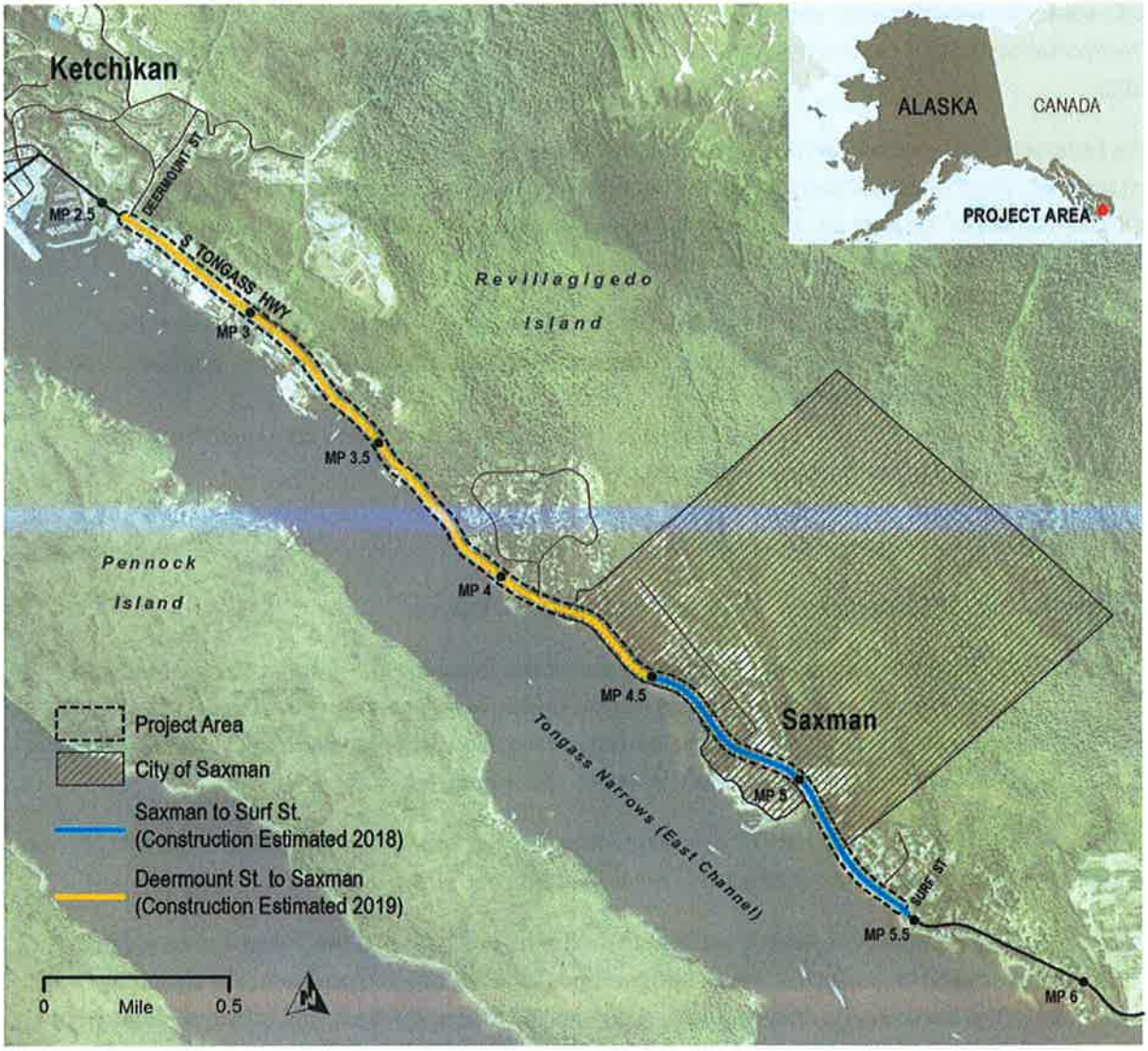
The Alaska Department of Transportation and Public Facilities (DOT&PF) Southcoast Region is proposing to rehabilitate nearly 3 miles of the South Tongass Highway and related non-motorized facilities near the City of Ketchikan on Revillagigedo Island, Alaska. The northern end of the proposed project begins at the highway's intersection with Deermount Street in Ketchikan. The southern end of the project is located at the highway's intersection with Surf Street, south of the City of Saxman. Figure 1 illustrates the Project Area, which is a 200-foot-wide corridor along this segment of South Tongass Highway.

The South Tongass Highway is the only roadway on the island that provides travel connections between the City of Ketchikan and the communities to the south, such as Saxman. The highway is an undivided, two-lane road with many private driveways, limited shoulders, and an adjacent multi-use pathway along most sections. The project purpose is to improve the safe movement of vehicle, bicycle, and pedestrian traffic.

The proposed project would widen the highway to current design standards, reconstruct the multi-use pathway, extend the pathway through Saxman, improve drainage (including new inlets, storm drains, ditches, and culverts), and relocate utilities. Rock cuts would be needed to widen the road in some locations. Bus stop turnouts and shelters may be constructed at locations to be determined in coordination with the Ketchikan Gateway Borough's (KGB's) Transit Manager and the City of Saxman.

The project area consists of a 100-foot buffer from the highway centerline, which makes up the 200-foot corridor. The project is planned for two construction phases, as indicated on Figure 1. The southern segment would be constructed in 2018 and construction of the northern segment could begin as early as 2019. The actual construction schedule is contingent on the availability of funding and other factors.

Figure 1. Project Area



1.2. Regulatory Setting

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, was issued by President Bill Clinton on February 11, 1994. The order directs each federal agency to:

> "...make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations...."

The order also directs each federal agency to develop an agency-wide EJ strategy, which must address data-collection requirements, public participation, and other issues. The U.S. Department of Transportation (USDOT) issued its original EJ strategy in 1995, followed with an update[1] on March 2, 2012.

The Federal Highway Administration (FHWA) issued Order 6640.23 on December 2, 1998, which established FHWA's policies and procedures for complying with its obligations under EO 12898. FHWA updated this order[2] on June 14, 2012, and issued a reference guide[3] on April 1, 2015. FHWA policies and procedures follow the three guiding EJ principles[4]:

1. To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations;
2. To ensure the full and fair participation of all potentially affected communities in the transportation decision-making process; and
3. To prevent the denial of, reduction in, or significant delay of the receipt of benefits by minority populations and low-income populations.

In Order 6640.23, FHWA defines minority and low-income as follows:

- A *minority* is any person belonging to one of the following five groups: Black; Hispanic; Asian; American Indian or Alaskan Native; or Native Hawaiian or other Pacific Islander.
- *Low-income* is any person whose household income is at or below the poverty thresholds as defined by the U.S. Department of Health and Human Services.

Additionally, at the state level, State of Alaska Governor Walker issued Administrative Order No. 277[5] on October 14, 2015, which established a Tribal Advisory Council to:

> "identify areas of concern and opportunity share by the State and the Tribes and to suggest policy programs, and other means and methods for solutions and progress. The goal is to maximize opportunity, resolve issues, and generate timely, efficient, and effective responses to both pressing and long-range matters affect the State and Tribes."

This study has been designed to comply with EO 12898 and FHWA Order 6640.23 by (1) identifying minority or low-income populations affected by the project; (2) evaluating the project's impacts to determine whether effects would be disproportionately high and adverse regarding these populations; (3) proposing measures to avoid, minimize, and mitigate these effects and to provide offsetting benefits

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[1] U.S. DOT Environmental Justice Strategy. March 2, 2012. Available at: https://www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/dot_ej_strategy/index.cfm
[2] FHWA Order 6640.23A. June 14, 2012. Available at: https://www.fhwa.dot.gov/legsregs/directives/orders/664023a.cfm
[3] FHWA Environmental Justice Reference Guide. April 1, 2015. Available at: http://www.fhwa.dot.gov/environment/environmental_justice/publications/reference_guide_2015/fhwahep15035..pdf
[4] U.S. DOT Environmental Justice Strategy. March 2, 2012. *Section I, C: Guiding EJ Principles.*
[5] Office of the Governor of Alaska, Administrative Order No. 277. Available at: http://www.gov.state.ak.us/admin-orders/277.html

and opportunities to enhance these populations; and (4) providing public involvement opportunities and considering those results during project development.

2.0 Affected Environment

This section presents the status of minority and low-income populations and identifies populations of concern with respect to EJ impacts from the South Tongass Highway Rehabilitation Project.

2.1. Methodology

Identifying the EJ Study Area

The U.S. Census reports geographic data by census tract, block group (subdivided census tracts), and block (subdivided block groups). Blocks are the smallest in geographic area for U.S. Census data and contain the most detailed information reported by the U.S. Census.

The EJ study area was determined by selecting U.S. Census blocks *immediately adjacent* to the project area shown in Figure 2. In addition, the following criteria were applied:

- Census blocks not immediately adjacent but with populations that must traverse through the project area for access were also included (blocks 1001, 1004, 1005, 1010, and 1011);
- Only census blocks with a total population greater than zero were included.

The EJ study area consists of 4 blocks within Census Tract 3, Block Group 3; 13 blocks within Census Tract 4, Block Group 1; and 3 blocks within Census Tract 4, Block Group 2. Figure 2 illustrates the EJ study area and these census boundaries.

The U.S. Census reports minority and low-income data at varying levels of detail. EJ data from the 2010-2014 American Community Survey[6] (ACS) are available for census tracts in the study area. While ACS data are comprehensive, including both minority and percent poverty information, and are the most currently available data, the census tract is too large an area for meaningful analysis of the South Tongass Highway Rehabilitation Project study area. The best available data are reported by the 2010 U.S. Census; however, the level of detail presented differs for low-income and minority categories. U.S. Census 2010 reports data for low-income populations by block group, while data about minority populations are reported by block (a greater level of detail). This report therefore presents low-income data by block group, and minority data by block, as represented in the following graphic.

[6] ACS 2010–2014 data represent average characteristics during that 5-year timeframe.

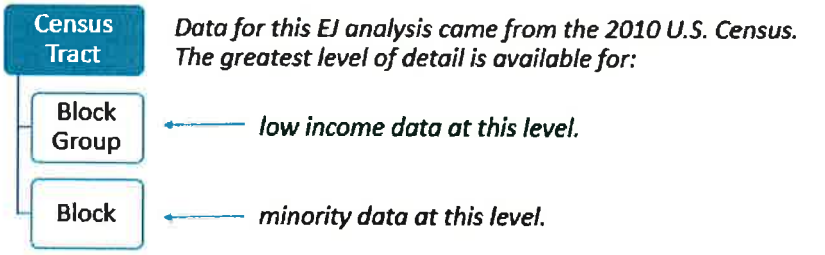
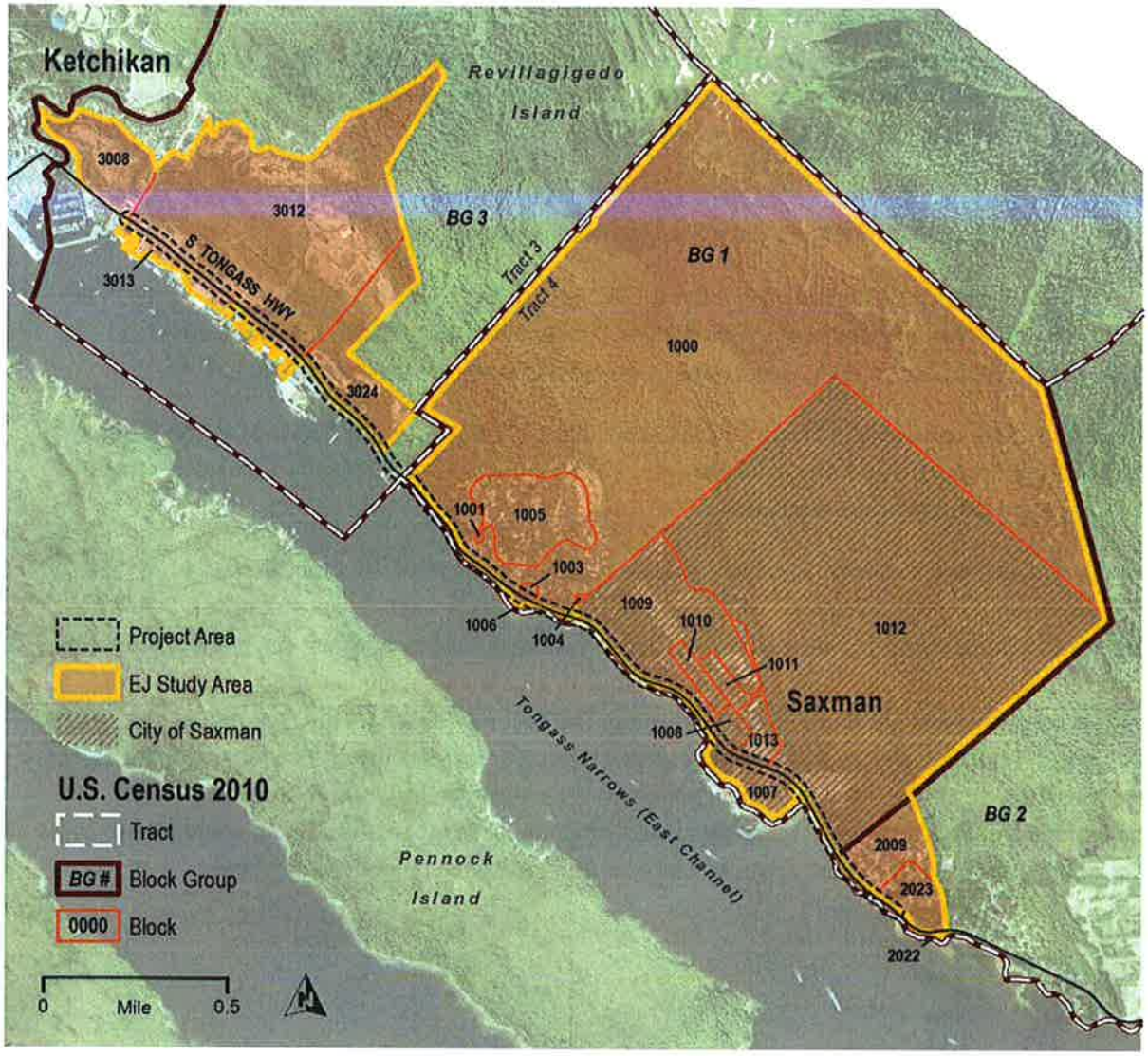


Figure 2. EJ Study Area



Identifying the Reference Population

A reference population is necessary in order to determine whether potential project-related adverse impacts are disproportionately borne by one or more minority or low-income populations in comparison to the greater area. USDOT guidance for EJ analysis and documentation[7] states:

> "Potential environmental justice impacts are detected by locating minority populations and low-income populations in and near the project area, calculating their percentage in the area relative to a reference population, and determining whether there will be adverse impacts to them."

According to U.S. Census Bureau data, in 2010, approximately 1,716 people lived within the EJ study area, as compared to a population of 13,438 in the KGB and 711,235 in the State of Alaska. To represent the reference population, this analysis takes an average of KGB and State of Alaska metrics. In this analysis, the EJ study area population is compared to the KGB, the State of Alaska, and the reference populations.

2.2. Identifying Minority Populations

For the purposes of this analysis, a minority population is any readily identifiable group of minority persons who live in geographic proximity, or geographically dispersed minority persons who would be adversely affected by the project. The most recent available data on minority populations in the study area comes from the 2010-2014 U.S. Census ACS 5-year estimate. These data, however, are available only at the census tract level of detail (Table 1). Because census tracts cover large areas, extending beyond the EJ study area, more in-depth analysis was performed using 2010 U.S. Census data.

Table 1. Minority Population by Percentage, 2010–2014 ACS 5-Year Estimates

Area	Total Population	Percent Minority
Alaska	728,300	33.5
Ketchikan Gateway Borough	13,676	31.6
Ketchikan City	8,173	38.4
Census Tract 3 (Downtown)	2,950	41.2
Census Tract 4 (Saxman/Mountain Point)	2,318	30.2

Source: Alaska Department of Labor and Workforce Development, Research and Analysis. http://live.laborstats.alaska.gov/cen/acsdetails.cfm#

Note: The Census Tract is the smallest geographic area available for ACS data.

[7] U.S. DOT Environmental Justice in NEPA Documentation Process (American FactFinder, Step-by-Step Guide). April 3, 2012. Available at: https://secure.in.gov/indot/files/ES_EnvironmentalJusticeGuidance_2012.pdf

Table 2 compares minority population status of the EJ study area to those of the state and the KGB using 2010 U.S. Census data. The reference population is presented as an average of state and KGB statistics. Block level data are summarized for the study area.

Table 2. Minority Populations by Census Block, 2010 U.S. Census

Area	Total Population	White Alone (%)	African American (%)	American Indian or AK Native (%)	Asian (%)	Pacific Islander (%)	Other (%)	Two or More (%)
Alaska	711,235	67.1	3.3	14.8	5.4	1.0	1.6	7.3
Ketchikan Gateway Borough	13,438	68.1	0.6	14.2	7.0	0.2	0.7	9.3
Reference Population [a]	362,337	67.6	2.0	14.5	6.2	0.6	1.2	8.3
Study Area	1,716	56.6	0.3	**26.5**	3.6	0.0	1.0	**12.1**

[a] The reference population is the average of the state of Alaska and the KGB populations.
Note: The bold numbers represent higher values compared to the reference population.

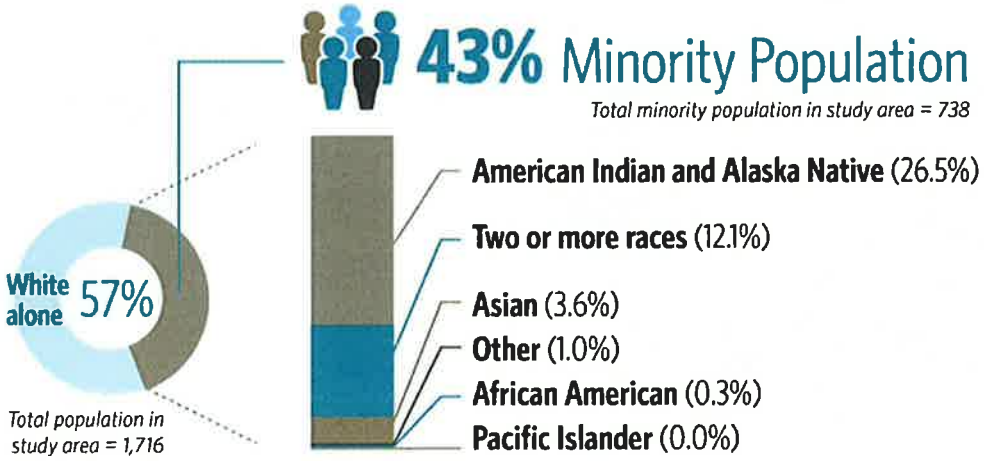
Bold numbers in Table 2 represent minority population values that are higher in the study area compared with the reference population. This calls to attention minority communities in the affected area that identify as either *American Indian or AK Native* or *Two or More* racial groups. Table 3 compares 2010 U.S. Census percent minority of the state, the KGB, and the EJ study area, as well as the reference population. As a whole, the EJ study area was found to have a minority population of 43 percent. This is higher than both the State of Alaska percent minority figure of 32.9 percent and the KGB figure of 31.9 percent. A reference population figure would expect 32.4 percent. Figure 3 illustrates the breakdown of minority groups in the study area.

Table 3. Percent Minority, 2010 U.S. Census

Area	Total Population	Percent Minority
Alaska	711,235	32.9
Ketchikan Gateway Borough	13,438	31.9
Reference Population [a]	362,337	32.4
Study Area	1,716	**43.0**

Source: U.S. Census Bureau, 2010 Summary File 1: https://factfinder.census.gov/
[a] The reference population is the average of the state of Alaska and the KGB.
Note: The bold number represents a higher value compared to the reference population.

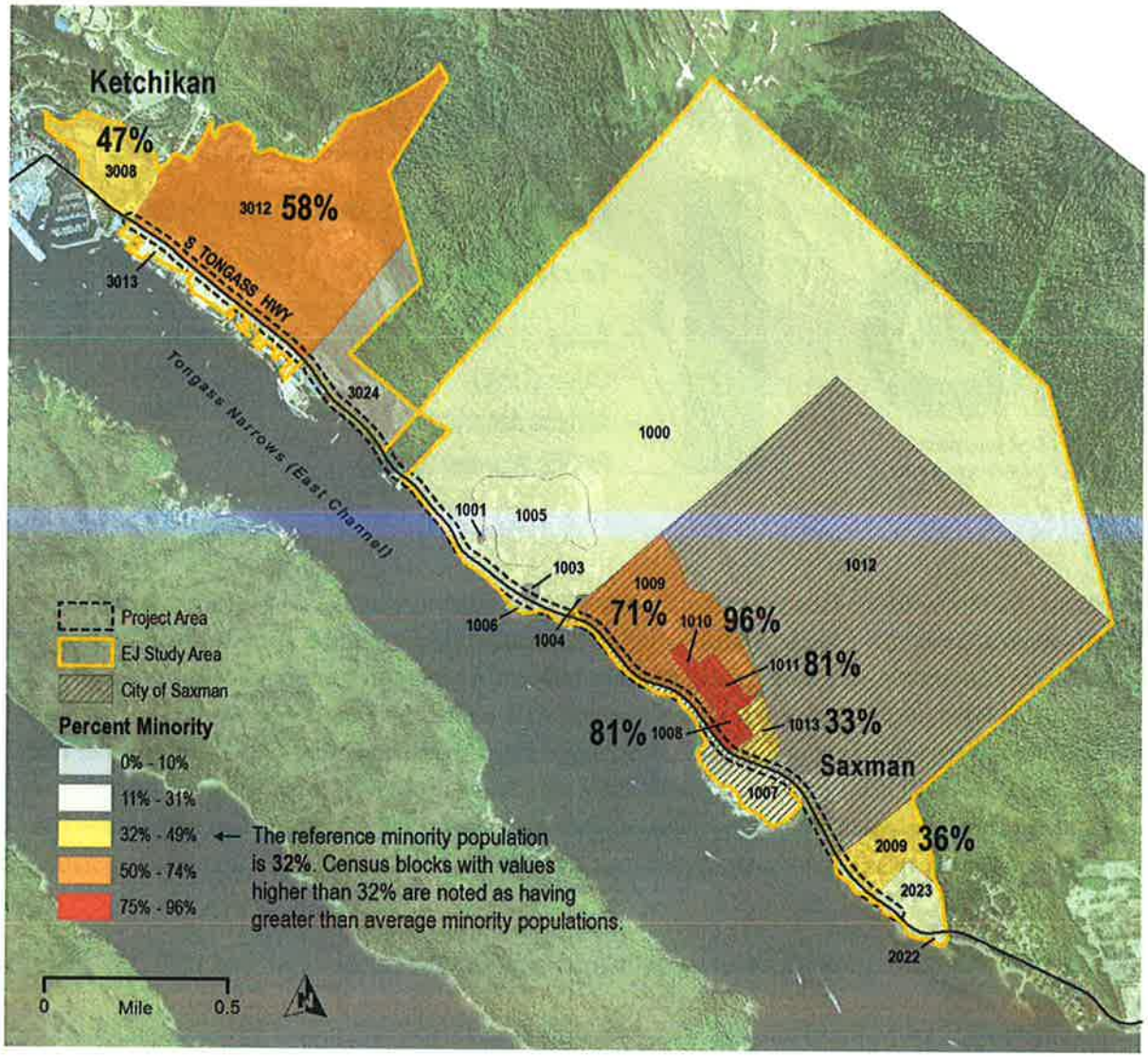
Figure 3. Minority Population of the EJ Study Area, 2010 U.S. Census



As defined by the Council on Environmental Quality (CEQ), a minority population is defined if (a) the minority population of the affected area exceeds 50 percent, or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population, or other appropriate geographical analysis. As a whole, the minority population of the affected area (43 percent) does not exceed the 50 percent threshold; however, 43 percent is higher than an expected 32 percent determined by the reference population. While the term "meaningfully greater" is not quantitatively defined by the CEQ guidance, because the affected area has values higher than the reference population average, this analysis will consider the study area to contain a minority population.

Looking in greater detail, Figure 4 maps percent minority in the study area by census block. Notably, blocks 3012 (58 percent), 1009 (71 percent), 1008 (81 percent), 1011 (81 percent), and 1010 (96 percent) contain populations with a percent minority above 50 percent, a threshold indicating an EJ population. Blocks with higher than the average minority reference population of 32 percent include 3008 (47 percent), 1013 (33 percent), and 2009 (36 percent). The community of Saxman contains the highest concentration of minority populations, with four census blocks above 50 percent: 1009 (71 percent), 1011 and 1008 (81 percent), and 1010 (96 percent). These blocks constitute predominantly Alaska Native and two or more race populations.

Figure 4. Percent Minority by Block, 2010 U.S. Census



2.3. Identifying Low-Income Populations

The USDOT and FHWA EJ orders define a "low-income" person as "a person whose household income is at or below the U.S. Department of Health and Human Services (DHHS) poverty guidelines." For the purposes of this analysis, a low-income population is any readily identifiable group of low-income persons who live in geographic proximity, or geographically dispersed low-income persons who would be adversely affected by the project. The most current DHHS poverty guidelines for Alaska are shown in Table 4.

Table 4. 2016 DHHS Poverty Guidelines for Alaska

Number of Persons in Family/Household	Poverty Guideline (Annual Income)
1	$14,840
2	20,020
3	25,200
4	30,380
5	35,560
6	40,740
7	45,920
8 [a]	51,120

Source: U.S. DHHS, 2016. https://aspe.hhs.gov/poverty-guidelines
[a] For families/households with more than 8 persons, add $5,200 for each additional person.

Average household sizes and the associated poverty guidelines (annual income) for study area census block groups, the reference population, the KGB, and Alaska are shown in Table 5. The table also lists median household income for these areas. Data for median household income were not available at the census block level of detail; therefore the best available data for the EJ study area are shown in census Block Group 3 of Census Tract 3, and Block Groups 1 and 2 of Census Tract 4. Figure 5 illustrates median household income by block group in the EJ study area.

Table 5. Household Incomes and Poverty Guidelines

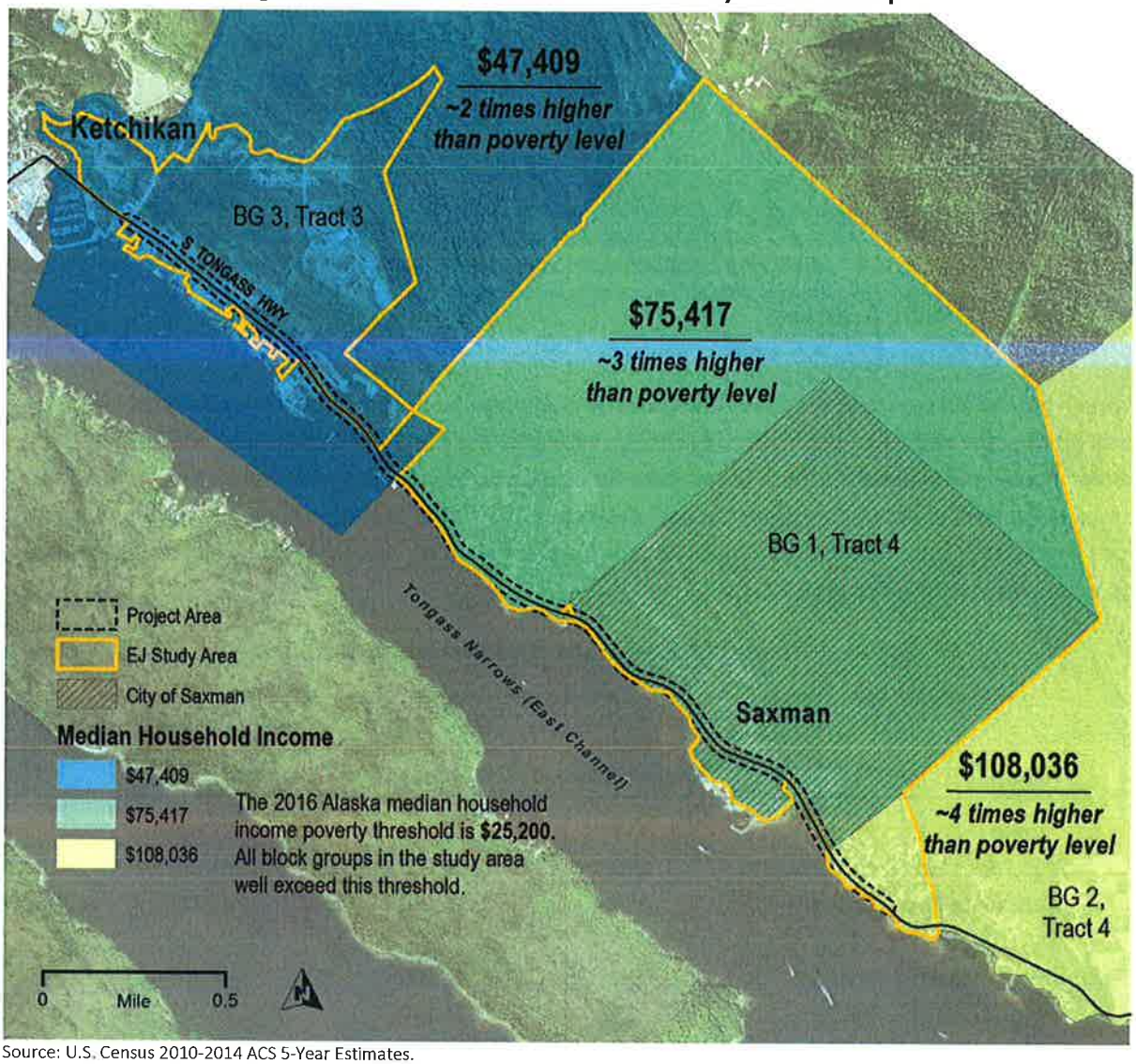
Area	2010-2014 Average Household Size	2016 Poverty Guideline Annual Income ($)	2010-2014 Median Household Annual Income ($)
Alaska	2.79	25,200	71,829
Ketchikan Gateway Borough	2.52	25,200	61,712
Reference Population [a]	2.66	25,200	66,771
Study Area			
Block Group 3, Tract 3	2.43	25,200	47,409
Block Group 1, Tract 4	2.79	25,200	75,417
Block Group 2, Tract 4	2.89	25,200	108,036

Sources: U.S. Census 2010-2014 ACS 5-Year Estimates, ID B25010 for Average Household Size and ID B19013 for median household annual income: http://factfinder2.census.gov; U.S. DHHS for 2016 poverty guideline annual income: https://aspe.hhs.gov/poverty-guidelines.
[a] The reference population is the average of the state of Alaska and the KGB populations.

Average household sizes in study area block groups range from 2.43 to 2.89. The expected reference population average household size is 2.66. For households greater than 2, the 2016 DHHS Poverty Guidelines for Alaska indicate median household incomes must be below **$25,200** to be considered a

low-income population (households greater than 2 are rounded to 3). As illustrated in Figure 5, all block groups that include parts of the study area have median household incomes well above $25,200, from approximately two to four times higher than the poverty level threshold. This analysis assumes no low-income population is living within the study area.

Figure 5. Median Household Income by Block Group



Source: U.S. Census 2010-2014 ACS 5-Year Estimates.

2.4. Identifying Community Service Providers, Schools, and Organizations

To further develop a community profile, this study identified the community service providers, schools, and civic organizations in the EJ study area.

Most public facilities and services are located in Ketchikan, including public water and wastewater facilities, public safety services (fire, medical care, emergency service, and police), and recreation facilities such as the Ted Ferry Civic Center, American Legion Hall, Ketchikan High School pool, Ketchikan Public Library, and South Tongass Volunteer Fire Department. Other community service providers include organizations such as the Gateway Center for Human Services, KAR House Residential Program, Ketchikan Indian Community Housing Authority, Ketchikan Indian Community Tribal Health Clinic, Women in Safe Homes, Residential Youth Care, Ketchikan General Hospital, and the Greater Ketchikan Chamber of Commerce. City Hall and the Saxman Community Center are located within the project area, in downtown Saxman.

Several tribal service providers are located near the project area, including the Cape Fox Heritage Foundation, Incorporated; Sealaska Corporation; and the Central Council of the Tlingit and Haida Indian Tribes of Alaska. Other tribal service providers that are also federally recognized tribal entities include the Organized Village of Saxman and the Ketchikan Indian Community.

No schools exist directly within the project area or in the EJ study area, although there are six schools located within Ketchikan. These include:

- Tongass School of Arts and Science
- Ketchikan Charter School
- Fast Track Virtual School
- Schoenbar Middle School
- Ketchikan High School
- Houghtaling Elementary School

2.5. Environmental Justice-Focused Outreach

According to FHWA's Environmental Justice Reference Guide[8] (2015):

> "The FHWA considers public involvement to be [...] a crucial component of environmental justice (EJ). One of the US Department of Transportation (USDOT) EJ principles is 'to ensure the full and fair participation by all potentially affected communities in the transportation decision making process."

Public involvement activities were conducted to better understand the concerns of local residents, including EJ-identified populations. EJ-focused outreach was exercised specifically to reach these particular populations and ensure that low-income and minority groups were aware of the proposed project and have opportunity to provide public comment.

The project team reached out to a number of existing organizations serving minority and/or low-income groups that could use their networks to disseminate information about the project to the populations

[8] FHWA Environmental Justice Reference Guide. April 1, 2015. Available at: http://www.fhwa.dot.gov/environment/environmental_justice/publications/reference_guide_2015/fhwahep15035..pdf

those organizations serve. Small group meetings were specifically organized with a number of key tribal and government stakeholder groups in Ketchikan and Saxman, including the Organized Village of Saxman, the City of Saxman, the Ketchikan Indian Community, the City of Ketchikan, and the KGB. The Ketchikan Indian Community also reached out to some of their service providers on behalf of the project.

To ensure full and fair participation, all public meetings were held in areas accessible via transit so that individuals had access to meetings without institutional and transportation barriers to participation. To provide diverse platforms of coverage on the project, non-traditional forms of advertising were utilized, such as posting flyers around or on public transportation, using social media, and broadcasting public service announcements on local cable and radio channels. A summary of this effort and documentation is included in the project scoping summary memo and attachments (dated August 17, 2016). Subsequent public involvement activities through 2016, including a round of public meetings in early December 2016, are contained in an addendum to the scoping summary report (dated January 6, 2017).

Methods of reaching out to the public included sending letters about the project to stakeholders via mail and email, launching a project website, and posting advertisements in the *Ketchikan Daily News* on the project's open house meetings and online open house web tool. Additional postcards and e-newsletters relaying information about the project launch, website, and public meetings were also sent.

3.0 Environmental Consequences

3.1. Determination of High and Adverse Effects

EO 12898 requires an evaluation as to whether a project will have disproportionately high and adverse effects on a minority or low-income population. An effect is considered to be an EJ concern if it is high and adverse and predominately borne by a minority or low-income population, or if its effects on a minority or low-income population are appreciably greater in magnitude than on the population as a whole.

As stated in Section 2.3, no low-income population has been identified in the project's EJ study area. However, 43 percent of residents qualify as a minority population under FHWA Order 6640.23. Potential permanent and temporary (over 1.5 to 2 years during construction) impacts resulting from the proposed project are summarized below. Overall, no high and adverse effects are anticipated, and no effects would be disproportionately borne by a minority population, as summarized in Section 3.2.

Construction Impacts

The proposed project could result in temporary traffic impacts during construction, which may include delays and access limitations.

The construction contractor would submit a traffic control plan to DOT&PF for approval. The plan would mitigate impacts by including measures to maintain traffic and protect and control vehicular, bicycle,

and pedestrian traffic during construction. Temporary traffic control measures and maintenance of traffic flow would ensure minimal disturbance.

Temporary construction noise impacts would result from the operation of heavy equipment, the presence of construction crews, and other associated construction activities. Coordination with local businesses and the community would occur so as to minimize noise levels at sensitive hours. Noise impacts from construction equipment would be minimized by requiring noise control devices on all vehicles, such as mufflers. DOT&PF has determined that the proposed project would not require a traffic noise analysis, per 23 Code of Federal Regulations 772.

No permanent change in traffic volumes or noise impacts are expected to occur as a result of the proposed project.

Right-of-Way Impacts

The proposed project would require the acquisition of both fee simple and easement interests to expand the existing DOT&PF right-of-way (ROW) to accommodate the proposed highway improvements. The U.S. Coast Guard, Alaska Department of Natural Resources, and City of Saxman are public landowners that would be affected by the project. Multiple business and residential property owners would be affected by fee or easement acquisitions. No property displacements or relocations are anticipated.

Portions of approximately 40 parcels may need to be acquired for cuts and fills. The cut and fill locations were based on engineering design standards and the limitations associated with the existing corridor. The partial acquisitions would be acquired in fee simple interests. Approximately 60 other parcels may require temporary and/or permanent construction easements for completion of the project. Owners will receive just compensation for all acquisitions.

Mobility and Access Impacts

The South Tongass Highway connects transit users, pedestrians, cyclists, and drivers south of Ketchikan with the City of Ketchikan and connects residents and tourists in Ketchikan with points of interest to the south. The KGB's *Comprehensive Plan 2020* [9] states the Tongass Highway's importance in providing "access to residential areas outside the limits of the City of Ketchikan." The plan states the potential for a walking/biking path on the South Tongass Highway, as Saxman community members rely on public transportation for travel to and from employment, shopping, and other amenities in Ketchikan. An improved South Tongass Highway in the project area would increase safety and connectivity between Ketchikan and Saxman with pedestrian, bicycling, and public and private transportation capacities.

The proposed project would improve access between communities. No adverse permanent impacts to mobility or access are anticipated as a result of the proposed project.

[9] http://www.borough.ketchikan.ak.us/DocumentCenter/View/2000 (p. 17)

Social and Cultural Impacts

The majority of community-supportive services are located north of the proposed project area within the City of Ketchikan. Construction activity may temporarily inhibit convenient transportation access to the Community Center, City Hall, the Pentecostal Church of God, the Salvation Army, and other gathering places in Saxman.

The proposed project is intended to improve travel conditions and safety in the project area, resulting in long-term benefits for the traveling public. No adverse permanent impacts to neighborhoods, community cohesion, or disadvantaged social groups are anticipated as a result of the proposed project. The proposed project would not affect school boundaries, recreation areas, or churches.

Economic Impacts

The proposed project is expected to provide long-term economic benefits by improving the safety and efficiency of traffic movement on the South Tongass Highway. Residents and visitors would benefit from the increased connectivity between Saxman and Ketchikan with the rehabilitated and newly constructed multi-use pathway and from improved transit facilities in the corridor.

Several businesses are located along the project area's ROW. Businesses may be temporarily affected by delays of commercial traffic, including the transport of inventory and retail sales. Customers may experience traffic delays en route to business services. No permanent adverse economic impacts are expected to occur from the proposed project.

Public Involvement Summary of Results

The outcome of the public involvement activities provided additional guidance on how the project team can address concerns and better support the needs of local residents regarding potential impacts of the project. The project is not expected to change the long-term travel patterns and volumes, but would improve traffic safety and pedestrian mobility on this key community transportation route.

The public comment process produced a number of pedestrian safety and mobility comments and concerns. Residents in the EJ study area supported rehabilitation and extension of the multi-use pathway in the project corridor. Stakeholders also saw a critical need for providing a guardrail between the highway and the path to increase safety for pedestrians. The pathway would provide a safe and alternative transportation mode to pedestrians. Creating more parking near the path would also increase access for users of the pathway.

Comments were also received regarding considerations for adding crosswalks and better lighting to support pedestrian movement. Requests were voiced for an expanded bus system with services and additional stops in the Saxman area, as well as additional bus shelters. A separated pathway would improve pedestrian movement, particularly for low-income and minority populations that may have limited transportation mobility. Stakeholders and the public expressed general support for the project due to the road project being seen as a needed improvement on an important transportation corridor.

The results of the public involvement activity illustrate that general public sentiments consider the project to have an overall positive effect on the community.

3.2. No Adverse Effects Conclusion

This study evaluated the potential permanent and temporary impacts of the proposed project on human health and the environment in the EJ study area. Property impacts would be limited to partial acquisitions or construction easements, and owners would receive just compensation. There would be no relocations. The project would have no change to community population or community cohesion. None of the impacts identified would be high and adverse or disproportionately borne by the minority populations identified in the EJ study area. The South Tongass Highway Rehabilitation Project meets the guiding principles of FHWA Order 6640.23 and achieves environmental justice in accordance with Executive Order 12898.

3.3. Mitigation

Mitigation for temporary construction impacts includes creating a traffic control plan, applying noise minimization measures during construction, and providing advance notice to the public and businesses of construction activities that could cause delays or detours, or could affect access to adjacent properties.

4.0 References

Alaska State Department of Labor and Workforce Development, Research and Analysis. *American Community Survey.* <http://live.laborstats.alaska.gov/cen/acsdetails.cfm#> Accessed November 2106.

Federal Highway Administration. 1994. *FHWA Executive Order 12898, Federal actions to Address Environmental Justice in Minority Populations and Low-Income Populations.* <https://www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf> Accessed November 2106.

_____. 2012. *FHWA Order 6640.23A: FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.* <http://www.fhwa.dot.gov/legsregs/directives/orders/664023a.cfm> Accessed November 2016.

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_____. 2012. *Environmental Justice Strategy.* <https://www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/dot_ej_strategy/index.cfm> Accessed November 2016.

U.S. Environmental Protection Agency. 2016. *Environmental Justice.* <http://www.epa.gov/environmentaljustice/> Accessed November 2016.

Attachment B: Section 106 Documentation

Consultation/Initiation Letters
Finding of Effect Letters
SHPO Concurrence Letter

Consultation/Initiation Letters and only Response (SHPO)

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and Public Facilities

SOUTHCOAST REGION

6860 Glacier Highway
PO Box 112506
Juneau, Alaska 99801-2506
Main: (907) 465-1799
Toll free: (800) 575-4540
Fax: (907) 465-2030
dot.state.ak.us

In Reply Refer To:
Ketchikan: Saxman to Surf St. Rehabilitation – South Tongass, and
Ketchikan: South Tongass Highway, Deermont to Saxman Widening
Z675710000, Z676850000 / 0902(031), 0902(039)

Consultation Initiation

July 14, 2016

Ms. Judith Bittner
State Historic Preservation Officer
Alaska Office of History and Archaeology
550 W. 7th Avenue, Suite 1310
Anchorage, Alaska 99501-3565

Dear Ms. Bittner:

The Alaska Department of Transportation and Public Facilities (DOT&PF) has assumed the responsibilities of the Federal Highway Administration under 23 U.S.C. 326, and is proposing a combined project Ketchikan: South Tongass Rehabilitation, Deermont to Saxman and Saxman to Surf. The proposed project is in U.S. Geological Survey (USGS) quadrangle Ketchikan B-5; T75S, R91E, Sections 4, 29, 30, 32, and 33, Copper River; see Figure 1-1, project location. Meridian.

Consultation is being conducted in accordance with the 2014 *Programmatic Agreement for the Federal-Aid Highway Program in Alaska.* For purposes of the National Historic Preservation Act, the DOT&PF, acting as a Federal agency, is initiating this consultation with you to assist us in identifying historic properties that may be affected by the proposed project.

Project Description
The project consists of rehabilitation of the South Tongass Highway and related non-motorized facility improvements near Ketchikan from Deermount Street to Surf Street (Figure 1-1). The South Tongass Highway is located on Revillagigedo Island and provides vehicular access to communities north and south of Ketchikan. The total project length is approximately 2.8 miles.

From the beginning of the project at Deermount Street to Cemetery Road (approximately 0.44 mile), the existing top width of pavement would be widened to meet current design standards. The existing concrete sidewalk on the downhill (southwest) side within this section would be rebuilt, and a new concrete sidewalk, curb, and gutter would be built on the uphill (northeast) side.

From Cemetery Road to the United States Coast Guard (USCG) Ketchikan Base entrance (approximately 0.20 mile), the existing top width of pavement would be widened and concrete sidewalk on the downhill side only would be rebuilt. From the USCG Base entrance south to the end of the project (approximately 2.16 miles), the road embankment and pavement would be widened and the existing separated multi-use path reconstructed.

Additionally, some curves would be lengthened and the centerline shifted to bring the curves up to current design standards. As necessary, the project would

- Modify horizontal and vertical alignment where warranted and cost effective to improve safety
- Excavate rock to accommodate realignment and widening
- Excavate and reconstruct the existing embankment at select locations
- Construct mechanically stabilized earth (MSE) walls or other wall structures as appropriate
- Improve drainage, ditching and replace culverts
- Remove and replace guardrail as warranted
- Replace handrails and chain link fence
- Replace public and private staircases for access to adjacent properties
- Remove or permit ROW Encroachments
- Relocate overhead and underground utilities

The project is in the preliminary design phase and a scope of work is being developed. As a rehabilitation project any alternatives would involve minor alignment changes.

Study Area
The study area includes the proposed direct and indirect Area of Potential Effect (APE) as shown on the attached drawings. The study area was chosen to include all potential direct and indirect effects to historic properties. The Area of Potential Effect (APE) will be defined after comments are received from your agency and other consulting parties.

Identification Efforts
Information identified to date includes information pertaining to known properties/sites in the study area, including the current Alaska Heritage Resources Survey list and a reconnaissance level survey of the study area. DOT&PF intends to distribute a cultural resource report including any new recommendations of eligibility to the National Register of Historic Places (NHRP) any recommended findings of effect to historic properties by the end of this year.

KTN: Saxman- Surf St. Rehab – S. Tongass,
KTN: S Tongass Hwy, Deermont-Saxman Widening
Z675710000, Z676850000 / 0902(031), 0902(039)
Consultation Initiation
July 14, 2016

Under the Alaska Historic Roads Programmatic Agreement Interim Guidance, a group of Alaska roads has been identified which are being treated as eligible for the National Register of Historic Places (NRHP). South Tongass Highway is within the study area for this project.

Consulting Parties
The following consulting parties are being contacted for this project

- State Historic Preservation Office
- Organized Village of Saxman
- Ketchikan Indian Community
- Cape Fox Corporation
- Central Council of Tlingit and Haida Indian Tribes
- Sealaska Corporation
- City of Ketchikan, Mayor's Office
- City of Ketchikan, Planning Commission
- Ketchikan Gateway Borough
- Sealaska Heritage Institute
- Ketchikan Historic Commission
- Historic Ketchikan Inc.

If you have questions or comments related to this proposed project, I can be reached at the address above, by telephone at 907 465-4509 or by e-mail at benjamin.storey@alaska.gov.

We request your input on our proposal so that we can incorporate your concerns into project development. Your timely response will greatly assist our compliance efforts and the preparation of any required environmental documentation. For that purpose, we request that you respond within thirty days of your receipt of this correspondence.

Sincerely,

Benjamin Storey,
Southcoast Region, Professionally Qualified Individual

Enclosures:
Figure 1-1, Project Area and Location
Proposed Area of Potential Effects, Figures 1 through 5

cc w/enclosures:
Tony R Gallegos, Cultural Resources Director, Ketchikan Indian Community
Joel Azure, Development Manager, Ketchikan Indian Community
Joseph Nelson, Chair, Sealaska Corporation

Electronic cc w/ enclosures:

Keith Karpstein, P.E., DOT&PF Southcoast Region, Project Manager
Hilary Lindh, DOT&PF Southcoast Region, Regional Environmental Manager
Melissa Goldstein, DOT&PF Statewide Environmental NEPA Manager
Kathy Price, DOT&PF Statewide Cultural Resources Representative

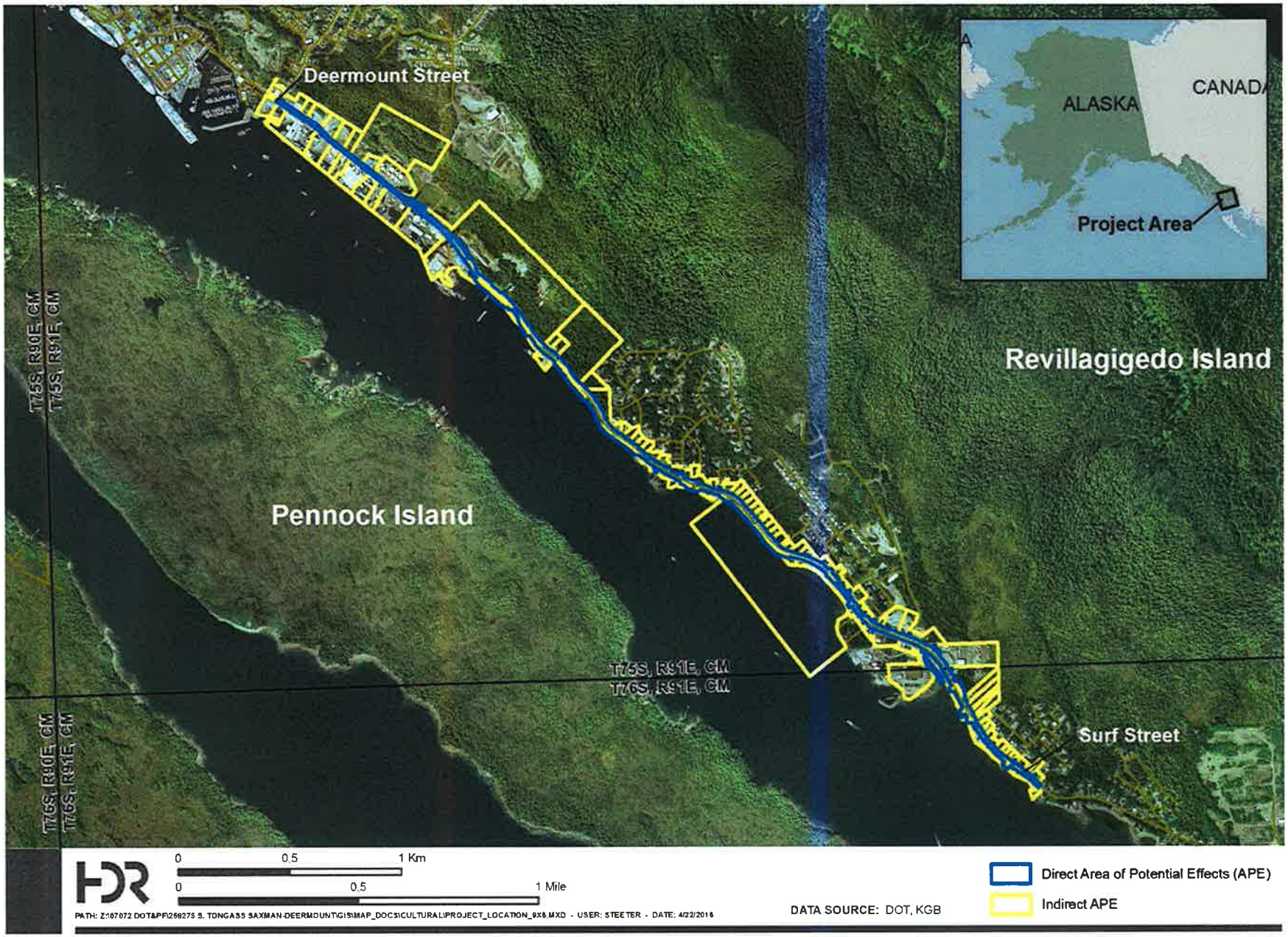


Figure 1-1. SOUTH TONGASS HIGHWAY PROJECT LOCATION

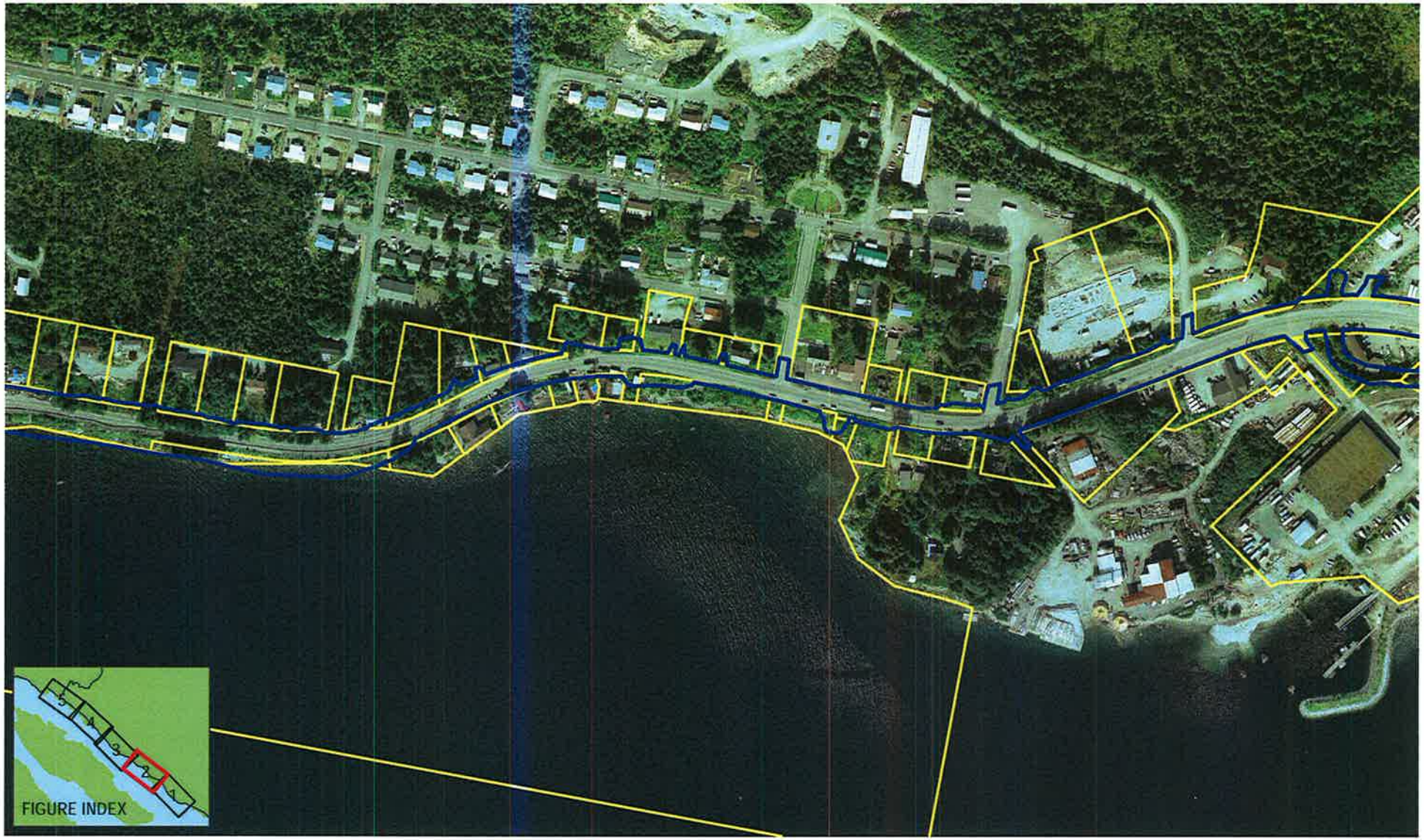
HDR

Direct Area of Potential Effects (APE)
Indirect APE

0 50 100 Meters
0 250 500 Ft

SOUTH TONGASS HIGHWAY
PROPOSED AREA OF POTENTIAL EFFECTS
FIGURE 1 OF 5

SOUTH TONGASS HIGHWAY WIDENING PROJECTS



HDR

Direct Area of Potential Effects (APE)
Indirect APE

0 50 100 Meters
0 250 500 Ft

SOUTH TONGASS HIGHWAY
PROPOSED AREA OF POTENTIAL EFFECTS
FIGURE 2 OF 5

HDR

Direct Area of Potential Effects (APE)
Indirect APE

0 50 100 Meters
0 250 500 Ft

SOUTH TONGASS HIGHWAY
PROPOSED AREA OF POTENTIAL EFFECTS
FIGURE 3 OF 5
SOUTH TONGASS HIGHWAY WIDENING PROJECTS

HDR

Direct Area of Potential Effects (APE)
Indirect APE

0 50 100 Meters
0 250 500 Ft

SOUTH TONGASS HIGHWAY
PROPOSED AREA OF POTENTIAL EFFECTS
FIGURE 4 OF 5
SOUTH TONGASS HIGHWAY WIDENING PROJECTS

HDR

Direct Area of Potential Effects (APE)
Indirect APE

0 50 100 Meters
0 250 500 Ft

SOUTH TONGASS HIGHWAY
PROPOSED AREA OF POTENTIAL EFFECTS
FIGURE 5 OF 5

SOUTH TONGASS HIGHWAY WIDENING PROJECTS

Scholl, James W (DOT)

From: Kell, Michael W (DOT)
Sent: Tuesday, March 14, 2017 8:45 AM
To: Barnett, John C (DOT)
Cc: Scholl, James W (DOT); Pyeatt, David A (DOT)
Subject: FW: KTN- North Tongass Bridge Improvements, 1st and 2nd Waterfall Creek Bridge Replacement, BR-0920(27)/Z-68229-0000

From: Rollins, Mark W (DNR)
Sent: Monday, March 13, 2017 11:33 AM
To: Kell, Michael W (DOT)
Subject: KTN- North Tongass Bridge Improvements, 1st and 2nd Waterfall Creek Bridge Replacement, BR-0920(27)/Z-68229-0000

Hi Michael,

The Alaska State Historic Preservation Office (AK SHPO) received your letter (dated February 28, 2017) on March 3, 2017. Following our review of the documentation provided in the initiation letter, we have no objections to the preliminary area of potential effects or level of effort conducted for identification at this time. We look forward to receiving the results of the evaluation of the project area as well as DOT&PF's findings for this undertaking and will respond with our concurrence and/or comments at that time.

Thank you for sending a Section 106 consultation initiation letter to our office. Please let me know if we can of further assistance.

Mark W. Rollins
Archaeologist II
Alaska State Historic Preservation Office/ Office of History and Archaeology
550 West 7th Avenue, Suite 1310
Anchorage, AK 99501

(907) 269-8722

Finding of Effect Letters

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and \
Public Facilities

SOUTHCOAST REGION

6860 Glacier Highway
PO Box 112506
Juneau, Alaska 99801-2506
Main: (907) 465-1799
Toll free: (800) 575-4540
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dot.state.ak.us

In Reply Refer To:
Ketchikan: Saxman to Surf St. Rehabilitation – South Tongass, and
Ketchikan: South Tongass Highway, Deermount to Saxman Widening
Z-67571-0000, Z-67685-0000 / 0902(031), 0902(039)
Finding: No Adverse Effect
March 9, 2017

ATTENTION: This finding contains 17 DOEs

Ms. Judith Bittner
State Historic Preservation Officer
Alaska Office of History and Archaeology
550 W. 7th Avenue, Suite 1310
Anchorage, AK 99501-3565

Dear Ms. Bittner:

The Alaska Department of Transportation and Public Facilities (DOT&PF) has assumed the responsibilities of the Federal Highway Administration under 23 U.S.C. 326, and is proposing to reconstruct a combined project Ketchikan: South Tongass Rehabilitation, Deermount to Saxman and Saxman to Surf. The proposed project is in U.S. Geological Survey (USGS) quadrangle Ketchikan B-5; T75S, R91E, Sections 4, 29, 30, 32, and 33, Copper River **(Attachment 1, Figure 1-2).**

Consultation for this project is being conducted in accordance with the 2014 Programmatic Agreement… for the Federal-Aid Highway Program in Alaska. The DOT&PF, acting as a Federal agency, finds no adverse effect on historic properties by the proposed project pursuant to36 CFR 800.5(b), implementing regulations of Section 106 of the National Historic Preservation Act. This submission provides documentation in support of this finding, as required by 36 CFR 800.11(e).

Project Description

The project would rehabilitate the South Tongass Highway and conduct related non-motorized facility improvements near Ketchikan from Deermount Street to Surf Street. The South Tongass Highway is located on Revillagigedo Island and provides vehicular access to communities north and south of Ketchikan. The total project length is approximately 2.8 miles **(Attachment 1, Figures 1-2).**

From the beginning of the project (BOP) at Deermount Street to Cemetery Road (approximately 0.44 mile), the project would

- Widen the existing top width of pavement to meet current design standards.
- Rebuild existing concrete sidewalk on the downhill (southwest) side within this section
- Build new concrete sidewalk, curb, and gutter on the uphill (northeast) side.

From Cemetery Road to the United States Coast Guard (USCG) Ketchikan Base entrance (approximately 0.20 mile), the project would

- Widen the existing top width of pavement
- Rebuild existing concrete sidewalk on the downhill side only.

From the USCG Base entrance south to the end of the project (approximately 2.16 miles), the project would

- Widen the road embankment and pavement
- Reconstruct the existing separated multi-use path
- Extend the path to the terminus of the project at Surf Street

Additionally, the project would

- Lengthen some curves and shift the centerline to bring the curves up to current design standards.
- Modify horizontal and vertical alignment where warranted and cost effective to improve safety
- Excavate rock to accommodate realignment
- Widen and reconstruct the existing embankment at select locations
- Construct mechanically stabilized earth (MSE) walls or other wall structures as appropriate
- Improve drainage and ditching, replace culverts
- Remove and replace guardrail as warranted
- Replace handrails and chain link fence
- Replace public and private staircases for access to adjacent properties
- Remove or permit ROW encroachments
- Relocate overhead and underground utilities
- Obtain TCEs/TCPs for construction activities
- Purchase additional ROW along South Tongass Highway and Totem Way, from Totem Park (KET-0060) to address drainage and access concerns.

Also, before DOT&PF starts construction on the proposed project, the Alaska Native Tribal Health Consortium (ANTHC) plans to install a new wastewater system within the DOT&PF ROW. ANTHC's work would

- Abandon 3 existing wastewater ocean outfall facilities
- Replace with sewer lift stations next to existing facilities
- Excavate on edge of DOT&PF ROW to change alignment of existing force main **(as indicated on Figure 3 of Attachment 6)**

Area of Potential Effect (APE)

Evaluation of potential effects for this project includes a direct and an indirect APE. The direct APE consists primarily of the project footprint inside DOT& PF's Right of Way (ROW), where direct effects are limited to areas where roadway reconstruction would occur and areas subject to ancillary activities described in the project description, above. Additionally the work within the ROW would also take place within the road prism made up of previously disturbed soil.The indirect APE consists of the first tier of buildings, structures, and sites adjacent to, and within view of, the work area **(Attachment 1, Figures 3-7)**. The final project area and area of potential direct effects are generally linear, but are influenced by the nature of the proposed undertaking varying in width to include different kinds of potential impacts.

Identification Efforts

The Alaska Heritage Resources Survey (AHRS) was consulted for information on known sites in the APE. A literature search was completed that included research in the Tongass Museum archives in Ketchikan and the archived property records of the City of Ketchikan. The search revealed 5 previously recorded AHRS resources in the direct APE and 48 in the indirect APE **(Attachment 3, Table 2)**.

The identification process resulted in the addition of previously unknown cultural resources. The enclosed report[1] evaluates the additionally identified cultural resources and buildings for eligibility for listing in the National Register of Historic Places (NRHP) **(Attachment 3, Table 2).** A total of 16 new AHRS resources were identified in the indirect APE and one new AHRS resource (KET-01395) was identified in the direct APE **(Table 1A below)**. No new archaeological resources were identified (HDR 2016).

DOT&PF identified 134 locations of TCE/TCP for construction easements inside the direct APE **(Attachment 5).** A total of 36 cultural resources were recorded during the field investigation, including 19 previously recorded AHRS resources. The project survey included the listed South Tongass Highway (KET-01135) in the construction footprint. The South Tongass Highway (KET-01135) MP 3.4-15.5 is a Treat as Eligible (TE) road, as stipulated in the interim guidance for addressing Alaska Historic Roads (DOT&PF 2012). The roadway has been divided into four segments under the current historic evaluation. This project includes the first two Segments, 2.8 miles of the 15.5 mile of this study (Figure 8).

Determinations of Eligibility - Historic Resources

Summary
Five of the 48 previously recorded resources within the indirect APE are eligible for listing in the NRHP, one of which-- Chief Kashakes House (KET-00343) -- is listed in the NRHP.
Twenty-seven resources in the indirect APE have been determined not eligible for the NRHP, and 13 remain unevaluated (HDR 2016; **Attachment 4, Table 3)**

Previously Listed
One resource, the (KET-00112) Saxman Alaska Native Brotherhood Hall was removed from the NRHP following its destruction. The site no longer exists, and is therefore not eligible for the NRHP

[1] Cultrual Resources Investigation for the DOT&PF South Tongass Highway, Deermount to Saxman Widening and Pavement rehabilitation Project, Ketchikan Gateway Borough, HDR, September 2016

Five properties in the indirect APE—recommended eligible or listed on the NRHP are listed below. The enclosed report recommends no changes for the eligibility of these properties and provides more detailed information on each one.

- KET-00279 - Headquarters Building, 16th Lighthouse District , located at 1300 Stedman Street, was last recorded in 2000 and recommended eligible for inclusion in the NRHP (Figure 5-20). The site's exterior appears to be unchanged. No change to its eligibility status is recommended.

- KET-00343 - Chief Kashakes House in Saxman was built in 1895 and listed in the NRHP in 1993. The house is the last of its kind using this construction method in Saxman, and one of the last of its type in southeast Alaska. Given the significance of the property as the oldest in Saxman, its association with the founding of Saxman, and its association with the Tlingit settlement, no change to its eligibility status is recommended.

- KET-00542 - Buoy Shed at the USCG station, built in 1932 was determined eligible for NRHP listing in 1998. The resource was not visible from the DOT&PF ROW and therefore, no change to its eligibility status is recommended.

- KET-01349 - Fidalgo Island Packing Company's Cannery Warehouse is associated with KET 00294, the Fidalgo Island Packing Company complex. The warehouse was built in 1904 and was determined eligible in 2015 under Criterion A. No change to its eligibility status is recommended.

- KET-00060 - Saxman Totem Park is currently listed on the NRHP. Although features within the indirect APE have been subject to reconstruction and modification over time, the features maintain integrity of location, design, feeling, setting and association. No modification to the eligibility status of Saxman Totem Park is recommended.

Unevaluated

Not all of the unevaluated AHRS-listed historic resources in the project area had been evaluated for the NRHP. Twelve previously surveyed architectural resources in the APE have not been evaluated for eligibility **(Attachment 4, Table 3).** Of these sites:

- Three sites associated with Fidalgo Island Packing Company --KET- 00294, KET-00490 and KET-00491--were not visible from the ROW. Therefore, these sites are recommended to maintain their unevaluated status.

- Five sites associated with the New England Fish Company (KET-00492 thru KET-00496) are only partially visible and are recommended to maintain their unevaluated status.

Recommended Ineligible

Three single-family dwellings: sites KET-01247, KET-01248 (in the indirect APE) and KET-01249 (in the direct APE), are recommended not eligible for the NRHP **(Attachment 4, Table 3)**

KET-00435, KET-01240, KET-01249, and KET-01395, (in the direct APE) have either been formally evaluated as ineligible or recommended as ineligible pending SHPO concurrence. Therefore, they do not qualify as historic properties and they would not be considered further for potential project effects.

Recommended Eligible

KET-01358 - Saxman Government School, previously listed unevaluated structure is recommended eligible. The Saxman Government School (KET-01358) retains a strong integrity of location, setting, and feeling, and is able to convey its historical significance to the public. It is one of the few extant buildings from Saxman's early history **(HDR, Pg 86, Attachment 4)**.

KET-01391 - 929 Stedman Street, previously listed unevaluated structure is recommended eligible. The structure is a wood framed commercial structure built in 1920s. The building's integrity is largely intact, the building hasn't been moved, its original design is evident and the setting around the property has become more developed since 1920. However the site's associated canning-related structures are still located across the road, in the area of Ketchikan specifically associated with the canning industry **(HDR, Pg-58, Attachment 4).**

KET-00060 - Saxman Totem Park, previously listed and identified within the direct APE, is recommended eligible. The only feature of KET-00060 within the direct APE is the road that enters the park. Although features within the indirect APE have been subject to reconstruction and modification over time, they maintain integrity of location, design, feeling, setting, and association. No modification to the eligibility status of Saxman Totem Park can be attributed to the current construction.

KET-0546 & KET-0548, two eligible AHRS-listed properties in the original indirect APE were not visible from the DOT&PF ROW and therefore, no change to their eligibility status is recommended.

A total of 17 architectural resources in the APE (16 in the indirect APE, 1 in the direct APE) were newly recorded for this report (Table 1A). Of these, only one is recommended eligible for the listing in the NRHP: 929 Stedman Street (KET-01391). The other 16 resources were evaluated as ineligible for inclusion in the NRHP. The structure KET-01391 is located partially within the direct APE.

Table 1A Eligibility Recommendations for the 17 new AHRS listings.

AHRS #	Property	Description	APE	Eligibility	Finding
KET-01390	900 Stedman StreetSt.	Metal framed post-WWII utilitarian design building, (Pg. 57)	Indirect APE	Recommended Not Eligible	No Effect
KET-01391	929 Stedman St. Street	Wood framed post WWII utilitarian design building, (Pg. 58)	Direct / Indirect APE	Recommended Eligible	No Adverse Effect
KET-01392	Petro Marine Services Shed	Metal framed pre-fab storage shed, (Pg. 59)	Indirect APE	Recommended Not Eligible	No Effect
KET-01393KE	211 S.0 South Tongass HighwayHwy	1930s wood frame Minimal Traditional designed building, (Pg. 60)	Indirect APE	Recommended Not Eligible	No Effect
KET-01394	2182 S.South Tongass Hwy	1972 wood framed contemporary design building, (Pg. 61)	Indirect APE	Recommended Not Eligible	No Effect
KET-01395	2191 S. Tongass Hwy	1929 wood-framed Minimal Traditional design structure, (Pg. 62)	Direct APE	Recommended Not Eligible	No Effect
KET-01396	2266 S. Tongass Hwy	1960 wood framed modern ranch design building,(Pg. 63)	Indirect APE	Recommended Not Eligible	No Effect

AHRS #	Property	Description	APE	Eligibility	Finding
KET-01397	2278 Oyster Ave	1935 wood frame Bungalow design, (Pg. 64)	Indirect APE	Recommended Not Eligible	No Effect
KET-01398	2516 S. Tongass Hwy	1970 minimal traditional design, (Pg. 65)	Indirect APE	Recommended Not Eligible	No Effect
KET-01399	2573 S. Tongass Hwy	1920 wood framed Bungalow design, (Pg 66)	Indirect APE	Recommended Not Eligible	No Effect
KET-01400	2588 S. Tongass Hwy	1900 wood framed Bungalow design, (Pg. 67)	Indirect APE	Recommended Not Eligible	No Effect
KET-01401	2592 S. Tongass Hwy	1924 wood framed Bungalow design (Pg. 68)	Indirect APE	Recommended Not Eligible	No Effect
KET-01402	2587 S. Tongass Hwy	1920 wood framed Bungalow design (Pg. 69)	Indirect APE	Recommended Not Eligible	No Effect
KET-01403	2949 S. Tongass Hwy	1966 wood framed split level design (Pg. 70)	Indirect APE	Recommended Not Eligible	No Effect
KET-01404	3008 S. Tongass Hwy	1966 wood framed Modern Ranch design (Pg. 71)	Indirect APE	Recommended Not Eligible	No Effect
KET-01405	3016 S. Tongass Hwy	1970 wood framed Modern Ranch design (Pg. 72)	Indirect APE	Recommended Not Eligible	No Effect
KET-01406	24 Shoup St.	1965 wood framed Split Level design (Pg. 73)	Indirect APE	Recommended Not Eligible	No Effect

Determinations of Eligibility - Archeological Resources

Archaeological resources within the project area, include

- KET- 00060, Saxman Totem Park currently listed on the NRHP
- KET-00021, a previously recorded rock art site
- KET-00435, the dump site

KET-00021 is on the west side of Totem Row, near the entrance of the park. KET-00021 is composed of one previously recorded, and three newly recorded petroglyph panels. The site is located slightly outside of the indirect APE. Regardless, the site is described here in order to clearly demonstrate the juxtaposition and relationship of the KET-00021 to KET-00060, the Saxman Totem Park. Features of KET-00021 are part of an interpretive display within Saxman Totem Park, part of which is located in the indirect APE. Three totems and four grave markers associated with the site adjacent to the road are located in the indirect APE **(Attachment 1, Figure 9 & Attachment 2, Sheet 10).** KET-00021 is eligible for the NRHP as a contributing element to Saxman Totem Park the petroglyphs of KET- 00021 would be eligible under Criterion C.

KET-00435, the dump site is recommended not eligible for inclusion in the NRHP. The dump is a by-product of expansion of Ketchikan in the 1930s, and has no notable association with events that have made a significant contribution to the broad patterns of history neither on national, state, or local level (Criterion A). The dump is not associated with an important person significant in our past (Criterion B). The site does not embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess artistic value (Criterion C). KET-00435 has not yielded, nor is likely to yield information important in history (Criterion D).

DOT&PF agrees with HDR's recommendations and determines that

- 1 historic resource: 929 Stedman Street, (KET 01391), wood framed post WWII utilitarian design building is eligible for listing in the NRHP.
- 16 remaining historic resources --listed in the table above--within the proposed project APE are not eligible for listing in the NRHP.
- 1 archeological resource, the dump site (KET-00435) is not eligible for listing in the NRHP.
- 1 archeological resource, Rock Art Site (KET-00021) is eligible for listing on the NRHP as a contributing element to Saxman Totem Park.
- 1 archeological resource, Saxman Totem Park retains its eligibility.

Finding of Effect

DOT&PF finds No Adverse Effect for the proposed project. The basis for the finding of "no adverse effect" is that the project would not have any adverse effect on the characteristics that qualify the above listed historic/cultural resources within the direct and indirect APE (Table 1B) for inclusion in the NRHP:

Table 1B Summary of Resources (highlighted in Discussion above, within or very near the APE).

AHRS #	Description	Eligibility	APE	Finding
KET-00021	Rock Art Site (Pg. 36)	Previously listed Eligible	Just outside Indirect APE	No Effect
KET-00060	Saxman Totem Park (Pg. 38-43)	Previously listed NRHP, Eligible	Indirect / Direct APE	No Effect
KET-00112	Auditorium/gym, frame, 1-1/2-stories, built ca. 1918. (Pg. 31)	Structure was demolished; Closed	Indirect APE	No Effect
KET-00279	1300 Stedman Street Headquarters Building, 16th Lighthouse District (Pg. 50)	Previously listed Eligible	Indirect APE	No Effect
KET-00343	Chief Kashakes House (Pg. 51)	Previously listed Eligible	Indirect APE	No Effect
KET-00435	Dump site (Pg. 44)	Previously listed Eligible	Direct APE	No Effect
KET-00542	Buoy Shed at the USCG station (Pg. 51)	Previously listed Eligible	Indirect APE	No Effect
KET-00546	North Pyrotechnic Bunker	Previously listed Eligible	Not visible in Indirect APE / ROW	No Effect
KET-00548	.30 Caliber Machine Gun Emplacement	Previously listed Eligible	Not visible in Indirect APE / ROW	No Effect
KET-01135	South Tongass Highway TE road (Pg. 47)	Portion Eligible for listing	Direct APE	No Effect
KET-01240	1715 S. Tongass Hwy Frame dwelling, 2 stories, built 1930.(Pg. 25)	Recommended Not Eligible	Direct APE	No Effect
KET-01247	2322 S. Tongass Hwy Dwelling, 2 stories, frame, built 1960. (Pg. 53)	Recommended Not Eligible	Indirect APE	No Effect

AHRS #	Description	Eligibility	APE	Finding
KET-01248	2332 S. Tongass Hwy 2 stories, frame, built 1945. (Pg. 54)	Recommended Not Eligible	Indirect APE	No Effect
KET-01249	2259 S. Tongass Hwy Wood frame 2 story dwelling, built 1950 (Pg. 55)	Recommended Not Eligible	Direct APE	No Effect
KET-01349	Fidalgo Island Packing Company's Cannery Warehouse (Pg. 52)	Previously listed Eligible	Indirect APE	No Effect
KET-01358	Saxman Government School (Pg. 56)	Previously listed Eligible	Indirect APE	No Effect
KET-01391	929 Stedman Street Wood framed post WWII utilitarian design building, (Pg. 58)	Recommended Eligible	Direct/Indirect APE	No Adverse Effect
KET-01395	2191 S. Tongass Hwy (Pg. 62)	Recommended Not Eligible	Direct APE	No Effect

Direct APE – Temporary& Permanent Construction Easements/Permits (TCEs/TCPs)
None of the eligible sites within the direct APE would be affected by the proposed access easements and permits (**Attachment 5, Table 4**). The temporary construction easements (TCEs), temporary construction permits (TCPs) and permanent easements were identified and historic properties adjacent to the areas were evaluated for potential impact. The temporary property use would be minor in scope and there would be no permanent changes to any historic properties in the current project footprint.

The permanent incorporation of a portion of the Totem Park (KET-0060) into the ROW would not have a permanent adverse physical impact; nor would it cause interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis.

All slope grading is limited to areas where there are no historic properties. All properties (non-historic) impacted by any TCE's/TCP's would be returned to a condition which is at least as good as what existed prior to the proposed work. In all cases the proposed temporary access would not affect any characteristics that qualify the properties for listing in the NRHP.

The TCPs, TCEs and permanent easements including Totem Park have no potential to directly or indirectly adversely affect any historic properties or archaeological materials. The proposed access for the project is unlikely to affect potential historic values associated with the adjacent areas. No known association of contributing attributes of eligible structures would be compromised by the construction temporary access, permanent easements or slope grading associated with the project construction.

Direct APE – South Tongass and TE Road Status.
DOT&PF anticipates that paving and roadway improvements would have no adverse effect to the South Tongass Highway (KET-1135).

Before DOT&PF begins construction on the proposed project, the Alaska Native Tribal Health Consortium (ANTHC) plans to install a new wastewater system within the DOT&PF ROW. As a result, at least a portion of DOT&PFs work would take place within previously disturbed soil resulting from ANTHC's previous work. On June 7-2016, ANTHC received a SHPO concurrence with a finding of No Historic Properties Affected. **(Attachment 6)**

DOT&PF contacted your office on November 4, 2016 regarding South Tongass status as a TE Road. Draft TE consultation forms with attached graphics were discussed regarding the procedure of this evaluation. It was determined that only the last section of the South Tongass road from Herring Cove to end of the road was potentially eligible as a TE road.

DOT&PF retained Northern Land Use Research Alaska, LLC (NLURA) and Mead & Hunt, Inc. (Mead & Hunt) to prepare a Determination of Eligibility (DOE) report for the South Tongass Highway. Their research indicated four periods of construction of the South Tongass Highway. The eligibility of the highway was evaluated regarding these periods of construction.

Consequently, the road was divided into Segments 1 thru 4. Segments 1, 2, and 3 did not possess significance. Segment 4 of the South Tongass Highway was found to have significance at the local level under Criterion A. This segment of South Tongass has significance for its direct and important association with Transportation and for its supplemental area of significance of Industry with a period of significance that extends from 1951 to 1966. Segment 4 of the South Tongass Highway extends from Herring Cove (Mile Point (MP) 10.5 to Beaver Falls Creek MP 15.09. The current project footprint includes the two segments (1-2) and is not in an area of potential eligibility, therefore the impacts of the current construction are not relevant and were not evaluated for the current project construction.

Indirect APE
Project activities are likely to not have a visual adverse impact to eligible resources within the indirect APE: Saxman Petroglyphs (KET-0002), Saxman Totem Park (KET-00060), and all architectural resources. Project activities planned within the viewshed of these sites consist primarily of road re-pavement and improvements upon existing facilities. As the sites are currently within the viewshed of a modern asphalt road, project activities would not significantly alter the characteristics that make these resources eligible for the NRHP.

Section 4(f)
The DOT&PF has documented agreements with the official(s) with jurisdiction over the Section 4(f) resource regarding the project activities to improve the sidewalks and streets in the area of the Saxman Totem Park, (KET-00060). DOT&PF evaluated the permanent incorporation of a portion of the Totem Park (KET-0060) into the ROW and found that there would be no adverse effect on that property. It is DOT&PF's intent to make a Section 4(f) de minimis impact finding premised on your written concurrence that the project would not adversely affect the historic properties listed in **Attachment 5, Table 4.**

The remaining 4(f) eligible historic properties meet the conditions for the exception to 4(f) approval found in 23 CFR 774.13(a) – The restoration, rehabilitation, or maintenance of transportation facilities that are listed or eligible for listing in the NRHP.

In the event that previously unknown cultural resources are encountered in the process of construction the project manager shall halt activity and immediately notify the DOT&PF.

Consultation Efforts

The following consulting parties are being notified of this finding

- State Historic Preservation Officer
- Organized Village of Saxman
- Ketchikan Indian Community

- The Central Council of Tlingit and Haida Tribes of Alaska
- Cape Fox Corporation
- Sealaska Corporation
- Sealaska Heritage Institute
- Ketchikan Historic Commission
- Historic Ketchikan, Inc.
- Ketchikan Gateway Borough
- City of Ketchikan

In accordance with Section 106, Consultation-Initiation letters were mailed to the above-listed consulting parties on April 10, 2013. No responses to the consultation initiation letters were received.

Please direct your concurrence or comments to me at the address above or by telephone at 907-465-4715, or by e-mail at Michael.kell@alaska.gov.

Sincerely,

Michael Kell
Cultural Resource Specialist

Enclosures:

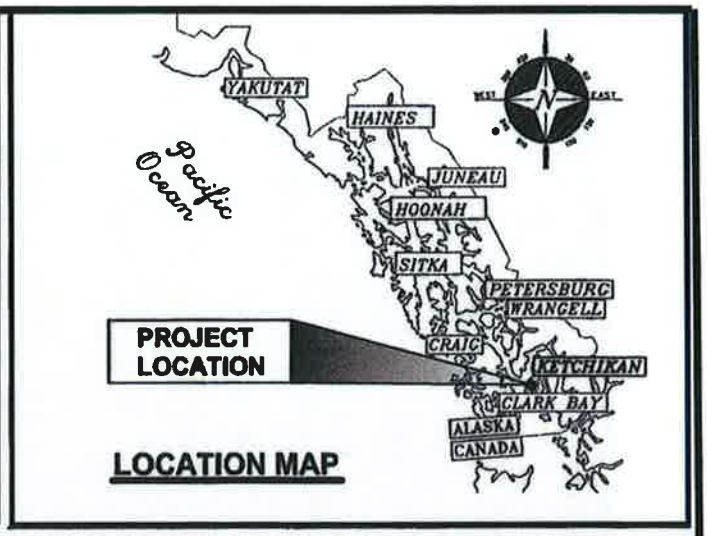
Attachment 1 Figure 1-9
Attachment 2 Sheets 1-12
Attachment 3 Table 2 Previously known cultural resources listed in the AHRS
Attachment 4 Table 3 Eligible properties within the APE, with recommended finding
Attachment 5 Table 4 Easements and 4(f) resources & 4(f) Activities Location Sheets1-17
Attachment 6 SSHPO concurrence with Finding of No Historic Properties Affected (June 6, 2016) on ANTHC's proposed wastewater line project

OHA Coversheet
Building Site forms
Office of History and Archaeology Coversheet: for the Cultural Resources Investigation for the DOT&PF South Tongass Highway, Deermount to Saxman Widening and Pavement rehabilitation Project, Ketchikan Gateway Borough.

Electronic cc w/ enclosures:

David Pyeatt, P.E., DOT&PF Southcoast Region, Project Manager
John Barnett, DOT &PF Southeast Regional Environmental Manager
Melissa Goldstein, DOT&PF, Statewide NEPA Manager
Kathy Price, DOT&PF, Cultural Resources Manager

Attachment 1
Figures 1-9



Vicinity/Location Map

SOUTH TONGASS HIGHWAY WIDENING PROJECTS
DEERMONT - SAXMAN (#67685)
SAXMAN - SURF (#67571)

Figure 1

Vicinity/Location Map

SOUTH TONGASS HIGHWAY WIDENING PROJECTS
DEERMONT - SAXMAN (#67685)
SAXMAN - SURF (#67571)

Figure 2

Area of Potential Effect
APE

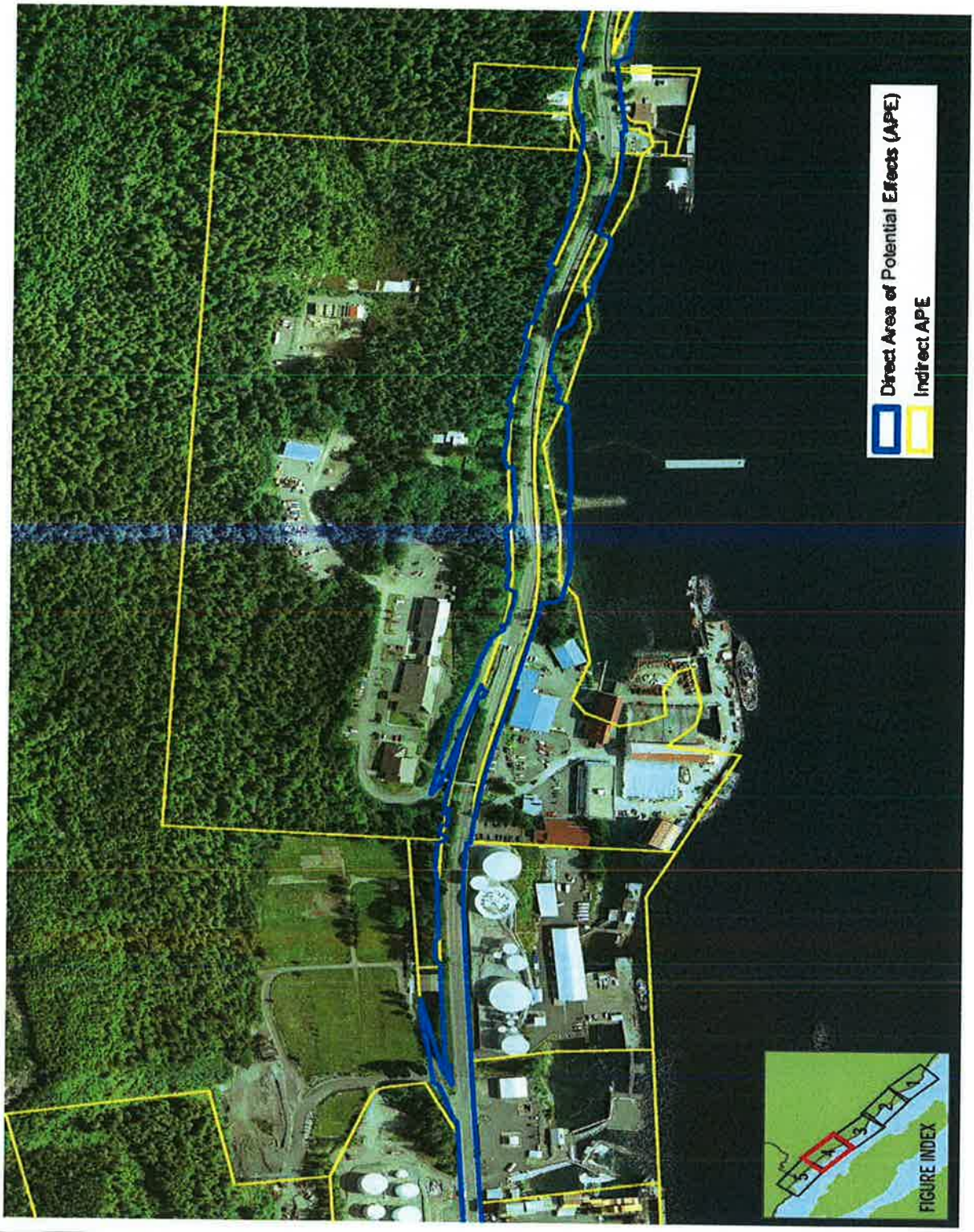
SOUTH TONGASS HIGHWAY
WIDENING PROJECTS
DEERMONT - SAXMAN (#67685)
SAXMAN - SURF (#67571)
Figure 3

Area of Potential Effect
APE

SOUTH TONGASS HIGHWAY
WIDENING PROJECTS
DEERMONT - SAXMAN (#67685)
SAXMAN - SURF (#67571)
Figure 4

Area of Potential Effect
APE

SOUTH TONGASS HIGHWAY
WIDENING PROJECTS
DEERMONT - SAXMAN (#67685)
SAXMAN - SURF (#67571)
Figure 5

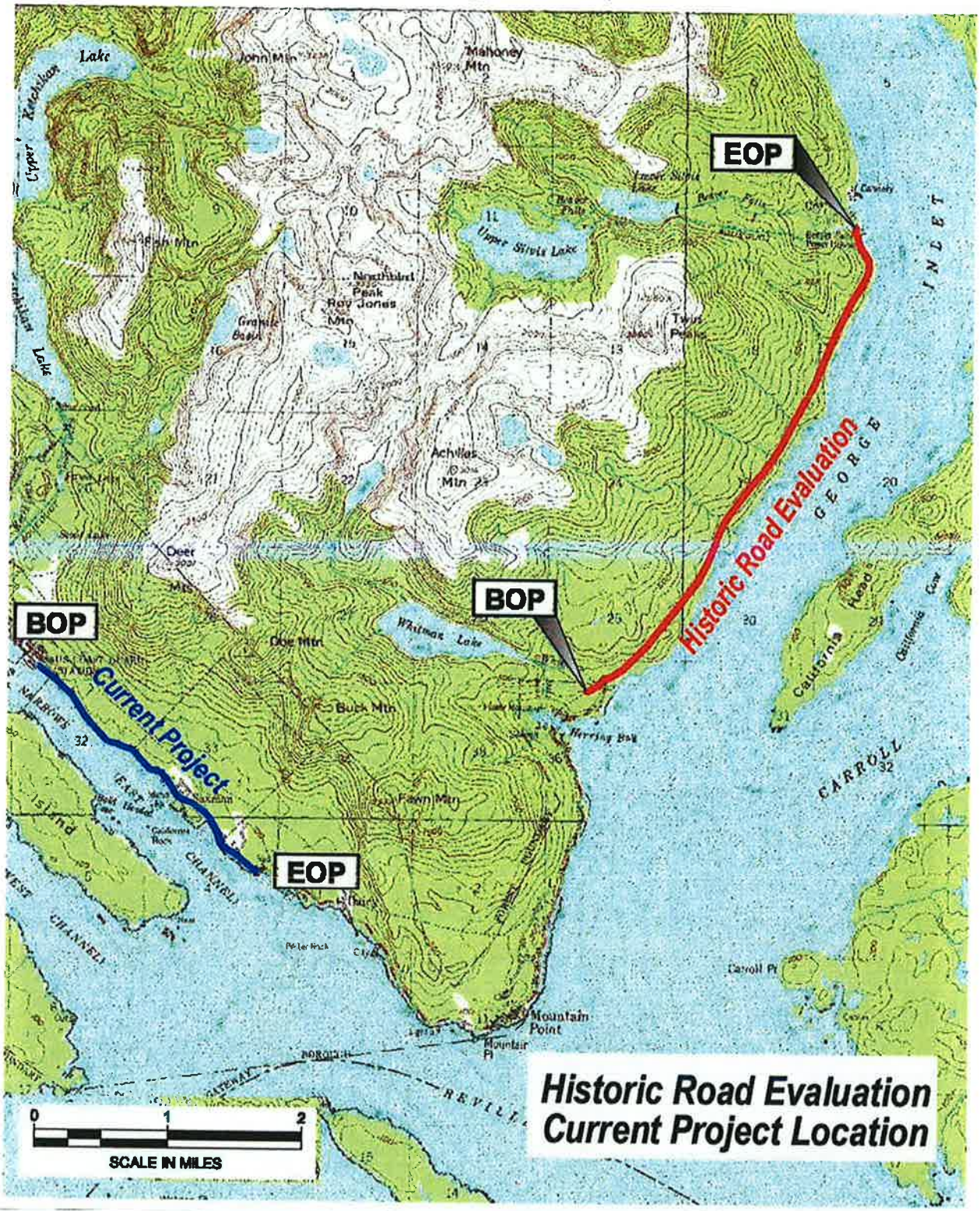


Area of Potential Effect
APE

SOUTH TONGASS HIGHWAY
WIDENING PROJECTS
DEERMONT - SAXMAN (#67685)
SAXMAN - SURF (#67571)
Figure 6

Area of Potential Effect
APE

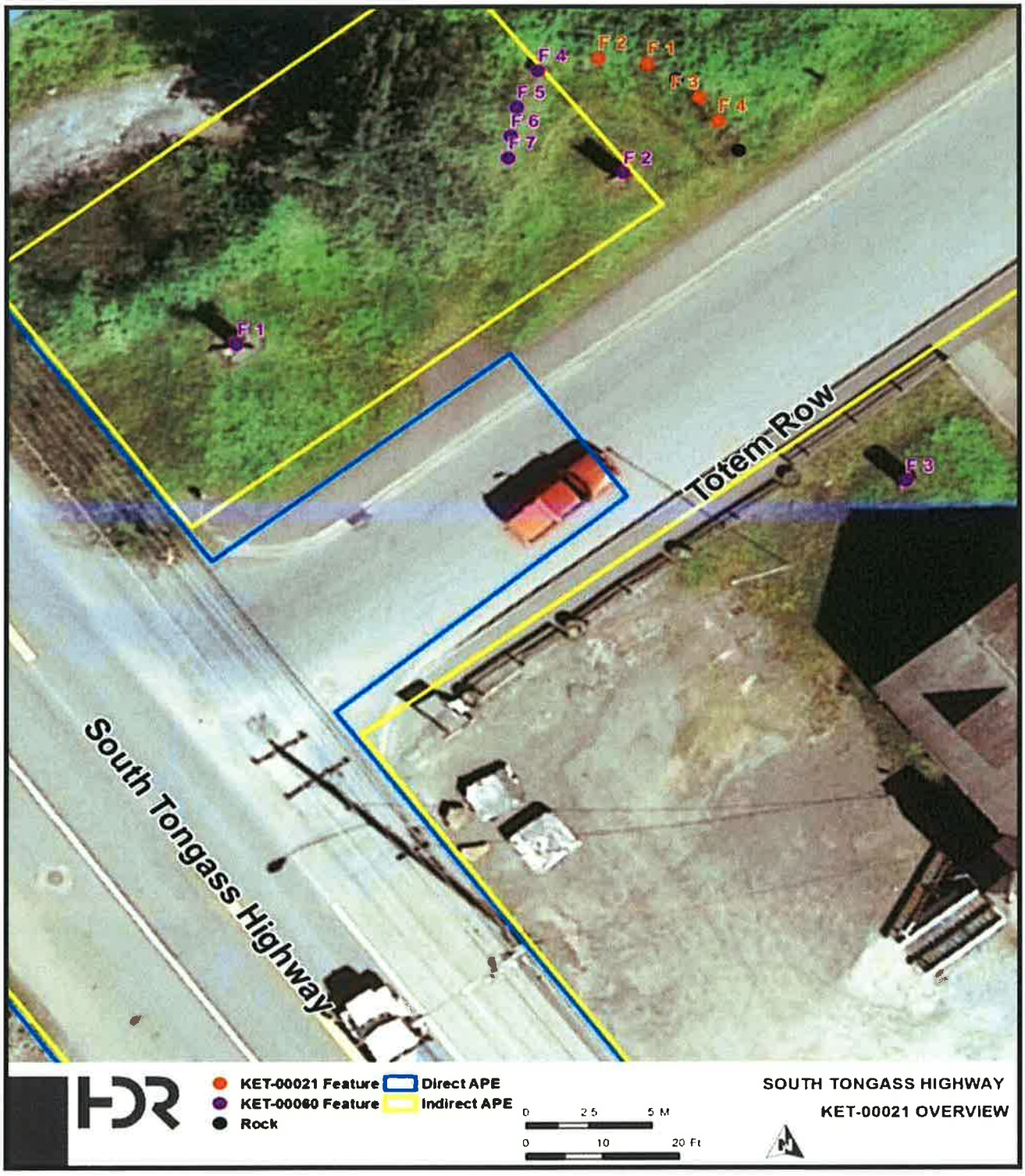
SOUTH TONGASS HIGHWAY
WIDENING PROJECTS
DEERMONT - SAXMAN (#67685)
SAXMAN - SURF (#67571)
Figure 7



TE Road Location

SOUTH TONGASS HIGHWAY
WIDENING PROJECTS
DEERMONT - SAXMAN (#67685)
SAXMAN - SURF (#67571)

Figure 8

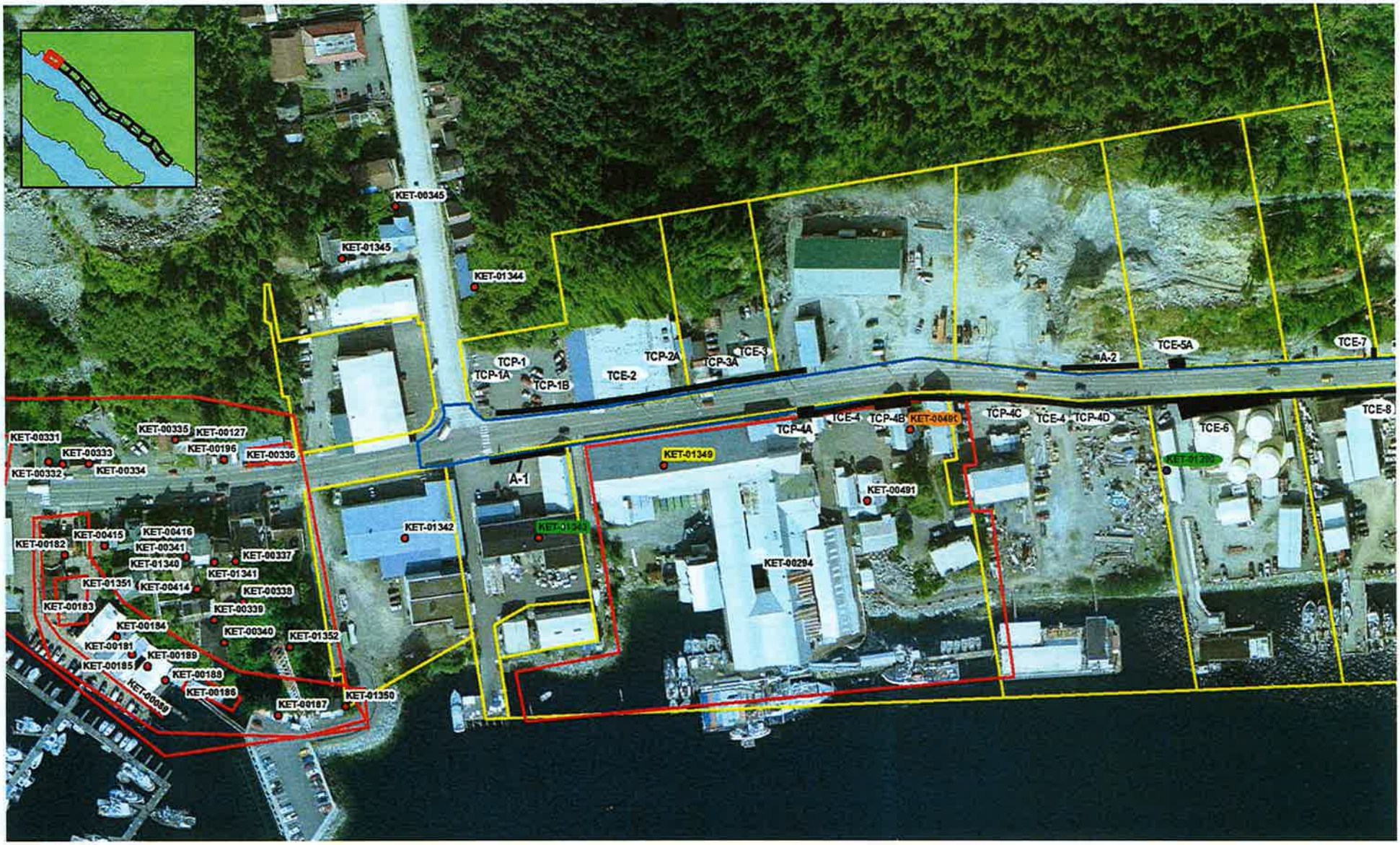


TE Road Location

SOUTH TONGASS HIGHWAY WIDENING PROJECTS
DEERMONT - SAXMAN (#67685)
SAXMAN - SURF (#67571)

Figure 9

Attachment 2
Project Plan Sheets 1-12


KET-00345
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TCP-1B
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TCP-2A
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A-2
TCE-5A
TCE-7
TCE-8
TCE-6
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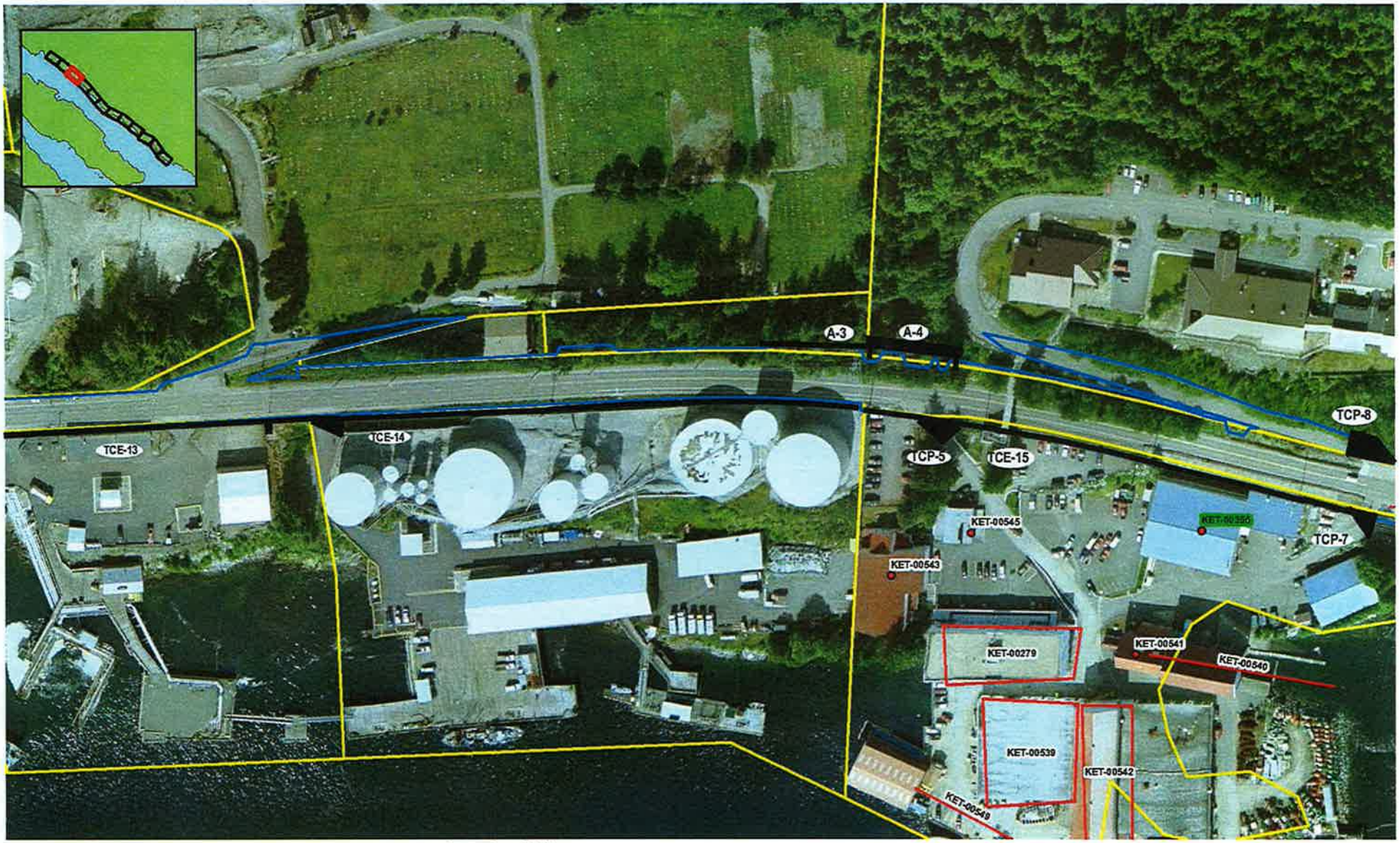
KET-00340
KET-01352
KET-00181
KET-00189
KET-00185
KET-00188
KET-00186
KET-00187
KET-01350
KET-00190
Direct Area of Potential Effects (APE)
Indirect APE
Newly Recorded Architectural Resource
AHRS Point
AHRS Line
AHRS Polygon
TCE/TCP Line
Not Eligible
Eligible
Not Evaluated
0
60
120 Meters
0
260
620 Ft
SOUTH TONGASS HIGHWAY
RESULTS OF SURVEY
Sheet 1 of 12
SOUTH TONGASS HIGHWAY WIDENING PROJECTS

Direct Area of Potential Effects (APE)
Indirect APE
Newly Recorded Architectural Resource
AHRS Point
AHRS Line
AHRS Polygon
TCE/TCP Line
Not Eligible
Eligible
Non Evaluated

0 50 100 Meters
0 230 460 Ft

SOUTH TONGASS HIGHWAY
RESULTS OF SURVEY
Sheet 2 of 12



SOUTH TONGASS HIGHWAY
RESULTS OF SURVEY
Sheet 3 of 12

Direct Area of Potential Effects (APE)
Indirect APE
Newly Recorded Architectural Resource
AHRS Point
AHRS Line
AHRS Polygon
TCE/TCP Line
Not Eligible
Eligible
Non Evaluated
0 60 120 Meters
0 260 520 Ft

SOUTH TONGASS HIGHWAY
RESULTS OF SURVEY
Sheet 4 of 12

Direct Area of Potential Effects (APE)
Indirect APE
Newly Recorded Architectural Resource
AHRS Point
AHRS Line
AHRS Polygon
TCE/TCP Line
Not Eligible
Eligible
Non Evaluated

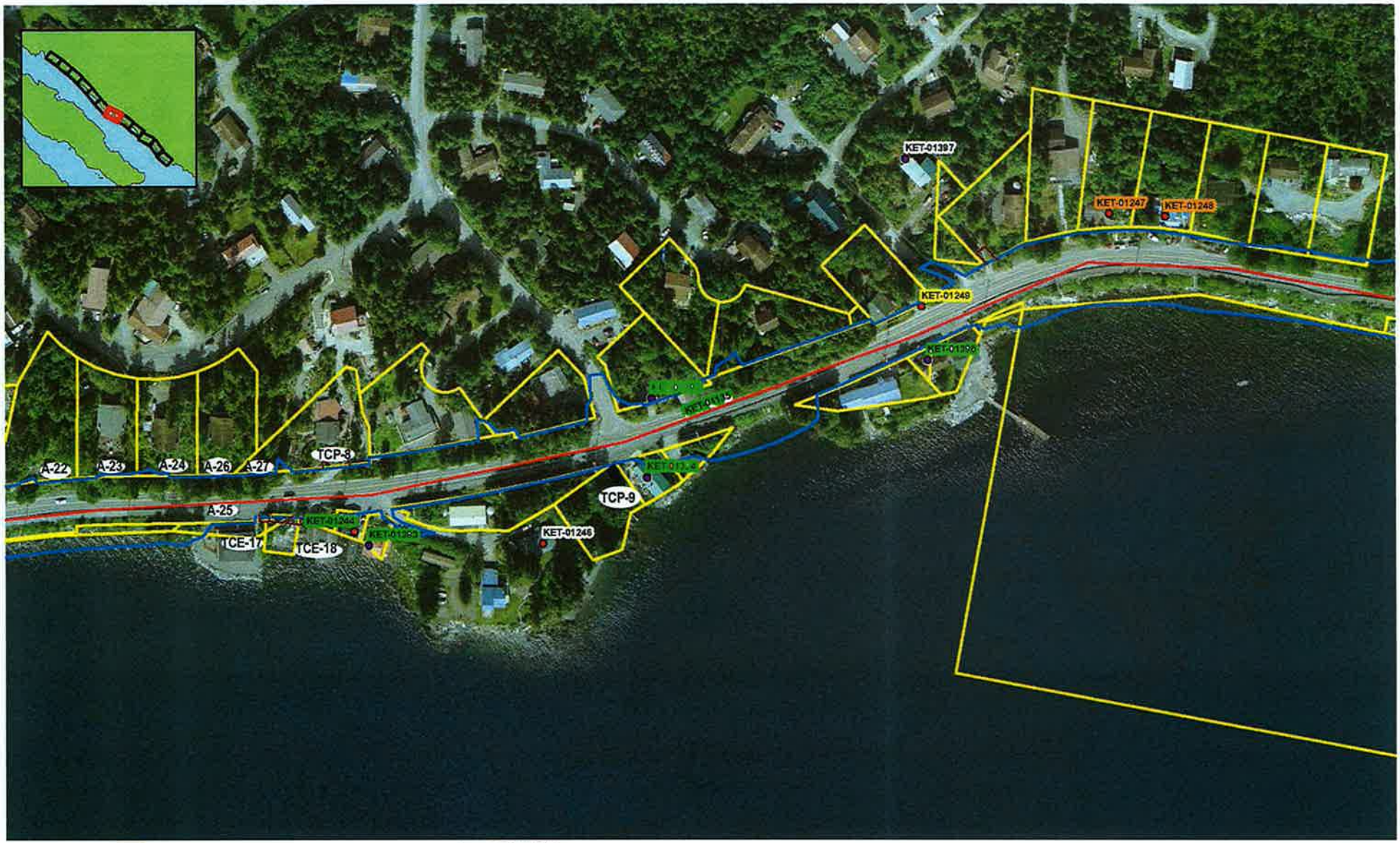
0 60 120 Meters
0 260 520 Ft

SOUTH TONGASS HIGHWAY
RESULTS OF SURVEY
Sheet 6 of 12

Direct Area of Potential Effects (APE)
Indirect APE
Newly Recorded Architectural Resource
AHRS Point
AHRS Line
AHRS Polygon
TCE/TCP Line
Not Eligible
Eligible
Non Evaluated

0 70 140 Meters
0 290 580 Ft

SOUTH TONGASS HIGHWAY
RESULTS OF SURVEY
Sheet 5 of 12



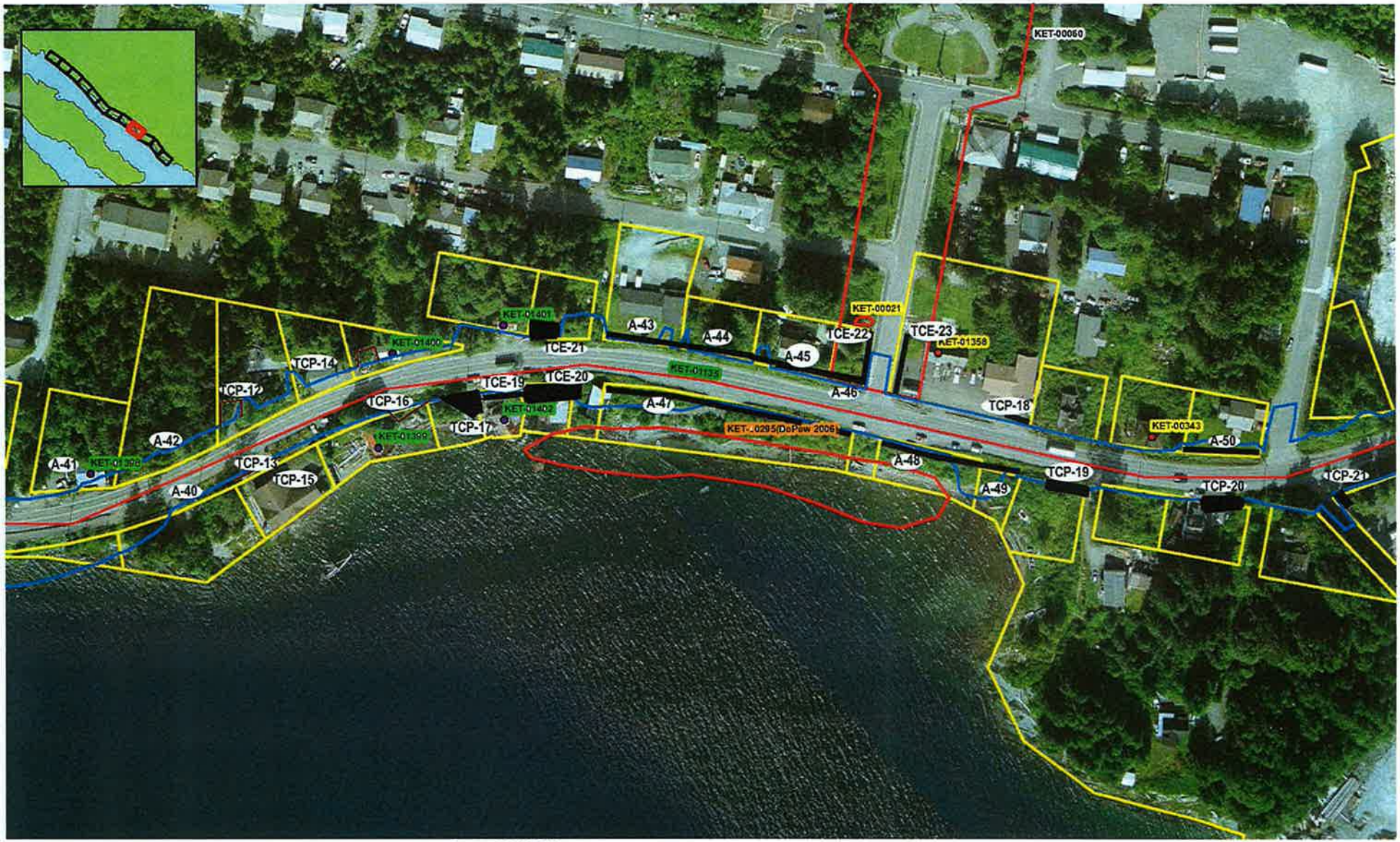
SOUTH TONGASS HIGHWAY
RESULTS OF SURVEY
Sheet 7 of 12

HDR

Direct Area of Potential Effects (APE)
Indirect APE
Newly Recorded Architectural Resource
AHRS Point
AHRS Line
AHRS Polygon
TCE/TCP Line
Not Eligible
Eligible
Non Evaluated

0 50 100 Meters
0 240 480 Ft

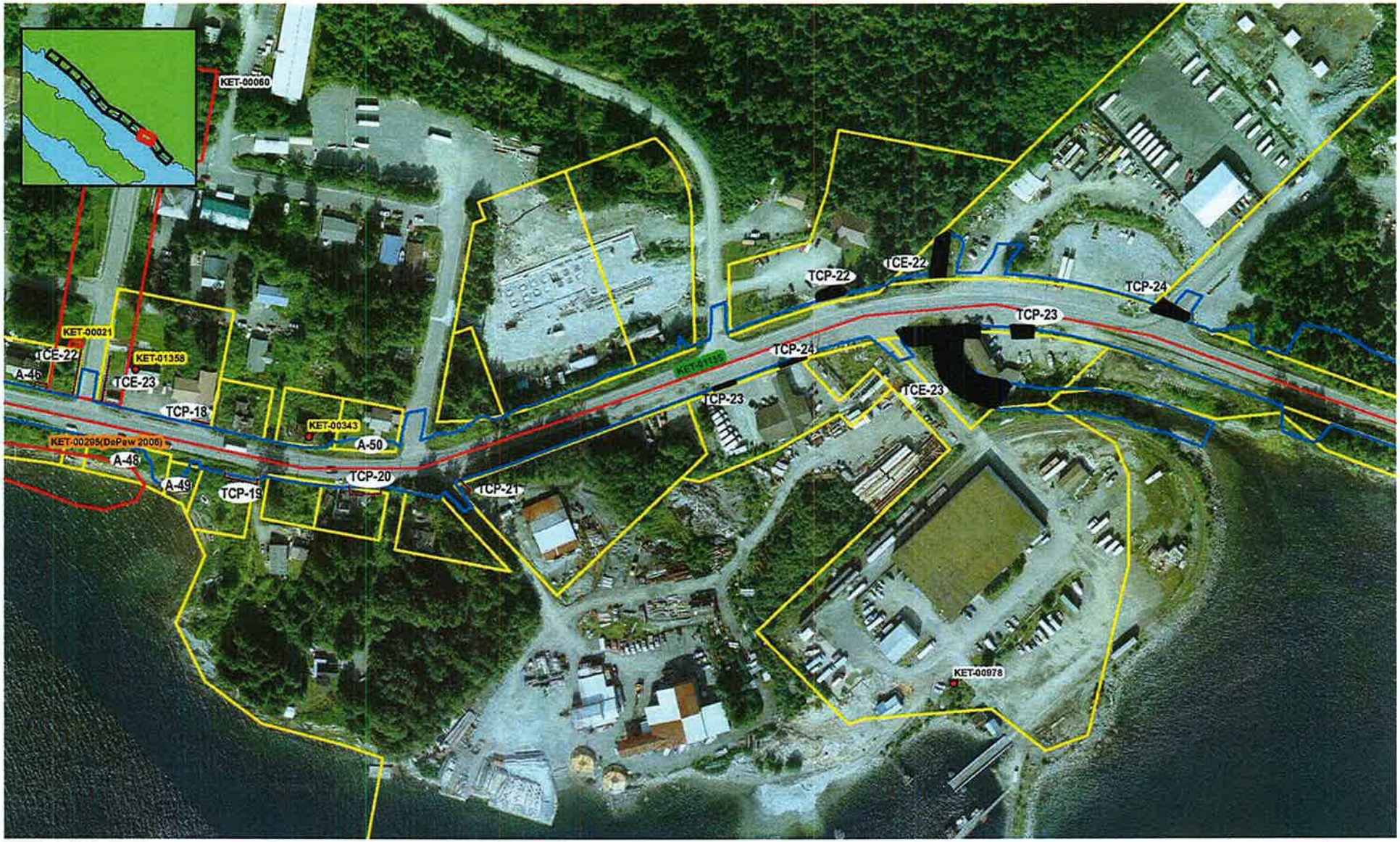
SOUTH TONGASS HIGHWAY
RESULTS OF SURVEY
Sheet 8 of 12



SOUTH TONGASS HIGHWAY

RESULTS OF SURVEY

Sheet 9 of 12



SOUTH TONGASS HIGHWAY
RESULTS OF SURVEY
Sheet 10 of 12

Direct Area of Potential Effects (APE)
Indirect APE
Newly Recorded Architectural Resource
AHRS Point
AHRS Line
AHRS Polygon
TCE/TCP Line
Not Eligible
Eligible
Non Evaluated

0 70 140 Meters
0 310 620 Ft

SOUTH TONGASS HIGHWAY
RESULTS OF SURVEY
Sheet 11 of 12

SOUTH TONGASS HIGHWAY
RESULTS OF SURVEY
Sheet 12 of 12

Attachment 3
Table 2
Previously Listed Sites in APEs

Table 2. Previously Recorded Resources.

Previously Recorded Resources in the Direct APE.

AHRS Number	Resource Name	Description	Eligibility
KET-00060	Saxman Totem Park	23 historic, Tlingit-style totem poles, a mixture of originals and replicas, arranged in a T-shaped park.	Listed-National Register (08/07/1979)
KET-00435	Ketchikan Dump	Dump consists of a large, dense scatter of artifacts in the intertidal zone, along with an artifact-laden organic soil horizon exposed in the marine cut bank. The City of Ketchikan applied for and received a permit from the U.S. Lighthouse Service to dump there in 1926.	Unevaluated
KET-01135	S. Tongass Hwy MP 3.4-15.5	12-mile segment of highway.	Treated as Eligible
KET-01240	1715 S. Tongass Hwy	Frame dwelling, 2 stories, built 1930.	Not Eligible (01/11/2013)
KET-01249	2259 S. Tongass Hwy	Frame dwelling, 2 stories, built 1950.	Unevaluated

Previously Recorded Resources in the Indirect APE.

AHRS Number	Resource Name	Description	Eligibility
KET-00021	Saman Petroglyph	Sealaska noted a petroglyph located near the entrance to the totem park.	Unevaluated
KET-00279	Headquarters Bldg., 16th Lighthouse District	Concrete, 3 stories, built 1918-1920.	Eligible (06/28/1983)
KET-00112	Saxman ANB Hall	Auditorium/gym, frame, 1-1/2-stories, built ca. 1918.	Closed for other reason – needs re-evaluation.
KET-00294	Fidalgo Island Packing Company/Totem Packing Company	Two-story metal buildings, a cannery, and a cold storage unit. Current complex started in 1904. Four contributing buildings: oil house (1916), pole shed (1940s), warehouse (1904), and cannery/retort (1947). Twenty noncontributing buildings.	Unevaluated
KET-00295	KET-00295	A petroglyph, several rock alignments, and a grave or memorial stone in the intertidal area at Saxman.	Unevaluated
KET-00356	USCG Supply Warehouse	Frame, 2 stories, built 1943. Major renovations in the 1960s. Reroofed and resided in the early 1980s.	Not Eligible (05/18/1993)
KET-00343	Chief Kashakes House	Balloon frame, 2 stories, 20' x 30' clanhouse. Two totem poles and three burials are associated.	Listed on the National Register (04/26/1993)

Table 2. Previously Recorded Resources.

AHRS Number	Resource Name	Description	Eligibility
KET-00490	Fidalgo Island Packing Company Office/KET FIP A	No description provided.	Unevaluated
KET-00491	Fidalgo Island Packing Company Bunkhouse/KET-FIP-B	No description provided.	Unevaluated
KET-00492	New England Fish Company Complex/KET NEP	No description provided.	Unevaluated
KET-00493	New England Fish Company General Store/Dormitory/NEP-B	No description provided.	Unevaluated
KET-00494	New England Fish Company Superintendent's House/NEP-D	No description provided.	Unevaluated
KET-00495	New England Fish Company Boiler/NEP-K	No description provided.	Unevaluated
KET-00496	New England Fish Company Messhall/ Bunkhouse/NEP-M	No description provided.	Unevaluated
KET-00539	North Shop	Amalgamation of as many as 4 buildings constructed between 1919 and 1956.	Not Eligible (02/25/1998)
KET-00540	Marine Railway	Comprises a railroad track, a vessel cradle that rolls on the track from the water to the shore, a roofed structure into which the vessel cradle rolls, and a small winch house. Built as an open structure by the Lighthouse Service in 1927.	Not Eligible (02/25/1998)
KET-00541	Winch House	Small, frame, built 1927. Has a centered decorative weather vane box.	Not Eligible (02/25/1998)
KET-00542	Buoy Shed	Tall, metal frame, built 1932.	Eligible (02/25/1998)
KET-00543	Gymnasium	Large utilitarian frame building; built 1943 with major reconstruction in 1980.	Not Eligible (02/15/1998)
KET-00544	Commanding Officer's Quarters	Frame, 2 stories, built 1943 with 1946 and early 1960s additions.	Not Eligible (02/25/1998)
KET-00545	Public Works/Facility Engineering	Frame, 2 stories, built 1943 as the base fire station, used as such until ca. 1970.	Not Eligible (02/25/1998)

Table 2. Previously Recorded Resources.

AHRS Number	Resource Name	Description	Eligibility
KET-00546	North Pyrotechnic Bunker	Built to store military explosives during WWII (exact date of construction is unknown), still serves that function.	Eligible (02/25/1998)
KET-00547	South Pyrotechnic Bunker	Built to store military explosives during WWII (exact date of construction is unknown), served that function until it flooded and collapsed ca. 1998.	Not Eligible (02/25/1998)
KET-00548	.30 Caliber Machine Gun Emplacement	A gun mount bolted to a concrete pad with an associated small frame shed. Used to defend Base Ketchikan during WWII.	Eligible (02/25/1998)
KET-00549	Wharf	Concrete and wood, built 1919 for Coast Guard vessels.	Not Eligible (02/25/1998)
KET-00776	Salamanchuk House	Craftsman style bungalow built 1926.	Not Eligible (08/22/2003)
KET-00835	Hussey House	Mobile home on a wood plank foundation. Construction style and materials suggest the garage was built ca. 1930s-1940s.	Not Eligible (09/07/2004)
KET-00836	Stacy House	Dwelling, 1-1/2 stories, frame, built 1920.	Not Eligible (09/07/2004)
KET-00837	Einsett House	Split level dwelling, frame, built 1920.	Not Eligible (09/07/2004)
KET-00838	Hanson House	Dwelling, 2 stories, frame, built ca. 1930, remodeled in 1983 and in the 1990s.	Not Eligible (09/07/2004)
KET-00839	Thompson House	Dwelling, 1-1/2 stories, frame, built 1944, remodeled in 1986 and in 1993.	Not Eligible (09/07/2004)
KET-00840	Kolund House	Dwelling, 1-1/2 stories, frame, built 1932, remodeled between 1986 and 1991.	Not Eligible (09/07/2004)
KET-00841	Goucher House	Dwelling, 2 stories, built ca. 1930, frame, extensively remodeled from 1981 to 1984.	Not Eligible (09/07/2004)
KET-00842	Mayn House	Dwelling, 1 story, frame, built ca. 1930.	Not Eligible (09/07/2004)
KET-00843	Gaffney House	Dwelling, 1 story, frame, built 1940 with later additions.	Not Eligible (09/07/2004)
KET-00844	Blanchard House	Dwelling, 1 story, frame, built 1945 with later addition.	Not Eligible (09/07/2004)
KET-00845	Cloudy House #1	Dwelling, 2 stories, built 1938.	Not Eligible (09/07/2004)
KET-00978	Saxman Seaport	No description provided.	Unevaluated
KET-01241	1723 A/B S. Tongass Highway	Dwelling, 2 stories, frame, built 1935, Colonial Revival Cape Cod-style cottage.	Not Eligible (01/11/2013)
KET-01242	1733 S. Tongass Highway	Dwelling, 2 stories, frame, built 1926.	Not Eligible (01/11/2013)

Table 2. Previously Recorded Resources.

AHRS Number	Resource Name	Description	Eligibility
KET-01243	1726/1728 S.Tongass Highway	Duplex, 2 stories, frame, built 1959.	Not Eligible (01/11/2013)
KET-01244	2100 S. Tongass Highway	Dwelling, 2 stories, frame, built 1940.	Not Eligible (01/11/2013)
KET-01247	2322 S. Tongass Highway	Dwelling, 2 stories, frame, built 1960.	Unevaluated
KET-01248	2332 S. Tongass Highway	Dwelling, 2 stories, frame, built 1945.	Unevaluated
KET-01342	600 Stedman Street	Large, 1 story, steel moment frame structural system with concrete walls, originally a bowling alley, built 1959.	Not Eligible (05/28/2015)
KET-01343	636 Stedman Street	2 stories, built in 1964 by Don Smothers.	Not Eligible (05/28/2015)
KET-01349	720 Stedman Street/Fidalgo Cannery Warehouse	Built ca. 1904, this long, rectangular, gable-roofed building is the main part of the historic Fidalgo cannery.	Eligible (05/28/2015)
KET-01358	Saxman Government School	Current use: Saxman Tribal Hall.	Unevaluated

Attachment 4
Table 3
Summary of Eligibility & Recommended Findings

Table 3 Summary of Eligibility and Findings of Effects

AHRS Sites Located in the Direct APE

AHRS Number	Resource Name	Description	Eligibility	Effect
KET-00435	Ketchikan Dump	Dump consists of a large, dense scatter of artifacts in the intertidal zone, along with an artifact-laden organic soil horizon exposed in the marine cutbank. The City of Ketchikan applied for and received a permit from the U.S. Lighthouse Service to dump there in 1926. (Pg 44-6)	Recommended Not Eligible	No Effect
KET-01135	South Tongass Highway MP 3.4 -15.5	12 mile segment of highway (Pg 47)	Treated as Eligible Road this segment not eligible	No Adverse Effect
KET-01240	1715 S. Tongass Hwy	Wood frame 2 story dwelling, built 193-0 (Pg. 25)	Not Eligible (01/11/2013	No Effect
KET-01249	2259 S. Tongass Hwy	Wood frame 2 story dwelling, built 1950 (Pg. 55)	Recommended Not Eligible	No Effect
KET-01395	2191 S. Tongass Hwy	1921 Minimal Traditional design (Pg. 62)	Recommended Not Eligible	No Effect

AHRS Sites Located in the Indirect APE

AHRS Number	Resource Name	Description	Eligibility	Effect
KET-00021	Saxman Petroglyph	Petroglyphs located near the entrance to the totem park. (Pg. 36)	Recommended Eligible	No Adverse Effect
KET-00060	Saxman Totem Park	23 historic, Tlingit-style totem poles, a mixture of originals and replicas, arranged in a T-shaped park. (Pg. 38-43)	Listed-National Register (08/07/1979)	No Adverse Effect
KET-00279	Headquarters Bldg., 16th Lighthouse District	Concrete, 3 stories, built 1918-1920 (Pg. 50).	Eligible (06/28/1983)	No Adverse Effect
KET-00112	Saxman ANB Hall	Auditorium/gym, frame, 1-1/2-stories, built ca. 1918. (Pg. 31)	Structure has been demolished; Closed	No Effect

Table 3 Summary of Eligibility and Findings of Effects

AHRS Number	Resource Name	Description	Eligibility	Effect
KET-00294	Fidalgo Island Packing Company/Totem Packing Company	Two-story metal buildings, a cannery, and a cold storage unit. Current complex started in 1904. Four contributing buildings: oil house (1916), pole shed (1940s), warehouse (1904), and cannery/retort (1947). Twenty noncontributing buildings. (Pg. 52)	Unevaluated	No Effect (not visible from ROW)
KET-00295	KET-00295	A petroglyph, several rock alignments, and a grave or memorial stone in the intertidal area at Saxman. (Pg. 43)	Site could not be relocated. Either destroyed or outside APE; remains unevaluated	No Effect
KET-00356	USCG Supply Warehouse	Frame, 2 stories, built 1943. Major renovations in the 1960s. Reroofed and resided in the early 1980s. (Pg. 26)	Not Eligible (05/18/1993)	No Effect
KET-00343	Chief Kashakes House	Balloon frame, 2 stories, 20' x 30' clanhouse. Two totem poles and three burials are associated. (Pg. 51)	Listed on the National Register (04/26/1993)	No Adverse Effect
KET-00490	Fidalgo Island Packing Company Office/KET FIP A	No description provided. (Pg. 52)	Unevaluated	No Effect (not visible from ROW)
KET-00491	Fidalgo Island Packing Company Bunkhouse/KET-FIP-B	No description provided. (Pg. 52)	Unevaluated	No Effect (not visible from ROW)
KET-00492	New England Fish Company Complex/KET NEP	No description provided. (Pg. 53)	Unevaluated	No Effect (not visible from ROW)
KET-00493	New England Fish Company General Store/Dormitory/NEP-B	No description provided. (Pg. 53)	Unevaluated	No Effect (not visible from ROW)

Table 3 Summary of Eligibility and Findings of Effects

AHRS Number	Resource Name	Description	Eligibility	Effect
KET-00494	New England Fish Company Superintendent's House/NEP-D	No description provided. (Pg. 53)	Unevaluated	No Effect (not visible from ROW)
KET-00495	New England Fish Company Boiler/NEP-K	No description provided. (Pg. 53)	Unevaluated	No Effect (not visible from ROW)
KET-00496	New England Fish Company Messhall/ Bunkhouse/NEP-M	No description provided. (Pg. 53)	Unevaluated	No Effect (not visible from ROW)
KET-00539	North Shop	Amalgamation of as many as 4 buildings constructed between 1919 and 1956. (Pg. 26)	Not Eligible (02/25/1998)	No Effect
KET-00540	Marine Railway	Comprises a railroad track, a vessel cradle that rolls on the track from the water to the shore, a roofed structure into which the vessel cradle rolls, and a small winch house. Built as an open structure by the Lighthouse Service in 1927. (Pg. 26)	Not Eligible (02/25/1998)	No Effect
KET-00541	Winch House	Small, frame, built 1927. Has a centered decorative weather vane box. (Pg. 26)	Not Eligible (02/25/1998)	No Effect
KET-00542	Buoy Shed	Tall, metal frame, built 1932. (Pg 80-81)	Eligible (02/25/1998)	No Effect (not visible from ROW)
KET-00543	Gymnasium	Large utilitarian frame building; built 1943 with major reconstruction in 1980 (Pg. 26).	Not Eligible (02/15/1998)	No Effect
KET-00544	Commanding Officer's Quarters	Frame, 2 stories, built 1943 with 1946 and early 1960s additions. (Pg. 26)	Not Eligible (02/25/1998)	No Effect
KET-00545	Public Works/Facility Engineering	Frame, 2 stories, built 1943 as the base fire station, used as such until ca. 1970. (Pg. 27)	Not Eligible (02/25/1998)	No Effect

Table 3 Summary of Eligibility and Findings of Effects

AHRS Number	Resource Name	Description	Eligibility	Effect
KET-00546	North Pyrotechnic Bunker	Built to store military explosives during WWII (exact date of construction is unknown), still serves that function. (Pg. 27)	Eligible (02/25/1998)	No Effect (not visible from ROW)
KET-00547	South Pyrotechnic Bunker	Built to store military explosives during WWII (exact date of construction is unknown), served that function until it flooded and collapsed ca. 1998. (Pg. 27)	Not Eligible (02/25/1998)	No Effect
KET-00548	.30 Caliber Machine Gun Emplacement	A gun mount bolted to a concrete pad with an associated small frame shed. Used to defend Base Ketchikan during WWII. (Pg. 27)	Eligible (02/25/1998)	No Effect (not visible from ROW)
KET-00549	Wharf	Concrete and wood, built 1919 for Coast Guard vessels. (Pg. 27)	Not Eligible (02/25/1998)	No Effect
KET-00776	Salamanchuk House	Craftsman style bungalow built 1926. (Pg. 27)	Not Eligible (08/22/2003)	No Effect
KET-00835	Hussey House	Mobile home on a wood plank foundation. Construction style and materials suggest the garage was built ca. 1930s-1940s. (Pg. 27)	Not Eligible (09/07/2004)	No Effect
KET-00836	Stacy House	Dwelling, 1-1/2 stories, frame, built 1920. (Pg. 27)	Not Eligible (09/07/2004)	No Effect
KET-00837	Einsett House	Split level dwelling, frame, built 1920. (Pg. 27)	Not Eligible (09/07/2004)	No Effect
KET-00838	Hanson House	Dwelling, 2 stories, frame, built ca. 1930, remodeled in 1983 and in the 1990s. (Pg. 27)	Not Eligible (09/07/2004)	No Effect
KET-00839	Thompson House	Dwelling, 1-1/2 stories, frame, built 1944, remodeled in 1986 and in 1993. (Pg. 27)	Not Eligible (09/07/2004)	No Effect
KET-00840	Kolund House	Dwelling, 1-1/2 stories, frame, built 1932, remodeled between 1986 and 1991. (Pg. 27)	Not Eligible (09/07/2004)	No Effect
KET-00841	Goucher House	Dwelling, 2 stories, built ca. 1930, frame, extensively remodeled from 1981 to 1984. (Pg. 27)	Not Eligible (09/07/2004)	No Effect
KET-00842	Mayn House	Dwelling, 1 story, frame, built ca. 1930. (Pg. 27)	Not Eligible (09/07/2004)	No Effect

Table 3 Summary of Eligibility and Findings of Effects

AHRS Number	Resource Name	Description	Eligibility	Effect
KET-00843	Gaffney House	Dwelling, 1 story, frame, built 1940 with later additions. (Pg. 27)	Not Eligible (09/07/2004)	No Effect
KET-00844	Blanchard House	Dwelling, 1 story, frame, built 1945 with later addition. (Pg. 27)	Not Eligible (09/07/2004)	No Effect
KET-00845	Cloudy House #1	Dwelling, 2 stories, built 1938. (Pg. 27)	Not Eligible (09/07/2004)	No Effect
KET-00978	Saxman Seaport	No description provided. (Pg. 27)	Unevaluated	No Effect (not visible from ROW)
KET-01241	1723 A/B S. Tongass Hwy	Dwelling, 2 stories, frame, built 1935, Colonial Revival Cape Cod-style cottage. (Pg. 25)	Not Eligible (01/11/2013)	No Effect
KET-01242	1733 S. Tongass Hwy	Dwelling, 2 stories, frame, built 1926. (Pg. 25)	Not Eligible (01/11/2013)	No Effect
KET-01243	1726/1728 S. Tongass Hwy	Duplex, 2 stories, frame, built 1959. (Pg. 27)	Not Eligible (01/11/2013)	No Effect
KET-01244	2100 S. Tongass Hwy	Dwelling, 2 stories, frame, built 1940. (Pg. 27)	Not Eligible (01/11/2013)	No Effect
KET-01247	2322 S. Tongass Hwy	Dwelling, 2 stories, frame, built 1960. (Pg. 53)	Unevaluated	No Effect
KET-01248	2332 S. Tongass Hwy	Dwelling, 2 stories, frame, built 1945. (Pg. 54)	Unevaluated	No Effect
KET-01342	600 Stedman St.	Large, 1 story, steel moment frame structural system with concrete walls, originally a bowling alley, built 1959. (Pg. 25)	Not Eligible (05/28/2015)	No Effect
KET-01343	636 Stedman St.	2 stories, built in 1964 by Don Smothers. (Pg. 27)	Not Eligible (05/28/2015)	No Effect
KET-01349	720 Stedman St./Fidalgo Cannery Warehouse	Built ca. 1904, this long, rectangular, gable-roofed building is the main part of the historic Fidalgo cannery. (Pg. 52)	Eligible (05/28/2015)	No Adverse Effect
KET-01358	Saxman Government School	Current use: Saxman Tribal Hall. (Pg. 56)	Recommended Eligible	No Adverse Effect
KET-01390	900 Stedman St.	Metal framed post-WWII utilitarian design building (Pg. 57)	Recommended Not Eligible	No Effect
KET-01391	929 Stedman St.	Wood framed post WWII utilitarian design building (Pg. 58)	Recommended Eligible	No Adverse Effect
KET-01392	Petro Marine Services Shed	Metal framed pre-fab storage shed (Pg. 59)	Recommended Not Eligible	No Effect

Table 3 Summary of Eligibility and Findings of Effects

AHRS Number	Resource Name	Description	Eligibility	Effect
KET-01393	2110 South Tongass Highway	1930s wood frame Minimal Traditional designed building (Pg. 60)	Recommended Not Eligible	No Effect
KET-01394	2182 South Tongass	1972 wood framed contemporary design building (Pg. 61)	Recommended Not Eligible	No Effect
KET-01396	2266 South Tongass	1960 wood framed modern ranch design building (Pg. 63)	Recommended Not Eligible	No Effect
KET-01397	2278 Oyster Avenue	1935 wood frame Bungalow design (Pg. 64)	Recommended Not Eligible	No Effect
KET-01398	2516 South Tongass	1970 minimal traditional design (Pg. 65)	Recommended Not Eligible	No Effect
KET-01399	2573 South Tongass	1920 wood framed Bungalow design (Pg. 66)	Recommended Not Eligible	No Effect
KET-01400	2588 South Tongass	1900 wood framed Bungalow design (Pg. 67)	Recommended Not Eligible	No Effect
KET-01401	2592 South Tongass	1924 wood framed Bungalow design (Pg. 68)	Recommended Not Eligible	No Effect
KET-01402	2587 South Tongass	1920 wood framed Bungalow design (Pg. 69)	Recommended Not Eligible	No Effect
KET-01403	2949 South Tongass	1966 wood framed split level design (Pg. 70)	Recommended Not Eligible	No Effect
KET-01404	3008 South Tongass	1966 wood framed Modern Ranch design (Pg. 71)	Recommended Not Eligible	No Effect
KET-01405	3016 South Tongass	1970 wood framed Modern Ranch design (Pg. 72)	Recommended Not Eligible	No Effect
KET-01406	24 Shoup Street	1965 wood framed Split Level design (Pg. 73)	Recommended Not Eligible	No Effect

Attachment 5

Table 4 &
4(f) Detail Sheets 1-17

Table 5 Section 4(f) Resources

ROW ID	4(f) Resource in proximity	Purpose	Property Owner	Effect
A-1		Sidewalk Improvements, curb and gutter	Goodale William C	
TCP-1A	KET-1349	Regrading driveway to match new grade	Tatsuda's Supermarket Inc.	No Effect
TCE-1	KET-1349	Sidewalk Improvements, curb and gutter	Tatsuda's Supermarket Inc.	No Effect
TCP-1B	KET-1349	Regrading driveway to match new grade	Tatsuda's Supermarket Inc.	No Effect
TCE-2	KET-1349	Sidewalk Improvements, curb and gutter	Tatsuda's Supermarket Inc.	No Effect
TCP-2A	KET-1349	Regrading driveway to match new grade	Tatsuda's Supermarket Inc.	No Effect
TCE-3	KET-1349	Sidewalk Improvements, curb and gutter	Tatsuda's Supermarket Inc.	No Effect
TCP-3A	KET-1349	Regrading driveway to match new grade	Tatsuda's Supermarket Inc.	No Effect
TCE-4		Sidewalk Improvements, curb and gutter, regrading driveway to match new grade	Trident Seafoods Corporation	
TCP-4A		Regrading driveway to match new grade	Trident Seafoods Corporation	
TCP-4B	KET-490	Regrading driveway to match new grade	Trident Seafoods Corporation	No Effect
TCP-4C		Regrading driveway to match new grade	Trident Seafoods Corporation	
TCP-4D		Regrading driveway to match new grade	Trident Seafoods Corporation	
A-2		Curb and gutter, resolve kink in ROW	CP Inc.	
TCE-5A		Utility pole	CP Inc.	
TCE-5B		Utility pole	CP Inc.	
TCE-6		Sidewalk Improvements, curb and gutter, storm drainage	Andreas Oil Inc.	
TCE-7		Utility pole	Parkview Apartment Company	
TCE-8		Sidewalk Improvements, curb and gutter, regrading driveway to match new grade	Alaska General Seafoods	
TCE-9	KET-1391	Sidewalk Improvements, curb and gutter, regrading driveway to match new grade	Alaska General Seafoods	No Effect
TCE-10		Sidewalk Improvements, curb and gutter, regrading driveway to match new grade	Alaska General Seafoods	

Table 5 Section 4(f) Resources

ROW ID	4(f) Resource in proximity	Purpose	Property Owner	Effect
TCE-11		Sidewalk Improvements, curb and gutter, regrading driveway to match new grade	Alaska General Seafoods	
TCE-12	KET-1392	Utility pole	Harbor Enterprises Inc.	No Effect
TCE-13		Sidewalk Improvements, curb and gutter, regrading driveway to match new grade	US United States of America	
TCE-14		Sidewalk Improvements, curb and gutter, regrading driveway to match new grade	Harbor Enterprises Inc.	
A-3		Slope grading	Harbor Enterprises Inc.	
A-4		Slope grading	US Coast Guard	
TCP-5		Regrading driveway to match new grade	US Coast Guard	
TCE-15		Sidewalk Improvements, curb and gutter, retaining wall	US Coast Guard	
TCE-16		Sidewalk Improvements, curb and gutter, retaining wall	US Coast Guard	
TCP-6		Regrading driveway to match new grade	US Coast Guard	
TCP-7		Regrading driveway to match new grade	US Coast Guard	
A-5		Slope grading	US Coast Guard	
A-6		Slope grading	US Coast Guard	
A-7		Slope grading	US Coast Guard	
A-8		Slope grading	Doyon David P Sr.	
A-9		Slope grading	Doyon David P Sr.	
TCE-17		Storm drainage improvements	Doyon's Landing Inc.	
A-10		Slope grading	US Coast Guard	
A-11		Slope grading	DNR	
A-12		Slope grading	US Coast Guard	
A-13		Slope grading	Chaudhary Norbert & Diana	
A-14		Slope grading	Chaudhary Norbert & Diana	
A-15		Slope grading	Chaudhary Norbert & Diana	
A-16		Slope grading	Chaudhary Norbert & Diana	
A-17		Slope grading	Chaudhary Norbert & Diana	
A-18		Slope grading	Chaudhary Norbert & Diana	
A-19		Slope grading	Urquhart William II & Frankie G	

Table 5 Section 4(f) Resources

ROW ID	4(f) Resource in proximity	Purpose	Property Owner	Effect
A-20		Slope grading	Urquhart William II & Frankie G	
A-21		Slope grading	Fama Peter J & Ann R	
A-22		Slope grading	Scott Wilbert L	
A-23		Slope grading	Murdaugh Clarissa	
A-24		Slope grading	Rockwood D Alan & Hisako	
A-25		Slope grading	Bolshakoff Nikolai & Jennifer	
A-26		Slope grading	Bolshakoff Nikolai & Jennifer	
A-27		Slope grading	Kleinschmidt Geord R	
TCE-17		Retaining wall improvements, storm drainage improvements	Thompson George & Ann	
TCE-18		Retaining wall improvements, storm drainage improvements	Thompson George & Ann	
TCP-8		Regrading driveway to match new grade	Kleinschmidt Geord R	
TCP-9		Regrading driveway to match new grade, storm drainage improvements	Johnson Evelyn M	
TCP-10		Regrading driveway to match new grade	Lynch Gregory L & Roseann	
TCP-11		Regrading driveway to match new grade	Zelensky Michael J & Myra J	
A-28		Slope grading	Brandt Owen E Educational Trust	
A-29		Slope grading	Brandt Owen E Educational Trust	
A-30		Slope grading	Unknown?	
A-31		Slope grading	City of Saxman	
A-32		Slope grading	Unknown?	
A-33		Slope grading	Mruphy Karen	
A-34		Slope grading	Burton Sydney A & Green Rhonda	
A-35		Slope grading	Williams Michael & Carlen	
A-36		Slope grading	Williams Steven Kelly	
A-37		Slope grading	Booth Steven G & Gonna L J	
A-38		Slope grading	City of Saxman	
A-39		Slope grading	Shields Et Al	
A-40		Slope grading	Snodderly Jean Ann	

Table 5 Section 4(f) Resources

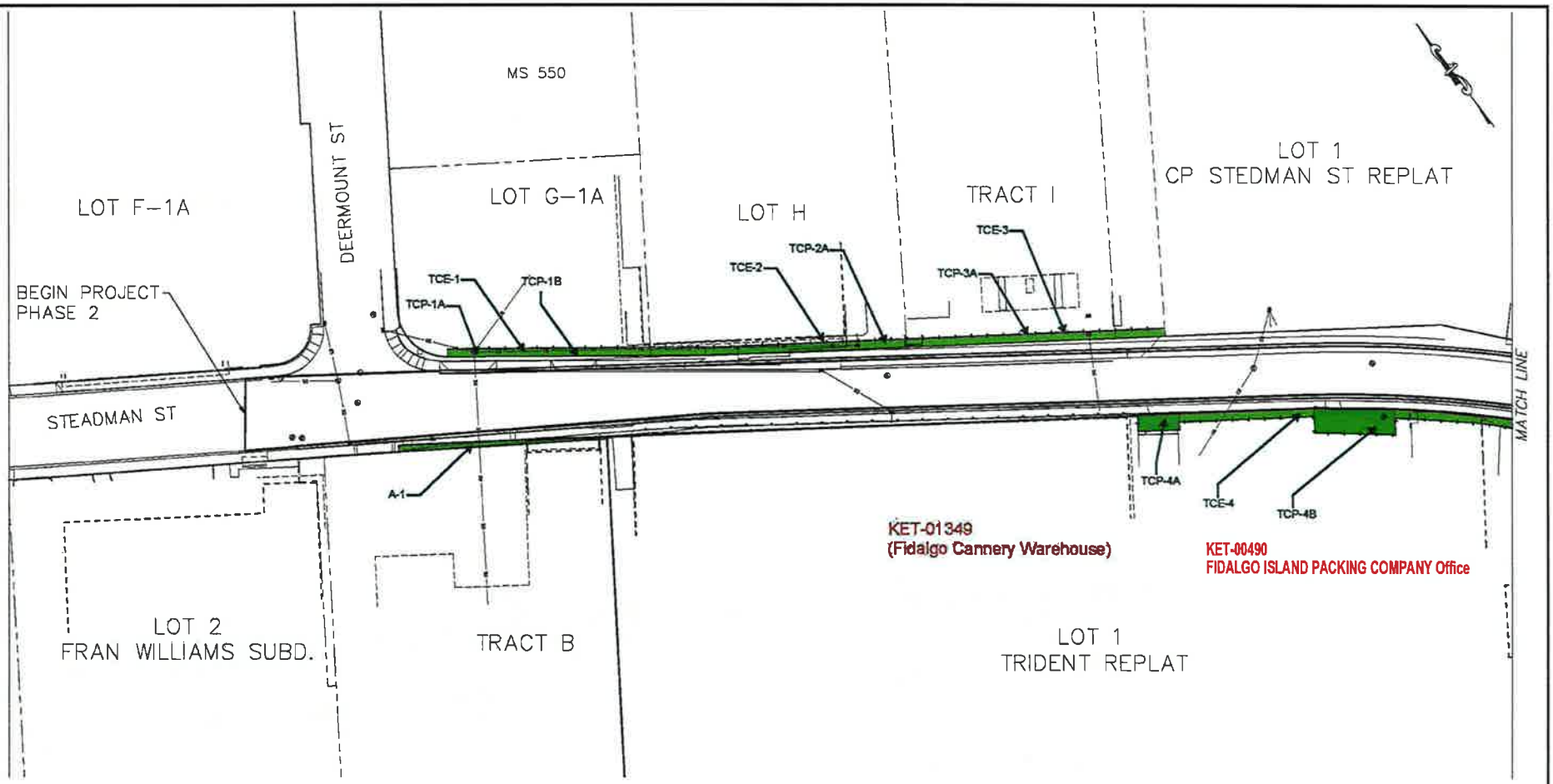
ROW ID	4(f) Resource in proximity	Purpose	Property Owner	Effect
A-41		Slope grading	Shields Et Al	
A-42		Slope grading	Sivertsen Albert & Melvin	
TCP-12		Regrading driveway to match new grade	Markle John & Mamie	
TCP-13		Regrading driveway to match new grade	Wagner Louie A & Cynthia L	
TCP-14		Regrading driveway to match new grade	McAllister John Raymond	
TCP-15		Regrading driveway to match new grade	Stewart Lawrence B	
TCP-16		Regrading driveway to match new grade	Stewart Lawrence B	
TCP-17		Regrading driveway to match new grade	Knuteson Anthony M	
TCE-19		Retaining wall improvements	Knuteson Anthony M	
TCE-20		Retaining wall improvements, storm drainage improvements	City of Saxman	
TCE-21		Storm drainage improvements	Charlton John & Kyan Paul	
A-43		Slope grading	Pentecostal Church of God	
A-44	KET-0060	Slope grading	Ward Daniel W & Debby K	No Effect
A-45		Slope grading	Kushnick Matilda Heirs	
A-46	KET-0060	Slope grading	City of Saxman	No Effect
A-47		Slope grading	City of Saxman	
A-48		Slope grading	City of Saxman	
TCE-22	KET-0060 KET-0021	Sidewalk Improvements, curb and gutter	City of Saxman	No Effect
TCE-23	KET-0060	Sidewalk Improvements, curb and gutter	City of Saxman	No Effect
TCP-18	KET-1358	Regrading driveway to match new grade	City of Saxman	No Effect
A-49		Slope grading	Cape Fox Corporation	
TCP-19		Regrading driveway to match new grade	Williams William K & Caryl L	
A-50	KET-343	Slope grading	Williams Patricia A	No Effect
TCP-20		Regrading driveway to match new grade	Denny Elizabeth	
TCP-21		Regrading driveway to match new grade	Southeast Stevedoring Corp	
TCP-22		Regrading driveway to match new grade	Cape Fox Corporation	
TCP-22A		Regrading driveway to match new grade	Williams William K & Caryl L	

Table 5 Section 4(f) Resources

ROW ID	4(f) Resource in proximity	Purpose	Property Owner	Effect
TCP-22B		Regrading driveway to match new grade	Williams William K & Caryl L	
TCE-22		Stream rehabilitation	H & A Development	
TCE-23		Stream rehabilitation	H & A Development	
TCP-23		Regrading driveway to match new grade	H & A Development	
TCP-24		Regrading driveway to match new grade	H & A Development	
A-51		Slope grading	H & A Development	
A-52		Slope grading	H & A Development	
TCP-25		Regrading driveway to match new grade	Hassell Barbara C	
TCP-26		Regrading driveway to match new grade	Einset Elizabeth	
A-53		Slope grading	Filyaw Sharon	
TCP-27		Regrading driveway to match new grade	Ohmer Arthur G & Helga M	
TCP-28		Regrading driveway to match new grade, retaining wall	Carson Harold & Susan	
TCP-29		Regrading driveway to match new grade	Smith Terry J & Jenks Kelly S	
TCP-30		Regrading driveway to match new grade	Cannon Craig & Juaneta	
TCE-24		Storm drainage improvements	Carson Harold	
TCP-31		Regrading driveway to match new grade	Flores Narcis O Sr. & Norma T	
TCP-32		Regrading driveway to match new grade	Flores Narcis O Sr. & Norma T	
TCP-33		Regrading driveway to match new grade	Johnson Kevin & Melissa	
A-54		Retaining wall improvements	Bellanich Tamara	
A-55		Retaining wall improvements	Bellanich Tamara	
A-56		Slope grading	Bellanich Thomas Marion	
TCP-34		Regrading driveway to match new grade	LaForce Donna K	
TCP-35		Regrading driveway to match new grade, storm drainage improvements	LaForce Donna K	
TCP-36		Regrading driveway to match new grade	Eckert Roy A IV & Li Jing Xi	
A-57		Slope grading	Eckert Roy A IV & Li Jing Xi	
A-58		Slope grading	Tatsuda William B & Xiao Nan	

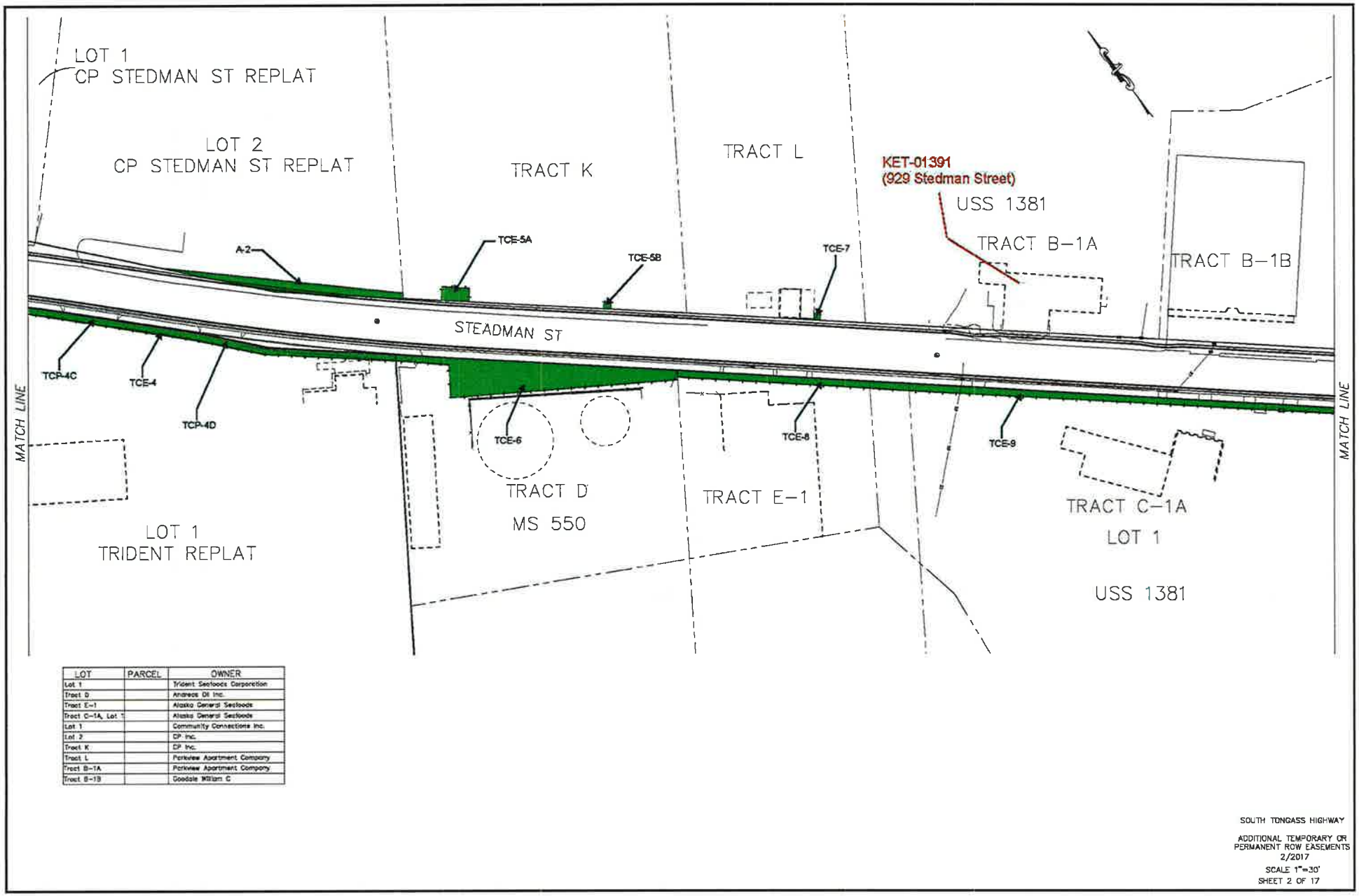
Table 5 Section 4(f) Resources

ROW ID	4(f) Resource in proximity	Purpose	Property Owner	Effect
TCP-37		Regrading driveway to match new grade	Gaffney Thomas W III & Susan	
TCP-38		Regrading driveway to match new grade	Tatsuda William B & Xiao Nan	
TCP-39		Regrading driveway to match new grade	Ortiz Daniel H & Lori K	
TCP-40		Regrading driveway to match new grade	Blanchard Michael & Gretchen	
A-59		Slope grading	Tatsuda William B & Xiao Nan	
A-60		Slope grading	Ortiz Daniel H & Lori K	



LOT	PARCEL	OWNER
Tract B		Goodale William C
Lot 1		Trident Seafoods Corporation
Lot G-1A		Totsuda's Supermarket Inc.
Lot H		Totsuda's Supermarket Inc.
Tract 1		Totsuda's Supermarket Inc.
Lot 1		Community Connections Inc.

SOUTH TONGASS HIGHWAY
67571/67585
ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 1 OF 17



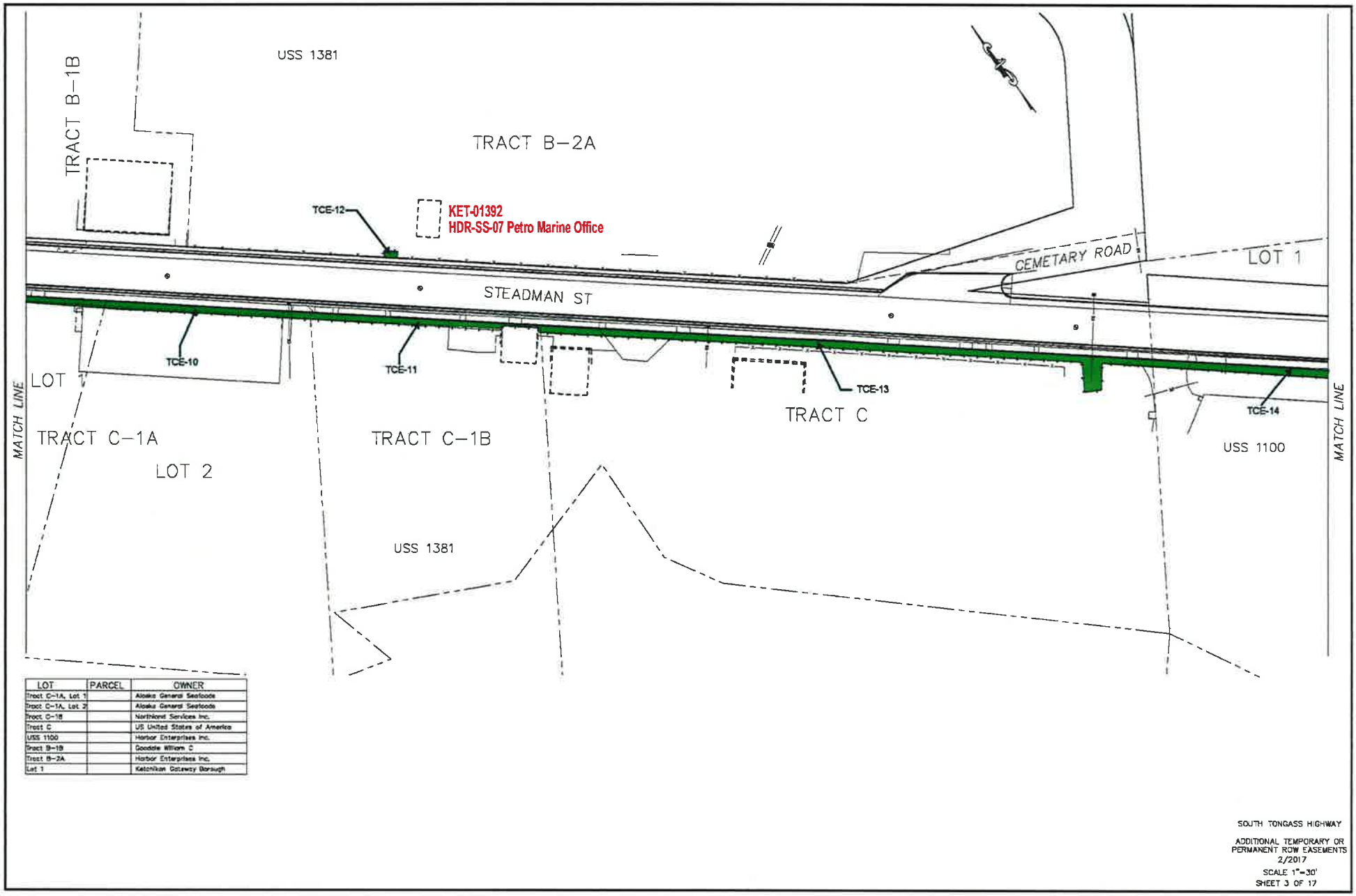
LOT	PARCEL	OWNER
Lot 1		Trident Seafoods Corporation
Tract D		Andrecs Oil Inc.
Tract E-1		Alaska General Seafoods
Tract C-1A, Lot 1		Alaska General Seafoods
Lot 1		Community Connections Inc.
Lot 2		CP Inc.
Tract K		CP Inc.
Tract L		Parkview Apartment Company
Tract B-1A		Parkview Apartment Company
Tract B-1B		Goodale William C

SOUTH TONGASS HIGHWAY

ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017

SCALE 1"=30'

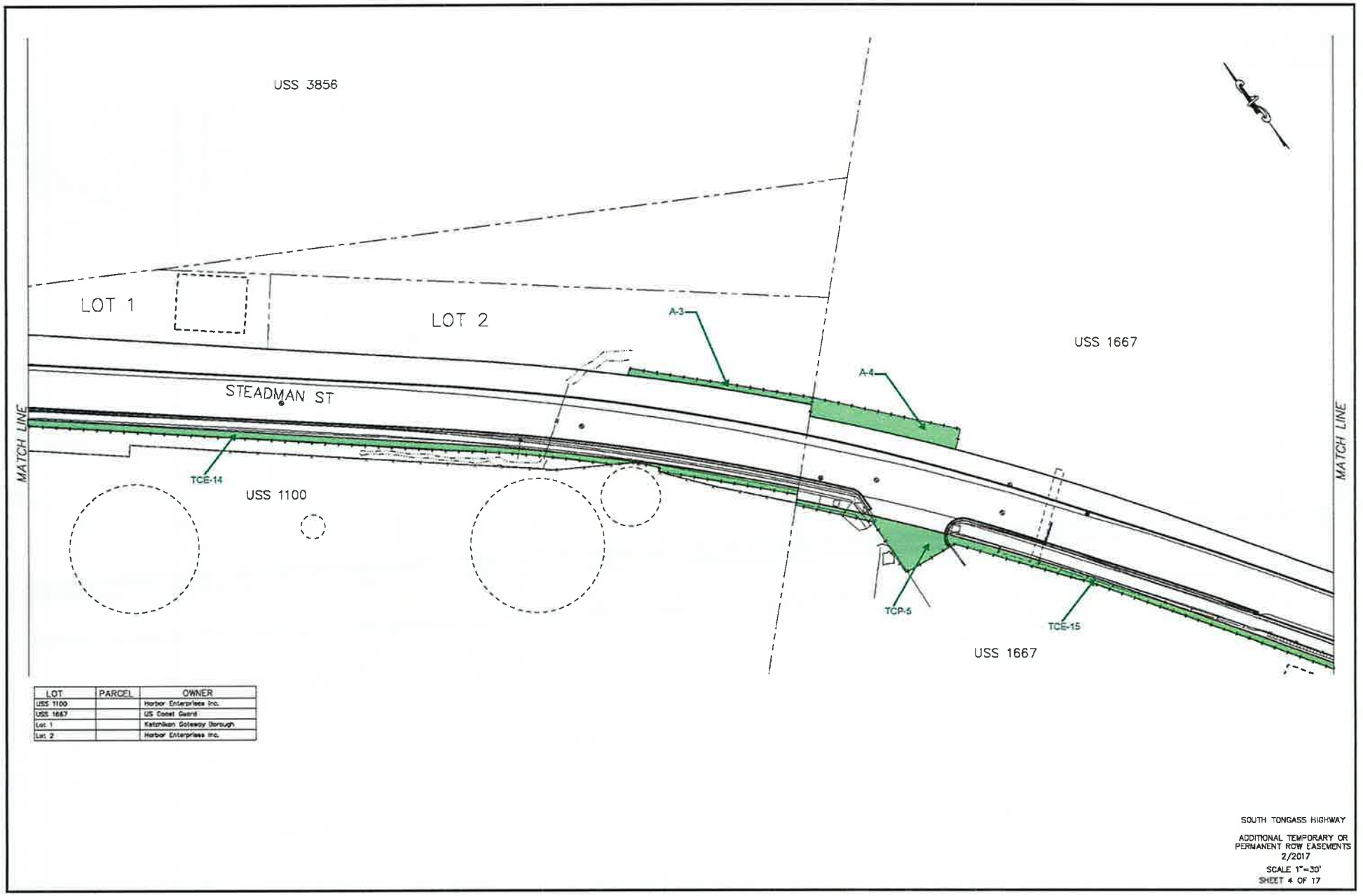
SHEET 2 OF 17



LOT	PARCEL	OWNER
Tract C-1A, Lot 1		Alaska General Seafoods
Tract C-1A, Lot 2		Alaska General Seafoods
Tract C-1B		Northland Services Inc.
Tract C		US United States of America
USS 1100		Harbor Enterprises Inc.
Tract B-1B		Goodale William C
Tract B-2A		Harbor Enterprises Inc.
Lot 1		Ketchikan Gateway Borough

SOUTH TONGASS HIGHWAY

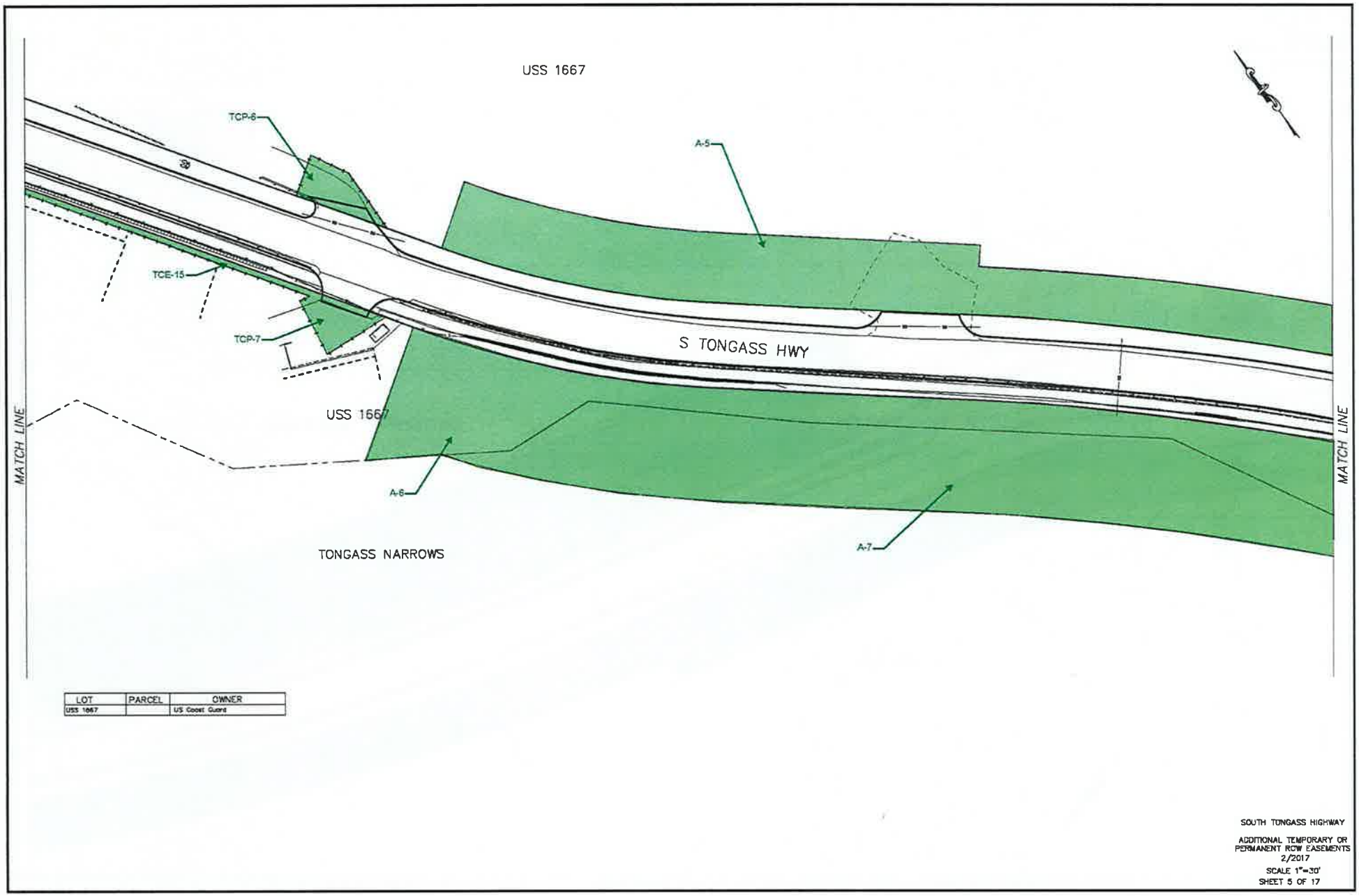
ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 3 OF 17



LOT	PARCEL	OWNER
USS 1100		Harbor Enterprises Inc.
USS 1667		US Coast Guard
Lot 1		Ketchikan Gateway Borough
Lot 2		Harbor Enterprises Inc.

SOUTH TONGASS HIGHWAY

ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 4 OF 17



LOT	PARCEL	OWNER
USS 1667		US Coast Guard

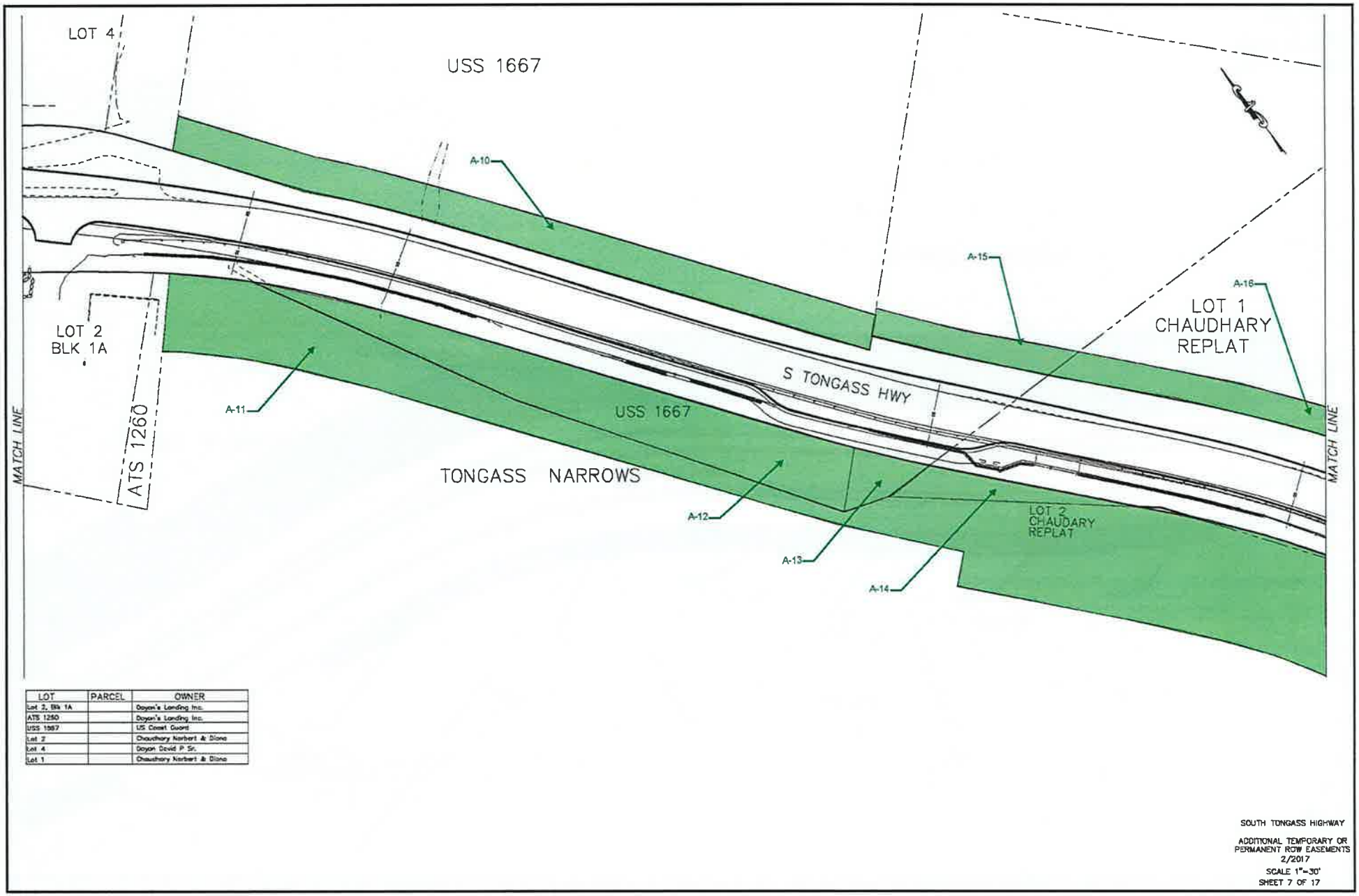
SOUTH TONGASS HIGHWAY

ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 5 OF 17

LOT	PARCEL	OWNER
USS 1667		US Coast Guard
Lot 1, Blk 1		Doyon's Landing Inc.
Frac. 1584		Doyon's Landing Inc.
Lot 2, Blk 1A		Doyon's Landing Inc.
Lot 1		Doyon David P Sr.
Lot 3		Doyon David P Sr.
Lot 4		Doyon David P Sr.

SOUTH TONGASS HIGHWAY

ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 6 OF 17



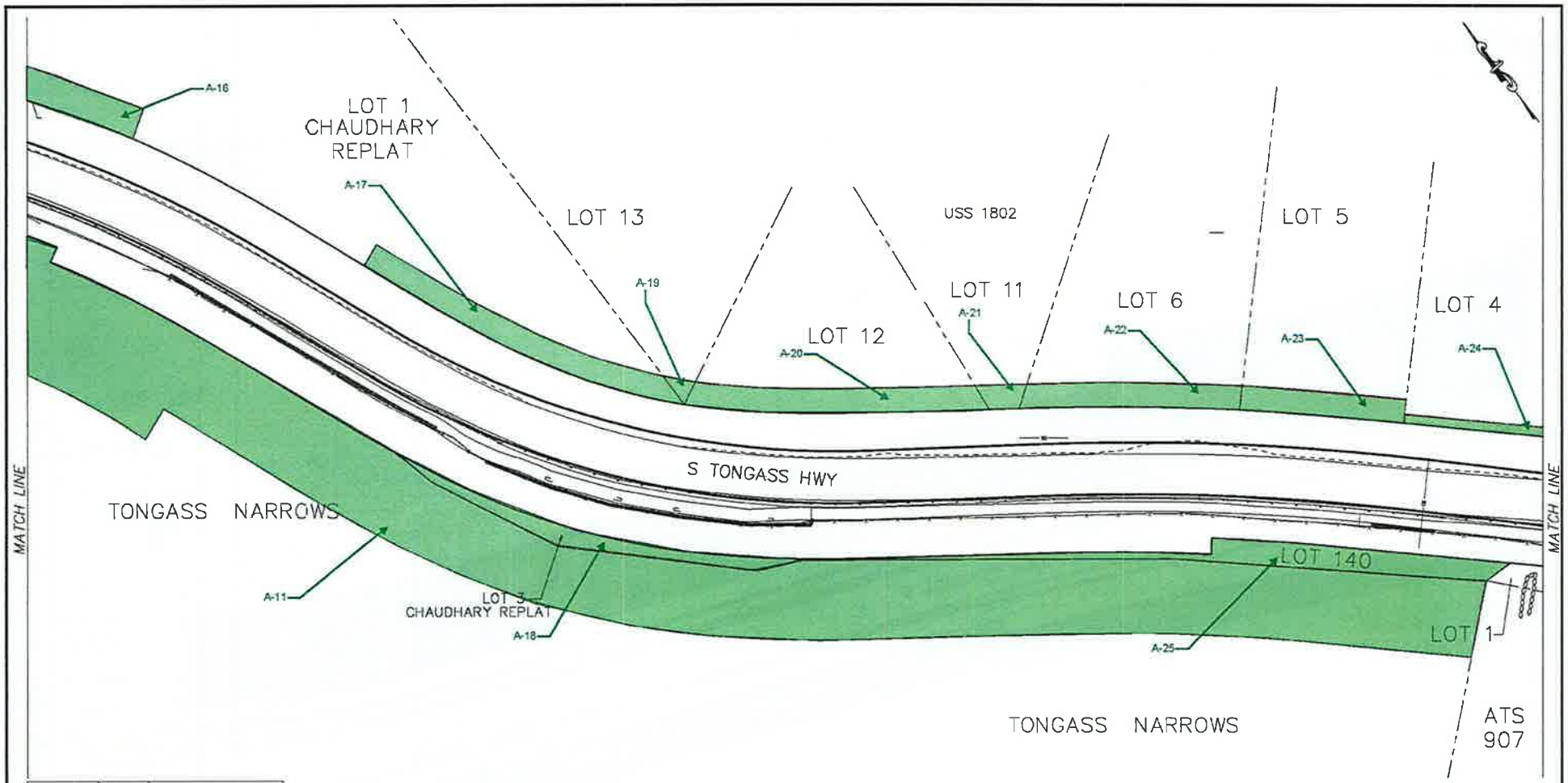
LOT	PARCEL	OWNER
Lot 2, Blk 1A		Dayan's Landing Inc.
ATS 1250		Dayan's Landing Inc.
USS 1667		US Coast Guard
Lot 2		Chaudhary Norbert & Diana
Lot 4		Dayan David P Sr.
Lot 1		Chaudhary Norbert & Diana

SOUTH TONGASS HIGHWAY

ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017

SCALE 1"=30'

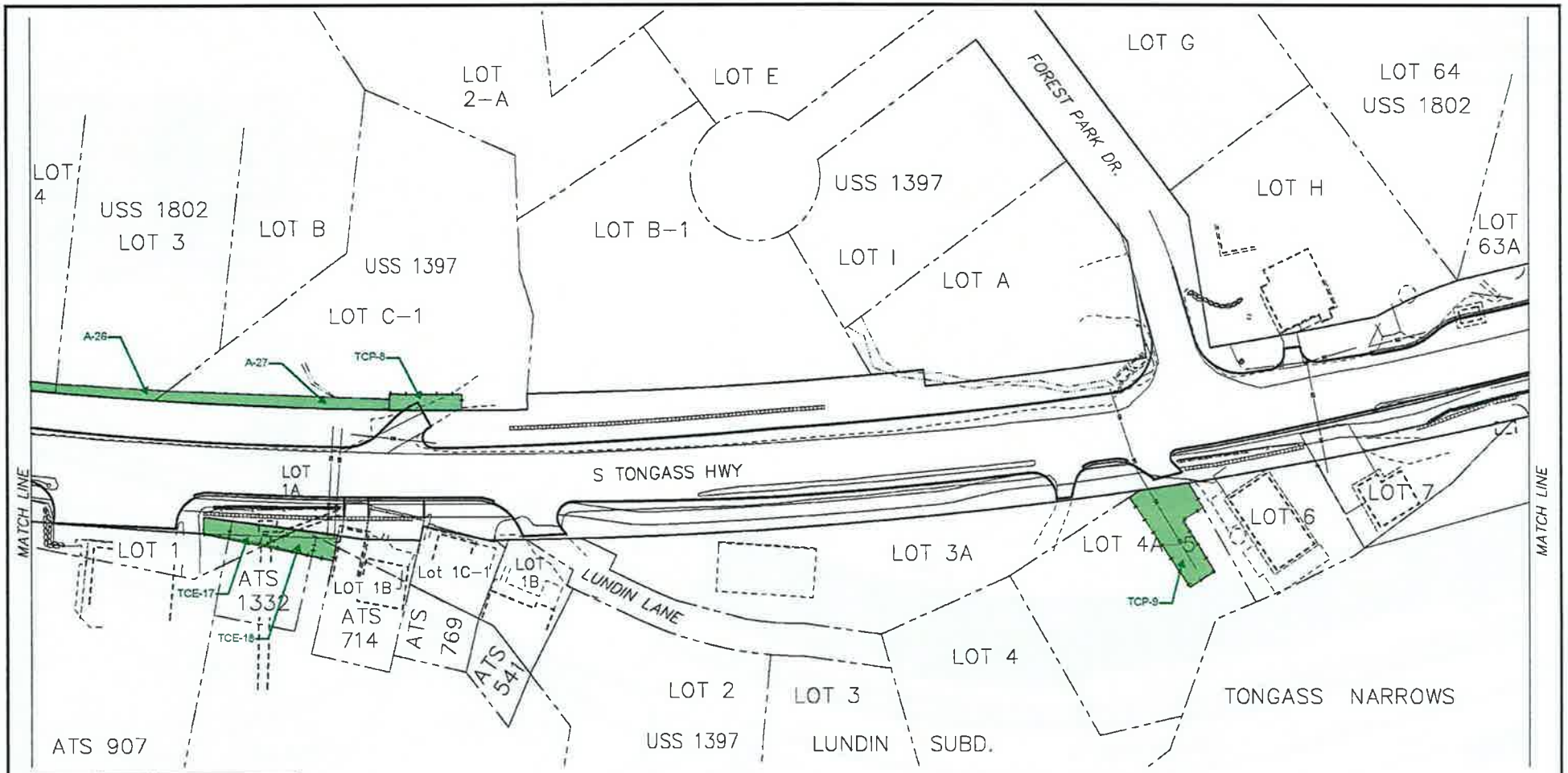
SHEET 7 OF 17



LOT	PARCEL	OWNER
Lot 3		Chaudhary Norbert & Diana
Lot 140		Balahakoff Nikolai & Jennifer
Lot 1		Balahakoff Nikolai & Jennifer
ATS 907		Balahakoff Nikolai & Jennifer
Lot 1		Chaudhary Norbert & Diana
Lot 13		Urquhart William H & Frankie G
Lot 12		Urquhart William H & Frankie G
Lot 11		Foma Peter J & Ann M
Lot 6		Scott Wilbert L
Lot 5		Murdaugh Clarissa
Lot 4		Rockwood D Alan & Hacko

SOUTH TONGASS HIGHWAY

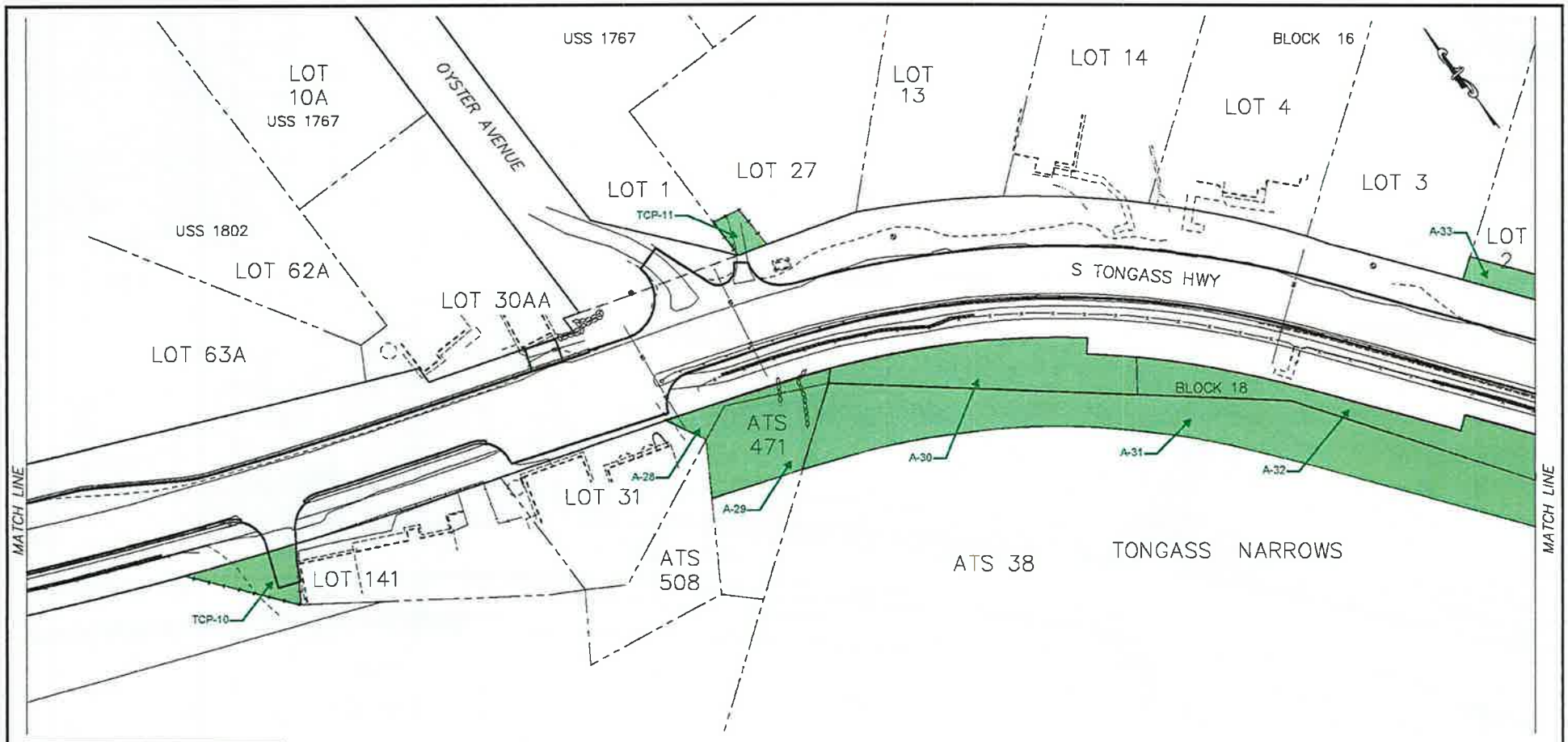
ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 8 OF 17



LOT	PARCEL	OWNER
Lot 1		Bolshakoff Nikolai & Jennifer
ATS 907		Bolshakoff Nikolai & Jennifer
LOT 1A/ATS 1332		Thompson George & Ann
Lot 1B/ATS 714		Thompson George & Ann
Lot 1C-1/ATS 769		McDowell Robert L & Brenda A
Lot 1D/ATS 541		Yiamin Anastacia C
Lot 3A		Lundin Bernard E
Lot 4A-5		Johnson Evelyn M
Lot 6		Dahl James R Living Trust The
Lot 7		Anglin Judith L Revocable Living Tr
Lot 4		Rockwood D Alan & Hisako
Lot 3		Jethano Ravi & Mushada Amanda
Lot C-1		Kleinschmidt Geord R
Lot B-1		Benson James C
Lot A		Thompson George & Ann
Lot H		Jensen David & Carla Maria-Jeanne
Lot 64		Norfolk LLC
Lot 63A		Autrey John T & Joyce A

SOUTH TONGASS HIGHWAY

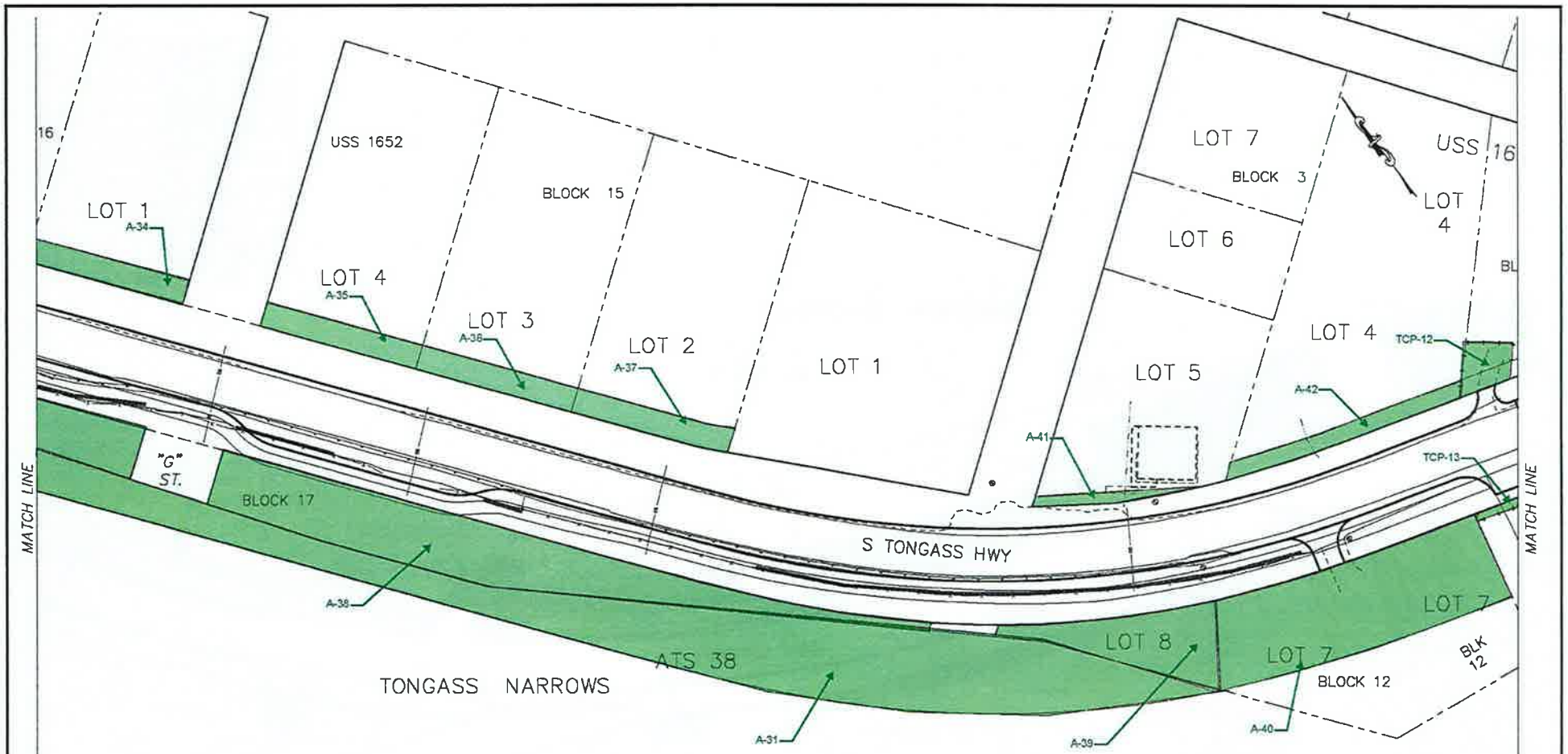
ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 9 OF 17



LOT	PARCEL	OWNER
Lot 141		Lynch Gregory L & Roseann
Lot 31		Clifton John M
ATS 508		Clifton John M
ATS 471		Brandt Owen E Educational Trust
Lot 63A		Autrey John T & Joyce A
Lot 62A		Koch Craig & Thompson Hilary
Lot 30AA		Isner Mellonie C
Lot 1		Cool William C
Lot 27		Zelensky Michael J & Myra J
Lot 13		Jackson Philip C
Lot 14		Perez Josey
Lot 4		Banie Sylvia
Lot 3		Harris Catherine M
Lot 2		Muphy Karen

SOUTH TONGASS HIGHWAY

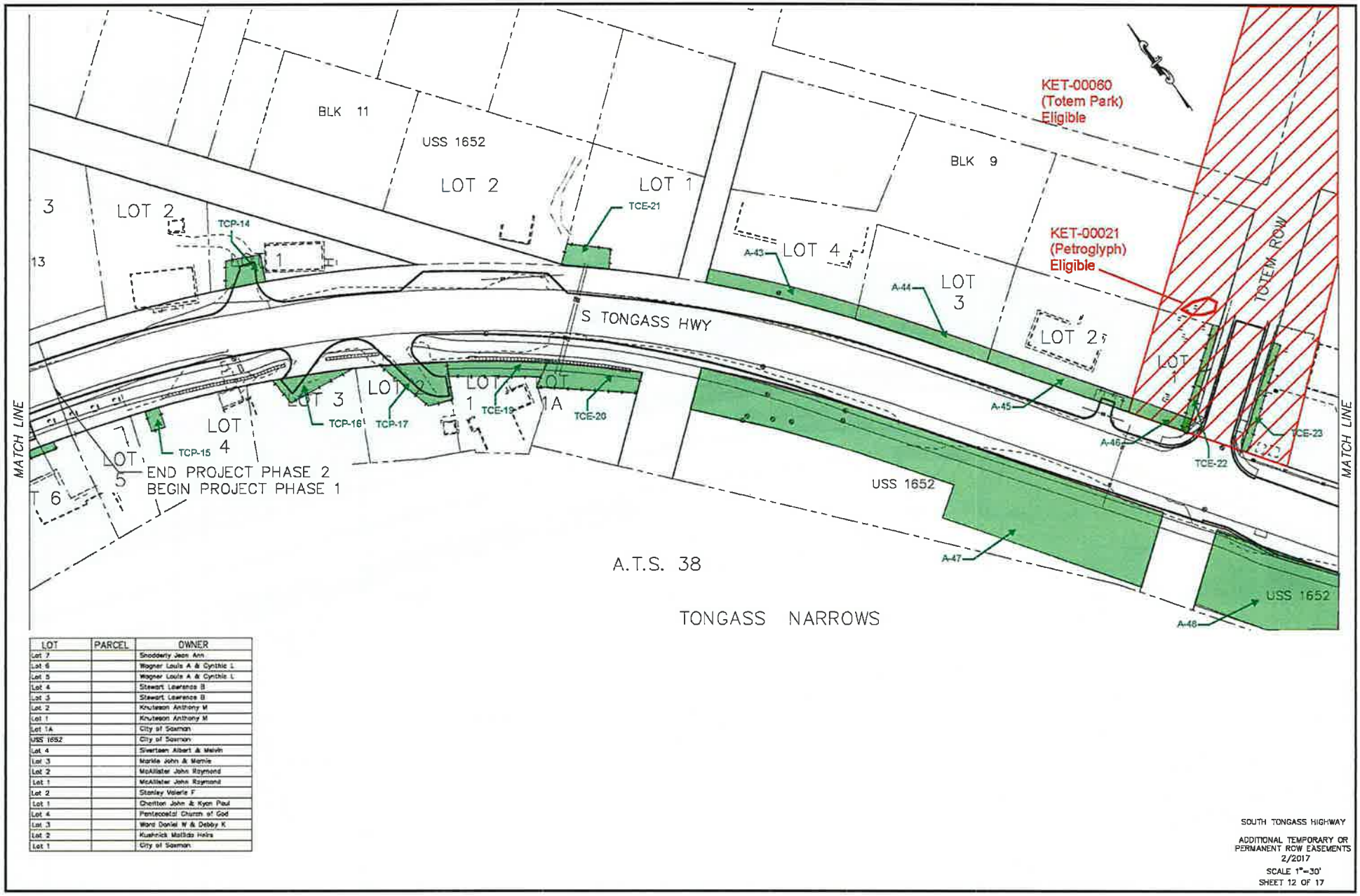
ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 10 OF 17



LOT	PARCEL	OWNER
Block 17		City of Saxman
Lot 8		Shields Et Al
Lot 7		Shadderly Jean Ann
Lot 2		Murphy Karen
Lot 1		Burton Sydney A & Green Rhonda
Lot 4		Williams Michael & Carlen
Lot 3		Williams Steven Kelly
Lot 2		Booth Steven G & Bonna L J
Lot 1		Mortimer Alvino J
Lot 5		Shields Et Al
Lot 4		Sivertsen Albert & Melvin

SOUTH TONGASS HIGHWAY

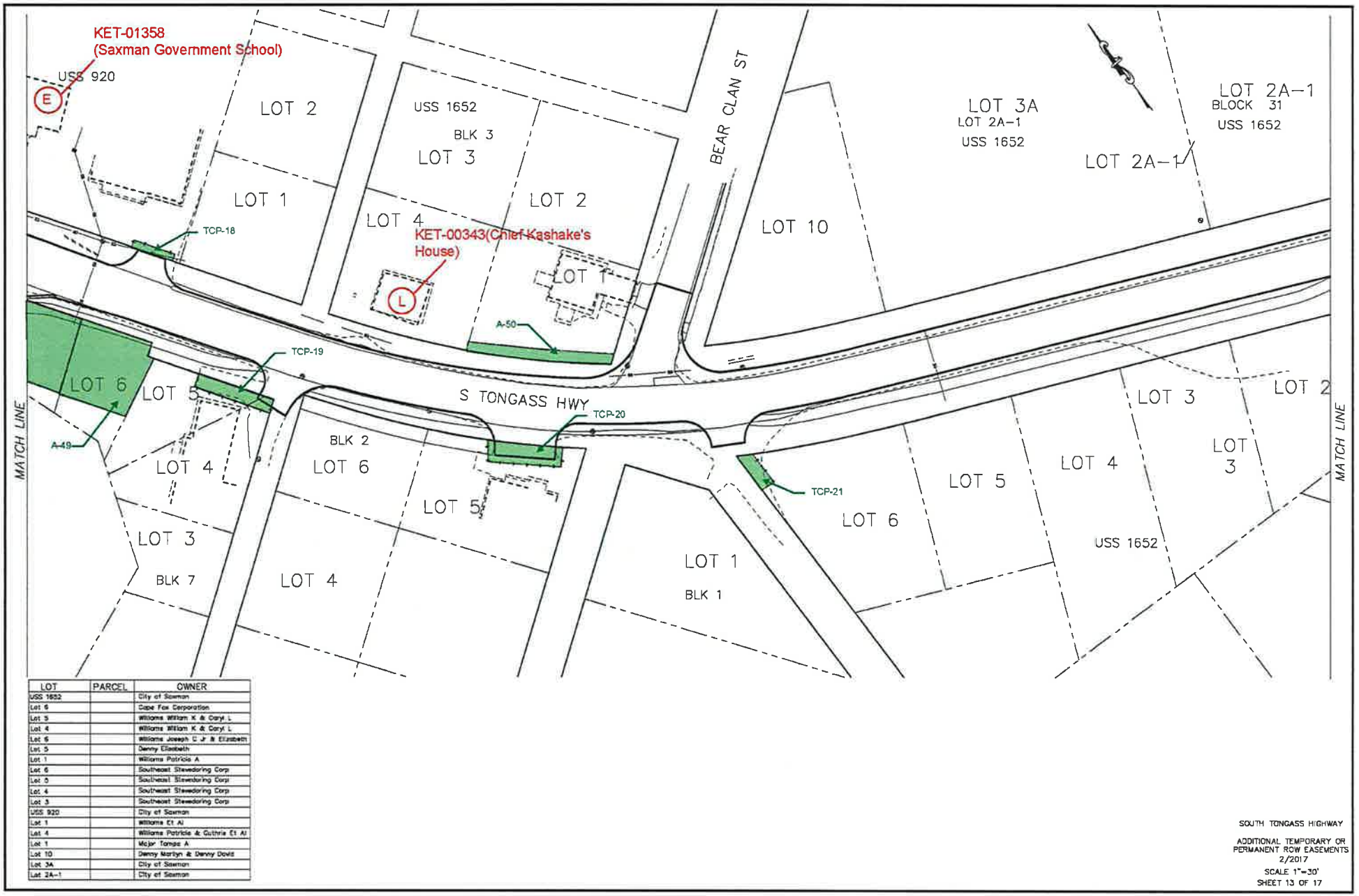
ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 11 OF 17



LOT	PARCEL	OWNER
Lot 7		Snodderly Jean Ann
Lot 6		Wagner Louis A & Cynthia L
Lot 5		Wagner Louis A & Cynthia L
Lot 4		Stewart Lawrence B
Lot 3		Stewart Lawrence B
Lot 2		Knuteson Anthony M
Lot 1		Knuteson Anthony M
Lot 1A		City of Saxman
USS 1652		City of Saxman
Lot 4		Sivertsen Albert & Melvin
Lot 3		Markle John & Mamie
Lot 2		McAllister John Raymond
Lot 1		McAllister John Raymond
Lot 2		Stanley Valerie F
Lot 1		Charlton John & Kyon Paul
Lot 4		Pentecostal Church of God
Lot 3		Ward Daniel W & Debby K
Lot 2		Kushnick Matilda Heirs
Lot 1		City of Saxman

SOUTH TONGASS HIGHWAY

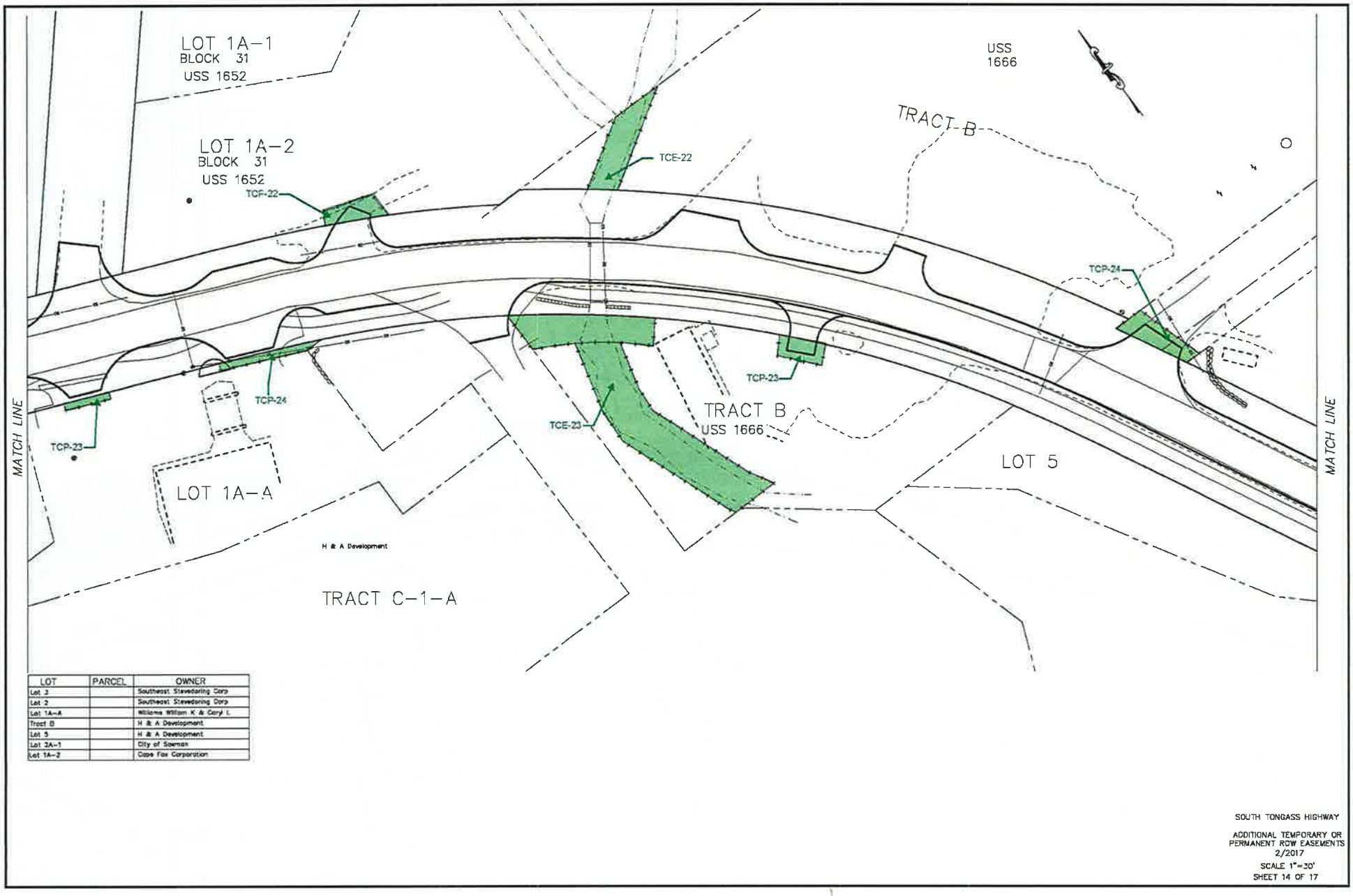
ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 12 OF 17



LOT	PARCEL	OWNER
USS 1652		City of Saxman
Lot 6		Cape Fox Corporation
Lot 5		Williams William K & Caryl L
Lot 4		Williams William K & Caryl L
Lot 6		Williams Joseph C Jr & Elizabeth
Lot 5		Denny Elizabeth
Lot 1		Williams Patricia A
Lot 6		Southeast Stevedoring Corp
Lot 5		Southeast Stevedoring Corp
Lot 4		Southeast Stevedoring Corp
Lot 3		Southeast Stevedoring Corp
USS 920		City of Saxman
Lot 1		Williams Et Al
Lot 4		Williams Patricia & Guthrie Et Al
Lot 1		Major Tompa A
Lot 10		Denny Marilyn & Denny David
Lot 3A		City of Saxman
Lot 2A-1		City of Saxman

SOUTH TONGASS HIGHWAY

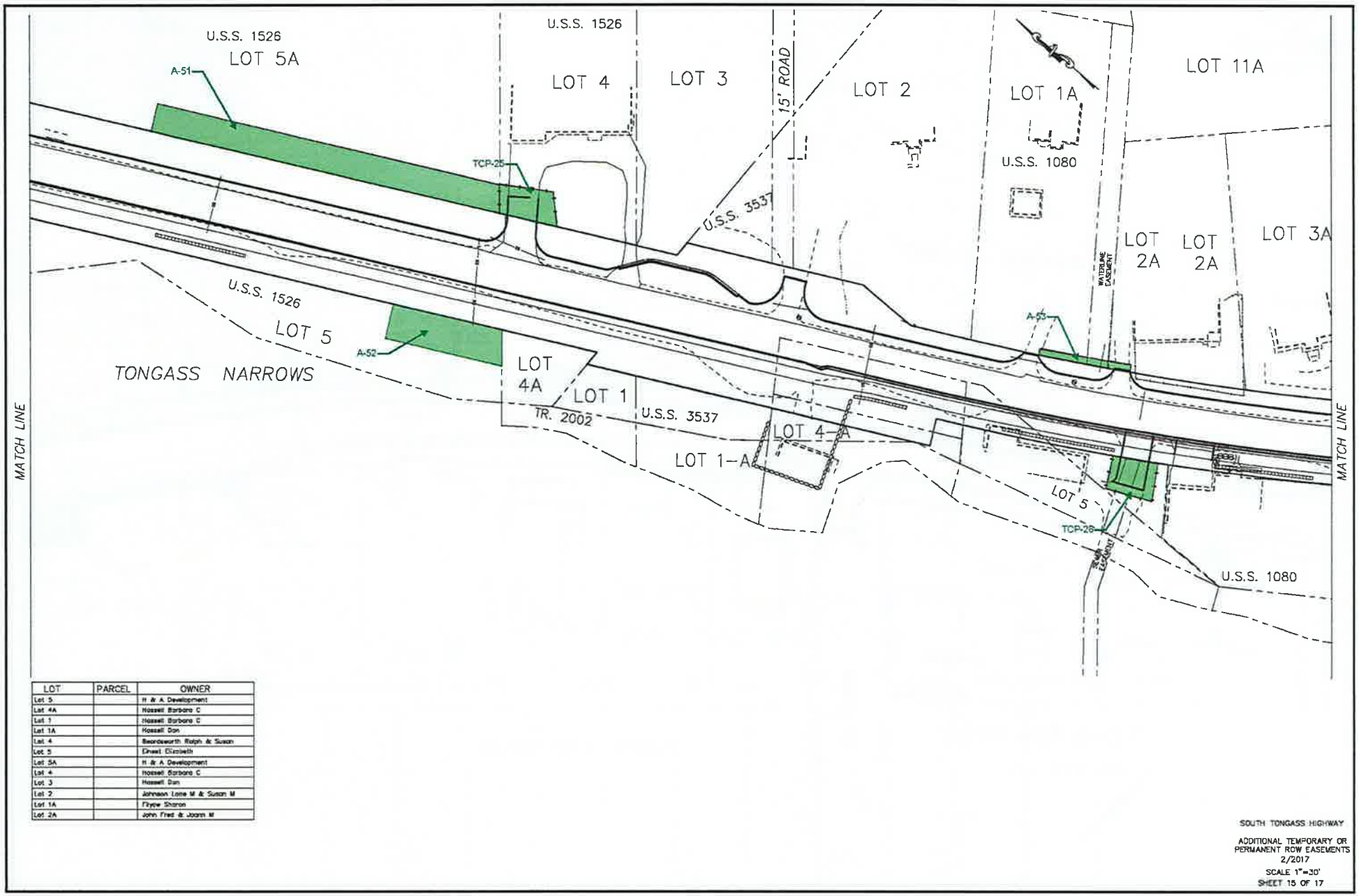
ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 13 OF 17



LOT	PARCEL	OWNER
Lot 3		Southeast Stevedoring Corp
Lot 2		Southeast Stevedoring Corp
Lot 1A-A		Williams William K & Caryl L
Tract B		H & A Development
Lot 5		H & A Development
Lot 2A-1		City of Saxman
Lot 1A-2		Cape Fox Corporation

SOUTH TONGASS HIGHWAY

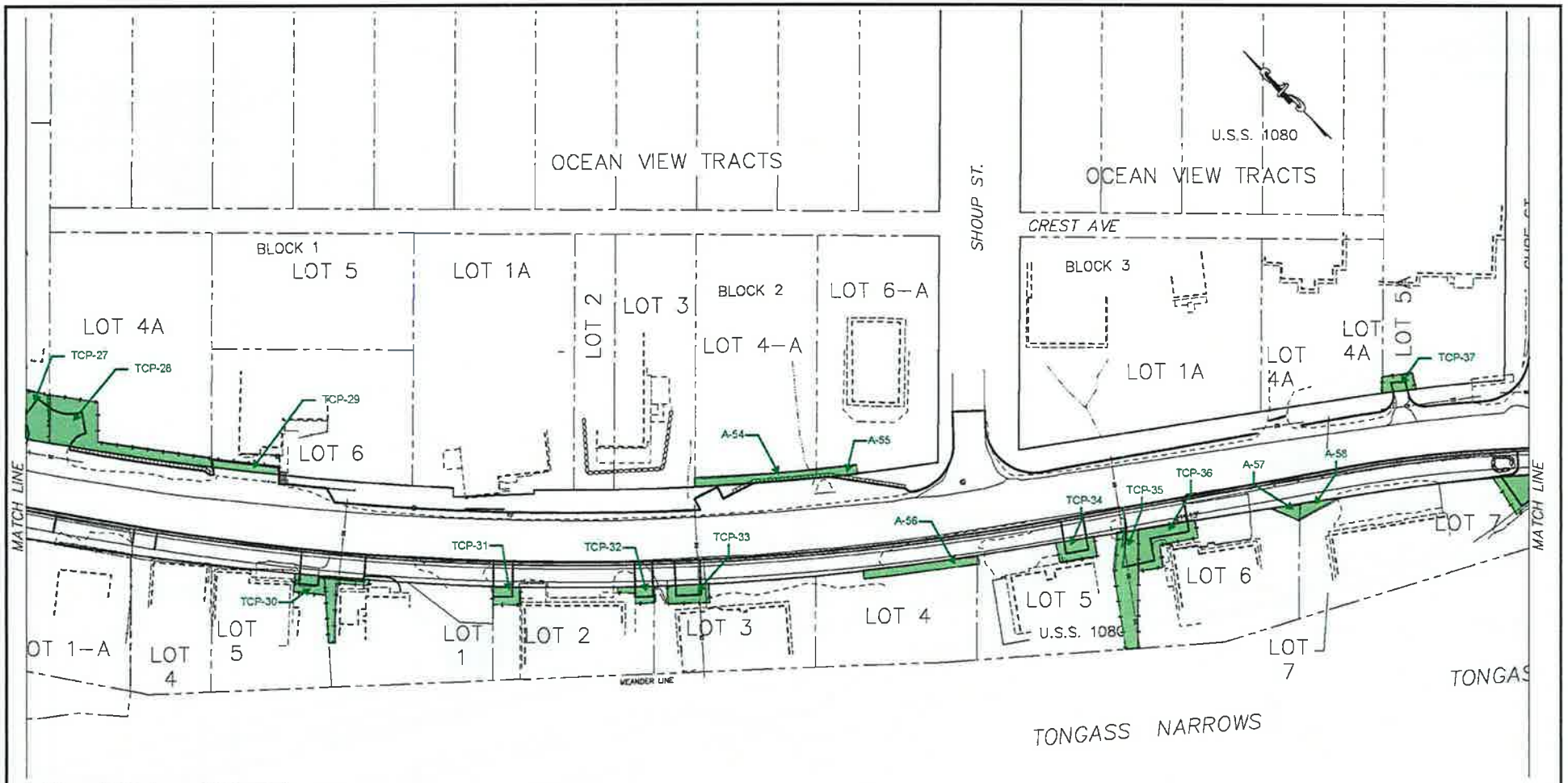
ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 14 OF 17



LOT	PARCEL	OWNER
Lot 5		H & A Development
Lot 4A		Hassell Barbara C
Lot 1		Hassell Barbara C
Lot 1A		Hassell Dan
Lot 4		Beardsworth Ralph & Susan
Lot 3		Elwell Elizabeth
Lot 5A		H & A Development
Lot 4		Hassell Barbara C
Lot 3		Hassell Dan
Lot 2		Johnson Lane M & Susan M
Lot 1A		Flayler Sharon
Lot 2A		John Fred & Joann M

SOUTH TONGASS HIGHWAY

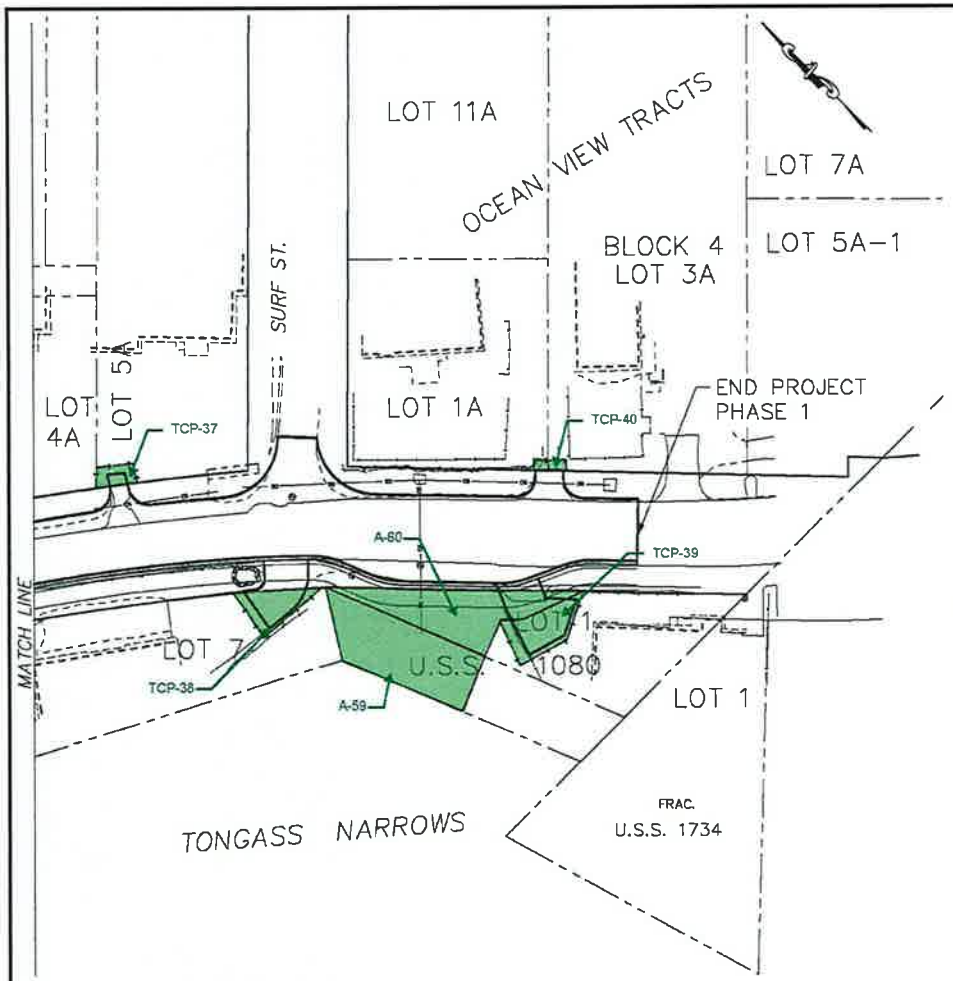
ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 15 OF 17



LOT	PARCEL	OWNER
Lot 1-A		Thompson J Terry & Carolyn
Lot 4		Soule Robert T
Lot 5		Connon Craig & Juanita
Lot 1		Carson Harold
Lot 2		Flores Narcis O Sr & Norma T
Lot 3		Johnson Kevin & Melissa
Lot 4		Bellanich Thomas Warton
Lot 5		Laforce Donna K
Lot 6		Eckert Roy A IV & Li Jing Xi
Lot 7		Tatsuda William B & Xiao Nan
Lot 2A		John Fred & Joann M
Lot 3A		Ohmer Arthur G & Helga M
Lot 4A		Carson Harold & Susan
Lot 5		Smith Terry J & Janis Kelly S
Lot 1A		Gaucher John J & Hoyt Teri L
Lot 2/Lot 3		Volkmann Mathias & Rhea
Lot 4-A/Lot 5-A		Bellanich Tamara
Lot 1A		Dale Robert W & Ellington Sheila

SOUTH TONGASS HIGHWAY

ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 16 OF 17



LOT	PARCEL	OWNER
Lot 7		Tatsuda William B & Xiao Nan
Lot 1		Ortiz Daniel H & Lori K
Lot 4A		Bonson Ardie E
Lot 5A		Gaffney Thomas S Susan
Lot 1A		Blanchard Michael & Gretchen
Lot 3A		Sanders Jennifer & Jamison

SOUTH TONGASS HIGHWAY

ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 17 OF 17

Attachment 6
SHPO Concurrence to ANTHC Wastewater Pipeline Work

6.7.16 3130-1R IHS

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM
3900 Ambassador Drive, Suite 301
Anchorage, Alaska 99508
Telephone: 907-729-3600

FINDINGS OF SECTION 306108 REVIEW
ALASKA NATIVE TRIBAL HEALTH CONSORTIUM (ANTHC)

TO: Judith Bittner, SHPO
DNR/Division of Parks and Outdoor Recreation
Office of History and Archaeology
550 West 7th Avenue, Suite 1310
Anchorage, Alaska 99501

June 1, 2016

The ANTHC is proposing a project at Saxman, Alaska (AN-16-T67; USGS Quad KET B-5). For this project the Indian Health Service is the Lead Federal Agency; USDA RD is the collaborating agency. The authorized IHS Official is Kevin Bingley (907.729.3610; Kevin.Bingley@ihs.gov). The ANTHC point of contact is Roger Harritt (907.729.5687; rkharritt@anthc.org).

SCOPE OF UNDERTAKING: This project will abandon three existing wastewater ocean outfall facilities and replace with three proposed sewer lift stations located in proximity to the original facilities. The lift stations will collect community wastewater and pump into proposed sewer force mains that connect and discharge into the Ketchikan Gateway Borough wastewater collection and treatment system.

AREA OF POTENTIAL EFFECT (APE): A map of the APE is attached for review.

APE SITE REVIEW: The following sites have been identified in the APE and reviewed for potential effect:

Site No.	AHRS ID	Site Name	Age	Description
1.	KET-00060	Saxman Totem Park	1930's	An area containing 25 historic Tlingit totem poles, organized in a 'T' shaped park along Totem Pole Street and adjacent locations. NRHP.
2.	KET-00112	Saxman Native Brotherhood Hall	AD 1916	1 ½ story frame structure built on pilings around 1916. The interior includes an auditorium/gymnasium. Nomination for the National Register withdrawn. NRHP nomination closed (NRXCL); may be eligible. **DEMOLISHED, PER SAXMAN TRIBE, JUNE 1, 2016.**
3.	KET-00295	Petroglyph, Canoe Runs	Prehistoric	A petroglyph, rock alignments and a grave or memorial stone, located in the intertidal zone in front of early historic Saxman village.
4.	KET-00343	Chief Kashakes House, Eagle Tail House	AD 1889-1939	A two story balloon framed, 20x30' clan house with 1x6 shiplap siding and accompanying totem poles. NRHP.
5.	KET-00835	Hussey House	AD 1930-1940, 1970	A mobile home set on a wood plank foundation. Determined to be not eligible for the NRHP.
6.	KET-00836	Stacy House	1920	A 1 ½ story residence with a daylight basement. Determined to be not eligible for the NRHP.
7.	KET-00978	Saxman Sea Port	??	No additional information provided on AHRS card.
8.	KET-01135	South Tongass Hwy, MP 3.4-3.5	??	AHRS card states 'site.' No additional information provided.
9.	KET-01248	2332 South Tongass Hwy	1945	A two story wood frame building with multiple gables.
10.	KET-01249	2259 South Tongass Hwy	1950	Two story building with an irregular plan and a parallel-gabled roof.

2016-00787

11.	KET-01358	Saxman Gov School	1905	Located at the corner of Tongass Hwy and Totem Ave. Historic building. Date provided by Saxman Tribe. No other information provided.

Roger Harritt, ANTHC Cultural Resources Manager, carried out a review of AHRS files and reviewed relevant documents for this evaluation.

AGENCY FINDINGS: **No historic properties affected.** The proposed alignment of the new force main is restricted to the existing right of way of the South Tongass Highway, which contains existing water and sewer mains. The project scope does not include installation of service lines to home and other buildings in the APE; therefore, no potential exists for impacts to historic buildings in the vicinity of the APE of the proposed project.

In compliance with Section 306108 of the National Historic Preservation Act (54 USC 306108) of 1966 and 2014 and 36CFR§800, the ANTHC, under authority of P.L. 86-121, has completed a Historical Property review for this undertaking. The finding is pending until concurrence and approval from the Indian Health Service. The finding applies only to the undertaking as defined under this notification and any changes to the undertaking will require further Section 306108 Review in accordance with 36CFR§800.4. SHPO has 30 days after receipt of this letter to complete a review and provide comments. If no comments are received, then the ANTHC will assume concurrence and proceed with project planning and implementation without further SHPO consultation. The cooperative agreement between the ANTHC and the village will include discovery language, where all construction activities will cease in the immediate area of the finds pending further recommendations from the ANTHC in consultation with the IHS, Alaska SHPO, and the Tribe.

6/1/2016

Roger Harritt Date
ANTHC, Cultural Resources Manager

Concurrence & Approval of Finding:

6/1/16

Kevin Bingley, PE Date
IHS, Assistant Environmental Engineer Program Chief

SHPO Concurrence:

No Historic Properties Adversely Affected
Alaska State Historic Preservation Officer
Date: 6.7.16 File No.: 3130-1R IHS 2016-00787
Please review: 36 CFR 800.13 / A.S. 41.35.070(d)

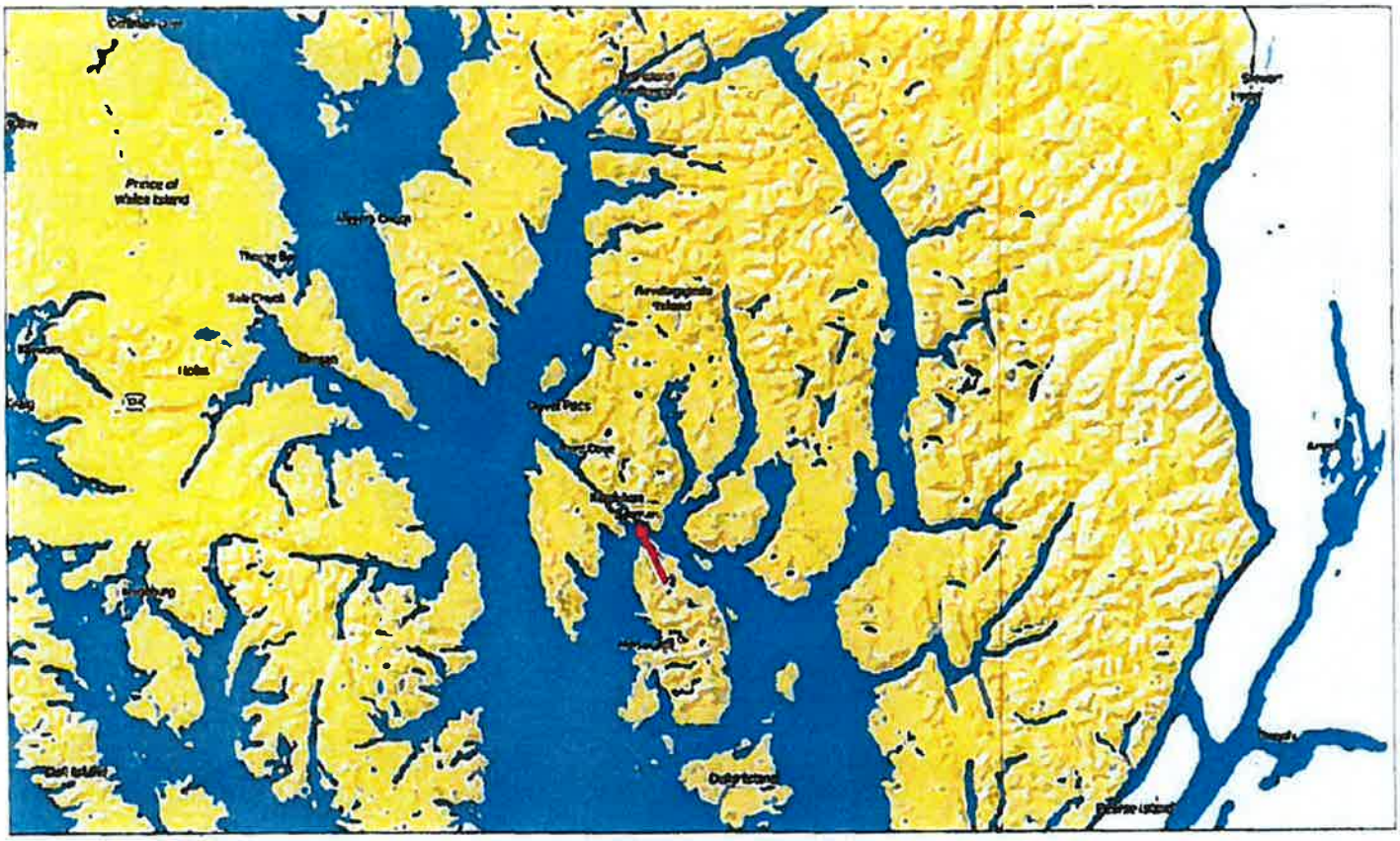


Figure 1. Saxman location, southeast of Ketchikan, Revillagigedo Island, southeast Alaska (U.S.G.S KET B5).

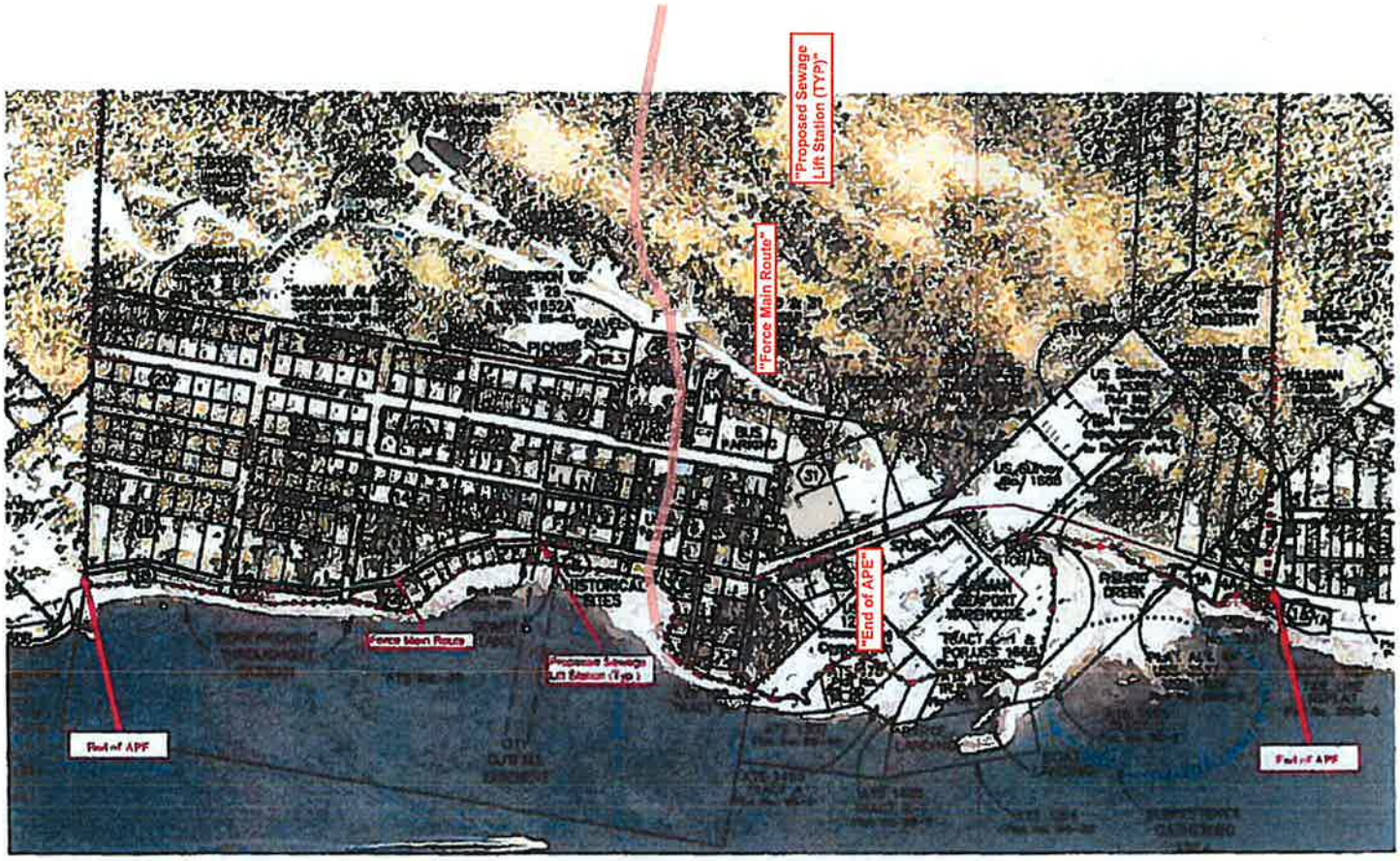


Figure 2. Saxman, large scale map showing the overall project alignment in the existing roadway, and lift station locations. A historically sensitive area adjacent to the alignment is outlined in red (see Figure 3, following).

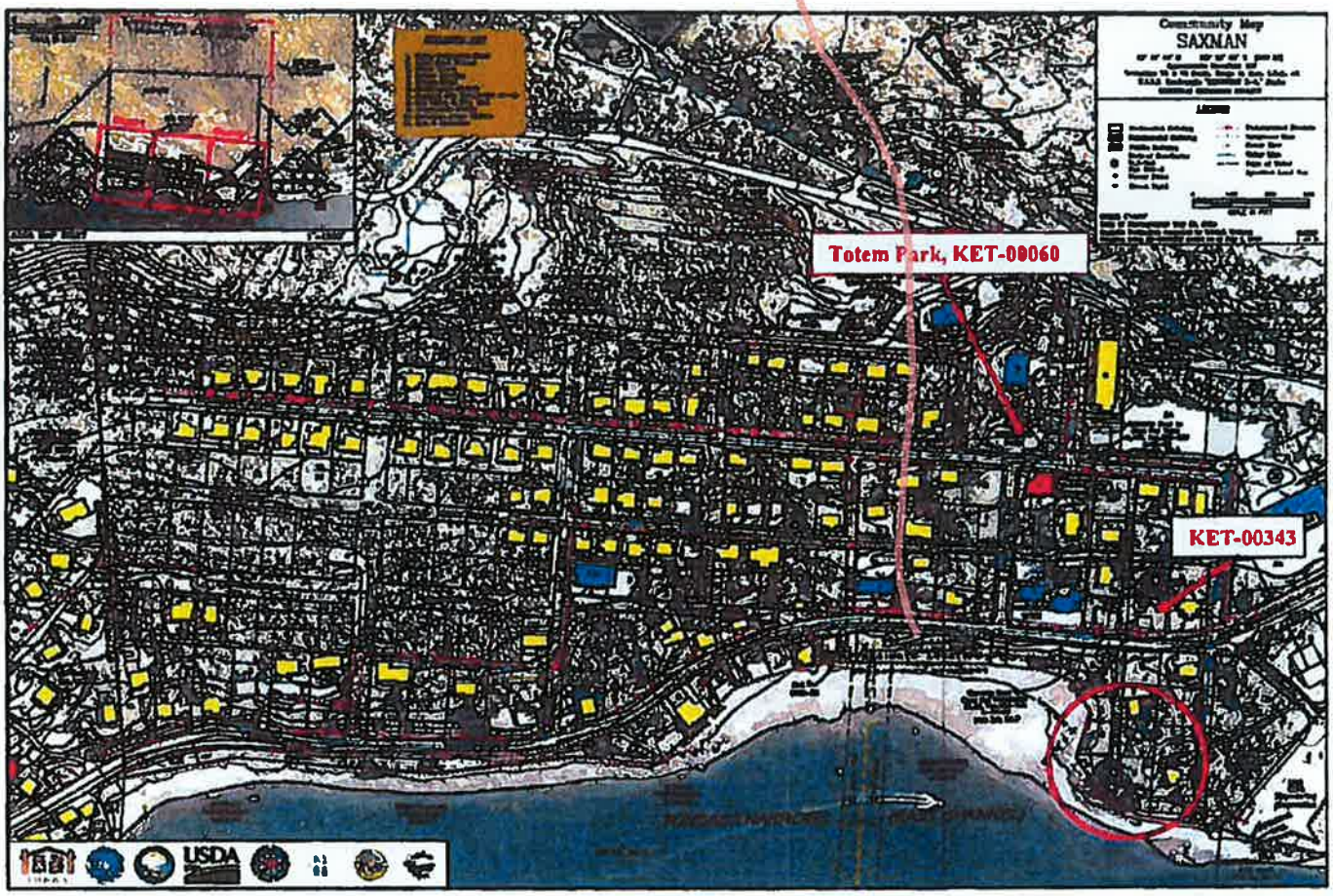


Figure 3. Saxman, Historic properties and other cultural resources along the project APE, Tongass Highway (DCRA Saxman 2004, Sht 1). The red oval identifies the small area containing KET-00112; KET-00295 also located in this area is now demolished. Also shown are existing water and sewer main alignments.

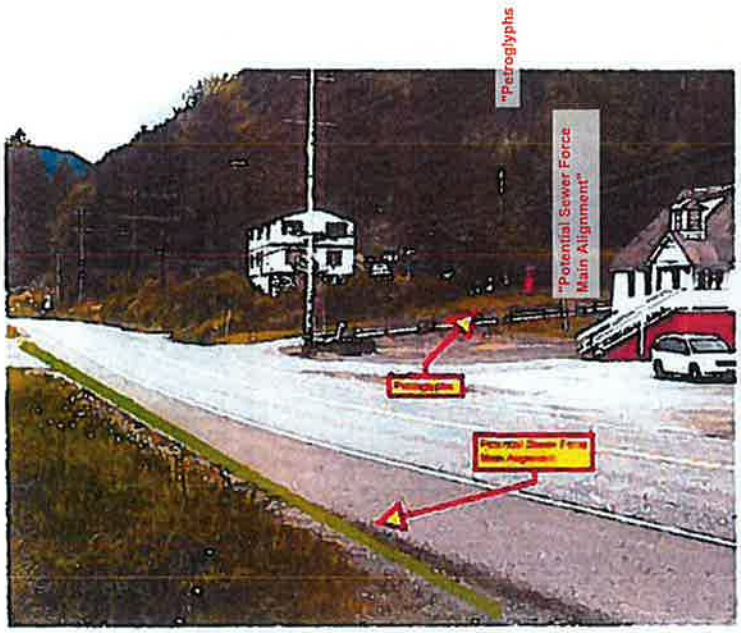


Figure 4. View northeast of the proposed force main alignment. The 'petroglyphs' identified may be KET-00295, but the location varies from the AHRS site card.

Figure 5. View southeast of the proposed force main alignment in the vicinity of Chief Kashakes House, KET-00343.

SHPO Concurrence Letter

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Natural Resources
DIVISION OF PARKS & OUTDOOR RECREATION
Office of History & Archaeology
550 West 7th Ave, Suite 1310
Anchorage, Alaska 99501-3565
Main: 907.269.8721
http://dnr.alaska.gov/parks/oha

APR 20 RECD

April 14, 2017

File No.: 3130-1R FHWA 2017-00310; 3330-6 KET 0021, KET 1358, KET 1391; 3330-6 N KET 0435, KET 1247-1249, KET 1390, KET 1392-1406

Subject: Ketchikan: Saxman to Surf St. Rehabilitation - South Tongass, and Ketchikan: South Tongass Highway, Deermount to Saxman Widening, Z-67571-0000, Z-67685-0000 / 0902(031), 0902(031), 0902(039)

Michael Kell
Department of Transportation & Public Facilities
6860 Glacier Highway
PO Box 112506

Dear Mr. Kell,

The Alaska State Historic Preservation Office (AK SHPO) received your supplemental letter (dated April 4, 2017) on April 7, 2017. Following our review of your letter and report, titled *Cultural Resources Investigation for the DOT&PF South Tongass Highway Deermount to Saxman Widening, and Saxman to Surf Street Pavement Rehabilitation Project, Ketchikan Gateway Borough, Alaska*, our office concurs with the following 23 determinations of eligibility (DOE) for listing on the National Register of Historic Places (Table 1).

Table 1. Determinations of Eligibility

No.	AHRS#	Description/Street Address	DOT&PF Determination	SHPO Comment
1	KET-0021	Saxman Petroglyph	Eligible, Criterion C; and eligible as a contributing element to the Saxman Totem Park (KET-0060)	Concur
2	KET-0435	Historic Town Dump	Not Eligible	Concur
3	KET-1247	2322 S. Tongass Hwy	Not Eligible	Concur
4	KET-1248	2332 S. Tongass Hwy	Not Eligible	Concur
5	KET-1249	2259 S. Tongass Hwy	Not Eligible	Concur
6	KET-1358	Saxman Government School/2322 S. Tongass Hwy	Eligible, Criterion A	Concur
7	KET-1390	900 Stedman St.	Not Eligible	Concur
8	KET-1391	929 Stedman St.	Eligible, Criterion A	Concur
9	KET-1392	Petro Marine Services Shed	Not Eligible	Concur
10	KET-1393	2101 S. Tongass Hwy	Not Eligible	Concur

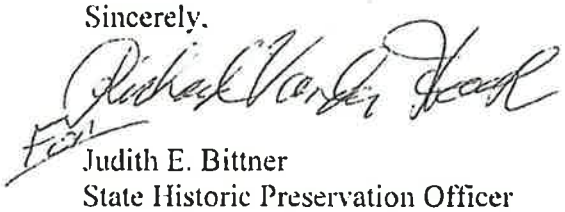
No.	AHRS#	Site Address	DOT&PF Determination	SHPO Comment
11	KET-1394	2182 S. Tongass Hwy	Not Eligible	Concur
12	KET-1395	2191 S. Tongass Hwy	Not Eligible	Concur
13	KET-1396	2266 S. Tongass Hwy	Not Eligible	Concur
14	KET-1397	2278 Oyster Ave	Not Eligible	Concur
15	KET-1398	2516 S. Tongass Hwy	Not Eligible	Concur
16	KET-1399	2573 S. Tongass Hwy	Not Eligible	Concur
17	KET-1400	2588 S. Tongass Hwy	Not Eligible	Concur
18	KET-1401	2592 S. Tongass Hwy	Not Eligible	Concur
19	KET-1402	2587 S. Tongass Hwy	Not Eligible	Concur
20	KET-1403	2949 S. Tongass Hwy	Not Eligible	Concur
21	KET-1404	3008 S. Tongass Hwy	Not Eligible	Concur
22	KET-1405	3016 S. Tongass Hwy	Not Eligible	Concur
23	KET-1406	24 Shoup St.	Not Eligible	Concur

Please note that although Table 1 of your letter included a determination for the 1st and 2nd segment of the South Tongass Highway, it is still considered a treated as eligible (TE) road until the Historic Roads DOE Project is complete. As such, we reviewed the subject undertaking pursuant to Section 106 of the National Historic Preservation Act. Following our review, we concur with your finding of **no historic properties adversely affected** for the subject undertaking.

Please note that as stipulated in *36 CFR § 800.3*, other consulting parties such as the local government and Tribes are required to be notified of the undertaking. Additional information provided by the local government, Tribes or other consulting parties may cause our office to re-evaluate our comments and recommendations. Please note that our comment letter does not end the 30-day review period provided to other consulting parties. Should unidentified cultural resources be discovered in the course of the project, work must be interrupted until the resources have been evaluated in terms of the NRHP eligibility criteria (*36 CFR § 60.4*) in consultation with our office.

Thank you for providing the additional information we requested on March 24, 2017. We appreciate the opportunity to review and comment on the subject project. Please contact Mark Rollins at 269-8722 or mark.rollins@alaska.gov if you have any questions or if we can be of further assistance.

Sincerely,



Judith E. Bittner
State Historic Preservation Officer

JEB:mwr

Attachment C: Wetland and Waterbody Delineation and Aquatic Site Assessment

Projects 67685, 67571

Wetland and Waterbody Delineation and Aquatic Site Assessment

South Tongass Highway Deermount Street to Saxman Widening, Saxman to Surf Street Pavement Rehabilitation

Alaska Department of Transportation and Public Facilities – Southcoast Region

Ketchikan, Alaska

July 18, 2016

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Table of Contents

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List of Acronyms

AA	assessment area
ADF&G	Alaska Department of Fish and Game
CFR	Code of Federal Regulations
DOT&PF	Alaska Department of Transportation and Public Facilities
EPA	Environmental Protection Agency
GIS	geographic information system
HDR	HDR Alaska, Inc.
MLLW	mean lower low water
NATAK-SE	Nearshore Assessment Tool for Southeast Alaska
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
SPN	Special Public Notice
TNW	traditional navigable waters
WESPAK-SE	Wetland Ecosystem Services Protocol for Southeast Alaska

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1.0 Introduction and Purpose

The State of Alaska Department of Transportation and Public Facilities (DOT&PF) Southcoast Region proposes improvements to South Tongass Highway in the cities of Ketchikan and Saxman to serve safe movement of vehicle, bicycle, and pedestrian traffic in the corridor between Deermount Street and Surf Street. The exact improvements have not yet been decided; they may entail highway resurfacing, restoration, and pavement rehabilitation. Originally identified as two separate projects, this is being advanced by DOT&PF as one combined project.

This wetlands and waterbodies delineation and aquatic site assessment identifies locations within the study area that are potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) under authority of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899. Information presented here complies with the USACE guidance for jurisdictional determination reports, Special Public Notice (SPN) 2010-45 (USACE 2010).

The study area is 200 feet wide, centered on the South Tongass Highway. The study area is approximately 3 miles long and 73 acres in size (Figure 1).

From north to south, the location of the study area is as follows:

- Sections 29, 32, and 33 of Township 75 South and Range 91 East, Copper River Meridian
- Section 4 of Township 76 South and Range 91 East, Copper River Meridian

The study area is located along the shoreline of the East Channel of Tongass Narrows within the West Revillagigedo Island watershed (Hydrologic Unit Code 1901010202). Elevations range from 0 to 150 feet above sea level. The study corridor crosses one unnamed anadromous stream and several smaller streams and drainages.

A consideration for planning road rehabilitation activities is the presence of wetlands and other waters of the U.S. By federal law and associated policy, it is necessary to first avoid project impacts to wetlands wherever practicable, minimize impacts that cannot be avoided, and, in some cases, compensate for unavoidable impacts. Wetlands, waters of the U.S., and uplands (non-wetlands), as referenced in this report, are defined as follows:

> *Wetlands:* "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] Part 328.3(b)). Wetlands are a subset of "waters of the U.S." Note that the "wetlands" definition does not include unvegetated areas such as streams, ponds, mudflats, or the ocean. As defined in the 1987 *Corps of Engineers Wetlands Delineation Manual* (*Wetlands Delineation Manual*) and in the 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Alaska Region* (USACE 1987, 2007), wetlands must possess the following three characteristics: (1) a vegetation community dominated by plant species that are typically adapted for life in saturated soils, (2) inundation or saturation of the soil during the growing season, and (3) soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions. Wetlands are a subset of potential "waters of the U.S."
>
> *Waterbodies*: Waterbodies is not a regulatory term. The term is used in this report to reference open water areas that do not support an abundance of vegetation that extends above the water surface. Waterbodies include lakes, streams, and the ocean.

Waters of the U.S.: This is a term used to identify waters over which the federal government has jurisdiction under Section 404 of the Clean Water Act (33 CFR Part 328.3[a]). All wetlands and waterbodies are potentially waters of the U.S. but a nexus with navigable waters must be demonstrated for the USACE to assert jurisdiction. Waters of the U.S. include both wetlands and waterbodies. Additional information on distinction between potential and actual waters of the U.S.is presented in Section 5.0 of this report.

Uplands: Non-water and non-wetland areas are called uplands.

The USACE Regulatory Branch must consider impacts to wetland and waterbody functions and services when evaluating Section 404/10 permit applications. Wetland functions are defined as the chemical, physical, and biological processes or attributes that contribute to the self-maintenance of a wetland and relate to the ecological significance of wetland properties without regard to subjective human values (American Society for Testing and Materials 1999). Services and values are the benefits that human populations receive from functions that occur in ecosystems, such as the use of wetlands for recreation or flood control. Not all wetlands perform all functions, nor do they perform all functions to the same extent. The principal factors that determine how a wetland performs these functions are climatic conditions, quantity and quality of water entering and leaving the wetland, and disturbances or alteration within the wetland or the surrounding ecosystem (Novitzki *et al.* 1997).

2.0 Methods

2.1. Field Work

On October 14 and 15, 2015, HDR Alaska, Inc. (HDR) wetland scientists Anne Leggett, Professional Wetland Scientist No. 1564, and Irina Lapina conducted an on-site investigation of wetlands and nearshore habitats within the 73-acre study area (Figure 1). They examined soil conditions, hydrology, and plant communities using methods described in the 1987 *Wetlands Delineation Manual* and 2007 *Regional Supplement* (USACE 1987, 2007). When feasible, wetland/upland boundaries were determined by completing paired data plots on each side of a wetland boundary. In areas with complex microtopography where wetland and non-wetland components were too closely associated to be delineated separately, HDR scientists determined the approximate percentage of wetland in the mosaic by pacing along a transect through the mosaic area and separately counting steps within wetland and non-wetland. The field work occurred approximately 2 weeks past the USACE's recommended growing season (April 29 to September 28) for the Coastal Western Hemlock-Sitka Spruce Forests ecoregion in which the study area is located (USACE 2007). The plants were identifiable during the field visit and their late-summer condition did not detract from the investigators' ability to estimate percent cover.

The field team completed standard USACE Wetland Determination Forms at eight sites. They took photographs and recorded observations at 27 additional locations (Observation Points) to document waterbodies or sites that exhibited characteristics similar to those in areas where a data form had already been completed. They logged the locations of data collection sites into a handheld global positioning system receiver, and marked field maps with locations of streams, rivulets draining into roadside swales, and the apparent wetland, stream, or upland status of all roadside swales based on presence of inflowing water, standing water, and hydrophytic vegetation. They completed aquatic site assessment forms at representative wetlands, and took notes for later use in assessment of representative intertidal sites.

2.2. Wetland and Waterbody Mapping and Classification

Upon returning from the field, scientists analyzed field-collected data and reviewed the following datasets to help delineate and classify wetlands and waterbodies within the 200-foot-wide study area:

- Color digital ortho-rectified aerial photography with a ground pixel resolution of 1 foot
- Digital contours with 5-foot and 1-foot intervals
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping (Figure 2, Tiles 1 through 3, USFWS 2012)

Soil survey mapping is not available for the study area.

Scientists overlaid the locations of field-visited sites on the digital layers within a Geographic Information System (GIS), and attributed the field sites with their wetland, upland, or waterbody status. Using vegetation signatures on aerial photography and topographic data, the investigators extrapolated wetland, upland, or waterbody information from the field-visited sites to similar locations throughout the study area and digitized wetland/upland boundaries into the GIS. Scientists mapped streams as polygons when a stream channel was visible on aerial imagery. Otherwise, they mapped streams as line features. Mappers used the elevation of the high tide line in the Ketchikan area (19.4 feet Mean Lower Low Water [MLLW])[1] to identify the landward boundary of intertidal habitat.

Scientists classified the wetlands and waterbodies based on a review of field notes, data forms, and site photographs, attributing GIS polygons with NWI mapping codes based on the USFWS's *Classification of Wetlands and Deepwater Habitats of the U.S.* (Cowardin et al. 1979) as well as with vegetation types (if applicable) at Level IV of *The Alaska Vegetation Classification* system (Viereck et al. 1992). Analysts calculated acreages of each wetland and waterbody in GIS.

2.3. Aquatic Site Assessment

The investigators assessed non-tidal wetlands and nearshore waters using separate methods. The study area does not include any tidal areas large enough to map that meet the strict definition of wetlands.

2.3.1. Wetland Assessment

The team assessed wetland functions and values using the *Manual for Wetland Ecosystem Services Protocol for Southeast Alaska* (WESPAK-SE) (Adamus 2015), which provides a standard, consistent approach for rating functions and values of wetland sites throughout southeast Alaska. The method uses assessments of a wetland's ecological characteristics, or "indicators," to generate scores for the wetland's functions or values. Input data are categorical choices for each indicator, which are assigned based on field observations and a desktop evaluation of existing maps and resource information. Spreadsheets use the indicators in mathematical models to calculate a score for each wetland function or value. The method produces a score between 0 and 10, which is then normalized based on the results of regional field testing, and each normalized score is converted to a rating of Lower, Moderate, or Higher for each function and value. The functions and values evaluated for non-tidal wetlands are listed in Table 1.

[1] Subtidal areas were not mapped separately because the available contour mapping does not extend to that depth (below 0 feet MLLW). Subtidal areas will be identified if direct project impacts extend to that depth.

Table 1: Wetland Functions and Values Evaluated by WESPAK-SE

Functions and Values
Surface Water Storage and Delay
Stream Flow Support
Water Cooling
Water Warming
Sediment and Toxicant Retention and Stabilization
Phosphorus Retention
Nitrate Removal and Retention
Carbon Sequestration
Organic Nutrient Export
Anadromous Fish Habitat
Resident and Other Fish Habitat
Aquatic Invertebrate Habitat
Amphibian Habitat
Waterbird Feeding Habitat
Waterbird Nesting Habitat
Songbird, Raptor, and Mammal Habitat
Pollinator Habitat
Native Plant Habitat
Other Values and Attributes
Public Use and Recognition
Subsistence and Provisioning Services
Wetland Sensitivity
Wetland Ecologic Condition
Stress Potential

WESPAK-SE also combines the scores generated for the functions and values listed in Table 1 into function groups and, again, converts the scores for those groups to ratings of Lower, Moderate, or Higher. Function groups are:

- Hydrologic Group
- Water Quality Group
- Aquatic Support Group
- Fish Group
- Aquatic Habitat Group
- Terrestrial Habitat Group
- Social Group

Finally, WESPAK-SE generates a single overall score for each wetland assessment area (AA) by summing the average group score and the maximum group score, then dividing by 2. This overall score is

then compared to the overall scores of 119 reference non-tidal wetlands (Adamus 2015).[2] If a wetland's overall score is below the 33rd percentile of the overall scores of the reference wetlands, it is given a rating of Lower; if its overall score is between the 33rd and 67th percentiles, it is rated Moderate; and if it is above the 67th percentile, it is rated Higher.

The field investigators selected representative wetlands to assess using WESPAK-SE. The investigators collected data for each representative AA in October 2015 on the WESPAK-SE field data sheets and completed forms for office-based data after the field work. They entered these data into the corresponding spreadsheets of the WESPAK-SE calculator.

2.3.2. Nearshore Assessment

The *Manual for the Nearshore Assessment Tool for Alaska: Southeast* (NATAK-SE) (Adamus and Harris 2016) was released in spring 2016, and the investigators used this method to evaluate the resources and functions of intertidal habitats, such as rocky shores. The NATAK-SE method summarizes and applies existing natural resource information as well as data collected onsite. NATAK-SE characterizes the relative diversity and importance of the assessed intertidal segment as habitat for several biological resources and other ecological functions. It consists of a Rapid component and a Biosurvey (optional) component. If the user does not use the Biosurvey protocol, the score is based on only the Rapid assessment. Attributes evaluated by NATAK-SE are listed in Table 2. NATAK-SE is similar to WESPAK-SE in terms of data collection, use of the spreadsheet calculator, scoring, and conversion of scores to Lower/Moderate/Higher ratings based on comparison to 47 reference sites. NATAK-SE does not calculate an overall score for the evaluated shore segment. For this project, the investigators used the equation used by WESPAK-SE to derive an overall score for the assessed nearshore segments, and used the numerical thresholds of 3.3 and 6.7 to assign an overall Lower/Moderate/Higher rating to the shoreline segment. This differs from the WESPAK-SE overall rating method because it does not compare the subject nearshore segment's overall score to that of the reference set.

Table 2: Resources and Functions Evaluated by NATAK-SE

Resources and Functions
Food Web Diversity
Focal Fish Habitat
Sea and Shore Bird Habitat
Pinniped Habitat
Buffer Habitat for Wildlife
Subsidy Function
Filter Function

The NATAK-SE method had not been released at the time of the October 2015 field survey, so the field investigators described two nearshore segments in field notes and took photographs. They then assessed those intertidal rocky shore habitats in the office based on the field observations and internet-available data. They used only the Rapid protocol. The AAs for rocky shore were bounded by the high tide line landward and the limits of the study area seaward.

[2] The formula used in WESPAK-SE for calculating overall scores and ratings may change depending on feedback from the USACE, U. S. Environmental Protection Agency, and others. This method is current as of the WESPAK-SE Manual dated October 15, 2015.

Currently, there is no USACE-approved method to evaluate the functions and values of rivers and streams in Southeast Alaska. The study team did not assess functions of streams.

2.4. Management Categories

In 2014, the USACE posted descriptions of three categories of wetlands (USACE 2014) to be used in discussion of compensatory mitigation. The management categories are defined below.

> ***Category 1****: These are wetlands that: 1) provide habitat for threatened or endangered species that has been documented; 2) represent a high quality example of a rare wetland type; 3) are rare within a given region; 4) provide habitat for very sensitive or important wildlife or plants; and/or 5) are undisturbed and contain ecological attributes that are impossible or difficult to replace within a human lifetime, if at all. Examples of the latter are mature very productive forested wetlands unique to an ecoregion that may take a century to develop, and certain bogs and fens with their special plant populations that have taken centuries to develop. The position of the wetland in the landscape plays an integral role in overall watershed health.*
>
> ***Category 2:*** *[These wetlands] can be important for a variety of wildlife species and can be critical for the watershed depending on where they are located. In contrast to Category 1 wetlands, Category 2 wetlands do not provide critical habitat for any T&E species or species of concern. Generally, these wetlands are pristine, not fragmented; common but more productive and sustain higher biodiversity compared to Category 3 wetlands.*
>
> ***Category 3:*** *These wetlands are usually plentiful in the watershed often with the least biodiversity. Category 3 wetlands are not rare or unique and overall productivity and species diversity in Category 3 wetlands are relatively low. These wetlands may be impacted by man (or by fire or other natural events) and are not considered to be "pristine" examples and as a result in some cases require less than 1:1 [compensation].*

The wetland study team used the results of the aquatic site assessments to assign management categories to the project-area wetlands and nearshore areas. They converted the overall assessment ratings of Lower, Moderate, or Higher to management categories 3, 2, and 1, respectively. Finally, the scientists extrapolated the results of the aquatic site assessment and assignment of management categories from the representative wetlands and nearshore areas to other mapped wetlands and nearshore areas based on their similarity of landscape position, hydrologic inputs and outputs, vegetation type, exposure to disturbance, and other factors.

3.0 Results of the Field Investigation

The vegetation, hydrology, and soil conditions and wetland and waterbody types described below are based on the field investigation conducted by HDR during October 2015. Wetland Determination Forms and site photographs are included in Appendix A. Observation Point photographs are included in Appendix B.

3.1. Vegetation

Most undisturbed portions of the study area are occupied by needleleaf evergreen forest. Narrow areas along the sides of the highway support herbaceous vegetation. Much of the vegetation within the study area is composed of lawn grasses, gardens, and ornamental trees and shrubs. A portion of the study area is unvegetated, including constructed driveways, pedestrian pathways, houses, and docks. Rock outcrops are common along the roadsides. Part of the study area supports marine algae communities.

Table 3 lists dominant plant species observed at the eight locations where Wetland Determination Forms were completed. A list of all plant species observed at wetland determination sites and the total percent cover at each site is included in Appendix C. Table 4 lists the plant communities at wetland determination form sites and whether or not they were determined to be hydrophytic.

The study team documented forested communities at six wetland determination form sites. Forested vegetation within the project area includes closed and open western hemlock-Sitka spruce forest with and without western red cedar, closed western hemlock-western red cedar forest, and an open western hemlock-Oregon crabapple forest type not described in Viereck et al. (1992). Forested vegetation within the study area occurs on steep, stony, southwest-facing slopes both upslope and downslope of the highway.

Closed western hemlock-Sitka spruce-western red cedar forest is the most abundant forest type within the study area and vicinity. This community is dominated by western hemlock (*Tsuga heterophylla*), and codominated by Sitka spruce (*Picea sitchensis*) and western red cedar (*Thuja plicata*) (Inset 1). Stands have 80 to 90 percent overstory cover. The shrub layer is dominated by tall shrubs, including salmon raspberry (*Rubus spectabilis*), fool's huckleberry (*Menziesia ferruginea*), and oval leaf blueberry (*Vaccinium parviflorum*). Yellow skunk cabbage (*Lysichiton americanus*) and western lady fern (*Athyrium cyclosorum*) are common in the ground layer. Moss cover is high. A distinct microtopography of hummocks and hollows is present and surface water flowed throughout many areas of this forest type. Closed western hemlock-Sitka spruce forest, with or without western red cedar, was sampled at sites 003, 004, and 010 where Wetland Determination Forms were completed (two of them were found to have hydrophytic vegetation), and at Observation Points 014, 015, 021a, and 022.

Table 3: Dominant Plants at Wetland Determination Locations

Species	Common Name	Wetland Indicator Status[a]
Alopecurus aequalis	Short-Awn Meadow-Foxtail	OBL
Athyrium cyclosorum	Western Lady Fern	FAC
Glyceria leptostachya	Slender Spike Manna Grass	OBL
Holcus lanatus	Common Velvet Grass	FAC
Juncus effusus	Lamp Rush	OBL
Lysichiton americanus	Yellow Skunk Cabbage	OBL
Maianthemum dilatatum	Two-Leaf False Solomon's Seal	FAC
Malus fusca	Oregon Crabapple	FACW
Menziesia ferruginea	Fool's Huckleberry	FACU
Phalaris arundinacea	Reed Canary Grass	OBL
Picea sitchensis	Sitka Spruce	FACU
Rubus spectabilis	Salmon Raspberry	FACU
Thuja plicata	Western Red Cedar	FAC
Tsuga heterophylla	Western Hemlock	FAC
Vaccinium alaskaense	Alaska Blueberry	FAC

Vaccinium parvifolium	Oval Leaf Blueberry	FAC

[a] Wetland Indicator Status (Lichvar et al. 2014): FAC: Facultative: species equally likely to occur in wetlands and non-wetlands; FACU: Facultative Upland: species usually occurs in non-wetlands; FACW: Facultative Wetland: species usually occurs in wetlands; OBL: Species almost always occurs under natural conditions in wetlands; UPL: Upland: Species almost always occurs under natural conditions in uplands.

Table 4: Hydrophytic Vegetation Status of Wetland Determination Locations

Site	Vegetation Type	Hydrophytic Vegetation Present?
003	Closed western hemlock-Sitka spruce forest	No
004	Closed western hemlock-Sitka spruce forest	Yes
005	Open western hemlock-western red cedar forest	Yes
010	Closed western hemlock-Sitka spruce-western red cedar forest	Yes
024	Wet grass meadow	Yes
025	Open Oregon crabapple-western hemlock-western red cedar forest	Yes
028	Wet graminoid (grass-rush) meadow	Yes
035	Closed western hemlock-western red cedar forest	Yes

The study area also supports closed and open western hemlock-western red cedar forest. Red alder (*Alnus rubra*) was also present in tree stands, but with insignificant cover (Inset 2). Stands in closed forests had about 80 percent overstory cover; stands in open forests had 40 percent tree cover. Sparse shrub layers were composed of salmon raspberry, oval leaf blueberry, and Alaska blueberry (*Vaccinium alaskaense*). Western lady fern and yellow skunk cabbage dominated the herb layer. Closed western hemlock-western red cedar forest was documented at data form site 035 and Observation Point 033. Open western hemlock-western red cedar forest was documented at data form site 005. This vegetation type was found to be hydrophytic.

Open mixed forest dominated by Oregon crabapple (*Malus fusca*) and codominated by western hemlock and western red cedar was documented at data site 025 (Inset 3). Saplings of Oregon crabapple and salmon raspberry composed the shrub layer. The herb layer was formed by western lady fern and yellow skunk cabbage. This vegetation type was found to be hydrophytic.

Wet graminoid herbaceous vegetation occurs within roadside swales along the highway (Inset 4). This community occupies sites with standing water and running water. Herbaceous stands are formed by a combination of native and exotic grasses, such as slender-spike manna grass (*Glyceria leptostachya*), short-awn meadow-foxtail (*Alopecurus aequalis*), reed canary grass (*Phalaris arundinacea*), and common velvet grass (*Holcus lanatus*). Lamp rush (*Juncus effusus*) was a codominant. Wet graminoid herbaceous communities were documented at data form sites 024 and 028, and Observation Point 031. This vegetation type was found to be hydrophytic.

Inset 1: Typical closed western hemlock-Sitka spruce-western red cedar forest (Site 010)

Inset 2: Typical closed western hemlock-western red cedar forest (Site 035)

Inset 3: View of open mixed forest dominated by Oregon crabapple (Site 025)

Inset 4: Typical wet graminoid community along the highway (Site 031)

Inset 5: Moist graminoid community along the highway (Site 034)

Inset 6: View of shore dominated by species of marine alga *Fucus* (Site 023)

Moist graminoid (grass-like plant)-forb communities (Inset 5) occur on well drained gravelly soils in areas along the highway. This community was observed frequently along the study area, and was documented at Observation Point 034. Vegetation in this community consisted of exotic grasses and forbs that include

Kentucky blue grass (*Poa pratensis*), orange hawkweed (*Hieracium aurantiacum*), and ox-eye daisy (*Leucanthemum vulgare*).

An estuarine plant community was observed along the intertidal rocky shores along the three-mile-long study area. Rocky shore was occupied by species of marine alga *Fucus* (Inset 6). Other plants included small patches of grasses and sedges along the shoreline. Marine algae communities were documented at Observation Points 011, 012, 013, 020, 021, and 023. Because these sites do not support soil (or sometimes also vegetation), they are not wetlands; rather they are considered waterbodies.

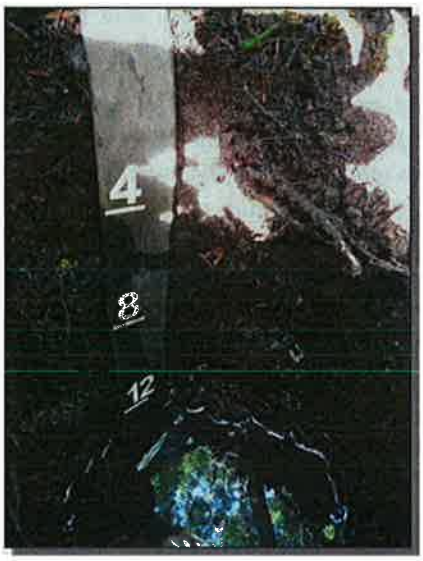
3.2. Soils

Soil characteristics were documented at each of the eight Wetland Determination Form locations. Within the study area, hydric soils were found at four of the eight data form locations. Hydric soil indicators observed at each site are shown in Table 5.

Table 5: Hydric Soil Indicators at Wetland Determination Locations

Site	Hydric Soil Indicator	Hydric Soil Present?
003	None	No
004	Histic Epipedon	Yes
005	None	No
010	None	No
024	Hydrogen Sulfide	Yes
025	None	No
028	Hydrogen Sulfide	Yes
035	Hydrogen Sulfide	Yes

Indicators of hydric soils observed within the study area include histic epipedon and hydrogen sulfide odor. The dark, organic-rich nature of many soils in southeast Alaska masks the colors of the mineral soils, making detection of the redoximorphic features characteristic of hydric soils difficult. A histic epipedon was observed at site 004. The soil profile at this location was 10 inches of saturated organic material underlain by a mucky sandy loam mineral soil (Inset 7). The color of the mineral horizons was black, based on colors from the *Munsell Soil Color Chart* (Munsell 2009). Soil at this site was somewhat poorly drained.



Inset 7: Soil profile meeting requirements for the histic epipedon hydric soil indicator. High water table is present; water seeping in at the depth of 7 inches (Site 004)

Inset 8: Soil profile meeting requirements for the hydrogen sulfide hydric soil indicator (Site 035)

Inset 9: Non-hydric soil profile (Site 003)

A hydrogen sulfide odor was detected within 12 inches of the soil surface at three of the eight sites where Wetland Determinations Forms were completed (Inset 8). Soils at these sites were poorly to very poorly drained. Sites with a hydrogen sulfide odor also had surface water (up to 3 inches) or a high water table (0 to 8 inches below ground surface), or both. The soil profile at the sites where a hydrogen sulfide odor was detected varied, with either an organic surface horizon or a dark organic-rich surface mineral horizon (A horizon). Underlying the surface horizon was a mineral (B) horizon, which was mucky loam or mucky sandy loam in texture. The color of the mineral soil was black.

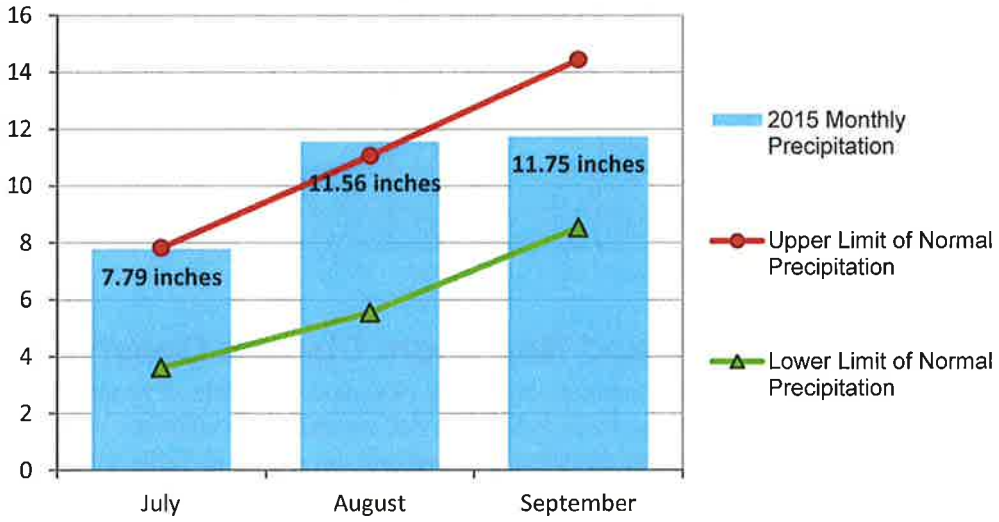
In addition to the hydric soils described above, non-hydric soils were found in the study area (Inset 9). Non-hydric soils were documented at four of the eight sites where data forms were completed. Non-hydric soils varied considerably, but most often had no surface organic horizon or a relatively thin surface organic horizon (0 to 2 inches) underlain by loam or sandy loam mineral soil. The most common hue of the mineral horizon was 10YR. The non-hydric soils were moderately well to somewhat poorly drained.

Field forms in Appendix A list specific characteristics of the sampled soils, including color and texture, and photographs show soil conditions for each site.

3.3. Hydrology

Precipitation data for the period preceding the October 2015 field investigation (July to September 2015) indicate how weather (e.g., abnormal wet or dry conditions) may have influenced observations of hydrology in the field (National Climate Data Center 2015). Climate data exist for the Ketchikan International Airport, located approximately 2.5 miles northwest of the northern end of the study area (Natural Resources Conservation Service [NRCS] 2015). Precipitation trends from the Ketchikan Airport are assumed to be similar to those of the study area. Monthly precipitation totals preceding the field visit were compared to normal totals derived from 1971 to 2000 using the NRCS *Engineering Field Handbook* method (NRCS 1997). This method weights the data by both the amount of precipitation and the relative age of a rainfall event. The results of this comparison are shown in Inset 10. Using the NRCS method, it was determined that precipitation for the 3 months before the field investigation was in the upper end of the normal range of precipitation. In addition, the study area received 15 inches of rain during the week before the field investigation (the first week of October—not accounted for using the NRCS method just described). Observations made in the field gave the impression of unusually wet conditions.

Inset 10. 2015 Precipitation Totals Compared to Normal



Indicators of wetland hydrology were prevalent throughout the study area. Multiple primary indicators and several secondary indicators of wetland hydrology were documented at all eight sites where data forms were completed. Hydrology indicators observed at each plot are shown in Table 6.

The most commonly observed primary wetland hydrology indicators were soil saturation, high water table (Inset 7), and surface water. The most commonly observed secondary indicators were geomorphic position, microtopographic relief, and the FAC-neutral test. Geomorphic positions conducive to the collection and retention of water included toe slopes, benches, and ditches.

Specific information about the indicators (such as depth to saturation within the soil pit) can be found on the data forms included in Appendix A. These indicators are further described in the 2007 *Regional Supplement* (USACE 2007).

Table 6: Wetland Hydrology Indicators at Wetland Determination Locations

Site	Primary Indicators								Secondary Indicators					Wetland Hydrology Present? (Y/N)
	Surface Water	High Water Table	Saturation	Water Marks	Sediment Deposits	Drift Deposits	Sparsely Vegetated Concave Surface	Hydrogen Sulfide Odor	Drainage Patterns	Presence of Reduced Iron	Geomorphic Position	Microtopographic Relief	FAC-Neutral Test	
003			X											Y
004	X	X	X								X	X		Y
005		X	X											Y
010	X	X	X	X	X							X		Y
024	X	X	X			X	X	X	X	X	X		X	Y
025		X	X										X	Y
028	X	X	X		X	X		X		X	X		X	Y
035		X	X					X	X		X	X		Y
TOTAL	4	7	8	1	2	2	1	3	2	2	4	3	3	8

3.4. Wetland, Stream, and Nearshore Classes Observed

The scientists determined wetlands were present where they observed indicators of hydrophytic, wetland hydrology, and hydric soils. If any of these three features is not present under normal conditions, the site does not meet the USACE criteria for being classified as a wetland, as shown in Table 7 below. The field investigators completed Wetland Determination Forms at eight sites, and documented wetland or upland status at 15 Observation Points and waterbodies at 12 Observation Points. The wetland and waterbody types are briefly described below.

Table 7: Wetland Parameters and Conclusions at Wetland Determination Locations

Site	Vegetation Type	Hydrophytic Vegetation Present?	Hydric Soil Present?	Wetland Hydrology Present?	Is the Site a Wetland?
003	Closed western hemlock-Sitka spruce forest	No	No	Yes	No
004	Closed western hemlock-Sitka spruce forest	Yes	Yes	Yes	Yes
005	Open western hemlock-western red cedar forest	Yes	No	Yes	No
010	Closed western hemlock-Sitka spruce-western red cedar forest	Yes	No	Yes	No
024	Wet grass meadow	Yes	Yes	Yes	Yes

Site	Vegetation Type	Hydrophytic Vegetation Present?	Hydric Soil Present?	Wetland Hydrology Present?	Is the Site a Wetland?
025	Open Oregon crabapple-western hemlock-western red cedar forest	Yes	No	Yes	No
028	Wet graminoid (grass-rush) meadow	Yes	Yes	Yes	Yes
035	Closed western hemlock-western red cedar forest	Yes	Yes	Yes	Yes

3.4.1. Forested Wetlands

Forested wetlands, documented at three Wetland Determination Form sites, are located along the northeast side of the highway, on benches elevated above the road. One of the three sites was sampled within a mosaic of wetlands and non-wetlands with approximately 40 percent of the area determined wetland mixed with 60 percent non-wetland. Forested wetlands and wetland/non-wetland mosaics were codominated by Sitka spruce, western hemlock, and western red cedar. The shrub layer of forested wetlands was formed by tall blueberry-family shrubs. Yellow skunk cabbage and ferns dominated the sparse herbaceous layer. The soil at two of the three sampled forested wetlands had a surface horizon of organic material underlain by mucky mineral loam. This mucky layer was judged to have enough organic material to meet the requirement for the histic epipedon hydric soil indicator. High water table and soil saturation within 12 inches of the soil surface were found at all of the forested sites, including the ones determined to be uplands. Microtopographic features indicative of soil saturation, such as hummocks, were present in some of the sampled sites. At these sites, trees and shrubs occupied microtopographic highs, and surface water was found standing in the lowest areas between hummocks or seeping downslope between the hummocks.

3.4.2. Emergent Wetlands

Emergent wetlands up to 4 feet wide are common in the roadside swales along the northeast side of the highway. Emergent wetlands were documented at two data form sites and one Observation Point. These wetlands had standing water 2 to 3 inches deep, drift and sediment deposits, and hydrogen sulfide odor. Common plants included non-native reed canary grass and common velvet grass, and native short-awn meadow-foxtail, slender spike manna grass, and lamp rush. Many seeps and small streams flowed into and through the swales.

3.4.3. Streams

Numerous unnamed perennial streams cross the study area. Streams were documented at 13 Observation Points. These streams flow southwest, passing through culverts under the highway and discharging into Tongass Narrows. Some of the streams flow in swales parallel to the highway before crossing under it in a culvert. Streams ranged from 1 to 9 feet wide and from 1 to 6 inches deep. The substrate varied among streams and included muck, gravel, cobbles, and bedrock. Flowing water was observed at all streams at the time of field investigation (Inset 11).

One unnamed perennial stream, documented at Observation Point 032, is identified as anadromous fish stream #101-47-10300 in the Alaska Department of Fish and Game (ADF&G) Anadromous Waters Catalog (ADF&G 2016). Within the study area, the creek is approximately 15 feet wide and 1 foot deep and has a substrate of bedrock. The banks of this stream are more than 5 feet high. The creek passes under the highway through a wooden culvert that is 5 feet wide and 5 feet tall. No fish are documented upstream of the culvert (ADF&G 2016).

Inset 11: View of unnamed perennial stream (Site 009)

Inset 12: Estuarine intertidal habitat (Site 023)

3.4.4. Estuarine Intertidal (Nearshore) Areas

The southwest edge of the study area includes intertidal waters of Tongass Narrows. The intertidal zone is regularly flooded by tides and includes areas with unconsolidated shore and rocky shore. Vegetation within intertidal habitats includes marine algae and small areas supporting grasses and sedges (Inset 12).

3.4.5. Uplands

Uplands account for the majority of the study area. Uplands were documented at four sites where Wetland Determination Forms were completed and at six Observation Points. Where data forms were completed, these sites were found to lack hydric soil indicators, and one lacked hydrophytic vegetation. Upland sites included needleleaf forest, Oregon crabapple forest, and roadside swales and lawns. While Oregon crabapple is typically found on wet sites in southeast Alaska, this site lacked a definitive hydric soil indicator during the site visit. Large portions of the non-wetland areas are occupied by the highway and residential buildings.

4.0 Wetland and Waterbody Mapping Results

The 73-acre study area includes approximately 2.4 acres of wetlands (3.3 percent of the study area). These are palustrine forested and palustrine emergent types as well as mosaics of upland with palustrine forested wetlands. Acreage of wetland within the mosaics was determined by multiplying the percent wetland by the overall size of the mosaic area. An additional 8.2 acres of the study area are waterbodies: 0.3 acre of stream (0.5 percent of the study area) and 7.9 acres of estuarine waters (10.9 percent of the study area). The remaining 62.0 acres (85.4 percent) of the study area are uplands. Wetland and waterbody classes found within the study area and acreages of each class are listed in Table 8.

Figure 3 displays wetland, waterbody, and upland boundaries, and the boundaries between different wetland and waterbody types identified in the study area. Locations of the Wetland Determination Form sites and Observation Points are also shown.

Table 8: Wetland and Waterbody Mapping Summary

Map Code	Description	Representative Data Form Sites	Representative Observation Points	Acres[a]
Forested Wetlands				
PFO4B	Saturated needle-leaved evergreen forest wetland	004, 035	-	0.2
U/PFO4B	Upland/saturated needle-leaved evergreen forest wetland mosaic	010	-	1.8[b]
Emergent Wetlands				
PEM1C	Seasonally flooded persistent emergent wetland	028	031	0.2
PEM1B	Saturated persistent emergent wetland	-	-	0.04
PEM1F	Semipermanently flooded persistent emergent wetland	-	-	0.2
PUB/EM1C	Seasonally flooded wetland with an unconsolidated bottom and emergent vegetation	024	-	0.02
			Total Wetland Area[c]	***2.4***
Waterbodies				
R3UBH	Permanently flooded upper perennial stream with an unconsolidated bottom	-	001, 006, 007, 008, 009, 016, 017, 018, 019, 026, 029	0.3
R3RBH	Permanently flooded upper perennial stream with a rocky bottom	-	002, 032	0.06
E2USN	Regularly flooded intertidal estuarine waters with an unconsolidated shore	-	011, 012, 013, 021, 030	6.1
E2RSN	Regularly flooded intertidal estuarine waters with a rocky shore	-	020, 023	1.8
			Total Other Waters of the U.S[c]	***8.2***
U	Upland	003, 005	014, 015, 021a, 022, 033, 034	62.0
			Total Mapped Area[c]	***72.6***

[a] To determine wetland and waterbody areas in GIS, the acreage of line features was calculated based on the feature length and the width of the stream channel observed in the field. This area was then subtracted from surrounding uplands and wetlands to prevent double-counting acreage.
[b] This acreage represents the wetland part portion of this polygon, estimated in the field to be 40 percent of the total area.
[c] Total acreage may not reflect the sum of the individual cells, due to rounding.

5.0 Jurisdictional Status

The regulatory authority of Section 404 of the Clean Water Act, as administered by the USACE, has been subject to several lengthy legal reviews. In December 2008, the U.S. Environmental Protection Agency (EPA) and USACE issued joint guidance to implement recent court decisions ("Rapanos guidance;" EPA and USACE 2008). The joint guidance is now being used by EPA regions and USACE districts to determine whether aquatic resources such as lakes, streams, and wetlands are waters of the U.S. subject to regulation under the Clean Water Act.

In accordance with the Rapanos guidance, a subset of the waters over which the USACE will assert jurisdiction, without the need for a significant nexus finding, is all traditional navigable waters (TNW), wetlands adjacent to a TNW, non-navigable tributaries to a TNW that are relatively permanent, and wetlands that directly abut such tributaries. The field investigators judged all of the wetlands on the slope above the highway (i.e., not including the wetlands in roadside swales) to abut (i.e., be adjacent to) at least one relatively permanent tributary of a traditional navigable waterway (Tongass Narrows). Some of these tributaries were very small, but nevertheless are likely to flow year-round.

The 2008 Rapanos guidance describes how jurisdiction over ditches is to be determined. Ditches are generally not subject to USACE jurisdiction if they are excavated wholly in uplands, drain only uplands, and do not carry a relatively permanent flow of water (i.e., continuous flow at least seasonally—typically 3 months) (EPA and USACE 2008). HDR field investigators subjectively distinguished ditches from streams. They considered an unvegetated roadside drainageway to be a ditch, and not subject to USACE jurisdiction, if it appeared to have originally been constructed in uplands, drained only uplands, and was expected to flow less than continuously for approximately 3 months each year. They made this determination based on observation of the bed and banks of the drainageway, whether there was vegetation and leaf litter in the drainageway, signs of scour, the volume of water flow during the visit, whether water flowed into the drainageway from upslope, and the apparent wetland or upland status of the land immediately adjacent to the drainageway. Based on this and the presence of wetland indicators, they labeled all roadside swales as wetlands, streams, or ditches during the field visit.

Tongass Narrows is a tidal waterbody. All parts of Tongass Narrows below the plane of the high tide line (elevation 19.4 feet above MLLW) are subject to USACE jurisdiction under Section 404 of the Clean Water Act. In addition, areas seaward of the mean high water line (14.4 feet above MLLW) are subject to Section 10 of the Rivers and Harbors Act of 1899.

6.0 Aquatic Site Assessment Results

The investigators selected two representative non-tidal AAs and two representative nearshore AAs for evaluation based on their hydrologic and vegetation characteristics, functional similarity, and landscape position. The WESPAK-SE and NATAK-SE forms completed for these areas are included in Appendix D. The following section describes the results of the assessments. The AAs and the locations where data were collected for these assessments are shown on Figure 4.

6.1. Wetlands

6.1.1. Assessment Area 1

The investigators evaluated one forested wetland as AA1 using the non-tidal WESPAK-SE method and collected data for the AA at site 035. The AA1 is bordered to the southwest by the cliff that separates it from the highway, to the northeast and southeast by forested upland, and to the northwest by a mosaic of

wetland/upland forest. The AA1 consists of 0.1 acre of needle-leaved evergreen forest. Groundwater discharge and surface runoff are the primary sources of wetland hydrology. The soil is poorly drained gravelly mucky loam. WESPAK-SE's listing of western red cedar as a rare plant in southeast Alaska is based on outdated data on the number of collections of that species; therefore, the investigators did not consider it a rare plant when completing the data form for this site. The normalized function and value scores and group function scores for AA1 are shown in Table 9 and Table 10.

Table 9: Normalized Function and Value Scores and Ratings for AA1

Function or Value	Function Score	Function Rating	Value Score	Value Rating
Surface Water Storage and Delay	1.09	Lower	0.00	Lower
Stream Flow Support	6.60	Higher	1.85	Moderate
Water Cooling	6.87	Higher	3.96	Moderate
Water Warming	5.42	Moderate	6.68	Higher
Sediment and Toxicant Retention and Stabilization	1.58	Lower	10.00	Higher
Phosphorus Retention	0.85	Lower	6.44	Higher
Nitrate Removal and Retention	1.51	Lower	3.54	Moderate
Carbon Sequestration	3.20	Lower	N/A	N/A
Organic Nutrient Export	10.00	Higher	6.71	Moderate
Anadromous Fish Habitat	0.00	Lower	0.00	Lower
Resident and Other Fish Habitat	0.00	Lower	0.00	Lower
Aquatic Invertebrate Habitat	4.27	Moderate	0.53	Lower
Amphibian Habitat	3.41	Lower	3.16	Moderate
Waterbird Feeding Habitat	0.00	Lower	0.00	Lower
Waterbird Nesting Habitat	0.00	Lower	0.00	Lower
Songbird, Raptor, and Mammal Habitat	9.25	Higher	2.50	Lower
Pollinator Habitat	7.07	Higher	3.75	Moderate
Native Plant Habitat	8.27	Higher	2.28	Lower
Other Values or Attributes	**Value Score**		**Value Rating**	
Public Use and Recognition	5.34		Moderate	
Subsistence and Provisioning Services	0.00		Lower	
Wetland Sensitivity	2.87		Lower	
Wetland Ecological Condition	9.42		Higher	
Stress Potential	7.80		Higher	

Table 10: Summary Scores for Groups for AA1

Function Group	Group Score	Group Rating
Hydrologic Group	0.00	Lower
Water Quality Group	2.93	Lower
Aquatic Support Group	7.44	Higher
Fish Group	0.00	Lower
Aquatic Habitat Group	0.00	Lower
Terrestrial Habitat Group	8.23	Higher
Social Group	5.89	Moderate

AA1 is likely to release moderate-temperature water steadily throughout the year, which supports aquatic ecosystems downstream, although the value of this is low because of its proximity to the sea. That continuous outflow is likely to carry with it organic matter that provides nutrients and an energy source to receiving ecosystems. AA1 is part of a large patch of natural land cover, which contributes to its suitability for terrestrial wildlife. Native amphibians (wood frog, northwestern salamander, long-toed salamander, and rough-skinned newt) are not known to have been found in the AA, but are known to occur within 2 miles under conditions similar to those of the AA1 (AKNHP 2016).

This type of wetland is not unique in southeast Alaska or in the study area. This wetland lacks ponded water, and water bird species of conservation concern in southeast Alaska are not expected to nest or feed in the AA. AA1 is in Ketchikan—not a designated subsistence use area.

The contributing area to AA1 is mostly undisturbed forest with less than 10 percent occupied by populated areas with roads, buildings, parking lots, and other pavement. AA1 may have experienced mild to moderate effects from stormwater and other pollutant sources. No non-native plant species were present in the AA. AA1 is accessible by road and foot, and appeared to be visited occasionally.

The WESPAK-SE calculator generated an overall score for AA1 of 5.13 and an overall rating of Moderate. The investigators extrapolated the results of the assessment and the final rating to all forested wetlands in the study area.

6.1.2. Assessment Area 2

The scientists assessed a roadside swale emergent wetland as AA2 using the non-tidal WESPAK-SE method and collected data for the assessment at site 024. AA2 is bordered to the southwest by the highway embankment and to the northeast by a cliff. AA2 consists of approximately 0.02 acre of seasonally flooded persistent emergent wetland and is completely surrounded by upland areas. A small perennial stream enters AA2. A perennial inlet, groundwater discharge, seeps from forested areas above the cliff, and surface runoff from the highway all provide water to the wetland. Vegetation within AA2 is a mix of native and invasive grasses. The soil is a very poorly drained gravelly loam. The normalized function and value scores and group function scores for AA2 are shown in Table 11 and Table 12.

Table 11: Normalized Function and Value Scores and Ratings for AA2

Function or Value	Function Score	Function Rating	Value Score	Value Rating
Surface Water Storage and Delay	3.78	Moderate	3.75	Moderate
Stream Flow Support	5.20	Moderate	2.36	Moderate
Water Cooling	4.58	Moderate	5.13	Moderate
Water Warming	7.30	Higher	4.90	Moderate
Sediment and Toxicant Retention and Stabilization	2.94	Lower	10.00	Higher
Phosphorus Retention	2.54	Lower	10.00	Higher
Nitrate Removal and Retention	2.93	Moderate	7.70	Higher
Carbon Sequestration	2.04	Lower	N/A	N/A
Organic Nutrient Export	7.40	Moderate	6.71	Moderate
Anadromous Fish Habitat	0.00	Lower	0.00	Lower
Resident and Other Fish Habitat	0.00	Lower	0.00	Lower
Aquatic Invertebrate Habitat	7.04	Higher	1.42	Lower
Amphibian Habitat	0.30	Lower	4.60	Moderate
Waterbird Feeding Habitat	5.70	Higher	7.79	Higher
Waterbird Nesting Habitat	6.62	Higher	0.00	Lower
Songbird, Raptor, and Mammal Habitat	6.10	Moderate	3.33	Moderate
Pollinator Habitat	1.25	Lower	0.00	Lower
Native Plant Habitat	3.71	Lower	3.35	Lower
Other Values or Attributes	**Value Score**		**Value Rating**	
Public Use and Recognition	5.22		Moderate	
Subsistence and Provisioning Services	0.00		Lower	
Wetland Sensitivity	0.00		Lower	
Wetland Ecological Condition	1.81		Lower	
Stress Potential	10.00		Higher	

Table 12: Summary Scores for Groups for AA2

Function Group	Group Score	Group Rating
Hydrologic Group	2.22	Lower
Water Quality Group	5.52	Moderate
Aquatic Support Group	4.09	Moderate
Fish Group	0.00	Lower
Aquatic Habitat Group	5.77	Moderate
Terrestrial Habitat Group	2.61	Lower
Social Group	5.73	Moderate

AA2 is a wetland unintentionally created by human action. This type of herbaceous wetland is common within the study area. One species of a rare plant—slender-spike manna grass—grows within the AA.

However, the AA also supports an abundance of non-native plant species. The WESPAK-SE calculator does not account for the latter. The WESPAK-SE method scored this wetland high for waterbird functions based on such factors as the presence of surface water, shallow slope, and proximity to the sea. However, it does not seem to account for the extremely small size, chronically disturbed condition, or location along a busy road.

Several stressors also influence the AA's functional performance. Approximately one-quarter of the contributing area consists of unvegetated surfaces such as buildings, roads, and parking lots. Pavement and ditching of tributary channels in the contributing area increase the transport of water into AA2 and accelerate inputs of stormwater effluent. The vegetation and shallow slope of the wetland contribute to the wetland's ability to retain pollutants, so the wetland does provide important water quality benefits. WESPAK-SE gave the wetland a higher social rating than seems deserved—considering that the wetland is available for the public to visit and enjoy, but not that the wetland is highly disturbed and not an aesthetic asset.

The WESPAK-SE calculator generated an overall score of 3.79 and an overall rating of Moderate for AA2. The rating of Moderate seems high based on the information presented above. The wetland is small and disturbed and is unlikely to serve waterbirds at a high level. It does not provide the social values implied by WESPAK-SE's interpretation of the input data. In addition, this type of roadside swale wetland is easily re-created. The investigators recommend Lower for an overall wetland rating. The investigators extrapolated the results of the assessment and the final rating to all roadside swale wetlands in the study area.

6.2. Nearshore Areas

The results of assessing the nearshore using NATAK-SE are presented below. This method has just been released, and updates are expected to ensue as the method is tested and the spreadsheet calculators are debugged. Before permitting, DOT&PF should check for updates and, if any exist, run the spreadsheet calculations again. The results as presented below seem generally reasonable based on professional judgment, including the recommended management categories.

6.2.1. Assessment Area 3

The intertidal habitat of Tongass Narrows that stretches along the middle portion of the study area comprises AA3. The investigators evaluated it using the NATAK-SE module based on field observation notes and photographs collected at site 013. AA3 is bounded to the northeast by highway fill. The southwest boundary is the southwest edge of the study area.[3] AA3 averages 50 feet wide, and it extends along the study area for approximately 1,800 feet. AA3 consists of approximately 2.3 acres of intertidal rocky shore.

This unconsolidated shore is dominated by marine algae, primarily species of *Fucus*. Salt-tolerant plants, including species of hairgrass (*Deschampsia* sp.) and sedges (*Carex* sp.), were present within the AA. AA3 is regularly inundated by waters of Tongass Narrows. Several small perennial streams flow into the AA through culverts. Groundwater also is likely discharged to the area. Thus, the AA3 has a mix of fresh and salt water. The normalized resource and function scores for AA3 are shown in Table 13.

[3] The NATAK-SE method is meant to be applied to intertidal areas. For this project, the tidal assessment areas were extended to the southwest edge of the study area even if they may include subtidal areas, because an accepted protocol for use in subtidal areas of southeast Alaska does not exist.

Table 13: Normalized Resource and Function Scores and Ratings for AA3

Resource or Function	Score	Rating
Food Web Diversity	0.42	Lower
Focal Fish	9.48	Higher
Sea and Shore Birds	3.98	Moderate
Pinnipeds	1.90	Lower
Buffer Wildlife	0.01	Lower
Filter Function	2.67	Lower
Subsidy Function	4.64	Moderate

Factors that contribute to the higher scores and ratings of AA3 include its location in a subwatershed that is highly rated for salmon and for estuarine habitat, its large proportion flooded daily by tides, clear water, contributing slopes likely to release carbon, some seaweed cover, relative scarcity of its type in the area, and diversity of nearshore types in the vicinity. Although it is not evaluated in NATAK-SE, this shoreline segment has some social importance: a pedestrian and bike pathway runs along the entirety of the AA, installed benches and platforms overlook it, a stairway leads from the pathway down to it, and a public dock is adjacent to AA3 at its northern end.

The investigators calculated an overall score of 6.39 (average of scores plus maximum of scores, divided by 2) and an overall rating of Moderate for this nearshore area. The investigators extrapolated the results of the assessment and the final rating to other nearshore segments with similar proximity to fish streams in the study area.

6.2.2. Assessment Area 4

The intertidal rocky shore at the southern end of the study area between two mapped anadromous fish streams was assessed as AA4 at site 033 using the NATAK-SE module. AA4 is bordered to the northeast by highway fill, while the southwest boundary is the southwest edge of the study area. AA4 is 50 feet wide on average, and it extends along the study area for approximately 1,000 feet. AA4 consists of approximately 0.8 acre of intertidal rocky shore.

This segment has an unconsolidated substrate dominated by marine algae, primarily species of *Fucus*. AA4 is regularly inundated by tidal waters. Perennial streams contribute regular fresh water inflow and groundwater likely discharges to the AA. The normalized scores for resources and functions of AA4 are shown in Table 14.

Table 14: Normalized Resource and Function Scores and Ratings for AA4

Resource or Function	Score	Rating
Food Web Diversity	2.15	Lower
Focal Fish	10.00[a]	Higher
Sea and Shore Birds	6.98	Higher
Pinnipeds	7.19	Higher
Buffer Wildlife	1.58	Lower
Filter Function	2.67	Lower
Subsidy Function	1.37	Lower

[a] AA4's score for Focal Fish was higher than any in the reference set of nearshore areas, so the calculator returned a nonsensical number. The investigators adjusted the score to the highest possible.

Factors that contribute to the high scores and ratings of AA4 include the presence of kelp, proximity to two anadromous fish streams, the extent of shallowly sloped intertidal area, location in a subwatershed that is highly rated for salmon and for estuarine habitat, clear water, relative scarcity of its type in the area, and diversity of nearshore types in the vicinity.

Using the normalized scores, the investigators calculated an overall score of 7.28 for AA4 and converted that to a rating of High. The investigators extrapolated the results of the assessment and the final rating to the shoreline segment between the two anadromous fish streams.

7.0 Management Category Mapping Results

The investigators extrapolated results of the assessment of representative wetlands and nearshore segments, and classification by management category, to wetlands and intertidal habitats with similar characteristics throughout the study area. Data from sites where Wetland Determination Forms, Observation Points, and aquatic site assessment forms were completed were considered during the extrapolation, including vegetation type, hydrological inputs and outputs, wildlife information, and types of disturbance. Figure 4 displays wetlands and nearshore segments within the study area by their management categories. The total acreage of wetland and nearshore areas within each management category within the study area is provided in Table 15. Streams are not included in this total because management categories have not been assigned.

Table 15: Total Wetland and Nearshore Acreage by Management Category

Management Category	Total Acreage
Category 1	1.1
Category 2	8.8
Category 3	0.4

The nearshore waters at the south end of the project area, between two anadromous fish streams, were assigned to Category 1. The forested wetlands upslope of the highway (2.0 acres) and the intertidal areas north of the anadromous fish streams (6.8 acres) are Category 2 wetlands and waters. The roadside swales in the study area were assigned to Category 3.

8.0 References

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Figures

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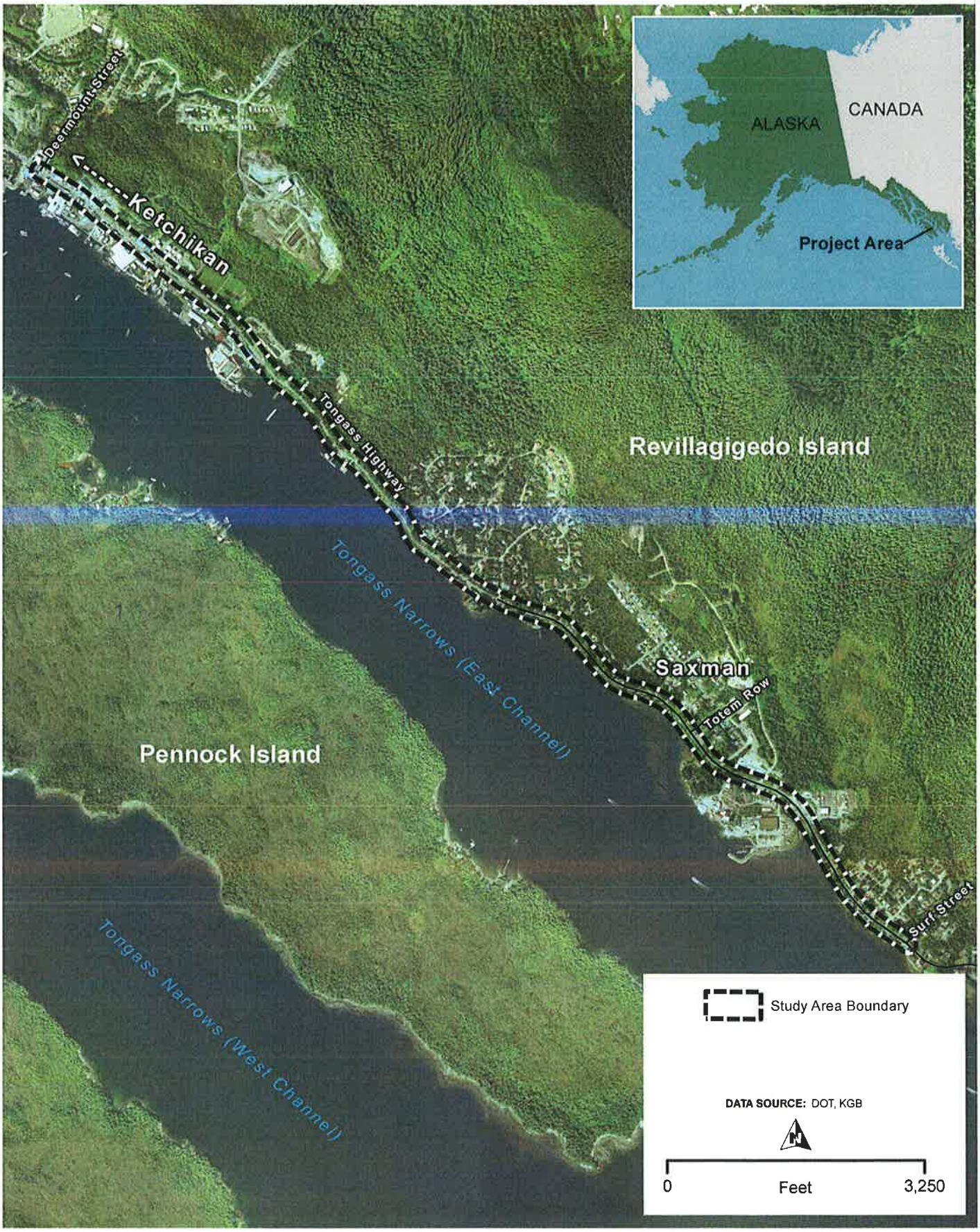

SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY STUDY AREA

FIGURE 1

PATH: Z:\07072 DOT&PF\267831 S. TONGASS DEERMONT NTP 2\MAP_DOCS\WETLANDSJDR\FIG1_WETLAND_WATER_STUDYAREA.MXD - USER: TLILLY - DATE: 05/16/2016

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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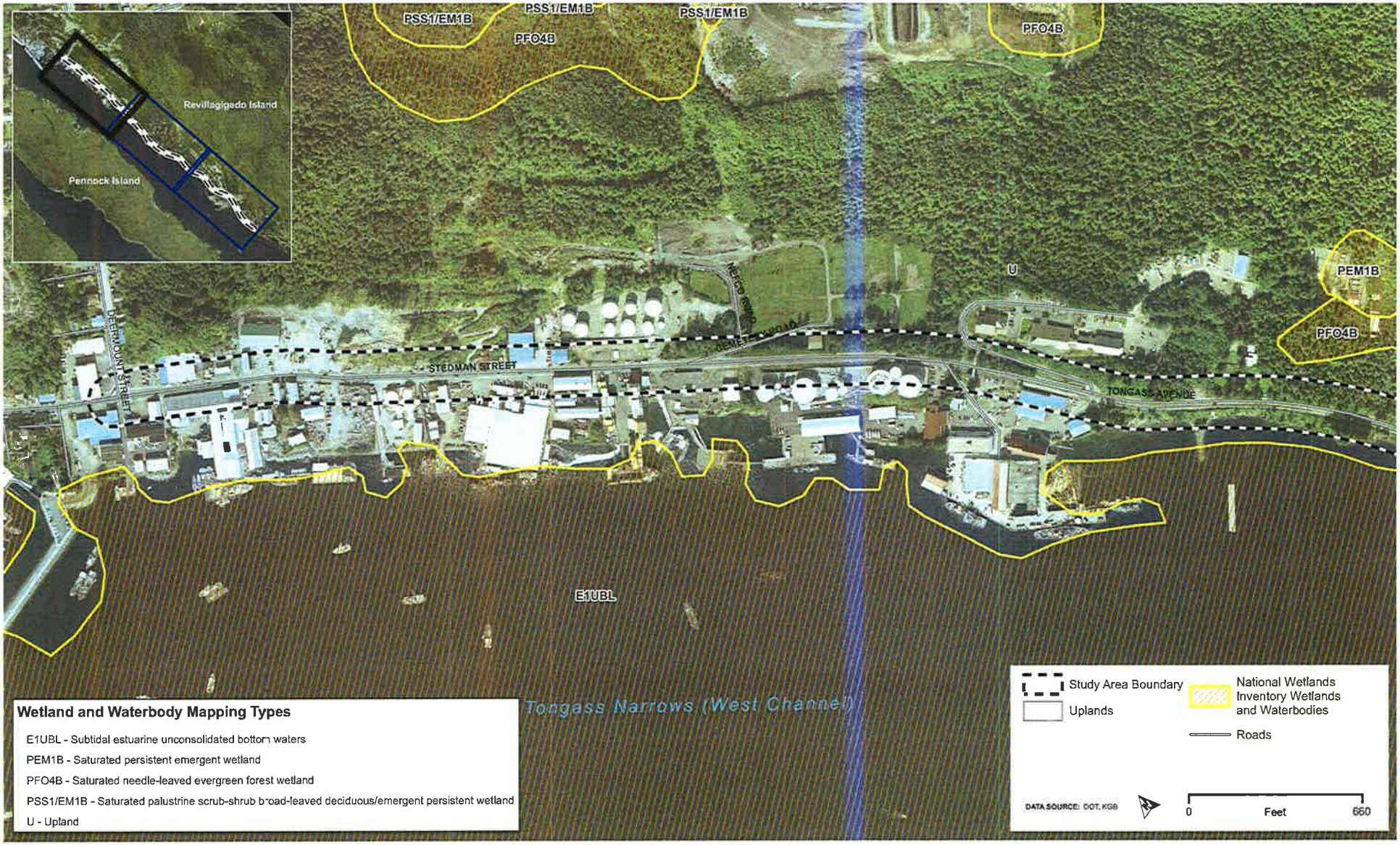

HDR

SOUTH TONGASS HIGHWAY

EXISTING NATIONAL WETLANDS INVENTORY MAPPING

TILE 1 OF 3 FIGURE 2

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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HDR

SOUTH TONGASS HIGHWAY

EXISTING NATIONAL WETLANDS INVENTORY MAPPING

TILE 2 OF 3 FIGURE 2

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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SOUTH TONGASS HIGHWAY

EXISTING NATIONAL WETLANDS INVENTORY MAPPING

TILE 3 OF 3 FIGURE 2

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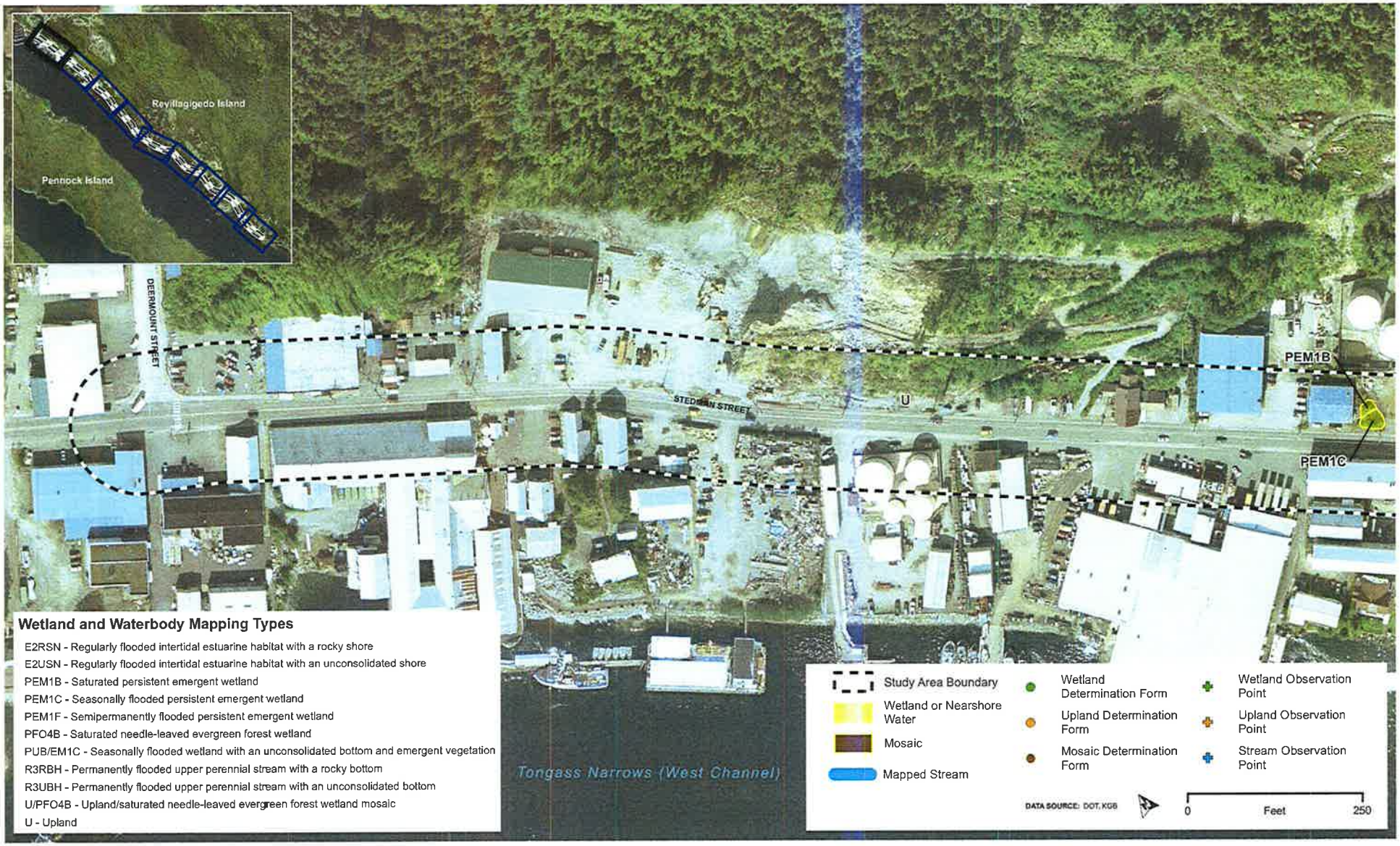

HDR

SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MAPPING

TILE 1 OF 9 FIGURE 3

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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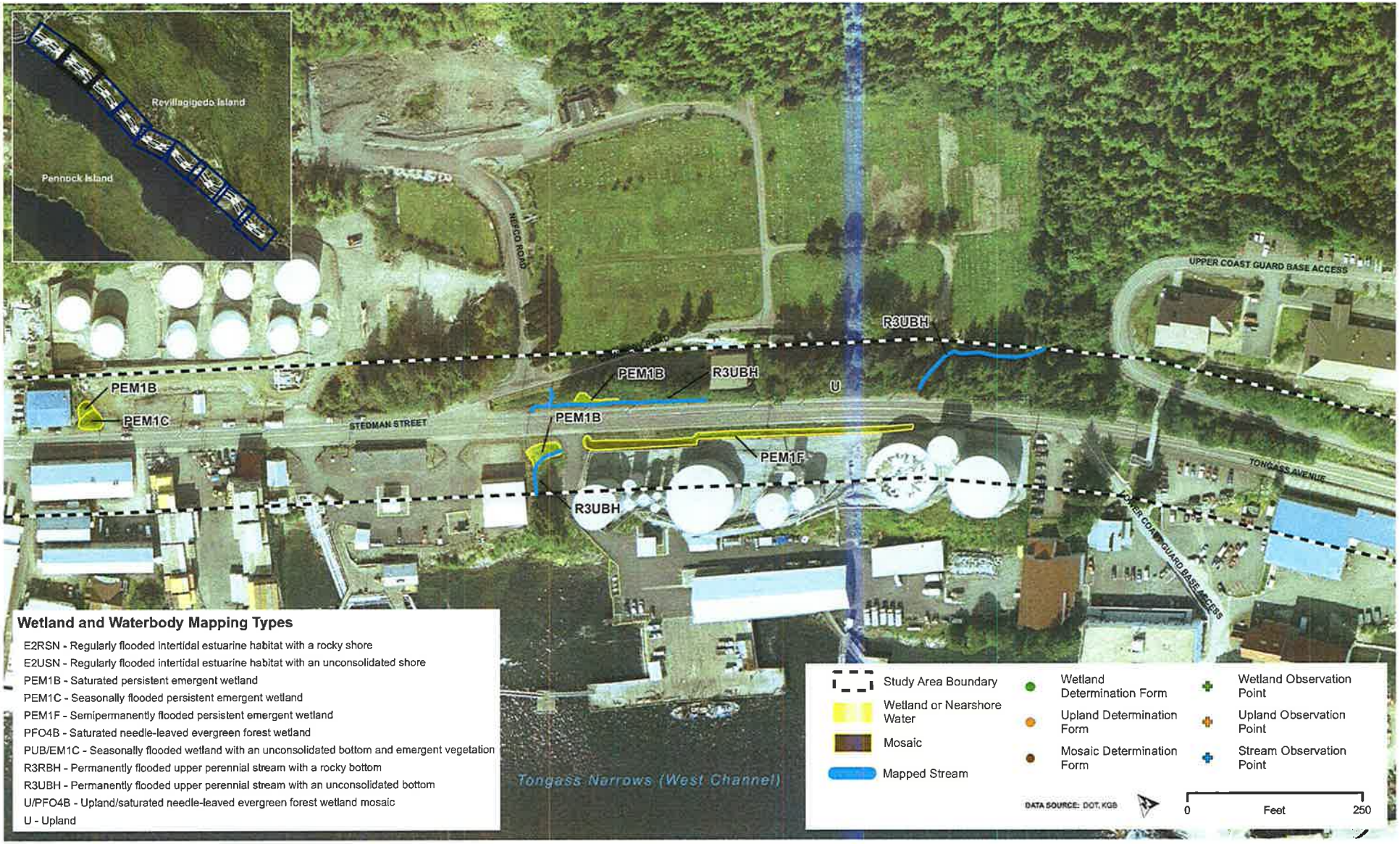

HDR

SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MAPPING

TILE 2 OF 9 FIGURE 3

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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HDR

SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MAPPING

TILE 3 OF 9 FIGURE 3

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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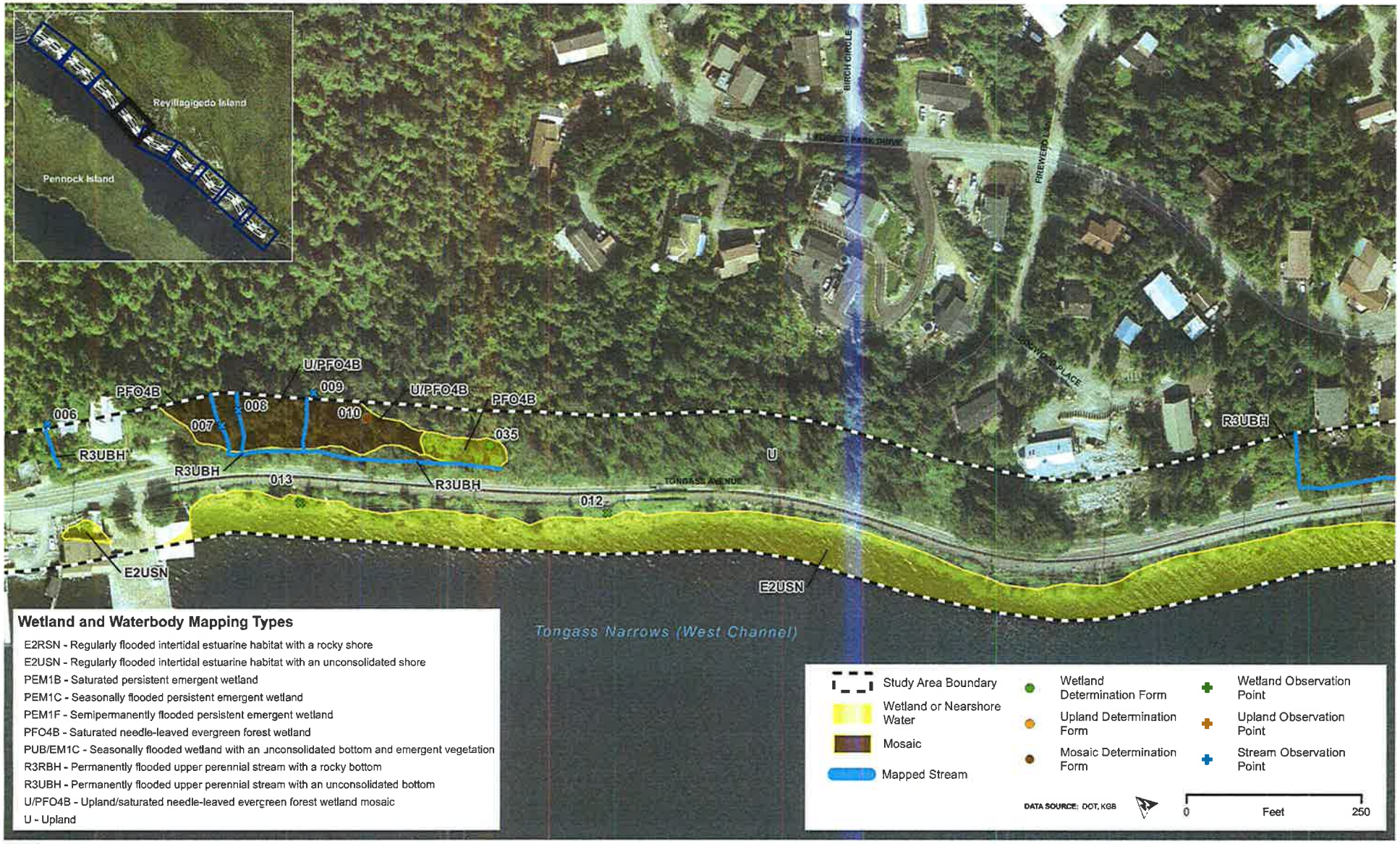

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SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MAPPING

TILE 4 OF 9 FIGURE 3

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MAPPING

TILE 5 OF 9 FIGURE 3

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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HDR

SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MAPPING

TILE 6 OF 9 FIGURE 3

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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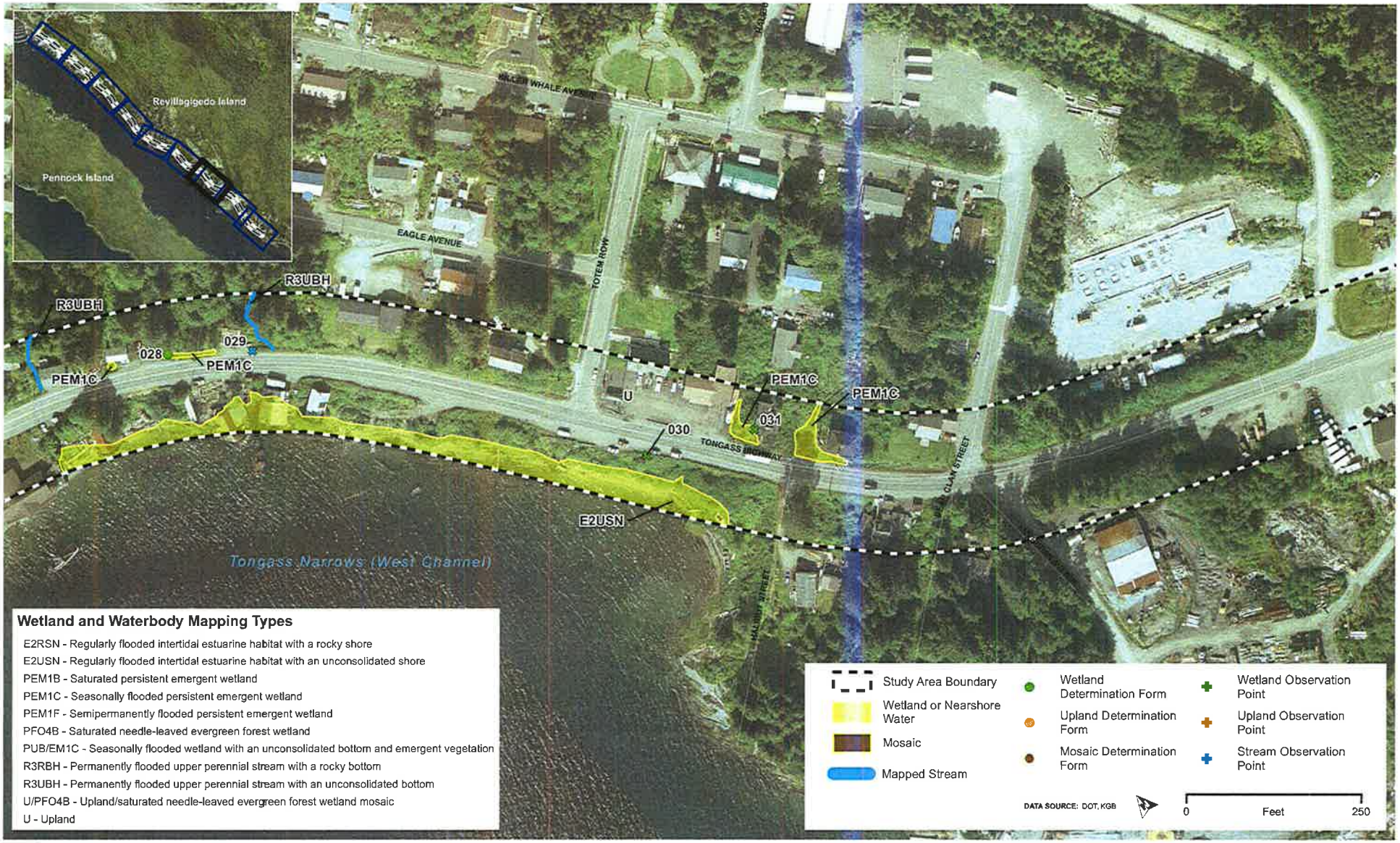

HDR

SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MAPPING

TILE 7 OF 9 FIGURE 3

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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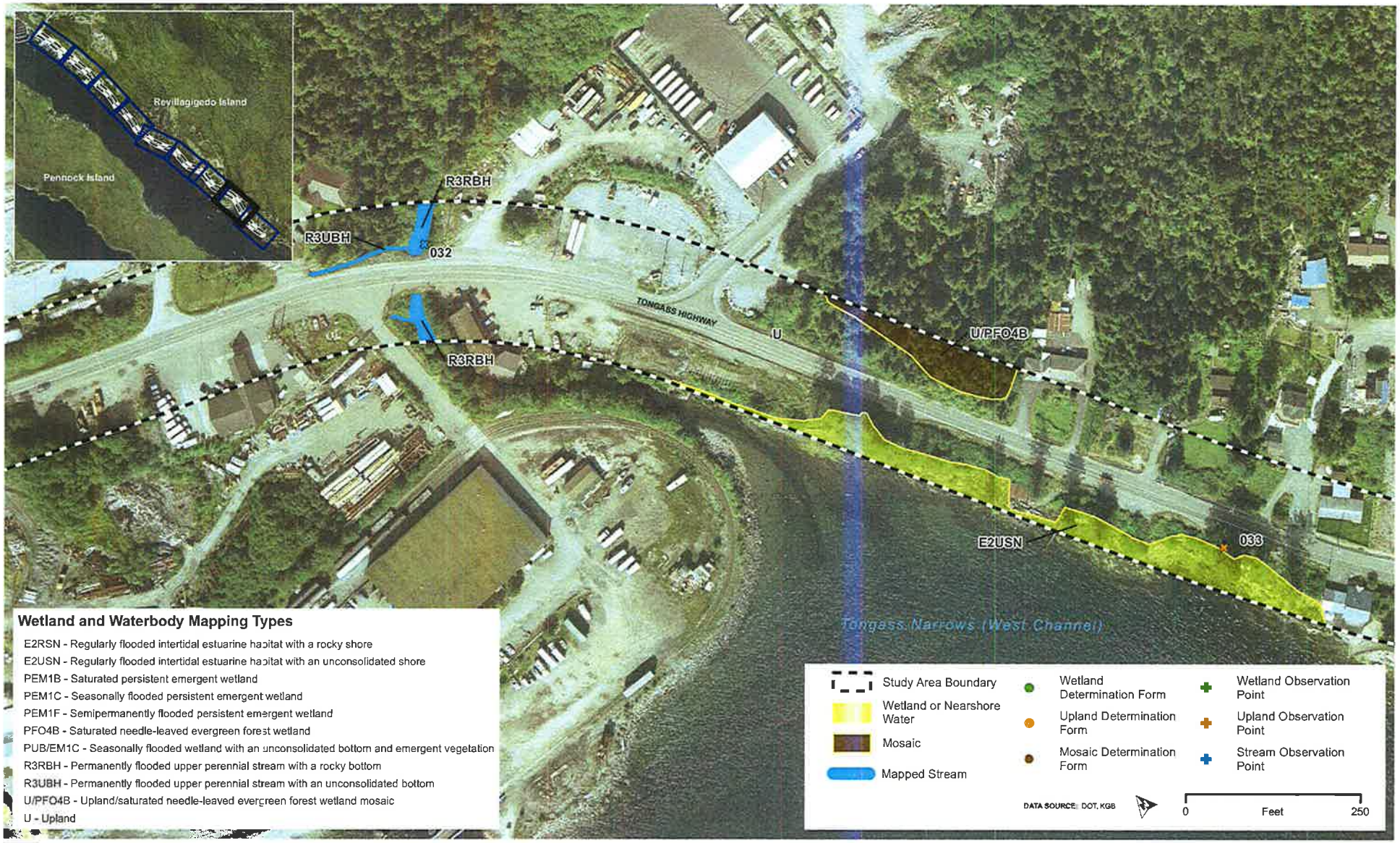

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SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MAPPING

TILE 8 OF 9 FIGURE 3

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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HDR

SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MAPPING

TILE 9 OF 9 FIGURE 3

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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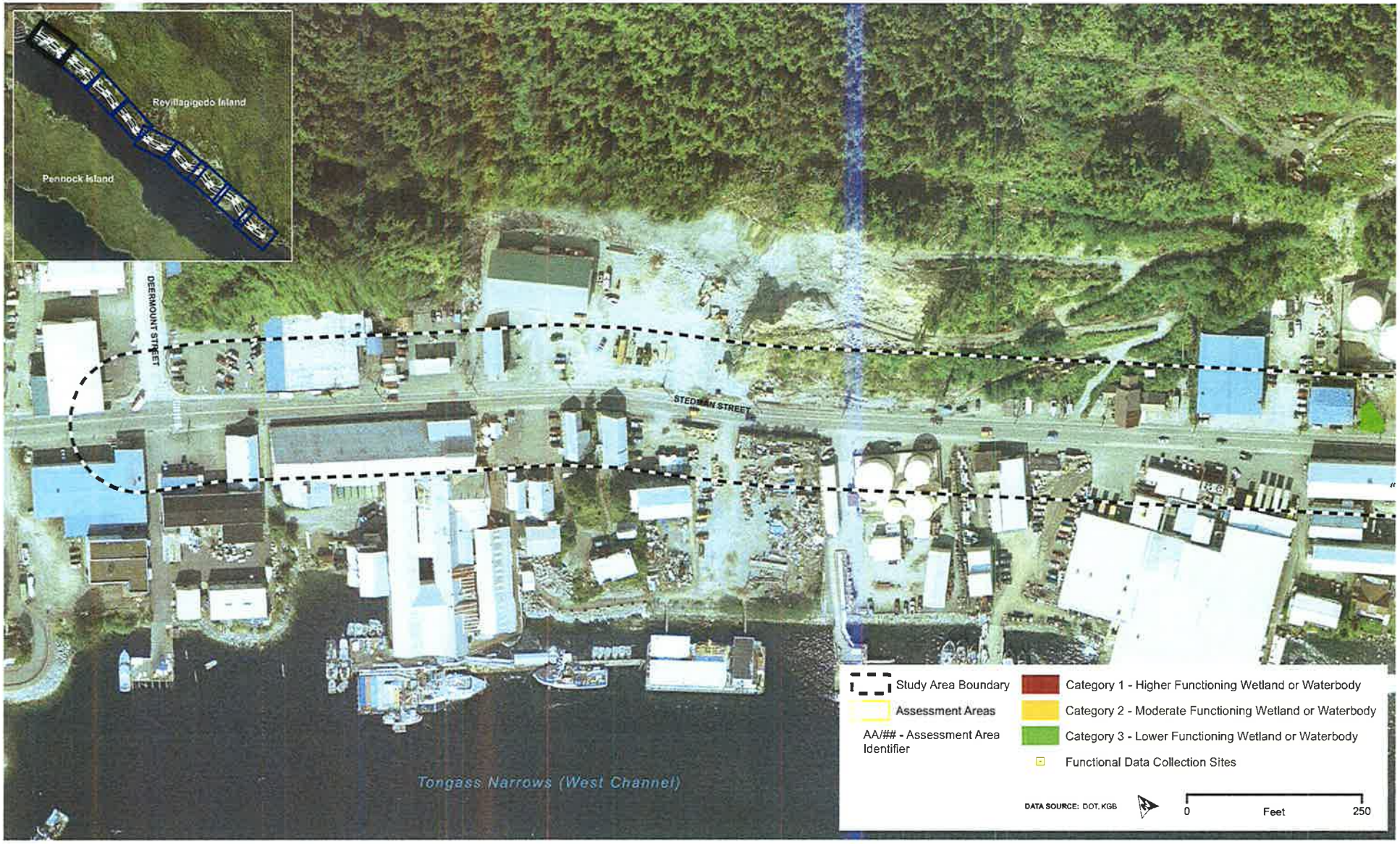

HDR

SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MANAGEMENT CATEGORIES

TILE 1 OF 9 FIGURE 4

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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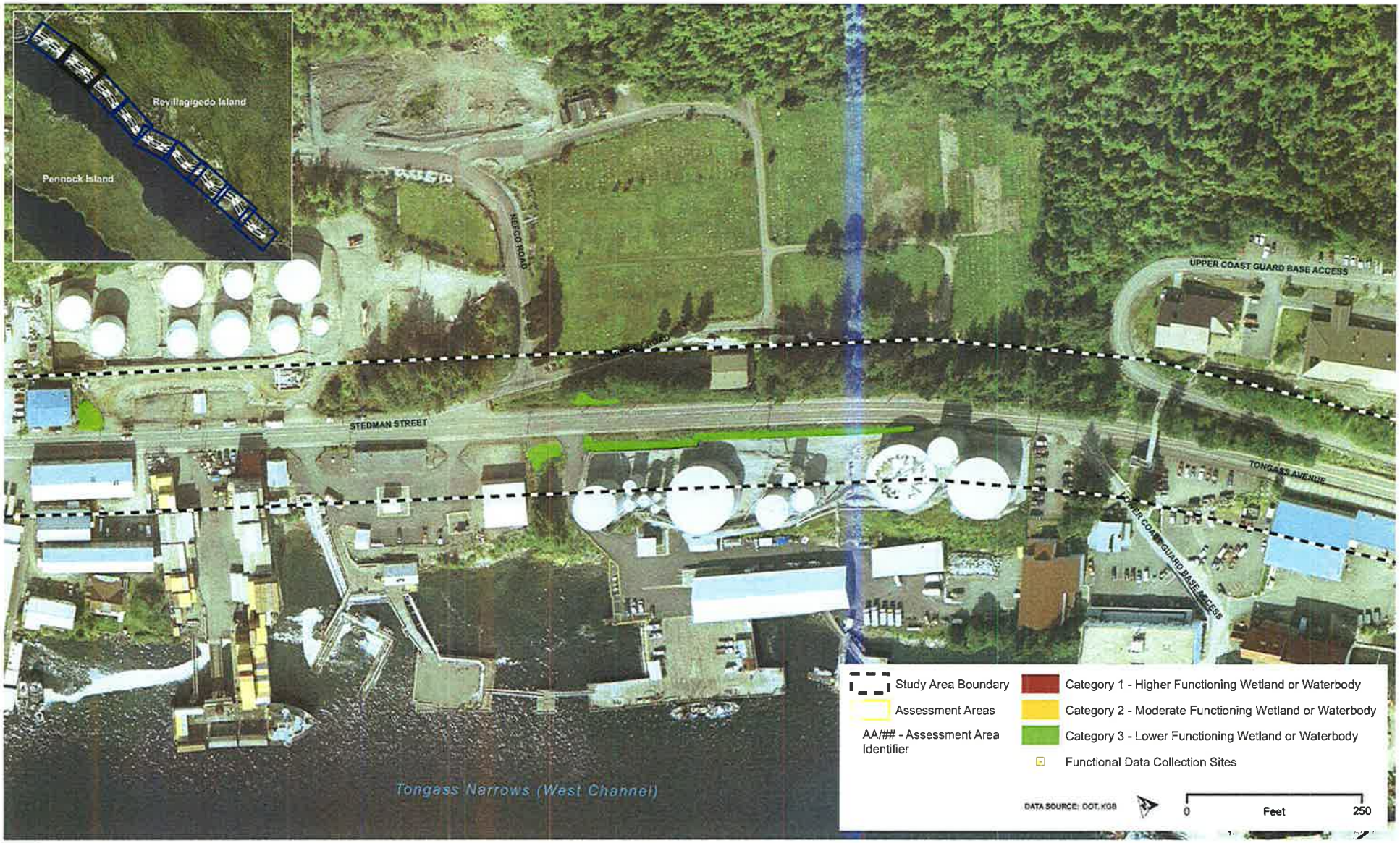

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SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MANAGEMENT CATEGORIES

TILE 2 OF 9 FIGURE 4

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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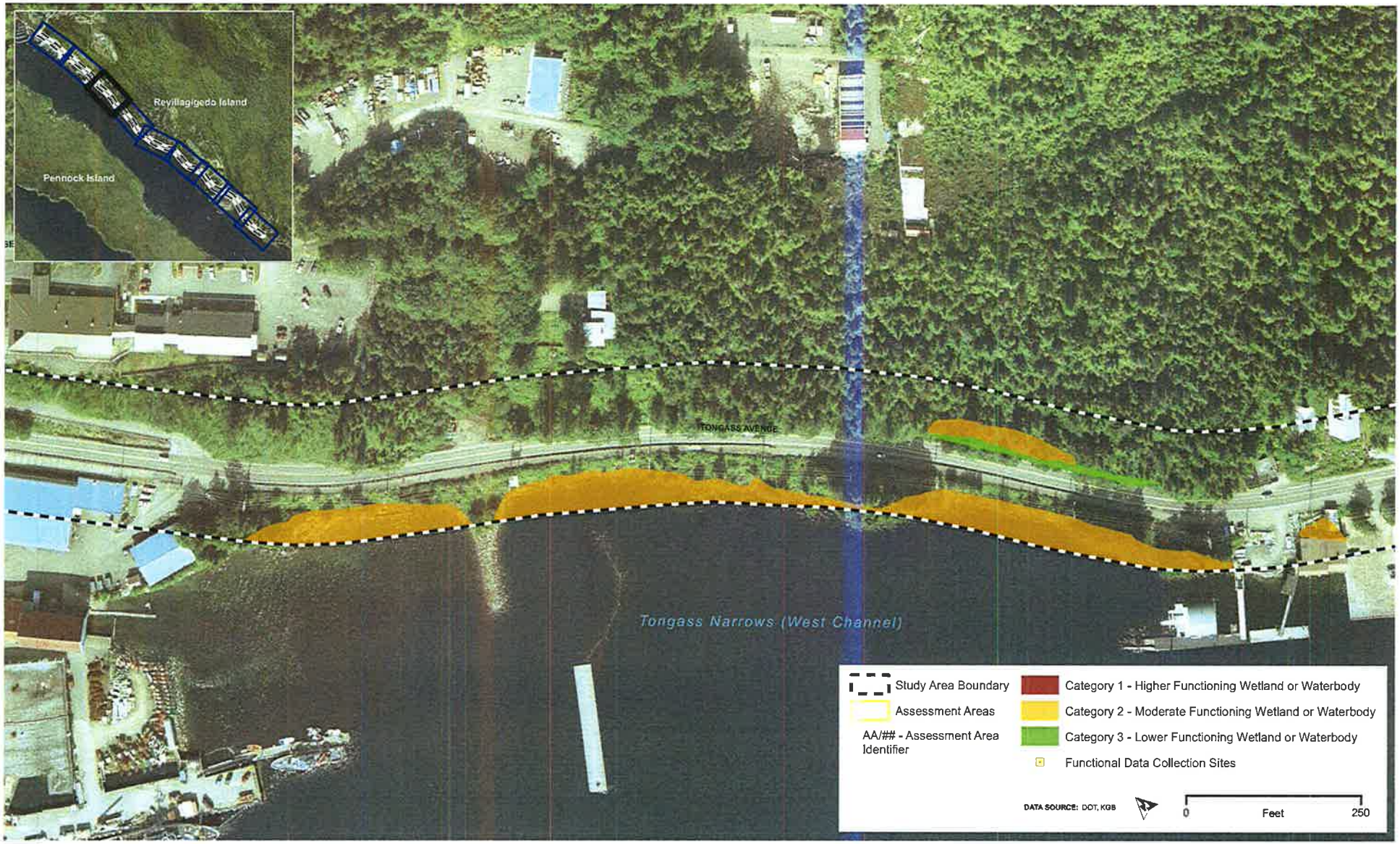

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SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MANAGEMENT CATEGORIES

TILE 3 OF 9 FIGURE 4

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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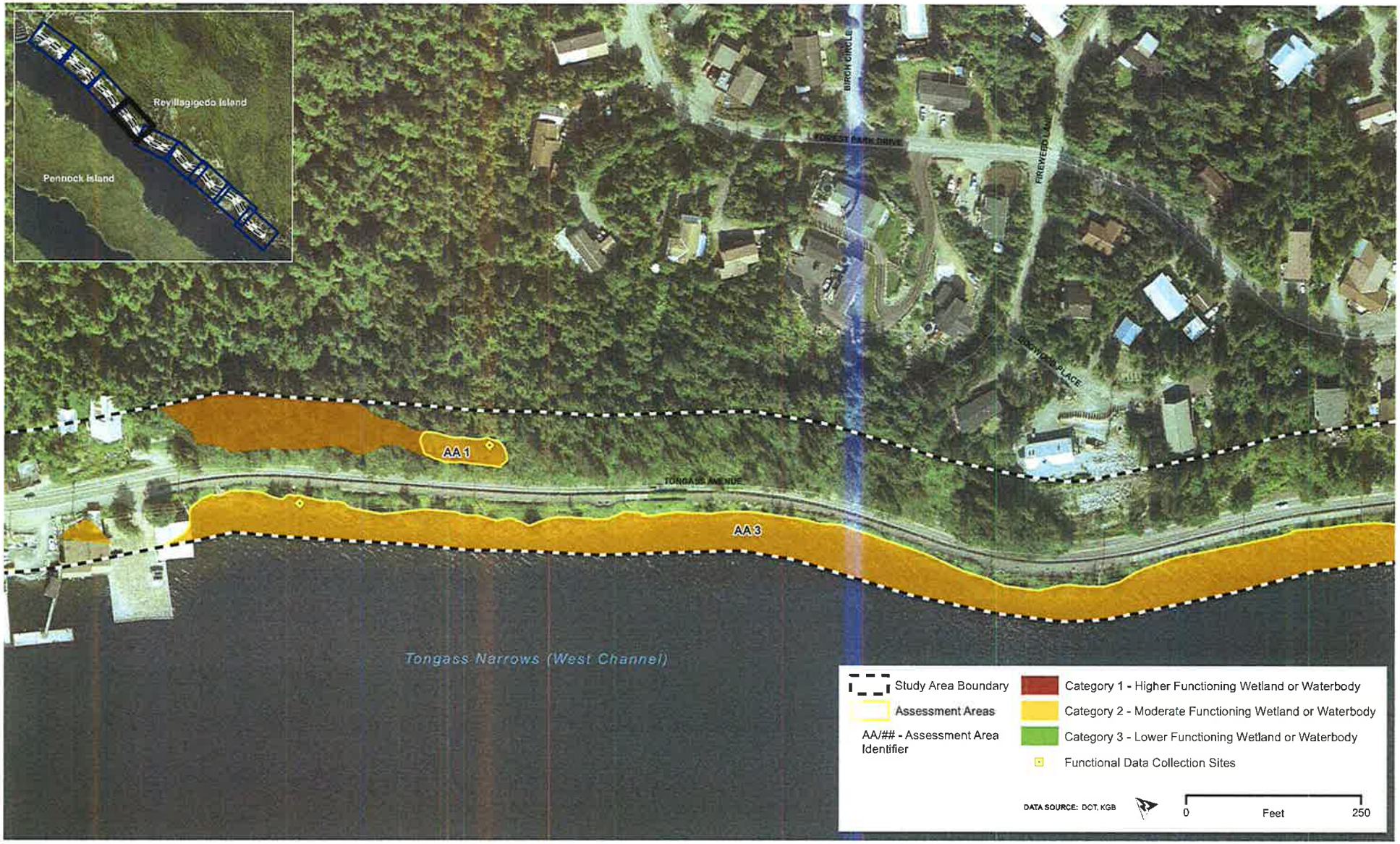

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SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MANAGEMENT CATEGORIES

TILE 4 OF 9 FIGURE 4

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MANAGEMENT CATEGORIES

TILE 5 OF 9 FIGURE 4

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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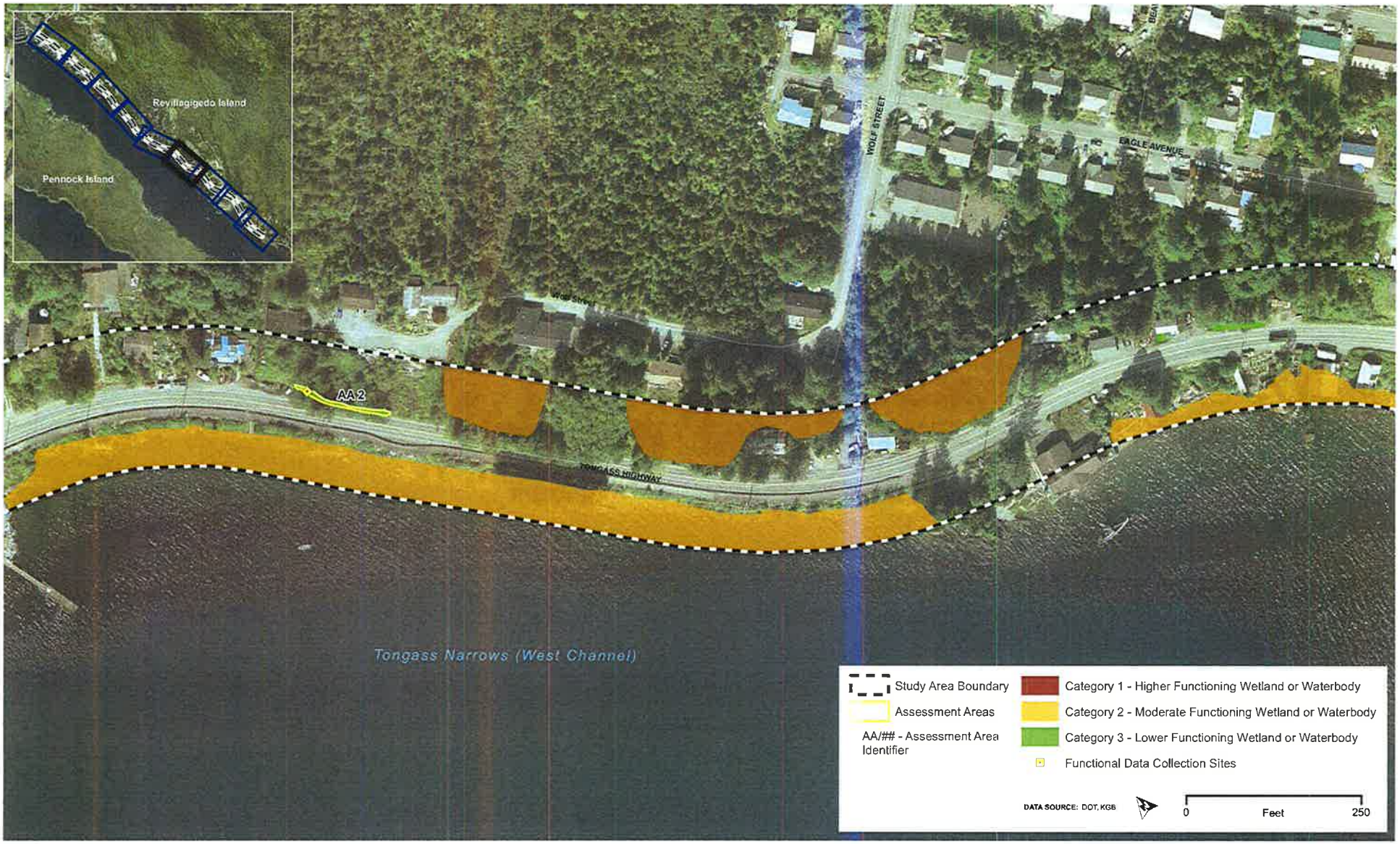

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SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MANAGEMENT CATEGORIES

TILE 6 OF 9 FIGURE 4

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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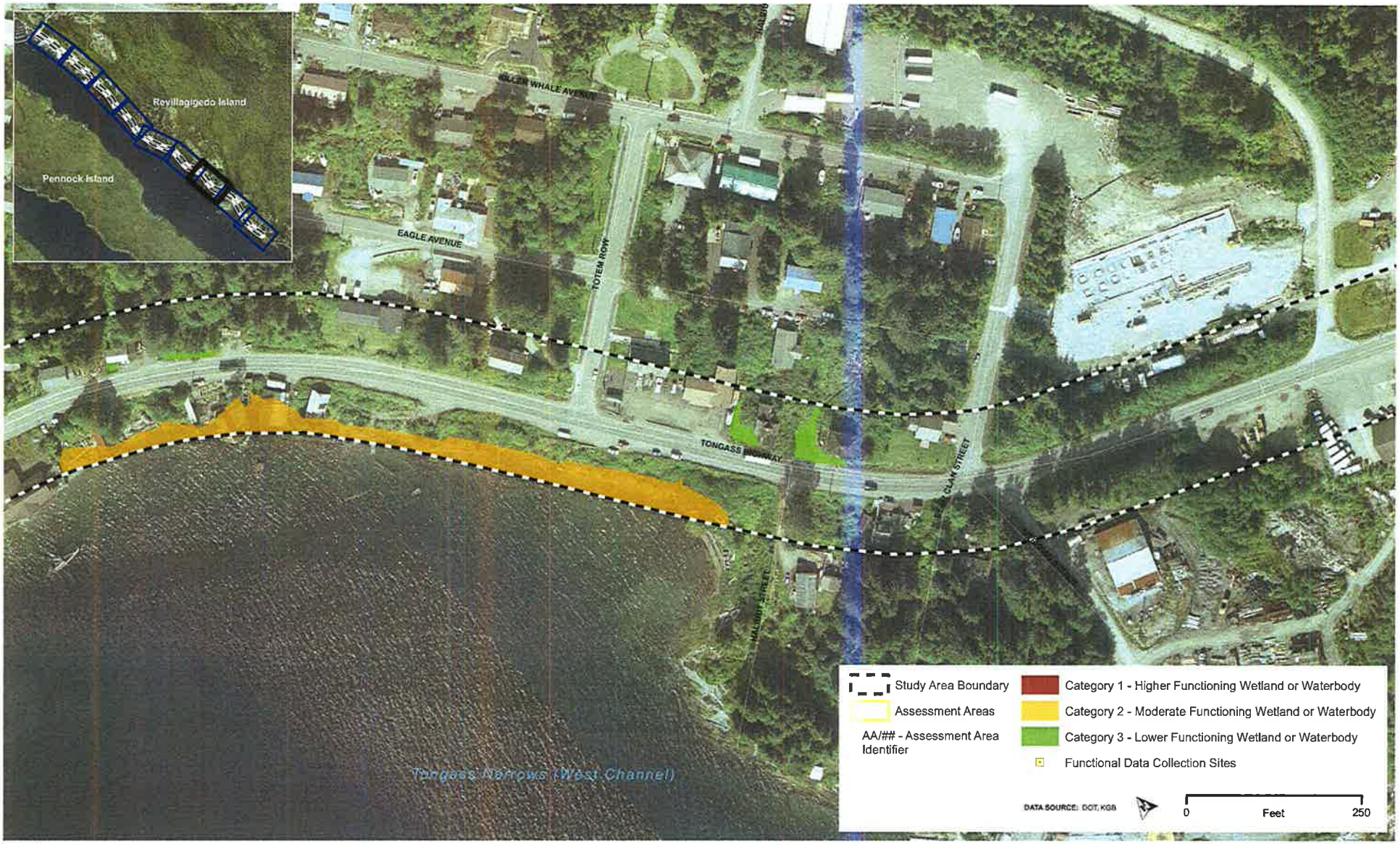

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SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MANAGEMENT CATEGORIES

TILE 7 OF 9 FIGURE 4

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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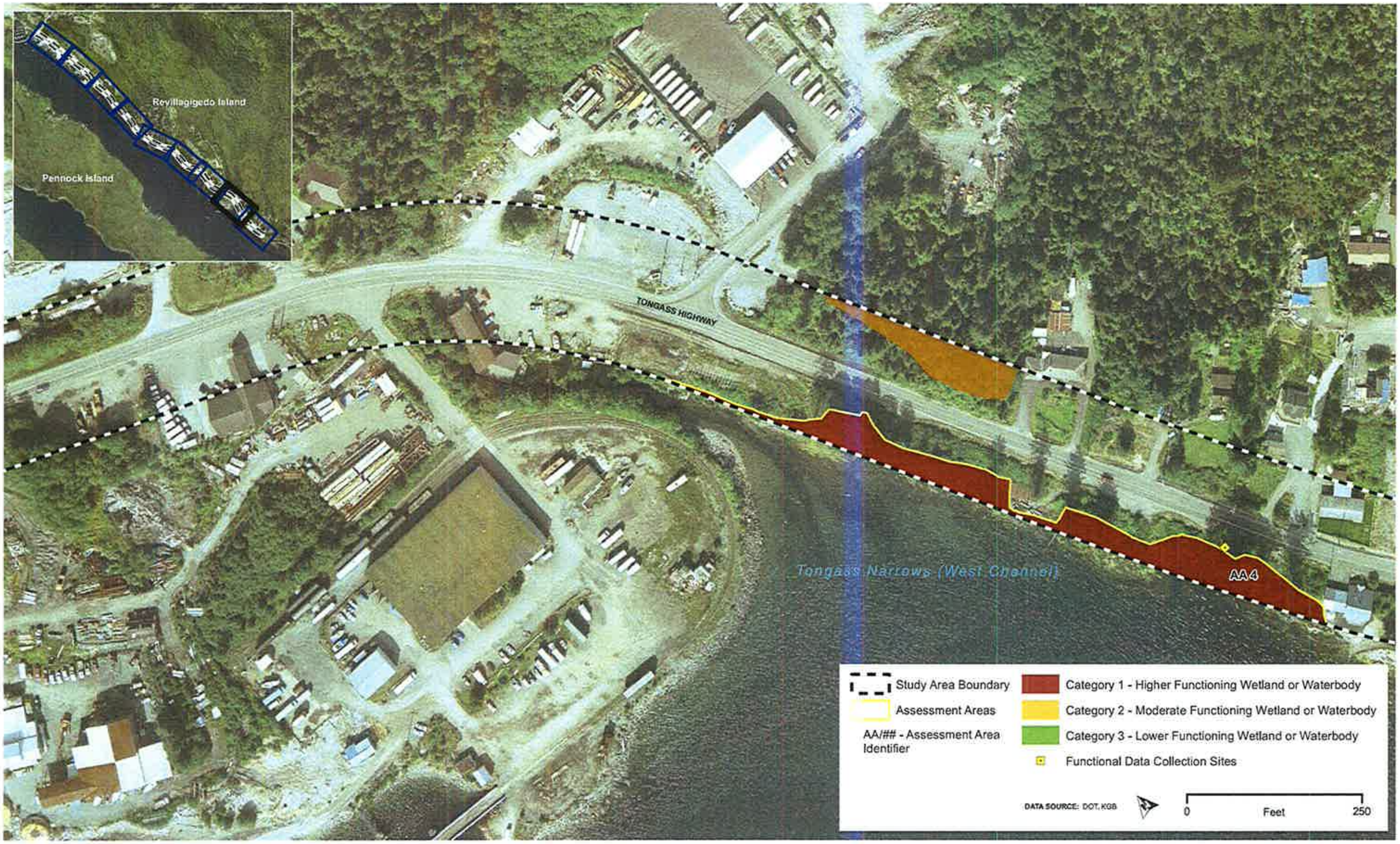

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SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MANAGEMENT CATEGORIES

TILE 8 OF 9

FIGURE 4

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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SOUTH TONGASS HIGHWAY

WETLAND AND WATERBODY MANAGEMENT CATEGORIES

TILE 9 OF 9 FIGURE 4

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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Appendix A

Wetland Determination Data Forms and Photographs

October 14-15, 2015

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WETLAND DETERMINATION DATA FORM – Alaska Region

Project: S. Tongass to Saxman Hwy Borough/City: Ketchikan Date: Oct 14, 2015
Applicant/Owner: DOT&PF Sampling Point #: 003
Investigator(s): Irina Lapina, Anne Leggett Firm: HDR Alaska, Inc.
Lat. (dec.°) 55.33056 Long. -131.62045 NAD 83 Recorded on GPS #: 313 Marked on map? Y Field Map #: 4
Subregion (circle one): (SE) Southcentral Western Aleutian Interior Northern Landform: backslope Slope (%): 25 Aspect: W
Shape across slope: (linear) / convex / concave Shape up/downslope: linear / convex / (concave) NWI classification: UP
Photo nos./descriptions: 20-21-Soil; 22-NW; 23 SE Camera #: red Veg Type (Viereck Level 4 or other): Closed W. Hemlock
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: ✓ wetter # HGM type: n/a forest
Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___ -Sitka Spruce
Are Vegetation ✓, Soil ✓, or Hydrology ✓ naturally problematic? If needed, explain answers here. IA 1d

SUMMARY OF FINDINGS * 3 previous months precip. at the top of normal, plus 15" in previous week.

Hydrophytic Vegetation Present?	Yes ___	No X	Is the sampled area within a wetland? Yes ___ No X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes X	No ___	Remarks (e.g., marginal?):

VEGETATION (Use scientific names.)

Tree Stratum (dbh≥ 3")

Sp.	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.
1. Tsuga heter	50	Y	FAC	5.			
2. Pic sitchen	40	Y	FACU	6.			
3.				7.			
4.				8.			

Total Tree Cover: 90
50% of total cover: 45 20% of total cover: 18

Sapling/Shrub Stratum (woody plants < 3" dbh)

	Abs.Cov.%	Dom?	Ind.		Abs.Cov.%	Dom?	Ind.
1. Vac paru	10	Y	FACU	7.			
2. Men2 fer	2		FACU	8.			
3. Alns				9.			
4. Vacc caesp	2		FACW	10.			
5. Vac alask	1		FAC	11.			
6.				12.			

Total Sapling/Shrub Cover: 15 + 4 = 19
50% of total cover: 9.5 20% of total cover: 3.8

Herb Stratum

	Abs.Cov.%	Dom?	Ind.		Abs. Cov.%	Dom?	Ind.
1. Equ arat	1	N	FACW	12.			
2. Dri@ phexp	1	N	FAC	13.			
3. Blech. Spic	1	N	FAC	14.			
4. Ferns	1	N	FACU	15.			
5. Poly mun			FAC	16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Herb Cover: 4 (counted w. shrubs) <5%
50% of total cover: 1.5 20% of total cover:

Circular 1/10-ac plot ✓ or other plot dimension: ___ % of bare ground: 5
% Cover of Wetland Bryophytes (where applicable) 95 % Total Cover of Bryophytes 95 %

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	X1=	0
FACW species	3	X2=	6
FAC species	52	X3=	156
FACU species	54	X4=	216
UPL + NL species		X5=	382
Column Totals:	109 (A)		378 (B)

Prevalence Index = B/A = 3.47

Hydrophytic Vegetation Indicators:

✓ Dominance Test is>50%
✓ Prevalence Index is ≤3.0
✓ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
✓ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: We did not consider this problematic hydrophytic vegetation because: no element of the veg. gave a strong indication of being wet (no skunk cabbage); spruce is abundant and that indicates a well drained forest; and the soil barely had a hydric indicator (8" of organics). - asl.

SOIL

Sampling Point #: 003

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (in.)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	α,α dip. (pos/neg)	Remarks (or use comment number)
0-2	Oe									
2-8	Oa									
8-16	B	7.5YR 2.5/1						Loam	Neg	Both Liquid and Bedrock paper 5b+1p
16+	R									

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, **msr from top of mineral layers unless otherwise noted**):

- ✓ Histosol or Histel (A1) (≥16"organic surface, sat'd during wet period of growing season)
- ✓ Histic Epipedon (A2)(8-16" organics, sat'd, underlain by mineral soil with chroma ≤2) not saturated organic
- ✓ Hydrogen Sulfide (A4) (w/in 12"of ground surface; @ ____" in this pit
- ✓ Thick Dark Surface (A12)
- ✓ Alaska Gleyed (A13)
- ✓ Alaska Redox (A14)
- ✓ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ✓ Alaska Color Change[4] (TA4)
- ✓ Alaska Alpine Swales (TA5)
- ✓ Alaska Redox with 2.5Y Hue
- ✓ Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- ✓ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: Bedrock
Depth (inches) 16

Drainage Class: M W D
Soil Map Unit Name:

Hydric Soil Present? Yes X No ___

Comments:
1. 8" of organic is not saturated - not meeting requirement for Histic Epipedo. (IL 12/11/15)
2.
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, **msr from soil surface**):

Primary Indicators (any one indicator is sufficient)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2) (w/in 12")
- ✓ Saturation (A3) (w/in 12")
- ✓ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ✓ Algal Mat or Crust (B4)
- ✓ Iron Deposits (B5)
- ✓ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Marl Deposits (B15)
- ✓ Hydrogen Sulfide Odor (C1) (w/in 12")
- ✓ Dry-Season Water Table (C2) (w/in 24")
- ✓ Other (explain)

Secondary Indicators (at least 2 are required)

- ✓ Water-Stained Leaves (B9)
- ✓ Drainage Patterns (B10) _____
- ✓ Oxid'd Rhizospheres on Living Roots (C3) (w/in 12")
- ✓ Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- ✓ Salt Deposits (C5)
- ✓ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- ✓ Microtopographic Relief (D4) (caused by water)
- ✓ FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):
Surface Water Present? Yes ___ No X Depth of water (in.) ___
Water Table Present? Yes ✓ No ___ Depth to water (in.) ___
Seeping in at that depth but not yet filled: 12
Saturation Present? Yes ✓ No ___ Depth to sat. (in.) 8
(includes capillary fringe) Epi Endo Unknown

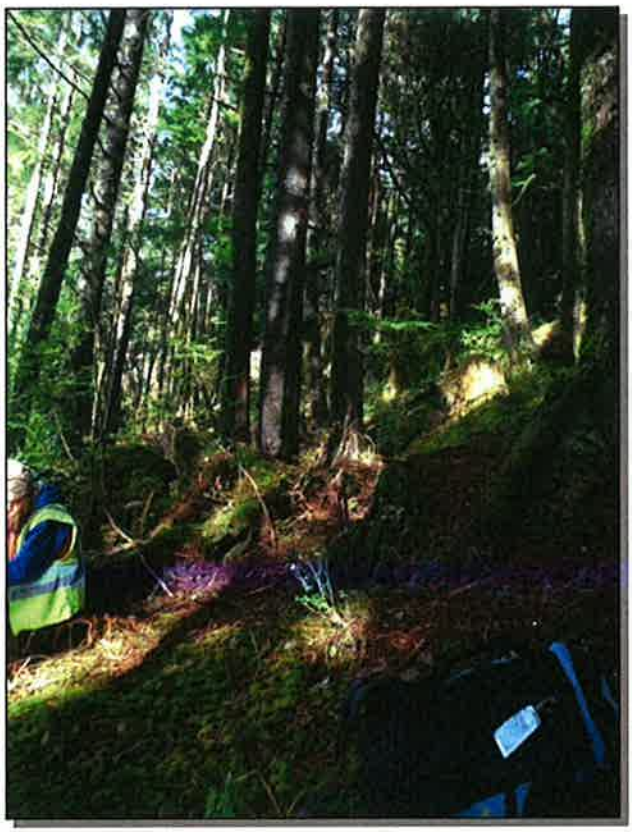
Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: rained ~1.5" in last week.

Site 003: Soil. Photo taken October, 14, 2015.

Site 003: Soil. Photo taken October, 14, 2015.



Site 003: Vegetation, Northwest View. Photo taken October, 14, 2015.

Site 003: Vegetation, East View. Photo taken October, 14, 2015.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project: S. Tongass to Saxman Hwy Borough/City: Ketchikan Date: Oct 14, 2015

Applicant/Owner: DOTPF Sampling Point #: 004

Investigator(s): I Lopina / A Leggett Firm: HDR Alaska, Inc.

Lat. (dec.°) 55.32989 Long. −131.61981 ± ___ ' NAD 83 Recorded on GPS #: ___ Marked on map? N? Field Map #: 5?

Subregion (circle one): (SE) Southcentral Western Aleutian Interior Northern Landform: toeslope Slope (%): 1 Aspect: SW

Shape across slope: (linear) / convex / concave Shape up/downslope: (linear) / convex / concave NWI classification: PFO4B

Photo nos./descriptions: 425-26-27 Soil 28-29 -NW Camera #: ___ Veg Type (Viereck Level 4 or other): Clos. West Heml- Sitka Sp. Forest IA1d

Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: X, Wetter than normal HGM type: Slope

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation Y, Soil N, or Hydrology N naturally (problematic?) veg If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? Yes X No ___	Is the sampled area within a wetland?	Yes X No ___ This is a small wetland within an upland forest.
Hydric Soil Present? Yes X No ___		
Wetland Hydrology Present? Yes X No ___		Remarks (e.g., marginal?):

VEGETATION (Use scientific names.)

Tree Stratum (dbh≥ 3")

Sp.	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.
1. Tsuga het	60	Y	FAC	5.			
2. Pic sitch	20	Y	FACU	6.			
3.				7.			
4.				8.			

Total Tree Cover: 80
50% of total cover: 40 20% of total cover: 16

Sapling/Shrub Stratum (woody plants < 3" dbh)

	Abs.Cov.%	Dom?	Ind.		Abs.Cov.%	Dom?	Ind.
1. Vac parv	10	Y	FACU	7.			
2. Vac alas	5	Y	FAC	8.			
3. Vac caesp	3		FACW	9.			
4. Menz ferr	3		FACU	10.			
5. Rub spect	1		FACU	11.			
6.				12.			

Total Sapling/Shrub Cover: 22
50% of total cover: 11 20% of total cover: 4.4

Herb Stratum

	Abs.Cov.%	Dom?	Ind.		Abs. Cov.%	Dom?	Ind.
1. Blech spic	1		FAC	12.			
2. Lysichitonam	10	Y	OBL	13.			
3. Miant dilat	T		FAC	14.			
4. Dryop expa	1		FACU	15.			
5. Gymn dryo	1		FACU	16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Herb Cover: 13
50% of total cover: 6.5 20% of total cover: 2.6

Circular 1/10-ac plot ✓ or other plot dimension: ___ % of bare ground: 5

% Cover of Wetland Bryophytes 75 % Total Cover of Bryophytes 75 %
(where applicable)

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	10	X1= 10
FACW species	3	X2= 6
FAC species	66	X3= 198
FACU species	36	X4= 144
UPL + NL species	0	X5= 0
Column Totals:	115 (A)	358 (B)

Prevalence Index = B/A = 3.11

Hydrophytic Vegetation Indicators:

N Dominance Test is>50%
N Prevalence Index is ≤3.0
N Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
N Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: Local: toeslope, flattened up., microtopogr. relief – pools of water not big/nor deep 25' in from roadditch – boundary of wetland

Lysichiton is abundant → strong indicator of wetland.
very mucky soil, satur. all the way to surface –
Lower canopy cover ind. is for less well drained forest. Muck is deeper than @ plot 3

This is rationale for calling the veg problematic hydrophytic – asl – IL: Not problematic
Also, it is very close to meeting [illegible]

SOIL

Sampling Point #: 004

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (in.)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	α,α dip. (pos/neg)	Remarks (or use comment number)
0-2	Oe									
2-10	Oa									
10-20	B	7.5YR 2.5/1	=					Mucky Sandy Loam	neg	(1)

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, **msr from top of mineral layers unless otherwise noted**):

- ✓ So much muck in below layer — Histosol or Histel (A1) (≥16"organic surface, sat'd during wet period of growing season)
- ✓ Histic Epipedon (A2)(8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- ✓ Hydrogen Sulfide (A4) (w/in 12"of ground surface; @ ____" in this pit
- ✓ Thick Dark Surface (A12)
- ✓ Alaska Gleyed (A13)
- ✓ Alaska Redox (A14)
- ✓ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ✓ Alaska Color Change[4] (TA4)
- ✓ Alaska Alpine Swales (TA5)
- ✓ Alaska Redox with 2.5Y Hue
- ✓ Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- ✓ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: none
Depth (inches) ____

Drainage Class: SPD
Soil Map Unit Name:

Hydric Soil Present? Yes X No ____

Comments:
1. B horizon may be mucky enough to be considered organic for purposes of IDing hydric soil.
2.
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, **msr from soil surface**):

Primary Indicators (any one indicator is sufficient)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2) (w/in 12")
- ✓ Saturation (A3) (w/in 12")
- ✓ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ✓ Algal Mat or Crust (B4)
- ✓ Iron Deposits (B5)
- ✓ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Marl Deposits (B15)
- ✓ Hydrogen Sulfide Odor (C1) (w/in 12")
- ✓ Dry-Season Water Table (C2) (w/in 24")
- ✓ Other (explain)

Secondary Indicators (at least 2 are required)

- ✓ Water-Stained Leaves (B9)
- ✓ Drainage Patterns (B10) ____
- ✓ Oxid'd Rhizospheres on Living Roots (C3) (w/in 12")
- ✓ Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- ✓ Salt Deposits (C5)
- ✓ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2) toeslope
- ✓ Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- ✓ Microtopographic Relief (D4) (caused by water) - pools of water
- ✓ FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants) - burn area

Field Observations (in. from ground surface):
Surface Water Present? Yes ✓ No ____ Depth of water (in.) 1
Water Table Present? Yes ✓ No ____ Depth to water (in.) 8
Seeping in at that depth but not yet filled: 7
Saturation Present? Yes ✓ No ____ Depth to sat. (in.) 1
(includes capillary fringe) Epi (Endo) Unknown

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Heavy rain last week.

Site 004: Soil. Photo taken October, 14, 2015.

Site 004: Soil. Photo taken October, 14, 2015.

Site 004: Vegetation, North View. Photo taken October, 14, 2015.

Site 004: Vegetation, West View. Photo taken October, 14, 2015.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project: South Tongass to Saxman Hwy Borough/City: Ketchikan Date: Oct 14, 2015
Applicant/Owner: DOTPF Sampling Point #: 005
Investigator(s): Lapina, Leggett Firm: HDR Alaska, Inc.
Lat. (dec.°) 55.32943 Long. -131.61977 ± ' NAD 83 Recorded on GPS #: ___ Marked on map? ✓ Field Map #: 5
Subregion (circle one): (SE) Southcentral Western Aleutian Interior Northern Landform: backslope Slope (%): 25 Aspect: SW
Shape across slope: (linear) convex / concave Shape up/downslope: linear / (convex) / concave NWI classification: Up
Photo nos./descriptions: 3033 Soil: 31NW, 32-SE Camera #: ___ Veg Type (Viereck Level 4 or other): Open West Hemlock Cedar-Foo
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: X Wetter than normal HGM type: n/a
Are Vegetation N (Soil Y) or Hydrology N (significantly disturbed)? Are "Normal Circumstances" present? Yes ✓ No ___ IA21 – no perfect f but the clos
Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes ✓	No ___	Is the sampled area within a wetland? Yes ___ No X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes X	No ___	Remarks (e.g., marginal?):

VEGETATION (Use scientific names.)

Tree Stratum (dbh≥ 3")

Sp.	Species	Abs.Cov.%	Dom?	Ind.	Sp.	Species	Abs.Cov.%	Dom?	Ind.
1.	Tsug heter	20	Y	FAC	5.				
2.	Thuja plic	20	Y	FAC	6.				
3.					7.				
4.					8.				

Total Tree Cover: 40
50% of total cover: ___ 20% of total cover: ___

Sapling/Shrub Stratum (woody plants < 3" dbh)

	Species	Abs.Cov.%	Dom?	Ind.		Species	Abs.Cov.%	Dom?	Ind.
1.	Rub spec	60	Y	FACU	7.				
2.	Vac alas.	30	Y	FAC	8.				
3.	Thuja plic	10		FAC	9.				
4.	Mem. fer	15		FACU	10.				
5.					11.				
6.					12.				

Total Sapling/Shrub Cover: 115
50% of total cover: 57.5 20% of total cover: 23

Herb Stratum

	Species	Abs.Cov.%	Dom?	Ind.		Species	Abs. Cov.%	Dom?	Ind.
1.	Athyr felix	25	Y	FAC	12.				
2.	Maiant dil	45	Y	FAC	13.				
3.	Thuja plic	10			14.				
4.	Fern?	10		FACU	15.				
5.	Poly's. tomit.				16.				
6.					17.				
7.					18.				
8.					19.				
9.					20.				
10.					21.				
11.					22.				

Total Herb Cover: 80
50% of total cover: 40 20% of total cover: 16

Circular 1/10-ac plot ___ or other plot dimension: ___ % of bare ground: ___
% Cover of Wetland Bryophytes (where applicable) 90 % Total Cover of Bryophytes 90 %

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		X1=	
FACW species		X2=	
FAC species	150	X3=	450
FACU species	85	X4=	340
UPL + NL species		X5=	
Column Totals:	235 (A)		790 (B)

Prevalence Index = B/A = 3.36

Hydrophytic Vegetation Indicators:

✓ Dominance Test is>50%
✓ Prevalence Index is ≤3.0
✓ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
✓ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No X

Remarks: ocean side of the road, on cliff over water. outlet of culvert nearby, not included in plot. The only plants on the site that indicate a wet forest are the tree species (no spruce, presence of cedar)

SOIL

Sampling Point #: 005

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (in.)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	α,α dip. (pos/neg)	Remarks (or use comment number)
0-1	Oe									
1-3	Oa									
3-16	B	10YR2/2						Loam	N	very gravelly Loam

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, **msr from top of mineral layers unless otherwise noted**):

- N Histosol or Histel (A1) (≥16"organic surface, sat'd during wet period of growing season)
- N Histic Epipedon (A2)(8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- N Hydrogen Sulfide (A4) (w/in 12"of ground surface; @ ____" in this pit
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change[4] (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- N Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: ____
Depth (inches) ____

Drainage Class: MWD Moderately well
Soil Map Unit Name:

Hydric Soil Present? Yes ____ No X

Comments: Soil is disturbed in past— fill gravel, glass broken in soil, and around the vegetation and topography give little indication of this site being wetland, so the lack of hydric soil indicator did not seem problematic in this disturbed soil.
1.
2.
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, **msr from soil surface**):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- Y High Water Table (A2) (w/in 12")
- Y Saturation (A3) (w/in 12")
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Imagery (B7)
- N Sparsely Vegetated Concave Surface (B8)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) (w/in 12")
- N Dry-Season Water Table (C2) (w/in 24")
- N Other (explain)

Secondary Indicators (at least 2 are required)

- N Water-Stained Leaves (B9)
- N Drainage Patterns (B10)
- N Oxid'd Rhizospheres on Living Roots (C3) (w/in 12")
- N Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- N Salt Deposits (C5)
- N Stunted or Stressed Plants (D1)
- N Geomorphic Position (D2)
- N Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- N Microtopographic Relief (D4) (caused by water)
- N FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):
Surface Water Present? Yes ____ No X Depth of water (in.) ____
Water Table Present? Yes X No ____ Depth to water (in.) ↑
Seeping in at that depth but not yet filled: 8
Saturation Present? Yes Y No ____ Depth to sat. (in.) 7
(includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: ASL suggests high water table is the result of last week's high rainfall, and is not a perennial condition (based on slope + veg)

Site 005: Soil. Photo taken October, 14, 2015.

Site 005: Soil. Photo taken October, 14, 2015.

Site 005: Vegetation, Northwest View. Photo taken October, 14, 2015.

Site 005: Vegetation, Southeast View. Photo taken October, 14, 2015.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project: S. Tongass to Saxman Hwy Borough/City: Ketchikan Date: Oct 14, 2015
Applicant/Owner: DOT&PF Sampling Point #: 010
Investigator(s): Irina Lapina, Anne Leggett Firm: HDR Alaska, Inc.
Lat. (dec.°) 55.32827 Long. -131.61703 ±__' NAD 83 Recorded on GPS #: ___ Marked on map? Y Field Map #: 5
Subregion (circle one): (SE) Southcentral Western Aleutian Interior Northern Landform: backslope Slope (%): 17 Aspect: W
Shape across slope: (linear) / convex / concave Shape up/downslope: (linear) convex / concave NWI classification: Up; PFO4B
Photo nos./descriptions: 44-45 Soil; 46 47 Veg: N, NW Camera #: ___ Veg Type (Viereck Level 4 or other): Closed West Hem cedar Fore
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: X Wetter than normal HGM type: n/a IA1d
Are Vegetation N, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation ✓, Soil ✓, or Hydrology ✓ naturally problematic? If needed, explain answers here. 11:40

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes X	No ___	Is the sampled area within a wetland?	Yes ___ No X
Hydric Soil Present? marginal	Yes ___	No X		
Wetland Hydrology Present?	Yes X	No ___	Remarks (e.g., marginal?):	

VEGETATION (Use scientific names.)

Tree Stratum (dbh≥ 3")

Sp.	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.
1. Pic sitch	15		FACW	5.			
2. Tsug hetero	30	Y	FAC	6.			
3. Thuja plicata	35	Y	FAC	7.			
4.				8.			

Total Tree Cover: 80
50% of total cover: 40 20% of total cover: 16

Sapling/Shrub Stratum (woody plants < 3" dbh)

	Abs.Cov.%	Dom?	Ind.		Abs.Cov.%	Dom?	Ind.
1. Vac parv	5	Y	FACU	7.			
2. Menz fer	15	Y	FACU	8.			
3. Vac alask	10		FAC	9.			
4. Rub spect	15	Y	FACU	10.			
5. Oplop hor	7		FACU	11.			
6.				12.			

Total Sapling/Shrub Cover: 52
50% of total cover: 26 20% of total cover: 10.4

Herb Stratum

	Abs.Cov.%	Dom?	Ind.		Abs. Cov.%	Dom?	Ind.
1. Blechn spic	3		FAC	12.			
2. Athyr fel	10	Y	FAC	13.			
3. Lysich ame	10	Y	OBL	14.			
4. Dryopt exp.	2		FACW	15.			
5.				16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Herb Cover: 25
50% of total cover: 12.5 20% of total cover: 5

Circular 1/10-ac plot ✓ or other plot dimension: ___ % of bare ground: 5
% Cover of Wetland Bryophytes (where applicable) 0 % Total Cover of Bryophytes 95 % of the area is

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	X1=	10
FACW species	0	X2=	0
FAC species	88	X3=	264
FACU species	59	X4=	236
UPL + NL species	0	X5=	0
Column Totals:	157 (A)		510 (B)

Prevalence Index = B/A = 3.25

Hydrophytic Vegetation Indicators:

✓ Dominance Test is>50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: In this area 40% like this point (with Lysichiton), 60% upland drier than this site. This is based on pacing a 150' transect:
32 paces in clear upland
21 paces in lower areas with some skunk cabbage

SOIL

Sampling Point #: 010

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (in.)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	α,α dip. (pos/neg)	Remarks (or use comment number)
0-3	A	7.5YR 2.5/1						mucky Loam		
3-16	B	10YR 4/1	95	10YR 3/3	5	C	PL	Sandy Loam	N/A	Distinct, but do not meet color requirement

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, **msr from top of mineral layers unless otherwise noted**):

- ✓ Histosol or Histel (A1) (≥16"organic surface, sat'd during wet period of growing season)
- ✓ Histic Epipedon (A2)(8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- ✓ Hydrogen Sulfide (A4) (w/in 12"of ground surface; @ ____" in this pit
- ✓ Thick Dark Surface (A12)
- ✓ Alaska Gleyed (A13)
- ✓ Alaska Redox (A14)
- ✓ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ✓ Alaska Color Change[4] (TA4)
- ✓ Alaska Alpine Swales (TA5)
- ✓ Alaska Redox with 2.5Y Hue
- ✓ Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- ✓ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: none
Depth (inches) ____

Drainage Class: Somewhat Poorly Drained
Soil Map Unit Name:

Hydric Soil Present? Yes ____ No X
marginal

Comments:
1. there is some redoxt, but not convincing soil indicator. if water moves through site - it moves, doesn't pond, or stay, ⇒ soil is oxygenated enough
2. dug soil in wettest spot in the area. there is not enough evidence of reduction to override standard hydric soil indicators. - asl.
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, **msr from soil surface**):

Primary Indicators (any one indicator is sufficient)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2) (w/in 12")
- ✓ Saturation (A3) (w/in 12")
- ✓ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ✓ Algal Mat or Crust (B4)
- ✓ Iron Deposits (B5)
- ✓ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Marl Deposits (B15)
- ✓ Hydrogen Sulfide Odor (C1) (w/in 12")
- ✓ Dry-Season Water Table (C2) (w/in 24")
- ✓ Other (explain)

Secondary Indicators (at least 2 are required)

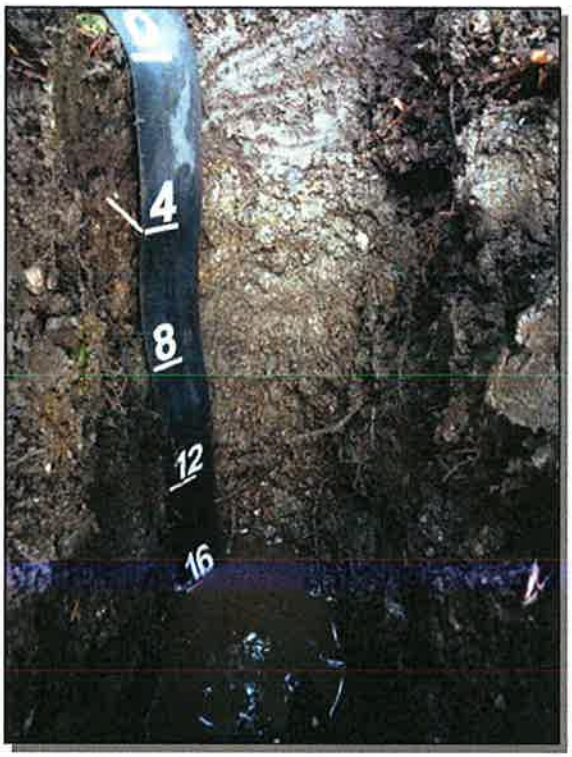
- ✓ Water-Stained Leaves (B9)
- ✓ Drainage Patterns (B10) ____
- ✓ Oxid'd Rhizospheres on Living Roots (C3) (w/in 12")
- ✓ Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- ✓ Salt Deposits (C5)
- ✓ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- Y Microtopographic Relief (D4) (caused by water)
- ✓ FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):
Surface Water Present? Yes Y No ____ Depth of water (in.) ____
Water Table Present? Yes Y No ____ Depth to water (in.) ____
Seeping in at that depth but not yet filled: 12
Saturation Present? Yes Y No ____ Depth to sat. (in.) 9
(includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes Y No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: D4 - tree bases are elevated, mic rolows with sediment deposits
Heavy rain last week.



Site 010: Soil. Photo taken October, 14, 2015.

Site 010: Soil. Photo taken October, 14, 2015.

Site 010: Vegetation, North View. Photo taken October, 14, 2015.

Site 010: Vegetation, Northwest View. Photo taken October, 14, 2015.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project: South Tongass to Saxman Hwy Borough/City: KGB Date: 10/15/2015

Applicant/Owner: DOTPF Sampling Point #: 24 MP2

Investigator(s): Kapina, Leggett Firm: HDR Alaska, Inc.

Lat. (dec.°) 55.32243 Long. 131.60503 ± ' NAD 83 Recorded on GPS #: ___ Marked on map? ✓ Field Map #: 8

Subregion (circle one): (SE) Southcentral Western Aleutian Interior Northern Landform: ditch Slope (%): 0 Aspect: flows SE/drain

Local relief: Shape across slope: (linear) / convex / concave Shape up/downslope: linear / convex / (concave) NWI classification: PUS/EMIC

Photo nos./descriptions: 535, 38, 39-ditch on rock, 536-NW, 537-SE Camera #: ___ Veg Type (Viereck Level 4 or other): wet grass mdw IIIA2

Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ___ No: X If no, explain. Wetter than normal HGM type: slope

Are Vegetation y, Soil y, or Hydrology y significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation n, Soil n, or Hydrology n naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

roadside wetland

Hydrophytic Vegetation Present?	Yes ✓	No ___	**Is the sampled area within a wetland?** Yes ✓ No ___
Hydric Soil Present?	Yes ✓	No ___	Remarks (e.g., marginal?):
Wetland Hydrology Present?	Yes ✓	No ___	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh≥ 3")

Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.
1. –				5.			
2.				6.			
3.				7.			
4.				8.			

Total Tree Cover: ___

50% of total cover: ___ 20% of total cover: ___

Sapling/Shrub Stratum (woody plants < 3" dbh)

	Abs.Cov.%	Dom?	Ind.		Abs.Cov.%	Dom?	Ind.
1. –				7.			
2.				8.			
3.				9.			
4.				10.			
5.				11.			
6.				12.			

Total Sapling/Shrub Cover: ___

50% of total cover: ___ 20% of total cover: ___

Herb Stratum

	Abs.Cov.%	Dom?	Ind.		Abs. Cov.%	Dom?	Ind.
1. Phal. arun.	40	✓	OBL	12.			
2. Equi pra	1		FACW	13.			
3. Edi. syl.	T			14.			
4. Alop. aeq.	To	✓	OBL	15.			
5. ~~Achillea~~ → 20		✓	OBL	16.			
6. Glyceria leptostachya				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Herb Cover: 46

50% of total cover: 23.5 20% of total cover: 9.2

Circular 1/10-ac plot ___ or other plot dimension: 3' x 40' % of bare ground: 70

% Cover of Wetland Bryophytes ___ % Total Cover of Bryophytes 0 %

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	X1=	40
FACW species	1	X2=	2
FAC species	0	X3=	0
FACU species	0	X4=	0
UPL + NL species	0	X5=	0
Column Totals:	41 (A)		42 (B)

Prevalence Index = B/A = 1.02

Hydrophytic Vegetation Indicators:

Y Dominance Test is>50%

y Prevalence Index is ≤3.0

n Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

n Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point #: 24

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (in.)	Horizon (opt.)	Soil Matrix Color (moist)	Soil Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	α,α dip. (pos/neg)	Remarks (or use comment number)
0-2	A	10YR 2/1	100					mky sandy loam	pos	
R				5YR 5/6 - on surface of rocks are				these good indicators		reduction then oxidation?

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, **measure from top of mineral layers unless otherwise noted**):

Standard Indicators:

- n Histosol or Histel (A1) (≥16"organic surface, sat'd during wet period of growing season)
- n Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- y Hydrogen Sulfide (A4) (within 12"of ground surface; @ _____ * in this pit
- n Thick Dark Surface (A12)
- n Alaska Gleyed (A13)
- n Alaska Redox (A14)
- n Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- n Alaska Color Change[4] (TA4)
- n Alaska Alpine Swales (TA5)
- n Alaska Redox with 2.5Y Hue
- n Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- n Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: rock
Depth (inches) _____

Drainage Class: V.PD
Soil Map Unit Name:

Hydric Soil Present? Yes ✓ No ____

Comments:
1.
2.
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, **measure from soil surface**):

Primary Indicators (any one indicator is sufficient)

- y Surface Water (A1)
- y High Water Table (A2) (w/in 12")
- y Saturation (A3) (w/in 12")
- n Water Marks (B1)
- n Sediment Deposits (B2)
- y Drift Deposits (B3)
- n Algal Mat or Crust (B4)
- n Iron Deposits (B5)
- n Surface Soil Cracks (B6)
- n Inundation Visible on Aerial Imagery (B7)
- y Sparsely Vegetated Concave Surface (B8)
- n Marl Deposits (B15)
- y Hydrogen Sulfide Odor (C1) (w/in 12")
- n Dry-Season Water Table (C2) (w/in 24")
- n Other (explain)

Secondary Indicators (at least 2 are required)

- n Water-Stained Leaves (B9) water
- y Drainage Patterns (B10) scoured areas
- n Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- y Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- n Salt Deposits (C5)
- n Stunted or Stressed Plants (D1)
- y Geomorphic Position (D2) - ditch
- n Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- n Microtopographic Relief (D4) (caused by water)
- y FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes ✓ No ____ Depth **of** water (in.) 2

Water Table Present? Yes ✓ No ____ Depth **to** water (in.) 0

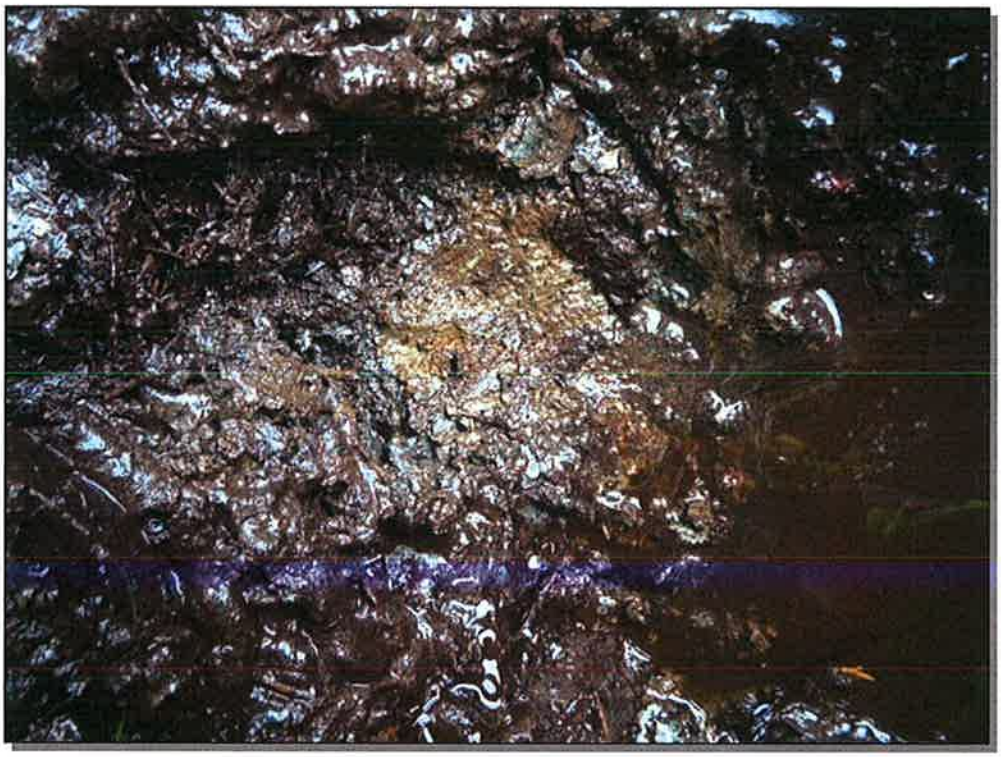
Seeping in at that depth but not yet filled?: ____

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth **to** sat. (in.) 0 Epi Endo Unknown

Wetland Hydrology Present? Yes y No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: seeps dripping into wetland probably also intercepts groundwater. also surface runoff from hwy.



Site 024: Redox Feature. Photo taken October, 15, 2015.

Site 024: Redox Feature. Photo taken October, 15, 2015.

Site 024: Vegetation, Northwest View. Photo taken October, 15, 2015.

Site 024: Vegetation, Southeast View. Photo taken October, 15, 2015.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project: South Tongass to Saxman Hwy Borough/City: Ketchikan Date: 10/15/2015
Applicant/Owner: DOTPF Sampling Point #: 25
Investigator(s): Irina Lapina, Anne Leggett Firm: HDR Alaska, Inc.
Lat. (dec.°) 55.32240 Long: 131.60484 ± ' NAD 83 Recorded on GPS #: ___ Marked on map? ✓ Field Map #: 8
Subregion (circle one): (SE) Southcentral Western Aleutian Interior Northern Landform: backslope, cliff top Slope (%): 8 Aspect: SW
Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PFO1/4B
Photo nos./descriptions: 541542-543 543-NE, 544-N Camera #: ___ Veg Type (Viereck Level 4 or other): open hemlock/alpine
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: X If no, explain. perhaps wetter than normal HGM type: Slope
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

I02 open mix forest

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes X	No ___	Is the sampled area within a wetland? Yes ___ No X
Hydric Soil Present? marginal	Yes ___	No ✓	
Wetland Hydrology Present?	Yes ✓	No ___	Remarks (e.g., marginal?): very marginal

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh≥ 3")

Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.
1. ~~Cherry~~				5.			
2. Mal. fusca	15	✓	FACW	6.			
3. Tho pli	5	✓	FAC	7.			
4. Tsu het	5	✓	FAC	8.			

Total Tree Cover: 25
50% of total cover: 12.5 20% of total cover: 5

Sapling/Shrub Stratum (woody plants < 3" dbh)

	Abs.Cov.%	Dom?	Ind.		Abs.Cov.%	Dom?	Ind.
1. Rub spect.	15	✓	FACU	7. Men fer.	1		
2. Tsu het	1		FAC	8. Vac cae	T		
3. Vacc parv.	25		FACU	9.			
4. Vacc ovat/alas	5		FAC	10.			
5. Aln rub	5		FAC	11.			
6. ~~thorny~~ Malus fus.	15	✓	FACW	12.			

Total Sapling/Shrub Cover: 44
50% of total cover: 22 20% of total cover: 8.8

Herb Stratum

	Abs.Cov.%	Dom?	Ind.		Abs. Cov.%	Dom?	Ind.
1. Lys amer.	25	✓	OBL	12.			
2. Ath fil	30	✓	FAC	13.			
3. Carex "tea"	T			14.			
4. Prolyst. mun.	5		FACU	15.			
5. Blech spic	T			16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Herb Cover: 60
50% of total cover: 30 20% of total cover: 12
Circular 1/10-ac plot ✓ or other plot dimension: ___ % of bare ground: ___
% Cover of Wetland Bryophytes (where applicable) 10 % Total Cover of Bryophytes 50 %

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	X1=	25
FACW species	30	X2=	60
FAC species	51	X3=	153
FACU species	23	X4=	92
UPL + NL species	0	X5=	0
Column Totals:	129 (A)		330 (B)

Prevalence Index = B/A = 2.56

Hydrophytic Vegetation Indicators:
✓ Dominance Test is>50%
✓ Prevalence Index is ≤3.0
✓ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
✓ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: amount of skunk cabbage indicates wet, but soils do not support wet. call. "Indicator plants of Coastal British Columbia" says Malus fusca occurs on "wet to very wet, nitrogen-rich soils"; "... water-collecting sites ... rare on water-shedding sites. Characteristic of nutrient-rich wetlands."

SOIL

Sampling Point #: 25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (in.)	Horizon (opt.)	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	α,α dip. (pos/neg)	Remarks (or use comment number)
0-12	B1	10YR 3/2	100	-				L	neg - liquid	
12-16	B2	10YR 3/2	95	10YR 3/6	5	C	PL	VGL	neg - liquid - fine gravel?	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, **measure from top of mineral layers unless otherwise noted**):

Standard Indicators:

- N Histosol or Histel (A1) (≥16"organic surface, sat'd during wet period of growing season)
- N Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- N Hydrogen Sulfide (A4) (within 12"of ground surface; @ _____" in this pit
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change[4] (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- N Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: none
Depth (inches) _____

Drainage Class: SPD
Soil Map Unit Name:

Hydric Soil Present? Yes ____ No ✓

Comments:
1. This seems to be a very marginal soil, but not quite enough evidence to call a problematic hydric soil.
2. (ASL recollection is that this soil was mucky - 10/16/2015)
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, **measure from soil surface**):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2) (w/in 12")
- N Saturation (A3) (w/in 12")
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Imagery (B7)
- N Sparsely Vegetated Concave Surface (B8)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) (w/in 12")
- N Dry-Season Water Table (C2) (w/in 24")
- N Other (explain)

Secondary Indicators (at least 2 are required)

- N Water-Stained Leaves (B9)
- N Drainage Patterns (B10) _____
- N Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- N Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- N Salt Deposits (C5)
- N Stunted or Stressed Plants (D1)
- N Geomorphic Position (D2)
- N Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- N Microtopographic Relief (D4) (caused by water)
- Y FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes ____ No ✓ Depth of water (in.) _____

Water Table Present? Yes ✓ No ____ Depth to water (in.) 12

Seeping in at that depth but not yet filled?: ✓

Saturation Present? Yes ✓ No ____ Depth to sat. (in.) 8
(includes capillary fringe) Epi (Endo) Unknown

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Heavy rain last week.

Site 025: Soil. Photo taken October, 15, 2015.

Site 025: Soil. Photo taken October, 15, 2015.

Site 025: Vegetation, Northeast View. Photo taken October, 15, 2015.

Site 025: Vegetation, North View. Photo taken October, 15, 2015.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project: South Tongass to Saxman Hwy Borough/City: KGB Date: 10/15/2015
Applicant/Owner: DOT+PF Sampling Point #: 28
Investigator(s): Lapina, Leggett Firm: HDR Alaska, Inc.
Lat. (dec.°) 55.32010 Long. 131.60008 ± ' NAD 83 Recorded on GPS #: ___ Marked on map? ✓ Field Map #: 9
Subregion (circle one): (SE) Southcentral Western Aleutian Interior Northern Landform: ditch Slope (%): 0 Aspect: —
Shape across slope: (linear) convex / concave Shape up/downslope: linear / convex / (concave) NWI classification: PEMIC
Photo nos./descriptions: 551-801 552-NW 553-SE Camera #: ___ Veg Type (Viereck Level 4 or other): wet grass IIIA3
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ___ No: ✓ Wetter than normal HGM type: dep. Wet graminoid herbaceous
Are Vegetation y, Soil y, or Hydrology y significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation n, Soil n, or Hydrology n naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

ditch 3' wide × 80' long

Hydrophytic Vegetation Present?	Yes ✓	No ___	**Is the sampled area within a wetland?** Yes ✓ No ___
Hydric Soil Present?	Yes ✓	No ___	
Wetland Hydrology Present?	Yes ✓	No ___	Remarks (e.g., marginal?):

VEGETATION (Use scientific names.)

Tree Stratum (dbh≥ 3")

Sp.	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.
1. —				5.			
2.				6.			
3.				7.			
4.				8.			

Total Tree Cover: ___
50% of total cover: ___ 20% of total cover: ___

Sapling/Shrub Stratum (woody plants < 3" dbh)

	Abs.Cov.%	Dom?	Ind.		Abs.Cov.%	Dom?	Ind.
1. —				7.			
2.				8.			
3.				9.			
4.				10.			
5.				11.			
6.				12.			

Total Sapling/Shrub Cover: ___
50% of total cover: ___ 20% of total cover: ___

Herb Stratum

	Abs.Cov.%	Dom?	Ind.		Abs. Cov.%	Dom?	Ind.
1. Juncus effusus	25	OBL	✓	12.			
2. Glyceria leptostachya	20	OBL	✓	13.			
3. Alo arc	20	OBL	✓	14.			
4. Holcus lagatus	20	FAC	✓	15.			
5. Juncus tenuis	1	FACW		16.			
6. Equ pra	1	FACW		17.			
7. Epilobium ci	1	FAC		18.			
8. Equ syl	1	FAC		19.			
9.				20.			
10.				21.			
11.				22.			

Total Herb Cover: 87
50% of total cover: 43.5 20% of total cover: 14.4
Circular 1/10-ac plot ___ or other plot dimension: 3' X 80' % of bare ground: 20
% Cover of Wetland Bryophytes (where applicable) ___ % Total Cover of Bryophytes 0 %

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	X1=	65
FACW species	2	X2=	4
FAC species	20	X3=	60
FACU species	0	X4=	0
UPL + NL species	0	X5=	0
Column Totals:	87 (A)		129 (B)

Prevalence Index = B/A = 1.48

Hydrophytic Vegetation Indicators:

✓ Dominance Test is>50%
✓ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point #: 28

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (in.)	Horizon Name	Soil Matrix Color (moist)	Soil Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	α,α dip. (pos/neg)	Remarks (or use comment number)
0-5	A	10YR2/1	100					mky L		
5-12	B	5Y2.5/1	100					VG L	pos	liquid,

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, **msr from top of mineral layers unless otherwise noted**):

- N Histosol or Histel (A1) (≥16"organic surface, sat'd during wet period of growing season)
- N Histic Epipedon (A2)(8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- y Hydrogen Sulfide (A4) (w/in 12"of ground surface; @ 3 " in this pit → adjacent
- N Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change[4] (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- N Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: none
Depth (inches) ___

Drainage Class: VPD
Soil Map Unit Name: —

Hydric Soil Present? Yes ✓ No ___

Comments:
1.
2.
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, **msr from soil surface**):

Primary Indicators (any one indicator is sufficient)

- y Surface Water (A1)
- y High Water Table (A2) (w/in 12")
- y Saturation (A3) (w/in 12")
- N Water Marks (B1)
- y Sediment Deposits (B2)
- y Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Imagery (B7)
- N Sparsely Vegetated Concave Surface (B8)
- N Marl Deposits (B15)
- y Hydrogen Sulfide Odor (C1) (w/in 12")
- N Dry-Season Water Table (C2) (w/in 24")
- N Other (explain)

Secondary Indicators (at least 2 are required)

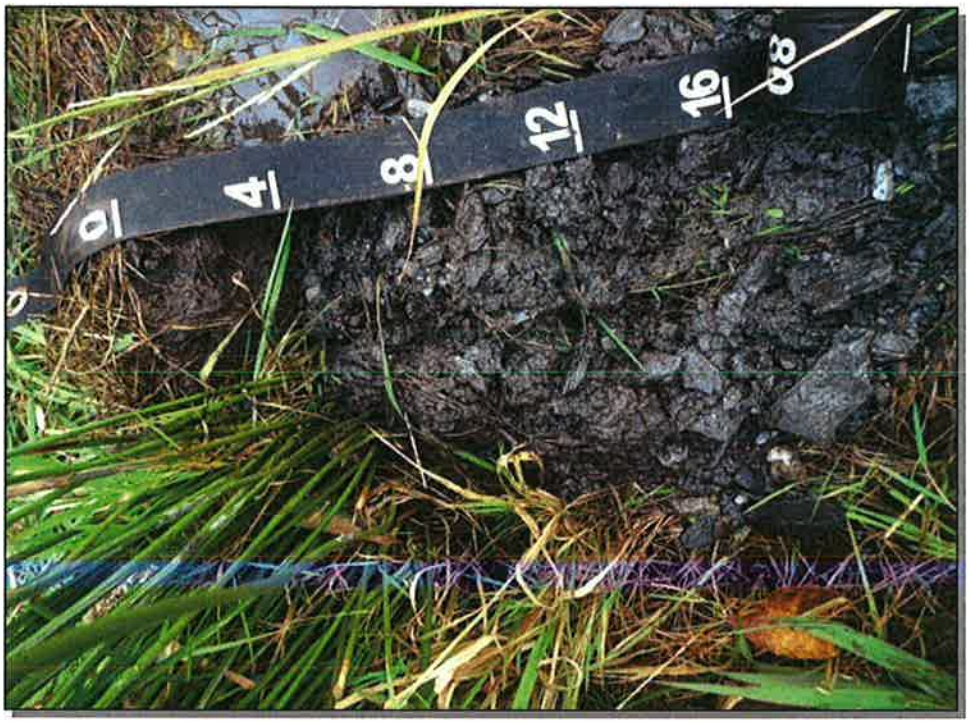
- N Water-Stained Leaves (B9)
- N Drainage Patterns (B10) ___
- N Oxid'd Rhizospheres on Living Roots (C3) (w/in 12")
- y Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- N Salt Deposits (C5)
- N Stunted or Stressed Plants (D1)
- y Geomorphic Position (D2) -ditch
- N Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- N Microtopographic Relief (D4) (caused by water)
- y FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):
Surface Water Present? Yes ✓ No ___ Depth of water (in.) 0-3"
Water Table Present? Yes ✓ No ___ Depth to water (in.) 0
Seeping in at that depth but not yet filled: ___
Saturation Present? Yes ✓ No ___ Depth to sat. (in.) 0
(includes capillary fringe) Epi (Endo) Unknown

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



Site 028: Soil. Photo taken October, 15, 2015.

Site 028: Vegetation, Northwest View. Photo taken October, 15, 2015.

Site 028: Vegetation, Southeast View. Photo taken October, 15, 2015.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project: S. Tongass to Saxman Hwy Borough/City: Ketchikan Date: 10-15-15
Applicant/Owner: AKDOT&PF Sampling Point #: 035
Investigator(s): Anne Leggett, Irina Lapina Firm: HDR Alaska, Inc.
Lat. (dec.°) 55.32784 Long. -131.61662 ± ' NAD 83 Recorded on GPS #: ___ Marked on map? Y Field Map #: 5
Subregion (circle one): (SE) Southcentral Western Aleutian Interior Northern Landform: bench Slope (%): 8 Aspect: SW
Shape across slope: (linear) / convex / concave Shape up/downslope: (linear) / convex / concave NWI classification: PFO4B
Photo nos./descriptions: 592-93 Soil; 94-N, 95-SE Camera #: ___ Veg Type (Viereck Level 4 or other): Clos. West Hemlock-
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ___ No: V Wetter than normal? HGM type: cedar Forest
Are Vegetation ~, Soil ~, or Hydrology ~ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___ 6% slope IA 1g
Are Vegetation ~, Soil ~, or Hydrology ~ naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes ✓	No ___	Is the sampled area within a wetland?	Yes ✓ No ___
Hydric Soil Present?	Yes ✓	No ___		
Wetland Hydrology Present?	Yes ✓	No ___	Remarks (e.g., marginal?):	

VEGETATION (Use scientific names.)

Tree Stratum (dbh≥ 3")

Sp.	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.
1. Alnu rubr	7		FAC	5.			
2. Tsug heter	55	Y	FAC	6.			
3. Thuj. plicata	15		FAC	7.			
4.				8.			

Total Tree Cover: 77
50% of total cover: 38.5 20% of total cover: 15.4

Sapling/Shrub Stratum (woody plants < 3" dbh)

	Abs.Cov.%	Dom?	Ind.		Abs.Cov.%	Dom?	Ind.
1. Vac parvi	7	Y	FACU	7.			
2. Rub spect	5	Y	FACU	8.			
3. Vac alask	3	Y	FAC	9.			
4.				10.			
5.				11.			
6.				12.			

Total Sapling/Shrub Cover: 15
50% of total cover: 7.5 20% of total cover: 3

Herb Stratum

	Abs.Cov.%	Dom?	Ind.		Abs. Cov.%	Dom?	Ind.
1. Athyrfel	15	Y	FAC	12.			
2. Polystichum mu2			FACU	13.			
3. Lysich ame	12	Y	OBL	14.			
4. Blech spic	2		FAC	15.			
5.				16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Herb Cover: 31
50% of total cover: 15.5 20% of total cover: 6.2

Circular 1/10-ac plot V or other plot dimension: ___ % of bare ground: 3
% Cover of Wetland Bryophytes (where applicable) 0 % Total Cover of Bryophytes 80 %

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	12	X1=	12
FACW species	0	X2=	0
FAC species	97	X3=	291
FACU species	14	X4=	56
UPL + NL species	0	X5=	0
Column Totals:	123 (A)		359 (B)

Prevalence Index = B/A = 2.92

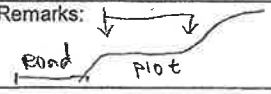
Hydrophytic Vegetation Indicators:

Y Dominance Test is>50%
Y Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:



plot elongated in area w/ simil elevat & slope%

SOIL

Sampling Point #: 035

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (in.)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	α,α dip. (pos/neg)	Remarks (or use comment number)
0-4	Oa	-								
4-16	B	7.5YR 2.5/1	100					VGR MK L	-	(1) fine grained

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, **msr from top of mineral layers unless otherwise noted**):

- N Histosol or Histel (A1) (≥16"organic surface, sat'd during wet period of growing season)
- M Histic Epipedon (A2)(8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- V Hydrogen Sulfide (A4) (w/in 12"of ground surface; @ 3 " in this pit
- n Thick Dark Surface (A12)
- n Alaska Gleyed (A13)
- n Alaska Redox (A14)
- n Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- n Alaska Color Change[4] (TA4)
- n Alaska Alpine Swales (TA5)
- n Alaska Redox with 2.5Y Hue
- n Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- n Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: none encountered
Depth (inches)

Drainage Class: PD
Soil Map Unit Name:

Hydric Soil Present? Yes ✓ No

Comments:
1. I believe this may be mucky enough to be considered organic for purpose of IDing a histic epipedon.
2.
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, **msr from soil surface**):

Primary Indicators (any one indicator is sufficient)

- n Surface Water (A1)
- V High Water Table (A2) (w/in 12")
- V Saturation (A3) (w/in 12")
- n Water Marks (B1)
- n Sediment Deposits (B2)
- n Drift Deposits (B3)
- n Algal Mat or Crust (B4)
- n Iron Deposits (B5)
- n Surface Soil Cracks (B6)
- n Inundation Visible on Aerial Imagery (B7)
- n Sparsely Vegetated Concave Surface (B8)
- n Marl Deposits (B15)
- y Hydrogen Sulfide Odor (C1) (w/in 12")
- n Dry-Season Water Table (C2) (w/in 24")
- n Other (explain)

Secondary Indicators (at least 2 are required)

- n Water-Stained Leaves (B9)
- y Drainage Patterns (B10)
- n Oxid'd Rhizospheres on Living Roots (C3) (w/in 12")
- — Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- n Salt Deposits (C5)
- n Stunted or Stressed Plants (D1)
- y Geomorphic Position (D2) Bench flattens up
- n Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- y Microtopographic Relief (D4) (caused by water)
- n FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

marginal. trees elevated on hummps.. area w/ flat surface as if soaked

Field Observations (in. from ground surface):

Surface Water Present? Yes ___ No ✓ Depth of water (in.) ___

Water Table Present? Yes ✓ No ___ Depth to water (in.) 8

Seeping in at that depth but not yet filled: ✓

Saturation Present? Yes ✓ No ___ Depth to sat. (in.) 5
(includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes ✓ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site 035: Soil. Photo taken October, 15, 2015.

Site 035: Soil. Photo taken October, 15, 2015.

Site 035: Vegetation, North View. Photo taken October, 15, 2015.

Site 035: Vegetation, Southeast View. Photo taken October, 15, 2015.

Appendix B

Observation Point Photographs

October 14-15, 2015

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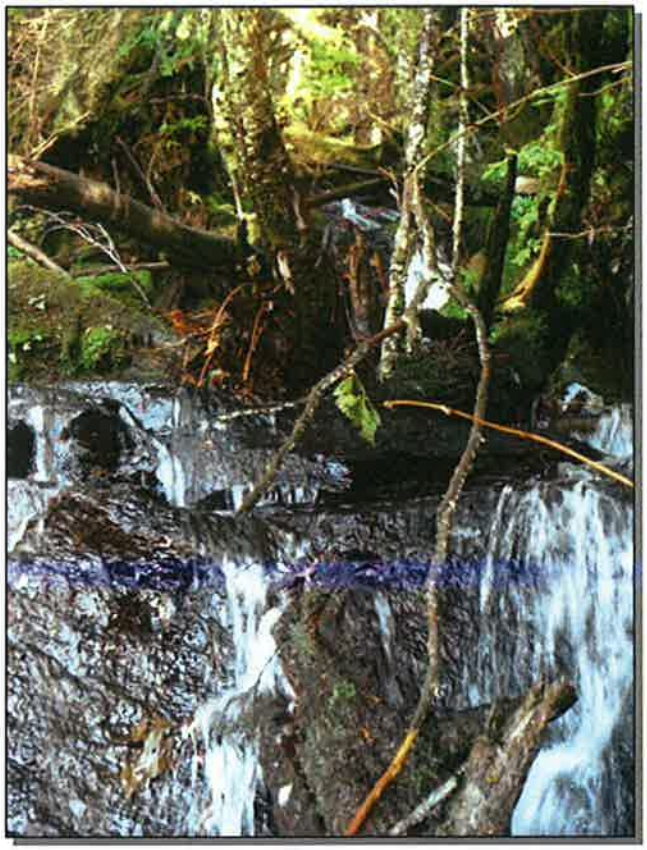
Site 001: Stream Crossing, Upstream View. Photo taken October 14, 2015.

Site 001: Stream Crossing, Cross-stream View. Photo taken October 14, 2015.

Site 001: Stream Crossing, Downstream View. Photo taken October 14, 2015.

Site 002: Stream Crossing, Upstream View. Photo taken October 14, 2015.

Site 002: Stream Crossing, Downstream View. Photo taken October 14, 2015.



Site 002: Stream Crossing, Up-stream View. Photo taken October 14, 2015.

Site 006: Stream Crossing, Upstream View. Photo taken October 14, 2015.

Site 006: Stream Crossing, Upstream View. Photo taken October 14, 2015.

Site 006: Stream Crossing, Downstream View. Photo taken October 14, 2015.

Site 007: Stream Crossing, Upstream View. Photo taken October 14, 2015.

Site 007: Stream Crossing, Downstream View. Photo taken October 14, 2015.

Site 008: Stream Crossing, Upstream View. Photo taken October 14, 2015.

Site 008: Stream Crossing, Downstream View. Photo taken October 14, 2015.

Site 009: Stream Crossing, Upstream View. Photo taken October 14, 2015.

Site 009: Stream Crossing, Downstream View. Photo taken October 14, 2015.

Site 011: Rocky Shore, Northwest View. Photo taken October 14, 2015.

Site 011: Rocky Shore, West View. Photo taken October 14, 2015.

Site 011: Rocky Shore, Photo taken October 14, 2015.

Site 011: Rocky Shore. Photo taken October 14, 2015.

Site 012: Rocky shore. Photo taken October 14, 2015.

Site 012: Rocky Shore. Photo taken October 14, 2015.

Site 012: Rocky Shore. Photo taken October 14, 2015.

Site 012: Rocky Shore. Photo taken October 14, 2015.

Site 013: Rocky shore. Photo taken October 14, 2015.

Site 013: Rocky shore. Photo taken October 14, 2015.

Site 013: Rocky shore. Photo taken October 14, 2015.

Site 013: Rocky shore. Photo taken October 14, 2015.

Site 014: Vegetation. South view. Photo taken October 14, 2015.

Site 014: Vegetation. North view. Photo taken October 14, 2015.

Site 015: Vegetation. West view. Photo taken October 14, 2015.

Site 015: Vegetation. South view. Photo taken October 14, 2015.

Site 016: Stream Crossing, Upstream View. Photo taken October 14, 2015.

Site 016: Stream Crossing, Downstream View. Photo taken October 14, 2015.

Site 017: Stream Crossing, Upstream View. Photo taken October 14, 2015.

Site 017: Stream Crossing, Downstream View. Photo taken October 14, 2015.

Site 020: Rocky shore. Photo taken October 14, 2015.

Site 020: Rocky shore. Photo taken October 14, 2015.

Site 018: Stream Crossing. Photo taken October 14, 2015.

Site 019: Stream Crossing. Photo taken October 14, 2015.

Site 020: Rocky shore. Photo taken October 14, 2015.

Site 021: Rocky shore. Photo taken October 14, 2015.

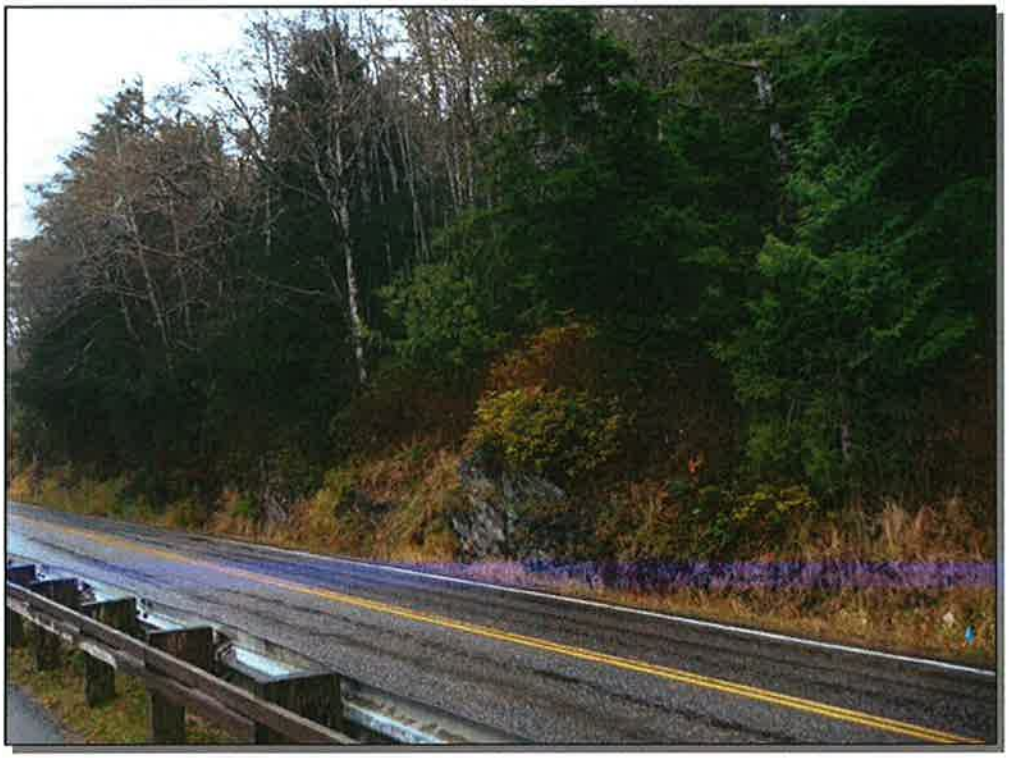
Site 021: Rocky shore. Photo taken October 14, 2015.

Site 021: Rocky shore. Photo taken October 14, 2015.

Site 021: Rocky shore. Photo taken October 14, 2015.

Site 021a: Inland view from shoreline. Photo taken October 14, 2015.

Site 021a: Inland view from shoreline. Photo taken October 14, 2015.



Site 021a: Inland view from shoreline. Photo taken October 14, 2015.

Site 022: Vegetation. Southwest view. Photo taken October 14, 2015.

Site 022: Vegetation. Northwest view. Photo taken October 14, 2015.

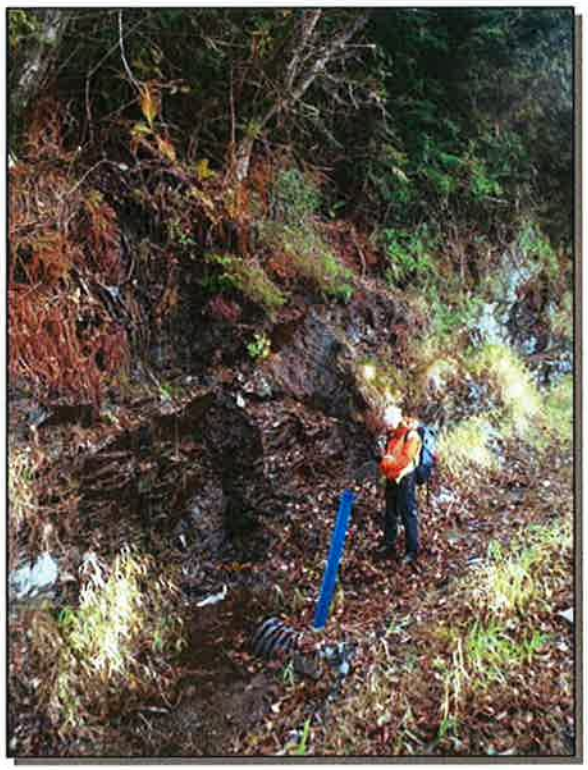
Site 023: Rocky shore. Photo taken October 15, 2015.

Site 023: Rocky shore. Photo taken October 15, 2015.

Site 023: Vegetation at Rocky shore. Photo taken October 15, 2015.

Site 023: Vegetation at Rocky shore. Photo taken October 15, 2015.

Site 026: Stream Crossing. Photo taken October 15, 2015.



Site 026: Stream Crossing. Photo taken October 15, 2015.

Site 029: Stream Crossing. Photo taken October 15, 2015.

Site 029: Stream Crossing. Photo taken October 15, 2015.

Site 029: Stream Crossing. Photo taken October 15, 2015.

Site 030: Rocky shore. Photo taken October 15, 2015.

Site 030: Rocky shore. Photo taken October 15, 2015.

Site 030: Rocky shore. Photo taken October 15, 2015.

Site 030: Rocky shore. Photo taken October 15, 2015.

Site 031: Stream Crossing, Southeast View. Photo taken October 15, 2015.

Site 031: Stream Crossing, North View. Photo taken October 15, 2015.

Site 031: Stream Crossing, Northeast View. Photo taken October 15, 2015.

Site 032: Stream Crossing. Unnamed anadromous stream. Wooden box culvert. Photo taken October 15, 2015.

Site 032: Stream Crossing. Unnamed anadromous stream. Photo taken October 15, 2015.

Site 032: Stream Crossing. Unnamed anadromous stream. Wooden box culvert. Photo taken October 15, 2015.

Site 032: Stream Crossing. Unnamed anadromous stream. Photo taken October 15, 2015.

Site 033: Vegetation. South view. Photo taken October 15, 2015.

Site 033: Vegetation. North view. Photo taken October 15, 2015.

Site 034: Vegetation. South view. Photo taken October 15, 2015.

Site 034: Vegetation, North view. Photo taken October 15, 2015.

Site 034: Vegetation. Photo taken October 15, 2015.

Site 034: Vegetation. Photo taken October 15, 2015.

Site 034: Vegetation. Photo taken October 15, 2015.

Site 034: Vegetation. Photo taken October 15, 2015.

Appendix C

Plant Species List

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Percent Cover of Plant Species Observed at Wetland Determination Sites

Species Observed	Common Name	Wetland Indicator Status	003	004	005	010	024	025	028	035
Alnus rubra	Red Alder	FAC						5		7
Alopecurus aequalis	Short Awn Meadow Foxtail	OBL					10		20	
Athyrium cyclosorum	Western Lady Fern	FAC			25	10		30		15
Blechnum spicant	Deer Fern	FAC	1	1		3		T		2
Carex sp.	Sedge	N/A						T		
Dryopteris expansa	Spreading Wood Fern	FACU	1	1		2				
Equisetum arvense	Field Horsetail	FAC								
Equisetum fluviatile	Water Horsetail	OBL								
Equisetum pratense	Meadow Horsetail	FACW	1				1		1	
Equisetum sylvaticum	Woodland Horsetail	FAC					T		T	
Glyceria leptostachya	Slender Spike Manna Grass	OBL					20		20	
Gymnocarpium dryopteris	Nothern Oak Fern	FACU		1						
Lysichiton americanus	Yellow Skunk Cabbage	OBL		10		10		25		12
Maianthemum dilatatum	Two-Leaf False Solomon's Seal	FAC			45					
Malus fusca	Oregon Crabapple	FACW						30		
Menziesia ferruginea	Fool's Huckleberry	FACU	2	3	15	15				
Oplopanax horridus	Devil's Club	FACU				7				
Phalaris arundinacea	Reed Canary Grass	OBL				10				
Picea sitchensis	Sitka Spruce	FACU	40	20		15				
Polystichum munitum	Pineland Sword Fern	FACU			10			5		2
Rubus spectabilis	Salmon raspberry	FACU		1	60	15		15		5
Thuja plicata	Western red cedar	FAC			30	35		5		15
Tsuga heterophylla	Western Hemlock	FAC	50	60	20	30		6		55
Vaccinium alaskaense	Alaska Blueberry	FAC	1	5	30	10		5		3
Vaccinium caespitosum	Dwarf Blueberry	FACW	2	3						
Vaccinium parvifolium	Oval Leaf Blueberry	FAC	10	10		5		2		7
Juncus effusus	Lamp Rush	OBL							25	
Holcus lanatus	Common Velvet Grass	FAC							20	
Juncus tenuis	Lesser Poverty Rush	FACW							T	
Epilobium ciliatum	Fringed Willowherb	FAC							1	

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Appendix D

Wetland and Nearshore Assessment Forms

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	A	B	C	D	E
1	**Data Form OF (Office) for Non-tidal Wetlands. WESPAK-SE version 2.0.** Funded in part with qualified Outer Continental Shelf oil and gas revenues by the Coastal Impact Assistance Program, U.S. Fish & Wildlife Service.				**Site Name: 035**
2	DIRECTIONS: Conduct an assessment only after reading the accompanying Manual and explanations in column E below. Except where instructed otherwise, in the Data column change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this office data form requires 1-2 hours per site. For a listing of functions to which each question pertains, see bracketed codes in column E. For detailed descriptions of each WESPAK-SE model, see Appendix F of the accompanying Manual. Codes for functions and values are: WS= Water Storage, SFS= Stream Flow Support, WC= Water Cooling, WW= Water Warming, SR= Sediment Retention, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Export, INV= Invertebrates, FA= Anadromous Fish, FR= Resident Fish, AM= Amphibians, WBF= Feeding Waterbirds, WBN= Nesting Waterbirds, SBM= Songbirds, Mammals, & Raptors, POL= Pollinators, PH= Plant Habitat, PU= Public Use & Recognition, Subsis= Subsistence, EC=				**Site Location: between Ketchikan and Saxman** **Investigators: Anne Leggett, Irina Lapina** **Date: October 14, 2015** **Site Notes: Forested wetland is located within a bench over the Hwy.**
3	**#**	**Indicator**	**Condition Choices**		**Explanations, Definitions**
4	DF1	Distance by Road to Nearest Population Center	Measured along the maintained road or boat landing that is nearest the AA, the distance to the nearest **population center** is:		"Population center" means a settled area with more than about 50 year-round residents per square mile. [FAv, FRv, NRv, WBFv, PH, PU, SBM, Subsis]
5			<0.5 mile	1	
6			0.5 - 2 miles	0	
7			2-5 miles	0	
8			5-10 miles	0	
9			>10 miles	0	
10	DF2	Wildlife Access	Draw a circle of **radius of 0.5 mile** from the center of the AA. If mammals and amphibians can move from the center of the AA to all other separate wetlands located within the circle without being forced to cross maintained roads (any width), lawns, bare ground, marine waters, and/or steep (>30%) slopes, mark 1= yes can move, or no other wetlands within that distance, or 0= no.	0	Many roads are mapped in the online WESPAK-SE Wetlands Module: http://seakgis.alaska.edu/flex/wetlands/ The route to other wetlands need not be direct – it may be circuitous to avoid the barrier, as long as the travel route remains entirely within the circle. [AM, SBM]
11	DF3	Distance to Nearest Maintained Road	From the **center** of the AA, the distance to the nearest maintained public road (dirt or paved) is:		Many roads are mapped in the online WESPAK-SE Wetlands Module: http://seakgis.alaska.edu/flex/wetlands/ [FAv, FRv, AM, PH, PU, SBM, WBN]
12			<100 ft	1	
13			100-500 ft	0	
14			500-1000 ft	0	
15			1000 ft - 0.5 mile	0	
16			0.5- 1 mile	0	
17			>1 mile	0	

	A	B	C	D	E
18	OF4	Distance to Natural Land Cover	The minimum distance from the AA **edge** to the edge of the closest patch or corridor of ***natural*** (but not necessarily native– see definition on right) land cover **larger than 100 acres**, is:		Natural land cover includes wooded areas, peatlands, vegetated wetlands, and most other areas of perennial cover. It includes low-intensity timber harvest areas and clearcuts harvested more than 10 years ago. It does not include water, glaciers, annual crops, residential areas, golf courses, recreational fields, fields mowed >1x per year, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It can include areas dominated by non-native plants if they provide perennial cover. Aerial imagery and land cover maps contained in the online WESPAK-SE Wetlands Module should be examined to answer this, and preferably should be verified during a site visit. Do not include parts of the natural cover patch or corridor that are narrower than 150 ft. [AM, SBM, Sens]
19			<150 ft. Or the AA itself contains >100 acres of vegetation.	1	
20			<150 ft, but completely separated from the 100-acre natural area**by any width** of roads, stretches of open water, bare ground, lawn, or impervious surface, AND the AA does not contain >100 acres of vegetation.	0	
21			150-300 ft, with or without interrupting features	0	
22			300-1000 ft, with or without interrupting features	0	
23			none of the above	0	
24	OF5	Size of Largest Nearby Tract or Corridor of Natural Land Cover	**Including the AA's vegetated area**, the largest patch or corridor that is **natural land cover** and is **contiguous with** vegetation in the AA (i.e., not completely separated by highways or channels that are uniformly wider than 150 ft), occupies:		View aerial imagery. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a linear gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. Land cover maps contained in the online WESPAK-SE Wetlands Module may be examined to answer this, and to use its measure tool to determine acreage. [AM, SBM, Sens, WBN]
25			<1 acre, or larger but with average width <150 ft	0	
26			1-10 acres	0	
27			10-100 acres	0	
28			100-1000 acres	0	
29			>1000 acres	1	
30	OF6	Natural Land Cover Extent	Within a **2-mile** radius measured from the **center** of the AA, the percent of the **land** that has natural land cover (see definition above) is:		Aerial imagery and land cover maps contained in the online WESPAK-SE Wetlands Module should be examined to answer this. [AM, SBM]
31			<5% of the land (excluding ocean and bay)	0	
32			5 to 20% of the land	0	
33			20 to 60% of the land	0	
34			60 to 90% of the land	1	
35			>90% of the land. **SKIP to OF8.**	0	
36	OF7	Type of Land Cover Alteration	Within a **2-mile** radius measured from the **center** of the AA, the area that is **not** natural land cover or water is mostly:		[AM, SBM]
37			impervious surface, e.g., paved road, parking lot, building, exposed rock.	1	
38			bare pervious surface, e.g., recent (5 yrs ago) clearcut, dirt or gravel road, plowed fields, landslide.	0	
39	OF8	Wetland Local Uniqueness	Refer to the online Wetlands Module> Land Classification Level 3. In the list below, enter a "1" next to all land cover types that are mapped as being intersected by the AA, **or** a "2" next to ones which (a) are present in the AA and (b) ALSO comprise **less than 10%** of the landscape outside of the AA but within 2 **miles**.		Aerial imagery should be examined to help answer this, and land cover maps contained in the online WESPAK-SE Wetlands Module may also be helpful, but should be verified during a site visit: [AMv, INVv, PHv, SBMv, POL, Sens]
40			Fresh Water	0	
41			Wetland	0	
42			Muskeg	0	
43			Herbaceous	0	
44			Shrubland (Low)	0	
45			Shrubland (Tall)	0	
46			Deciduous/Mixed Forest	0	
47			Conifer Forest - Young or Small	0	
48			Conifer Forest - Medium	1	
49			Conifer Forest - Large	0	
50			Wetland Shrub Forest	0	
51			other	0	
52			no Level 3 cover type maps available for this area, but from aerial imagery it appears that the AA contains a cover type (list above) that is absent from 90% of the landscape outside of the AA and within 2 miles. Enter "2" in the next column.	0	
53			no Level 3 cover type maps available for this area, but from aerial imagery it appears that the AA does NOT contain a cover type that is absent from 90% of the landscape outside of the AA and within 2 miles. Enter "1" in the next column.	0	
54	OF9	Distance to Locally Uncommon Cover Type	If any of the above were marked "2", the distance from the AA edge to the closest one that was so marked is:		[INVv, AMv, SBMv, POLv, PHv, Sens]
55			<150 ft	0	

	A	B	C	D	E
56			150 - 500 ft	0	
57			500 - 1000 ft	0	
58			1000 ft - 1 mile	0	
59			1-2 miles	0	
60			none of the above land cover classes were marked "2"	1	
61	OF10	Ponded Water in Landscape	Draw a circle of radius of **2 miles** centered on the AA. **Including** water ponded in the AA itself or in a fringing non-marine water body, the amount of water that is ponded (standing) during most of the year is:		**Ponded water** = any surface water greater than 1 acre that is not obviously part of a river, stream, or tidal system. In the online WESPAK-SE Wetlands Module, enable the Land Classification Level 1 layer and look for blue polygons. Also include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. [AM, PH, SBM, Sens, WBF, WBN]
62			0	0	
63			1 or 2	0	
64			3 to 6	1	
65			7 to 9	0	
66			10 to 12	0	
67			>12	0	
68	OF11	Ponded Water Proximity	The distance from the AA **edge** to the closest pond or lake that is **larger than 1 acre** and is **not** part of the same wetland, pond, or lake to which the AA is contiguous is:		"Uninterrupted" means no roads, other unvegetated lands, or lawns – regardless of their width. "Natural" land corridor means a corridor comprised of natural land cover as defined in OF4 above. To locate ponded waters, in the online WESPAK-SE Wetlands Module, enable the Land Classification Level 1 layer and look for blue polygons. If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. [AM, PH, SBM, Sens, WBF, WBN]
69			<300 ft, and connected with a natural land corridor	0	
70			<300 ft, but no uninterrupted natural land corridor	0	
71			300-1000 ft, and connected with a natural land corridor	0	
72			300-1000 ft, but no uninterrupted natural land corridor	0	
73			>1000 ft, and connected with a natural land corridor	1	
74			>1000 ft, but no uninterrupted natural land corridor	0	
75	OF12	Distance to Lake	The distance from the AA edge to the closest (but separate) **lake** (a non-tidal body of water that is ponded during most of the year and is **larger than 20 acres** or about 1000 ft on a side) during most of a normal year is:		In the online WESPAK-SE Wetlands Module, enable the Land Classification Level 1 layer and look for blue polygons larger than 20 acres. If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. [Sens, WBF, WBN]
76			<1 mile	0	
77			1-5 miles	1	
78			>5 miles and on the mainland or the same island	0	
79			>5 miles and on a different island	0	
80	OF13	Tidal Proximity	The distance from the AA edge to the closest **tidal water** body is:		[AM, FA, FR, INV, NR, OEv, PH, PR, PU, SBM, Sens, SR, Subsis, WBF, WBN, WS, WWv]
81			<300 ft	1	
82			300-1000 ft	0	
83			1000 ft - 1 mile	0	
84			1-5 miles	0	
85			>5 miles	0	

	A	B	C	D	E
86	OF14	Upland Edge Contact	Select one:		"other wetland" could be contiguous wetland that is classified differently by NWI, or the same wetland but will be unaffected by proposed alteration. [NR, SBM, Sens]
87			The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by other wetland or water.	0	
88			1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is mostly wider than the AA.	0	
89			25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	
90			50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	
91			More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly wider than the AA.	1	
92	OF15	Floodable Property	From floodplain maps, topographic maps, aerial imagery, and/or contacts with FEMA and public works departments, determine IF: downslope from the AA and within 2 miles, structures are within a mapped 100-year floodplain or flood damage to structures has been documented, and BOTH the following are true: (a) The downslope flood damages were (or would be) caused mainly by rising river levels associated with precipitation and snow or glacier melt, not by high tides, hillslope runoff, or sudden icefalls AND (b) Between the AA and the downslope damage area, peak flow in a connecting channel (if any) is NOT regulated by dams. If true, enter "1" in next column. If false, enter "0".	0	Ketchikan and perhaps a few other communities have maps showing the 100-year probability floodplain. Although not comprehensive, see also the online WESPAK-SE Wetlands Module: **SEAK Hydro Process** classified as "Flood Plain" channel. [WSv]
93	OF16	Glacier Fed	Refer to the Glaciers map in the online WESPAK-SE Wetlands Module. Select the first applicable choice:		[AM, FA, FR, INV, OEv, PRv, SFSv, SRv, WCv, WSv, WWv]
94			No upstream glacier feeds **surface** water to the AA, not even seasonally.	1	
95			A glacier feeds streamflow or other surface water to the AA and it obviously reduces water clarity. If that is unknown, assume it to be true if a glacier within 1 mile feeds a tributary to this wetland, or if glaciers cover >30% of the area that drains to this AA.	0	
96			A glacier feeds streamflow or other surface water to the AA, but there is little or no resultant reduction in water clarity.	0	
97	OF17	Fish Access or Use	Refer to the map in the online WESPAK-SE Wetlands Module: **Habitat Layers > Anadromous Waters Catalog**, and preferably verify by contacting a local ADFG biologist. Mark just the first choice that is true. The AA:		Streams with average gradients (measured over about a dozen feet) of more than 12%, can be assumed to be inaccessible to most fish unless data show otherwise. [AM, FA, FR, INV, NRv, PRv, Subsis, WBF, WBN]
98			a) is known to support **anadromous fish** feeding and/or spawning (some ADFG Class 1 streams).	0	
99			b) is probably accessible to anadromous and other fish (at least seasonally, at least for feeding, partially or entirely), but anadromous fish have not been **documented** (some Class 1 streams).	0	
100			c) is not accessible to anadromous fish, but other resident fish are known (or can be assumed) present (Class 2).	0	
101			d) is fishless (i.e., not accessible to anadromous fish and is known or can be assumed to have no resident fish). (Class 3, 4)	1	
102			e) fish presence and potential fish access are unknown and undeterminable.	0	
103	OF18	Designated IBA	See list in last column. Then if necessary refer to the map in the online WESPAK-SE Wetlands Module: Habitat Layers >**Important Bird Areas** (IBAs). The AA is within or contains part of an IBA. Enter 1= yes, 0= no.	0	Mendenhall Wetlands (Juneau), Berners Bay (Juneau), Port Snettisham (Juneau), Blacksand Spit (Yakutat), Icy Bay (Yakutat), Chilkat Bald Eagle Preserve (Haines), St. Lazaria Island (Sitka), Forrester Island (Prince of Wales-Outer Ketchikan), Stikine River Delta (Wrangell-Petersburg). [SBMv, WBFv, WBNv]
104	OF19	Deer Winter Habitat Capability	Refer to the map in the online WESPAK-SE Wetlands Module: **Habitat Layers > Deer Winter Habitat Suitability Value**. Enter 3 if Very High; 2 if High; 1 if Moderate; 0= Lower or all other.	1	The rating, assigned by the 2007 Southeast Alaska Conservation Assessment, assumes areas at lower elevations with more southerly exposures, and with a forest canopy that provides snow interception and thermal cover, constitute good habitat for deer during potentially limiting periods of severe winter weather. [SBM, Subsis]
105	OF20	Precipitation, Mean Annual	Refer to the Precipitation layer in the online WESPAK-SE Wetlands Module. The mean annual precipitation in the vicinity of the AA was modeled as (rounded to the nearest whole number):		The category breaks are based on the 10, 25, 50, 75, and 90th percentiles of modeled data for grid cells covering Southeast Alaska. The modeled data are from the Oregon State University PRISM Climate Group and are based on the climate normals for the period 1981-2010, as well as elevation and latitude. [SFSv, OE]
106			<67 inches	0	
107			67-87 inches	0	
108			88-112 inches	0	
109			113-139 inches	0	
110			140-165 inches	1	
111			>165 inches	0	
112			no information available	0	
113	OF21	Temperature, Mean Annual	Refer to the Temperature layer in the online WESPAK-SE Wetlands Module. The mean annual temperature in the vicinity of the AA was modeled as (rounded to the nearest whole number):		The category breaks are based on the 10, 25, 50, 75, and 90th percentiles of modeled data for grid cells covering Southeast Alaska. The modeled data are from the Oregon State University PRISM Climate Group and are based on the climate normals for the period 1981-2010, as well as elevation and latitude. [AM, CS, FR, INV, NR, OE, PH, PR, Seep, SR, WBF, WC, WS, WWv]
114			<38 degrees F	0	

	A	B	C	D	E
115			38-40 degrees F	0	and latitude. [PH, SG, FR, INV, NR, OE, PH, PR, Sens, SR, WBI, WS, WS, WW]
116			41-42 degrees F	0	
117			43-44 degrees F	0	
118			> 44 degrees F	1	
119			no information available	0	
120	OF22	Basic pH or Karst	The AA (a) is in a **karst** area as shown in the in the online WESPAK-SE Wetlands Module, or (b) has surface water that during most of the growing season has pH measured at >7.5 or CaCO3 alkalinity >100 mg/L, or (c) is known to be underlain by limestone bedrock with a very high (>70%) calcium carbonate content. Enter 1= yes, 0= no.	0	In karst landscapes, the bedrock is likely to have many subsurface cracks, channels, caves, and sinkholes, and presence of karst is suggested by prevalence of certain plants (e.g., maidenhair and holly ferns (*Adiantum pedatum, Polystichum braunii*), purple mountain saxifrage (*Saxifraga oppositifolia*), columbine (*Aquilegia formosa*). [AM, FA, FR, INV, OE, PH]
121	OF23	Granitic Soils	Refer to the map in the online WESPAK-SE Wetlands Module: Geology> **Granitic Geology**. The AA is underlain primarily by granitic formations or glacial till that is known to be granitic, as indicated by maps or preferably from direct observation. Enter 1= yes, 0= no.	0	If deep glacial till overlays the granitic bedrock it can obscure its effects. [FR, INV, OE, PH]
122	OF24	Upslope Soil Erodibility & Debris Flow Potential	A stream channel or upland within 200 ft upslope from the AA has been classified by the Forest Service, USDA, or other specialists as highly erodible, unstable, or a landslide hazard. Or, there is documentation of landslides, debris flows, or severe erosion above the AA within the past 20 years.		Base this on observations or (for most of the Tongass N.F. and adjoining private lands) consult the online WESPAK-SE Wetlands Module: Geology> Landslides. Consider steep upslope areas with shallow depth to bedrock and/or dominated by alder to be likely zones of past and possibly future erosion. [PH, PRv, Sens, SRv]
123			yes, and such conditions or classifications intersect the AA.	0	
124			yes, but the conditions or classifications do not reach or intersect the AA.	0	
125			no, or no information but very unlikely that AA is intersected by highly erodible lands or landslides	1	
126			no information	0	

	A	B	C	D	E
127	OF25	Toxicity Documented Upstream	In the online WESPAK-SE Wetlands Module, see **Impaired Waters (DEC)** and **Contaminated Sites (Active)**. Do those maps show a problem within the AA or in waters flowing **into** it, and the problem is that **metals, hydrocarbons**, or other substances in the sediment, water, or tissues are at levels known to be harmful to aquatic life or humans? Or, other sampling has identified such a problem? Select the **first** true statement. These conditions are present:		Check to be sure the problem is related to metals, hydrocarbons, other toxic substances -- NOT to sediment, turbidity, TSS, bacteria, oxygen, or temperature: in the Wetlands Module, use the Identify tool to click on the line segment or area and scroll through all the text in the pop-up window to see the type of problem. If no quality-controlled sampling has been done, then a statement or rating documenting the problem and published in a recent agency report or official correspondence may be counted. Also, if time allows, query and retrieve water quality data from: http://www.waterqualitydata.us/ Do not speculate or infer toxic conditions from presence of potential pollution sources. The water quality problem must be ongoing, not only historical. [AM, FA, FR, SRv, STR, WBF, WBN]
128			within the AA	0	
129			in waters within 1 mile that flow **into** the AA.	0	
130			Sampling (not just absence of map symbols) indicates no problems.	1	
131			insufficient data (no map symbols & no sampling, or >1 mile upstream).	0	
132	OF26	Toxicity Documented Downstream	The Impaired Waters (DEC) and Contaminated Sites (Active) maps show such a problem within the AA or in waters **downslope from** the AA. Or, other sampling has identified such a problem downslope. Select the **first** true statement. These conditions are present:		See above. [SRv]
133			within 1 mile downslope, and connected to the AA by a channel	0	
134			within 1 mile downslope, but not connected to the AA by a channel	0	
135			sampling (not just absence of map symbols) indicates no problems	1	
136			insufficient data (no map symbols & no sampling, or >1 mile downslope)	0	
137	OF27	Drinking Water Source	Refer to the **Drinking Water Protection Areas** layer of the online WESPAK-SE Wetlands Module. Mark all that are true for the AA:		[NRv]
138			Zone A Ground Water	0	
139			Zone B Ground Water	0	
140			Zone A Surface Water	0	
141			Zone B Surface Water	0	
142			Zone C Surface Water	0	
143			Zone E Ground Water Surface Water Influence	0	
144			Zone F Ground Water Surface Water Influence	0	
145			Zone G Ground Water Surface Water Influence	0	
146			None of above	1	

	A	B	C	D	E
147	OF28	Elevation in Multi-scale Watersheds	In the CoverPg worksheet, write down the specific 12-digit HUC watershed in which the AA is located and the AA's elevation (obtained from GPS or a topographic map). Get this by referring to the map in the online WESPAK-SE Wetlands Module: **National Hydrography Dataset> Watershed Boundary Dataset**. Then in the **ShedData worksheet** (tab below) look up the AA's HUC codes and their cut-offs for upper, middle, and lower one-third elevations, and determine to which one-third the AA belongs, in each row below:		[AM, CS, FA, FR, NR, OEv, PH, PR, PU, SBM, Sens, SFSv, SR, Subsis, WBF, WC, WS, WWv]
148			In its HUC8 (the watershed with a 12-digit code), the AA's elevation puts it in (enter one of the following): 3= upper one-third, 2= middle one-third, 1= lower one-third, 0= no data.	1	
149			In its HUC7 (the 10-digit* watershed), the AA's elevation puts it in (enter one of the following): 3= upper one-third, 2= middle one-third, 1= lower one-third, 0= no data. [The 10-digit HUC is obtained by deleting the last 2 digits of the 12-digit HUC code]	1	
150			In its HUC6 (the 8-digit* watershed) the AA's elevation puts it in (enter one of the following): 3= upper one-third, 2= middle one-third, 1= lower one-third, 0= no data. [The 8-digit HUC is obtained by deleting the last 4 digits of the 12-digit HUC code]	1	
151	OF29	Wetland Class Scarcity in HUC6	From your observations, note if the AA would be classified as predominantly Forest/Shrub, Moss/Emergent, or Water. Then, find your 12-digit HUC in column M of the **ShedData worksheet**. Select column N, O, or P of that worksheet (whichever represents the cover type you decided predominates in your AA) and enter its value in the cell to the right. If your HUC is not listed in the ShedData table, change the cell on the right to **blank** -->	0.84	Wetlands that are of a type that is scarcer within their HUC12 watershed (indicated by a higher score here) are considered to be of greater value (not necessarily function) for several biological groups. [AMv, PHv, POLv, SBMv, Sens, WBFv, WBNv]
152	OF30	Contributing Area (CA) Percent	On a topographic map, draw the approximate bounds of this AA's **contributing area** (*see Manual*). Relative to the extent of this contributing area (CA), the AA comprises:		The CA is basically the upslope area that has the potential to deliver water to the wetland, and is a subset of the watershed. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upriver lands that feed that flooding river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area – not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. [NR, PR, Sens, SR, WSv]
153			<1% of its CA (including but not limited to most wetlands flooded annually by a major river, many in karst landscapes, and most that have multiple tributaries).	1	
154			1 to 10% of its CA	0	
155			10 to 100% of its CA	0	
156			Wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated. **SKIP TO OF34.**	0	
157	OF31	Unvegetated Surface in the Contributing Area	The proportion of the AA's contributing area (measured to no more than 1000 ft upslope) that is comprised of buildings, roads, parking lots, other pavement, exposed bedrock, debris flows, and other mostly-bare (but unfrozen) surface is about :		[FA, INV, NRv, PRv, SRv, WC, WSv, WWv]
158			<10%	1	
159			10 to 25%	0	
160			>25%	0	
161	OF32	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) input channels have been straightened, (c) upslope wetlands have been ditched extensively, (d) land cover is mostly non-forest, (e) CA slopes are steep, and/or (f) most CA soils are shallow and/or have high runoff coefficients. **This statement is:**		[NRv, PRv, SRv, WSv]
162			Mostly true	0	
163			Somewhat true	0	
164			Mostly untrue	1	
165	OF33	Aspect	The overland flow direction of most surface water (in streams or runoff) that enters the AA is:		If there are no inflowing streams: In what direction does most runoff or groundwater flow as it moves through this AA? If necessary consider the Aspect 20m map in the online WESPAK-SE Wetlands Module. [AM, NR, PH, POL, SFS, WC, WS, WWv]
166			Northward (N, NE). north-facing CA.	0	
167			Southward (S, SW). south-facing CA.	1	
168			other (E, SE, W, NW), or no detectable uphill slope or input channel (flat)	0	
169	OF34	Internal Gradient	The gradient along most of the flow path within the AA is:		For larger wetlands, go to the online Wetlands Module, click on Topographic for Basemap, zoom in closely until you see numbers on the contour lines. Measure a line drawn from highest to lowest elevation along the part of the wetland polygon having the greatest width measured perpendicular to contour lines. Then estimate elevational difference from the numbered contours and divide by the line length. For small wetlands, use a clinometer or iPhone app to measure gradient or estimate by
170			<2%, **or,** no slope is ever apparent (i.e., flat). Includes most depressional sites and ponds.	0	
171			2-5%	0	
172			6-10%	0	

	A	B	C	D	E
173			>10%	1	eye. [AM, CS, NR, OE, PR, SR, WBF, WBR, WS]
174	OF35	Internal Flow Distance (Path Length)	From measurement of wetland polygon width or intersected stream length in the online WESPAK-SE Wetlands Module: The straight-line horizontal distance from the wetland's inlet to outlet is: *[Note: If inlet and/or outlet are lacking, see guidance in last column]*		If wetland is on a slope, measure from the highest- to lowest-elevation point in the wetland polygon. I wetland is flat or a pond, use the maximum width measured perpendicular to topographic lines uphill from the wetland. Straight-line rather than channel distance is used here only for simplicity of measurement. The category breaks are based on the 10, 25, 50, 75, and 90th percentiles of intersected stream length of all Southeast Alaska non-tidal wetlands. [NR, OE, PR, SR, WS]
175			<150 ft	1	
176			150-300 ft	0	
177			300-800 ft	0	
178			800-2000 ft	0	
179			2000 ft - 1 mile	0	
180			>1 mile	0	
181	OF36	Relative Hydrologic Distance to Anadromous Stream	Determine the AA's Wetland_ID using the Identify tool in the online WESPAK-SE Wetlands Module (see Manual). From column B of the HydroDist worksheet (tab below), enter its score in the next column. If Wetland_ID or HydroDist is lacking, use the value from the closest nor tidal wetland.	0.60	[OEv]
182	OF37	Salmonid Watershed	Refer to map in the Manual (Appendix A, Fig. A-1). This AA's watershed is rated: 3=Very High (100%), 2= High (50-99%), 1= Moderate (10-49%), 0= all other.	2	The rating (from TNC) is based on number of salmonid species present in the watershed and habitat suitability (based on stream type and floodplain extent) relative to suitability of other waters in the same biogeographic province. [FAv, Subsis]
183	OF38	Subsistence Focal Areas	The AA or waters that directly adjoin it:		Subsistence uses are allowed even in communities designated as Non-subsistence if the use is by persons with subsistence permits. [FAv, FRv, Subsis]
184			is in Juneau or Ketchikan, and thus is a designated **Non**-subsistence Use Area (see WESPAK-SE Wetlands Module> ADFG Nonsubsistence Use Areas for exact boundaries)	1	
185			is accessible to salmon AND is a major salmon subsistence harvest area according to (a) Table B-6 of the manual, OR (b) Figures A2a-c of the manual (shown as a point on the maps)	0	
186			neither of the above	0	
187			no data (outside of the regions shown on the maps, and not listed in Table B-6)	0	
188	OF39	Geography	Mark ALL that are true. The AA is located:		[AMv, SBM, WBF, Sens]
189			in the Stikine, Alsek, Taiya-Chilkat-Skagway, or Taku deltas or floodplains.	0	
190			in another mainland area or on an island larger than 20 square miles.	1	
191			on an island smaller than 20 sq. mi. and separated completely from other lands by a gap wider than 150 feet created by tidal or marine waters.	0	
192	OF40	Unbrowsed Vegetation	The AA is on an island known to **lack** deer, elk, and moose. Enter 1 if yes, 0 if no.	0	[PH, SBM]
193	OF41	Amphibian Use	A native amphibian (Wood Frog, Western Toad, Columbia Spotted Frog, Northwestern Salamander, Long-toed Salamander, Rough-skinned Newt) has been detected under conditions similar to what now occur, by a qualified observer, or as indicated in the online Wetlands Module: Habitat Layers > Amphibian Sites. **Mark just the first choice that is true.**		Although not complete, additional records of amphibians and some species of vertebrates can be obtained by contacting the Alaska Natural Heritage Program or visiting their web site at: http://aknhp.uaa.alaska.edu/maps/biotics/ [AM, Sens]
194			in the AA	0	
195			outside the AA only, but within 0.5 mile and at nearly the same elevation (+ or - 500 ft).	0	
196			outside the AA only, and 0.5 to 2 miles away and at nearly the same elevation.	1	
197			other conditions, or no data	0	

	A	B	C	D	E
198	OF42	Nesting Waterbird Species of Conservation Concern	A waterbird species of conservation concern in Southeast Alaska (Common Loon, Red-throated Loon, Red-necked Grebe, Trumpeter Swan, Lesser Yellowlegs, Solitary Sandpiper) has been detected nesting semi-annually under conditions similar to what now occur, by a qualified observer. **Mark just the first choice that is true:**		"generally similar" means same type, where "type" is defined based on duration of ponded water [Sens, WBNv]
199			in the AA	0	
200			outside the AA but within 0.5 mile, in a generally similar wetland	0	
201			outside the AA and C.5 to 2 miles away, in a generally similar wetland	0	
202			beyond 2 miles, or no recent observation of these species by a qualified observer under conditions similar to what now occur, or no data. **However**: at least one of the following have been confirmed **nesting** in the AA: Greater Yellowlegs, Wilson's Snipe, American Bittern, Sora, Sandhill Crane, any duck species.	0	
203			none of above, or no data	1	
204	OF43	Non-breeding (Feeding) Waterbird Species of Conservation Concern	One or more of these species – Pacific Loon, Yellow-billed Loon, Red-necked Grebe, Horned Grebe, Trumpeter Swan -- has been detected feeding semi-annually under conditions similar to what now occur, by a qualified observer. **Mark just the first choice that is true:**		These are waterbird species of conservation concern that, in most cases, do not breed in Southeast Alaska, but feed here regularly. [Sens, WBFv]
205			in the AA	0	
206			outside the AA but within 0.5 mile, in a generally similar wetland	0	
207			outside the AA and C.5 to 2 miles away, in a generally similar wetland	0	
208			beyond 2 miles, or no recent observation of these species by a qualified observer under conditions similar to what now occur, or no data.	1	
209	OF44	Songbird or Raptor Species of Conservation Concern	One or more of these species -- Osprey, Peregrine Falcon, Northern (Queen Charlotte) Goshawk, Olive-sided Flycatcher, Rusty Blackbird – has been detected nesting semi-annually in the AA or along the AA's upland edge (within 300 ft) under conditions similar to what now occur, by a qualified observer. Mark just the first choice that is true:		These are wetland-associated songbird or raptor species of conservation concern that nest in Southeast Alaska. List is from Alaska Landbird Conservation Plan (Andres 1999), Alaska Natural Heritage Program, and other sources. [SBMv, Sens]
210			in the AA	0	
211			outside the AA but within 0.5 mile, in a generally similar wetland.	0	
212			outside the AA and C.5 to 2 miles away, in a generally similar wetland.	0	
213			beyond 2 miles, or no recent observation of these species by a qualified observer under conditions similar to what now occur. **However**: at least one of the following have been confirmed nesting in the AA: Short-eared Owl, Alder Flycatcher, Warbling Vireo, Red-eyed Vireo, Northern Waterthrush, Common Yellowthroat, Red-winged Blackbird.	0	
214			none of above, or no data	1	
215	OF45	Plants of Conservation Concern	The AA contains an uncommon or imperiled wetland indicator plant that is (a) listed in Table C-6 of the Manual, or (b) is a native species that is not listed as occurring in Southeast Alaska in the PlantList worksheet, has been detected within the AA under conditions similar to what now occur, by a qual fied observer, and:		Although not complete, records of plant species locations can be obtained online from the Consortium of Pacific Northwest Herbaria at: http://www.pnwherbaria.org/data/search.php [PHv, POLv, Sens]
216			more than 1 such feature or species is present in the AA	0	
217			only one such species or feature is present in the AA	0	
218			there are no recent observations of these in the AA by a qualified observer under conditions similar to what now occur, or no data.	1	
219	OF46	Cedar	The AA contains (a) more than1 acre of a mature (>24" dbh) living stand of cedar or (b) is in an area documented as Yellow Cedar Decline (see layer in online WESPAK-SE Wetlands Module).	0	[PHv, SBM]
220	OF47	Mitigation Investment	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Enter: yes= 1, no= 0. If no information, change to blank.		[PU]
221	OF48	Conservation Investment	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, enhance, the wetland (excludir g mitigation wetlands). Enter: yes= 1, no= 0. If no information, change to blank.		voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ [PU]
222	OF49	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, **unrelated to any regulatory requirements, and data are available to the public.** Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area. Enter: yes= 1, no= 0. If no information, change to blank.	0	[PU]

	A	B	C	D	E
1	**Data Form F (Field) for Non-tidal Wetlands. WESPAK-SE version 2.0.**				**Site Name: 035**
2	DIRECTIONS: Conduct an assessment only after reading the accompanying Manual and explanations in column E below. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this field data form requires 1-2 hours on a site. For a listing of functions to which each question pertains, see bracketed codes in column E. For detailed descriptions of each WESPAK-SE model, see Appendix F of the accompanying Manual. Codes for functions and values are: WS= Water Storage, SFS= Stream Flow Support, WC= Water Cooling, WW= Water Warming, SR= Sediment Retention, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Export, INV= Invertebrates, FA= Anadromous Fish, FR= Resident Fish, AM= Amphibians, WBF= Feeding Waterbirds, WBN= Nesting Waterbirds, SBM= Songbirds,				**Site Location: Ketchikan** **Investigator: Anne Leggett, Irina Lapina** **Date: October 15, 2015** **Site Notes: Forested wetland is located within a bench over the Hwy.**
3	**#**	**Indicator**	**Condition Choices**	**Data**	**Explanations, Definitions**
4	F1	Wetland Type	Most of the vegetated part of the AA (wetland Assessment Area) is a (select ONE):		[AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]
5	F1.1		Forested Peatland	1	Nearly all the AA is moss-covered and/or the soils to a depth of at least 4 inches are organic (sometimes deeper if not rocky). More tall (>3 ft) woody cover than herbaceous. Trees often hemlock or cedar. Often with skunk cabbage (at least in seasonal channels), blueberries. Little or no open water. Includes shrubby fringes of open peatlands and fens. Not in active floodplain.
6	F1.2		Open Peatland	0	Nearly all the AA is moss-covered. Peat depth usually > 16 inches except where bedrock near surface. Tree cover is <5% and cover of tall (>3 ft) shrubs is <30%. Shore pine, Labrador tea, crowberry often occur. Often with small (<25 sq ft) scattered stair-step pools with acidic, stained water. Some examples are flat bogs, floating bogs, and sloping muskeg.
7	F1.3		Fen/ Marsh	0	Surface water is more extensive, at least seasonally. More emergent than tall (>3 ft) woody plant cover. Often sedges, deer cabbage, marsh marigold, horsetail, burreed, pond lily. If ground is moss-covered, it is largely obscured by sedges or other herbaceous plants. Soils often muck or peat, seldom coarse unless created by excavation. Often beaver-created, or at base of steep slopes, or in depressions or adjoining larger water bodies.
8	F1.4		Floodplain Wetland	0	At least once annually, surface water in a channel that flows through or adjoins the AA causes the width of surface water in the AA (perpendicular to the channel) to more than double. The increased width is due mainly to that channel inflow, not to hillslope seepage or runoff. Soils are silt or coarser (little or no organic soil or peat). Vegetation can be woody or herbaceous: often alder, willow, devil's club. Includes some (not all) wetlands in mapped floodplains. Consult municipal maps of floodplains if available, and the online WESPAK-SE Wetlands Module: SEAK Hydro Stream.
9	F1.5		Uplift Meadow	0	Within a few miles of tidewatter or a glacier, but nontidal, and mostly within 100 miles of Glacier Bay National Park. Little or no persistent surface water except in channels, which may be strongly downcut. Mostly sweetgale and/or herbaceous vegetation, e.g., silverweed, iris, Lyngbye's sedge. Tree cover usually <30%. Peat depth usually <16 inches. Resulted from uplift following isostatic rebound as a glacier receded within recent centuries.
10	F1.6		Tidal Marsh or Tidal Swamp. Do not continue. Use other spreadsheet.	0	Inundated by tide at least once annually and dominated by emergent herbaceous or woody plants. The level of surface water fluctuates every ~6 hours on a daily basis in response to tides. Do not include areas of beachgrass (*Leymus* or *Elymus mollis*, also called ryegrass) unless they are inundated at that frequency. Do not include areas that are entirely eelgrass or seaweeds.
11	F2	% Saturated **Only**	The percentage of the AA that **lacks** surface water during an average year (that is, except perhaps for a few hours after snowmelt or rainstorms), but which is still a wetland, is:		This is the cumulative acreage of all areas lacking surface water in the AA. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC, WW]
12			less than 1%, or <0.01 acre (about 20 ft on a side) never has surface water. In other words, **all or nearly all of the AA is inundated permanently or at least seasonally.**	0	
13			1-25% of the AA never contains surface water.	0	
14			25-50% of the AA never contains surface water.	0	

	A	B	C	D	E
15			50-99% of the AA never contains surface water.	1	
16			>99% of the AA never contains surface water, except for water flowing in channels and/or in pools that occupy <1% of the AA. **SKIP to F30.**	0	
17			>99% of the AA never contains surface water, and AA is not intersected by channels that have flow, not even for a few days per year. **SKIP to F30.**	0	
18	F3	% with **Persistent** Surface Water	The percentage of the AA that has **surface** water (either ponded or flowing, either open or obscured by vegetation) during **all** of the growing season during most years is:		0.01 acre is about 20 ft on a side if square. This is the cumulative acreage of all areas that have surface water. Sites fed by glaciers, or by unregulated streams that descend on north-facing slopes, tend to remain wet longer into the summer. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the local soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]
19			less than 1%, or <0.01 acre (whichever is less). **SKIP to F7.**	1	
20			1-25% of the AA, and mostly in narrow channels and/or small scattered pools.	0	
21			1-25% of the AA, and mostly in a single large pool, pond, and/or channel.	0	
22			25-50% of the AA	0	
23			50-95% of the AA	0	
24			>95% of the AA	0	
25	F4	Summertime Shading of Water	At mid-day during the warmest time when surface water is present, the area of water within the AA that is shaded by vegetation, incised channels, streambanks, or other features also present within the AA is:		Consider the aspect and surrounding topographic relief as well as vegetation height and density. [FA, WC, WW]
26			<5% of the water is shaded	0	
27			5-25% of the water is shaded	0	
28			25-50% of the water s shaded	0	
29			50-75% of the water s shaded	0	
30			>75% of the water is shaded	0	
31	F5	Fringe Wetland	The AA adjoins a lake, stream, or river whose wetted width (not counting the AA's wetland) during mean annual conditions is greater than 5(ft and also more than 5 times the vegetated wetland's average width (measured perpendicular to upland). If true, enter "1" and continue. If false, leave the 0 and continue.	0	[WBF, WBN, WC, WWv]
32	F6	Lacustrine Wetland	The AA borders a body of ponded open water whose size (not counting the AA's wetland) exceeds 20 acres during most of the growing season. Enter "1" if true, "0" if false.	0	The "vegetated areas" should not include submersed or floating-leaved aquatics. [FA, FR, PR, WBF, WBN]

	A	B	C	D	E
33	F7	% Flooded **Only** Seasonally	The percentage of the AA soil that is covered by surface water**only** during the wettest time of year, and for >2 continuous weeks during that time, is:		0.01 acre is about 20 ft on a side if square. This is the cumulative acreage of all areas in the AA that flood ONLY seasonally. Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. In riverine systems, the extent of this zone can be estimated by multiplying by 2 the bankful height and visualizing where that would intercept the land along the river. Although useful only as a general guide, the NWI's water regime modifier code and NRCS soil survey descriptions of the predominant soil types usually include information on flooding frequency and saturation persistence. The wettest times in Southeast Alaska typically occur during late fall, during rain events after the ground is frozen, and/or during spring snowmelt. Near melting glaciers, surface water may be present mainly in summer. [CS, FA, INV, NR, OE, PH, SR, WBF, WBN, WS]
34			<1% or <0.01 acre, whichever is less. **SKIP to F9.**	0	
35			1-25%	1	
36			25-50%	0	
37			50-95%	0	
38			>95%	0	
39	F8	Annual Water Fluctuation Range	The maximum annual fluctuation in surface water within the AA is:		[AM, CS, INV, NR, OE, PH, PR, SR, WBN, WS]
40			<0.5 ft	1	
41			0.5 - 1 ft	0	
42			1-3 ft	0	
43			> 3 ft	0	
44	F9	Predominant Depth Class	During most of the growing season, surface water depth in**most** of the area where it is present is: *[Note: This is not asking for the maximum depth.]*		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if timing and safety allow, depths may be measured by drilling through winter ice.This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the answer will be based on the depth of the most persistently inundated part of the wetland. Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC, WW]
45			<0.5 ft deep (but >0)	1	
46			0.5 - 1 ft deep	0	
47			1-2 ft deep	0	
48			2-6 ft deep	0	
49			>6 ft deep. True for many fringe wetlands.	0	
50	F10	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in the manual. [FR, INV, WBF, WBN]
51			One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	0	
52			One depth class that comprises 50-90% of the AA's inundated area.	1	
53			Neither of above. Multiple depth classes; none occupy more than 50% of the AA.	0	
54	F11	Open Water - Extent	During most of the growing season, the largest patch of**open** water that is in or bordering the AA is **>1 acre and mostly deeper than 1 ft.** If true enter "1" and continue, If false, enter "0" and**SKIP to F15.**	0	**Open water** is water that is not obscured by vegetation in aerial ("duck's eye") view. It includes vegetation floating on the water surface or entirely submersed beneath it. It may be flowing or ponded.
55	F12	Flat Shoreline Extent	The length of the AA's shoreline (along its ponded open water) that is bordered by areas that are**nearly flat** (a slope less than about 5%) is:		See diagram in the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [SR, WBN]
56			<1% of the shore length	0	
57			1-25%	0	
58			25-50%	0	
59			50-75%	0	
60			>75%	0	
61	F13	Width of AA's Vegetated Zone	At the driest time of year (or lowest water level), the width of vegetated area in the AA that separates adjoining uplands from **most of** the open water within or adjoining the AA is:		"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN]
62			1-5 ft	0	
63			5-25 ft	0	
64			25-100 ft	0	
65			100-300 ft	0	
66			>300 ft	0	
67	F14	Non-vegetated Aquatic Cover	The cover for fish, aquatic invertebrates, and/or amphibians that is provided by horizontally incised banks, water deeper than 2 ft, and/or partly-submerged accumulations of wood thicker than 4 inches (NOT by living vegetation) is:		For this question, **do not consider herbaceous plants.** Consider only the wood that is at or above the water surface. Estimates of underwater wood based only on observations from terrestrial viewpoints are unreliable so should not be attempted. [AM, FA, FR, INV]
68			Little or none, or all water is shallower than 2 ft most of the year.	0	
69			Intermediate, e.g., 500 - 2500 cu. ft of instream wood per 1000 ft of channel.	0	

	A	B	C	D	E
70			Extensive: >8 pieces of wood per stream reach (reach= 10x channel width), or >2700 cu.ft of instream wood per 1000 ft of channel, or >10% of bank length is incised.	0	
71	F15	All Ponded Water - Extent	During most of the growing season, the percentage of the AA that has **ponded** surface water (stagnant, or flows so slowly that fine sediment is not held in suspension) which is **either open or shaded by emergent vegetation** is:		Nearly all wetlands with surface water have some ponded water. [AM, CS, FA, FR, INV, NR, OE, Sens, SR, SBM, WBF, WBN, WC, WS, WW]
72			<1% or none, or occupies <100 sq. ft cumulatively. Enter "1" and **SKIP to F19.**	0	
73			1-25% of the AA, and mainly in small fishless pools. **Enter "1" and SKIP to F19.**	1	
74			1-25% of the AA, and mainly in a single large pool or pond, with or without fish access.	0	
75			5-30% of the AA.	0	
76			30-70% of the AA.	0	
77			70-95% of the AA.	0	
78			>95% of the AA.	0	
79	F16	Open Ponded Water - Extent	The percentage of the ponded water that is **open** (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is:		**Open water** may have floating aquatic vegetation provided it does not usually extend above the water surface. [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC, WW]
80			<1% or none, or largest pool occupies <100 sq. ft. Enter "1" and **SKIP to F19.**	1	
81			1-5% of the ponded water. Enter "1" and **SKIP to F19.**	0	
82			5-30% of the ponded water.	0	
83			30-70% of the ponded water.	0	
84			70-99% of the ponded water.	0	
85			100% of the ponded water. **SKIP to F18.**	0	
86	F17	Emergent Vegetation - Distribution	During most of the growing season, the spatial pattern of herbaceous vegetation that has **surface** water beneath it (emergent vegetation – NOT floating-leaved plants) is mostly:		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]
87			scattered in small clumps, islands, or patches throughout the surface water area.	0	
88			intermediate	1	
89			clumped along the margin of the surface water area, or mostly surrounds a channel or central area of open water, or such vegetation covers <100 sq ft and <1% of the AA.	0	
90	F18	Floating Algae & Duckweed	At some time of the year, mats of algae and/or duckweed cover most of the AA's otherwise-unshaded water surface or blanket the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	0	[EC, PR, WBF]
91	F19	Ice Cover	Ice (not just snow) covers nearly all of the AA's water surface for more than 4 continuous weeks during most years, potentially altering the air water exchange. If true, enter "1" in next column. If untrue, enter "0".	0	Available data suggest this ranking from shortest to longest ice duration based on location: Ketchikan, Annette, Sitka, Little Port Walter, Juneau, Yakutat, Annex Creek. However, local factors such as elevation, water body depth, and flow velocity should be considered. [AM, CS, FR, NR, OE, PR, Sens, SFS, SR, WBF, WS]
92	F20	Stained Surface Water	Most surface water is tea-colored (from tannins, not iron bacteria), and/or its pH is usually <5.5. If surface water not observed, enter "1" if organic soil depth exceeds 6 inches and vegetation is mostly moss and/or evergreens.	0	[FR, OE, PR, WW]
93	F21	Isolated Island	The AA contains (or is part of) an island within a lake, pond, or river, and is isolated from the shore by **water depths >3 ft** on all sides during an average June. The island may be solid, or it may be a floating vegetation mat suitable for nesting waterbirds.	0	[WBN]
94	F22	Beaver	Use of the AA by beaver during the past 5 years is (select most applicable ONE):		[FA, FR, PH, SBM, Sens, WBF, WBN]
95			**evident** from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags).	0	
96			**likely** based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater wetland, pond, or lake, or a perennial low or mid-gradient (<10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in vegetated areas near surface water.	0	
97			**unlikely** because site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed. But beaver occur in the region (i.e., within 10 miles, or on same island).	1	
98			**none**. Beaver are absent from the region and/or the island.	0	
99	F23	Flowing Water - Extent	The percentage of the AA that has **flowing** water (flowing with enough force to keep sediment in suspension, and >1 inch deep and either open or shaded by emergent vegetation) **for >2 continuous weeks at the wettest time** of a typical year is:		
100			None. (Topographic maps also show no intersecting channels or floodplains. However, if the AA is entirely a lake or pond, enter a "1" regardless of whether maps show a channel intersecting it).	1	

	A	B	C	D	E
101			1-25% of the AA (topo maps show one or more channels). Their wetted width does not expand >2x their width at annual low flow, e.g., man strongly incised or headwater channels.	0	
102			1-25% of the AA, and in (or adjoining) one or more channels whose wetted width expands >2x their width at annual low flow. Typically not in headwaters. SEAK Hydro Process maps may show "Flood Plain" channel.	0	
103			5-30% of the AA.	0	
104			30-70% of the AA.	0	
105			70-95% of the AA.	0	
106			>95% of the AA.	0	
107	F24	Inflow	At least once annually, surface water moves into the AA from a tributary stream or ditch that is at least 300 ft long, or from a lake or river. Often shown as a channel on a topo map (consult the SEAK Hydro Streams layer of the WESPAK-SE web site). If true, enter 1 and continue. If false, enter 0 and **SKIP to F28.**	0	[NRv, PH, PRv, SRv]
108	F25	**Input** Water Temperature	Based on lack of shade upstream or source characteristics, the inflow is likely to be warmer than the AA's surface water during part of most years. Enter 1= yes, 0= no.	0	[WC, WWv]
109	F26	Input Stream Gradient	The gradient of the tributary with the largest inflow, averaged up to 300 ft from the AA (excluding any portion of the distance where water travels through a pipe) is:		Estimate gradient by dividing the elevation difference by horizontal distance over 300 ft. [PRv, SRv]
110			<1%	0	
111			1-5%	0	
112			5-30%	0	
113			>30%	0	
114	F27	Throughflow Complexity	During its travel through the AA at the time of peak annual flow, **most** of the flowing water [select ONE]:		[FA, FR, INV, NR, OE, PR, SR, WS]
115			Does not bump into plant stems. Nearly all the water travels in unvegetated (often incised) channels that have little contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.	0	
116			bumps into **herbaceous** vegetation and follows a fairly **straight** path from entrance to exit (branched channels few or none, meandering slight or none).	0	
117			bumps into **herbaceous** vegetation and follows a fairly **indirect** path from entrance to exit (meandering, multi-branched, or braided).	0	
118			bumps into **tree trunks and/or shrub stems** and follows a fairly **straight** path from entrance to exit (branched channels few or none, meandering slight or none).	1	
119			bumps into tree trunks and/or shrub stems and follows a fairly **indirect** path from entrance to exit (meandering, multi-branched, or braided).	0	

	A	B	C	D	E
120	F28	Outflow Duration	The **most persisten:** surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the**AA** and the closest off-site downslope water body is:		Path length is the length of a wetland measured in a straight line from inlet to outlet, or from highest to lowest elevation within the wetland (i.e., in the direction of predominant downhill surface flow) – see OF35. Consult the hydrography layer of the WESPAK-SE web site if uncertain if AA is intersected by or near a channel. A channel is defined as an observably incised landform that transports surface water in a downhill direction during some part of a normal year. A larger difference in elevation between the wetland-upland boundary and the bottom of the wetland outlet (if any) indicates shorter outflow duration. The frequencies given are only approximate and are for a "normal" year. The connection need not occur during the growing season.[CS, FA, FR, NR, OE, PR, Sens, SFS, SR, WC, WS, WWv]
121			persistent (>9 months/year); almost always shown on stream maps, or determine from your dry-season observation.	1	
122			seasonal (14 days to 9 months/year, not necessarily consecutive); sometimes shown on stream maps.	0	
123			temporary (<14 days, not necessarily consecutive); seldom shown on stream maps.	0	
124			none – but maps show a stream or other water body that is downslope from the AA and within a distance that is less than the AA's *path length* (see definition, OF35). If so, mark "1" here and **SKIP TO F30.**	0	
125			no surface water flows out of the wetland except possibly during extreme events (less than once per 10 years). Or, water flows only into a wetland, ditch, or lake that lacks an outlet. If so, mark "1" here and **SKIP TO F30.**	0	
126	F29	Outflow Confinement	During major runoff events, in the places where surface water in a channel exits the AA or connected waters nearby, it:		"Major runoff events" would include biennial high water caused by storms and/or rapid snowmelt. [CS, NR, OE, PR, Sens, SR, WS]
127			mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural topography) that does not appear to drain the wetland artificially during most of the growing season.	0	
128			leaves through natural exits, not mainly through artificial or temporary features.	1	
129			exported more quickly than usual due to ditches or pipes within the AA (or connected to its outlet or within 10 m of the AA's edge) which drain the wetland artificially, or water is pumped out of the AA.	0	
130	F30	Groundwater: Strength of Evidence	Select first applicable choice. In the AA:		Consult topographic maps to detect breaks in slope described here. Localized orange coloration associated with groundwater seeps may be most noticeable in ice formations along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv, SFS, WC, WS, WW]
131			(a) springs are observed, OR (b) water is markedly cooler in summer and warmer in winter (e.g., later ice formation) than in other wetlands nearby, OR (c) water level measurements from shallow wells, or high salinity/conductivity in undisturbed wetlands distant from potential marine influence, suggest substantial groundwater discharge to the AA.	1	
132			(a) the upper end of the AA is located very close to the base of (but mostly not ON) a natural slope much steeper (usually >15%) than that within the AA and longer than 300 ft, OR (b) rust deposits ("iron floc"), colored precipitates, or dispersible natural oil sheen are prevalent in the AA, OR (c) AA water is remarkably clear in contrast to naturally stained or glacially-clouded waters typical in nearby wetlands, OR (d) AA is located at a geologic fault.	0	
133			Neither of above is true, although some groundwater may discharge to or flow through the AA, or groundwater influx is unknown.	0	
134	F31	Woody Cover Extent	Within the entire vegetated part of the AA, the percentage occupied by **woody plants taller than 3 feet** (shrubs, trees) is:		Do not count trees or shrubs if they merely hang into the wetland. They must be **rooted in soils that are saturated** for several weeks of the growing season. The "vegetated part" should not include floating-leaved or submersed aquatics. [NR, WBF, WBN]
135			<5% of the vegetated AA, or there is no woody vegetation in the AA. **SKIP to F41.**	0	
136			5-25%.	0	
137			25-50%	0	
138			50-75%	0	
139			>75%	1	
140	F32	Tree & Tall Shrub Canopy Extent	Within the vegetated part of the AA, just the **trees** that are taller than 20 ft occupy:		Do not count trees if they merely hang into the wetland. They must be rooted in soils that are saturated for several weeks of the growing season. The "vegetated part" should not include floating-leaved or submersed aquatics. [PH, SBM, Sens]
141			<1% of the vegetated AA, or the AA lacks trees. Enter "1" and **SKIP to F37.**	0	
142			1-25% of the vegetated AA	0	
143			25-50% of the vegetated AA	0	
144			50-95% of the vegetated AA	1	
145			>95% of the vegetated part of the AA	0	
146	F33	Deciduous Trees	Within the vegetated part of the AA, just the **deciduous trees** that are taller than 20 ft occupy:		Do not count trees if they merely hang into the wetland. They must be rooted in soils that are saturated for several weeks of the growing season. The "vegetated part" should not include floating-leaved or submersed aquatics. [CS, OE, INV, SBM, PH]
147			<1% of the vegetated AA	0	
148			1-25% of the vegetated AA	1	
149			25-50% of the vegetated AA	0	
150			50-95% of the vegetated AA	0	
151			>95% of the vegetated part of the AA	0	
152	F34	Woody Diameter Classes	Mark all the classes of woody plants within the AA, but only IF they comprise **more than 5%** of the woody canopy within the AA. Do not count trees that adjoin but are not within the AA.		The trees and shrubs need not be wetland species. Measurements are the d.b.h., the diameter of the tree measured at 4.5 ft above the ground. [AM, CS, POL, SBM, Sens, WBN]

	A	B	C	D	E
153			evergreen 1-4" diameter and >3 ft tall	0	
154			deciduous 1-4" diameter and >3 ft tall	0	
155			evergreen 4-9" diameter	1	
156			deciduous 4-9" diameter	0	
157			evergreen 9-21" diameter	1	
158			deciduous 9-21" diameter	0	
159			evergreen >21" diameter	0	
160			deciduous >21" diameter	0	
161	F35	Snags	The number of large snags (**diameter >8"**) in the AA plus the area within 100 ft uphill of the closest upland to the wetland edge is:		Snags are standing trees at least 10 ft tall that are mainly without bark or foliage. [POL, SBM, WBN]
162			Several (>2/acre) and a pond or lake of at least 1 acre is within 1 mile.	0	
163			Several (>2/acre) but above not true.	1	
164			Few or none	0	
165	F36	Downed Wood	The number of downed wood pieces **longer than 6 ft** and with diameter **>6"**, and **not persistently submerged**, is:		Exclude temporary "burn piles." [AM, INV, POL, SBM]
166			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	1	
167			Few or none	0	

	A	B	C	D	E
168	F37	**Exposed** Shrub Canopy	Woody vegetation 3 to 20 ft tall that is not under the drip line of trees is:		The "vegetated part" may include moss, but it should not include floating-leaved or submersed aquatics. [AM, PH, SBM]
169			<5% of the vegetated AA and (if a fringe wetland) <5% of its water edge. Or <0.01 acre. **SKIP to F41.**	1	
170			5-25% of the vegetated AA or (if a fringe wetland) 5-25% of the water edge -- whichever is greater.	0	
171			25-50% of the vegetated AA or the water edge, whichever is greater.	0	
172			50-95% of the vegetated AA or the water edge, whichever is greater.	0	
173			>95% of the vegetated part of the AA or the water edge, whichever is greater.	0	
174	F38	Shrub Species Dominance	Determine which two native shrub species (3 to 20 ft tall) comprise the greatest portion of the native shrub cover. Then choose one:		[EC, PH, SBM, Sens]
175			those species together comprise **> 50%** of the areal cover of native shrub species.	0	
176			those species together do **not** comprise > 50% of the areal cover of native shrub species.	1	
177	F39	Woody-Herbaceous Interspersion	In "ducks-eye view", the distribution pattern of woody vegetation (including low shrubs) VS. unshaded herbaceous/moss vegetation within the AA is:		In larger forested wetlands, patchiness is best interpreted from aerial imagery. Images that show "coarse-grained" forests indicate presence of multiple age classes and/or numerous small openings, whereas those that show "fine-grained" forests suggest more even-aged, even-sized forest with little interspersion. [SBM, Sens]
178			(a) Woody cover and herbaceous/moss cover EACH comprise **30-70%** of the **vegetated part** of the AA, AND (b) There are many patches of woody vegetation scattered widely within herbaceous/moss vegetation, or many patches of herbaceous vegetation scattered widely within woody vegetation.	0	
179			(a) Woody cover and herbaceous/moss EACH comprise 30-70% of the vegetated AA, AND (b) There are few patches ("islands") of woody vegetation scattered widely within herbaceous vegetation, or few patches of herbaceous/moss vegetation ("gaps") scattered widely within woody vegetation.	0	
180			(a) Woody cover **OR** herbaceous/moss comprise **>70%** of the vegetated AA, AND (b) There are several patches of the other scattered within it. (e.g., forested AAs with patches – not limited to corridors -- of skunk cabbage, or muskeg with scattered shrubs).	0	
181			(a) Woody over OR herbaceous/moss comprise >70% of the vegetated AA, AND (b) The other is absent or is mostly in a single area or distinct zone with almost no intermixing of woody and unshaded herbaceous/moss vegetation.	1	
182	F40	Deciduous Shrubs	Woody vegetation in the 3 to 20 ft height class which is **deciduous** (e.g., blueberry, menziesia, alder) comprises:		Select only the first true statement. The trees or shrubs do not have to be wetland species, as long as they are in the AA or overhang its water. Deciduous shrubs are especially likely to occur on mineral soils with little moss ground cover, such as burns, clearcuts, landslides, avalanche paths, abandoned beaver flowages, areas of recent glacial rebound or deglaciation, heavily grazed or drained lands, and floodplains. [CS, INV, OE, PH, SBM]
183			<1% of the AA's vegetated area, or largest patch occupies less than 400 sq. ft	0	
184			1-25% of the vegetated area	1	
185			25-50% of the vegetated area	0	
186			50-75% of the vegetated area	0	
187			>75% of the vegetated area	0	
188	F41	N Fixers	The percent of the AA's shrub plus ground cover that is nitrogen-fixing plants (e.g., alder, sweetgale, arctic rush, lupine, clover, other		"Ground cover" includes both moss and herbaceous vegetation. Do not include N-fixing algae or lichens. Select only the first true statement. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
189			<1% or none	0	
190			1-25% of the shrub plus ground cover, in the AA or along its water edge (whichever has more).	1	
191			25-50% of the shrub plus ground cover, in the AA or along its water edge (whichever has more).	0	
192			50-75% of the shrub plus ground cover, in the AA or along its water edge (whichever has more).	0	
193			>75% of the shrub plus ground cover, in the AA or along its water edge (whichever has more).	0	
194	F42	Moss Extent	The cover of peat-forming moss is:		Exclude moss growing on trees or rocks. [CS, PH]
195			<5% of the vegetated ground cover.	1	
196			5-25% of the vegetated ground cover.	0	
197			25-50% of the vegetated ground cover.	0	
198			50-95% of the vegetated ground cover.	0	
199			>95% of the vegetated ground cover.	0	

	A	B	C	D	E
200	F43	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that lack surface water at some time of the year. Viewed from 6 inches above the soil surface, the condition in the part of that area that is most likely to be exposed to flowing water, runoff, or wind near the end of the growing season, or is otherwise more likely to erode (e.g., due to slope, land use practices) is:		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is present under a tree or shrub canopy should be counted. [AM, EC, INV, NR, OE, POL, PR, SBM, Sens, SR]
201			little or no (<5%) *bare ground* is visible between erect stems or under canopy and ground surface is extensively blanketed by moss, lichens, graminoids with great stem densities, or plants with ground-hugging foliage.	0	
202			Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded parts of the AA.	1	
203			Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise **more than** 5% of the unflooded parts of the AA.	0	
204			mostly (>50%) bare ground or ground covered only with thatch.	0	
205			Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	
206	F44	Ground Irregularity	Consider the parts of the AA that lack surface water at some time of the year. Excluding slash from logging, the number of small pits, raised mounds, hummocks, boulders, upturned trees, animal burrows, gullies, natural levees, wide soil cracks, and microdepressions is:		"Microtopography" refers mainly to the patchiness of vertical relief of >6 inches and is represented only by inorganic features, except where living plants have created depressions or mounds (hummocks) of soil. Do not count incised channels and other "macro" features. If parts of the AA are flat but others have substantial microtopography, base your answer on which condition predominates in the parts of the AA that lack persistent water. [AM, EC, INV, NR, PH, POL, PR, SBM, SR, WS]
207			Few or none (minimal microtopography; <1% of that area)	0	
208			Intermediate	0	
209			Several (extensive micro-topography)	1	
210	F45	Upland Inclusions	Within the AA, inclusions of upland that individually are >100 sq. ft. are:		Inclusions are slightly elevated "islands" or "pockets" dominated by upland vegetation and soils. Do not count as inclusions the elevated roots of trees or logs unless supported by a mound of mineral soil meeting the size threshold. Upland inclusions may sometimes be created by fill. [AM, NR, SBM]
211			Few or none	0	
212			Intermediate (1 - 10% of vegetated part of the AA).	0	
213			Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	1	
214	F46	Soil Texture	In **most** parts of the AA that lack persistent water, the texture of soil in the uppermost layer is: *[To determine this, use a trowel to check in at least 3 widely spaced locations, and use the soil texture key in Appendix C of the Manual. If organic, use shovel to dig down to 16" depth or until hitting mineral soil, whichever is first, then measure.]*		"Organic" includes muck, mucky peat, peat, and mucky mineral soils that comprise the "Oi" horizon. These soils are much less common in floodplains. Do not include duff (loose organic surface material, e.g., dead plant leaves and stems). If texture varies greatly, base your answer on which texture predominates in the parts of the AA that lack persistent water. [CS, NR, OE, PH, PR, Sens, SFS, WS]
215			Loamy: includes loam, sandy loam	0	
216			Fines: includes silt, glacial flour, clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam.	0	
217			Organic, from surface to within 4 inches of surface only. Exclude live roots unless from moss.	1	
218			Organic, from surface to within 16 inches of surface only. Exclude live roots unless from moss.	0	
219			Organic, from surface to greater than 16 inch depth. Exclude live roots unless from moss.	0	
220			Coarse: includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash.	0	
221	F47	Shorebird Feeding Habitats	Within the AA, the extent of mudflats, and/or non-acidic ponded areas shallower than 2 inches, and/or unwooded shortgrass areas that meet the definition of shorebird habitat (column E) is usually:		This addresses needs of many but not all migratory sandpipers, plovers, and related species. [WBF]
222			none, or <100 sq. ft within the AA.	1	
223			100-1000 sq. ft. within the AA.	0	
224			1000 – 10,000 sq. ft. within the AA.	0	
225			>10,000 sq. ft within the AA.	0	
226	F48	Largest Herbaceous Patch	The **area** of the largest patch of herbaceous vegetation (e.g., sedges, grasses, skunk cabbage, other forbs **–excluding mosses** and submerged and floating aquatics) **within** the AA is: *[Note: Do not include areas where the herbaceous canopy is so thin that moss is visible beneath it during the height of the growing season].*		0.1 acre is about 66 ft on a side if square. If the AA is smaller than the wetland within which it is located, extend the patch to include contiguous herbaceous vegetation in the same wetland (but a different AA) and revise the area estimate. Include herbaceous patches that are under a forest canopy as well as those visible in aerial imagery. [PH, SBM, Sens, WBF, WBN]
227			<0.1 acre. **SKIP to F54.**	1	
228			0.1 - 1 acre	0	
229			1 to 10 acres	0	
230			10 to 100 acres	0	
231			100 to 1000 acres	0	
232			>1000 acres	0	
233	F49	Unshaded Herbaceous Extent	As **visible in birds-eye view**, herbaceous vegetation (**excluding** mosses and submerged and floating aquatics) comprises:		"Birds-eye view" means vertical view from about 500 ft above the wetland surface, and thus excludes herbaceous vegetation hidden beneath a tree or shrub canopy. [WBF, WBN, POL]
234			<5% of the vegetated part of the AA. Mark "1" here and **SKIP to F54.**	0	

	A	B	C	D	E
235			5-25% of the vegetated AA	0	
236			25-50% of the vegetated AA	0	
237			50-95% of the vegetated AA	0	
238			>95% of the vegetated AA	0	
239	F50	Forb Cover	The percent of the vegetated ground cover that is **forbs** (e.g., skunk cabbage, buckbean, wildflowers) reaches an annual maximum of:		**forbs** = flowering non-woody vascular plants (excludes grasses, sedges, ferns, mosses). Exclude horsetail (*Equisetum*) even though technically it is a forb. [POL]
240			<5% of the vegetated ground cover	0	
241			5-25% of the vegetated ground cover	0	
242			25-50% of the vegetated ground cover	0	
243			50-95% of the vegetated ground cover	0	
244			>95% of the vegetated ground cover. **SKIP to F52.**	0	
245	F51	Sedge Cover	Sedges (*Carex* spp.) and/or cottongrass (*Eriophorum angustifolium*) occupy:		[CS]
246			<5% of the vegetated ground cover, or <0.01 acre	0	
247			5-50% of the vegetated ground cover	0	
248			50-95% of the vegetated ground cover	0	
249			>95% of the vegetated ground cover	0	

	A	B	C	D	E
250	F52	Herbaceous Species Dominance	Determine which two native herbaceous (forb, graminoid, fern) species comprise the greatest portion of the herbaceous cover that is unshaded by a woody canopy. Then choose one:		[EC, INV, PH, POL, Sens]
251			those species together comprise **> 50%** of the areal cover of **native** herbaceous plants at any time during the year.	0	
252			those species together do **not** comprise > 50% of the areal cover of native herbaceous plants at any time during the year.	0	
253	F53	Invasive & Non-native Cover	Invasive plants in this region may include (for example): creeping buttercup, reed canary grass, orange hawkweed, annual blue grass, timothy grass, Canadian thistle, field sow-thistle, Japanese knotweed, European mountain ash, white clover, alsike clover, others noted in PlantList worksheet (also in Table B-3 of the manual). The condition in the AA is:		[EC, PH, POL, Sens]
254			apparently no invasive species are present in the AA.	1	
255			Invasive species are present but comprise <5% of the herbaceous and <5% of the shrub cover.	0	
256			Invasive species comprise 5-20% of the herb or shrub cover.	0	
257			Invasive species comprise 20-50% of the herb or shrub cover.	0	
258			Invasive species comprise >50% of the herb or shrub cover.	0	
259	F54	Weed Source Along Upland Edge	Along the wetland-upland boundary, the percent of the upland edge (within 10 ft of wetland) that is occupied by plant species that are considered invasive is: (see list in above question, plus others in PlantList worksheet or Table B-3 of the manual)		If the wetland has no upland edge, or upland edge is <10% of wetland's perimeter, then answer for the portion of the upland closest to the wetland. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that invasive species cannot be identified, answer "none". [PH]
260			none of the upland edge (invasives apparently absent)	1	
261			some (but <5%) of the upland edge	0	
262			5-50% of the upland edge	0	
263			most (>50%) of the upland edge	0	
264	F55	Natural Cover in Buffer	Along the wetland-upland edge and extending 100 ft upslope, the percentage of the upland that contains **natural** (not necessarily native – see column E) land cover taller than 6 inches is:		**Natural land cover** includes wooded areas, peatlands, vegetated wetlands, and most other areas of perennial vegetation. It does not include water, glaciers, annual crops, residential areas, golf courses, recreational fields, fields mowed >1x per year, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It can include areas with invasive plants. If the AA does not adjoin upland, base your answer on the closest upland. [AM, FA, FR, INV, NRv, PH, PRv, SBM, Sens, SRv, WBN]
265			<5%	0	
266			5 to 30%	0	
267			30 to 60%	0	
268			60 to 90%	0	
269			>90%. **SKIP to F58.**	1	
270	F56	Type of Cover in Buffer	Within 100 ft upslope of the wetland-upland edge closest to the AA, the upland land cover that is NOT unmanaged vegetation or water is mostly (mark ONE):		[AM, FA, INV, NRv, PH, SBM, WBN]
271			impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
272			bare or nearly bare pervious surface or managed vegetation, e.g., lawn, mostly-unvegetated clearcut, landslide, unpaved road, dike.	0	

	A	B	C	D	E
273	F57	Slope from Disturbed Lands	The average percent slope of the land, measured from the AA's wetland-upland edge and extending uphill to the most extensive and/or closest **disturbance feature within 100 ft,** is:		**Disturbance feature** = building, paved area, recently cleared area, dirt road, lawn, annually-harvested row crops. Use judgment to decide if extent or proximity is more influential for a noted disturbance. If the AA is only part of a wetland and does not have an upland edge, evaluate this along the upland edge closest to the AA. Estimate slope by dividing the elevation difference (between the wetland and disturbed area) by their horizontal distance apart. [NRv, PRv, Sens, SRv]
274			<1% (flat -- almost no noticeable slope)	0	
275			2-5%	0	
276			5-30%	0	
277			>30%	0	
278	F58	Cliffs, Banks, Beaver, Muskrat	In the AA or within 300 ft, there are (a) muskrat houses or beaver lodges, or (b) mineral licks, or (c) elevated terrestrial features such as cliffs, talus slopes, stream banks, or excavated pits (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Enter 1 (yes) or 0 (no).	0	Do not include upturned trees as potential den sites. [POL, SBM]
279	F59	New Wetland	The AA is (or is within, or contains) a "new" wetland resulting from human actions (e.g., excavation, impoundment) or debris or lava flows, receding glacier, sea level rise, or other factors affecting what once was **upland (non-hydric) soil.**		Do not include wetlands created by beaver dams except for the part where flooding affected uplands (not just existing wetlands and streams). Determine this using historical aerial photography, old maps, soil maps, or permit files as available [CS, NR, OE, PH, PRv, Sens, SRv]
280			No	1	
281			yes, and most recently created, deglaciated, or uplifted 20 - 100 years ago	0	
282			yes, and most recently created, deglaciated, or uplifted 3-20 years ago	0	
283			yes, and most recently created, deglaciated, or uplifted within last 3 years	0	
284			yes, but time of origin unknown	0	
285			unknown if new within 20 years or not	0	
286	F60	Visibility	The maximum percent of the AA that is visible from the best vantage point on public roads, public parking lots, public buildings, or well-defined public trails that intersect, adjoin, or are within 300 ft of the wetland (select one) is:		[PU, WBFv]
287			<25%	1	
288			25-50%	0	
289			>50%	0	
290	F61	Ownership	Most of the AA is (se ect one):		In the online WESPAK Wetlands Module, generalized ownership category can be viewed but consult local tax maps if possible. [PU]
291			publicly owned **conservation** lands that exclude new timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles).	1	
292			publicly owned **resource use** lands (allowed activities such as timber harvest, mining, or intensive recreation), or unknown.	0	
293			owned by non-profit conservation organization or lease holder who allows public access.	0	
294			other private ownership, including Tribes.	0	
295	F62	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select **ALL** statements that are true of the AA as it currently exists:		Some trails, roads, and Interpretive centers are shown in the online WESPAK Wetlands Module. Enable the Recreation layer > Recreation Facilities. [PU]
296			Walking is physically possible in (not just near) >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets.	1	
297			Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed part of the year by boats arriving via contiguous waters.	1	
298			Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
299			The AA contains or adjoins a **public** boat dock or ramp, or is within 0.5 mile of a ferry terminal, airstrip, public lodge, campsite, snowmobile park, or picnic area.	0	

	A	B	C	D	E
300	F63	Core Area 1	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [*Note: Do not include visitors on trails outside of the AA unless more than half the wetland is visible from the trails and they are within 100 ft of the wetland edge. In that case add* ***only*** *the area occupied by the trail.*]		Include visits by foot, canoe, kayak, or any non-motorized mode. Judge this based on proximity to population centers, roads, trails, accessibility of the wetland to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. [AM, FAv, FRv, PH, PU, SBM, WBF, WBN]
301			<5% and no inhabited building is within 300 ft of the AA	0	
302			<5% and inhabited building is within 300 ft of the AA	0	
303			5-50% and no inhabited building is within 300 ft of the AA	0	
304			5-50% and inhabited building is within 300 ft of the AA	0	
305			50-95%	0	
306			>95% of the AA	1	
307	F64	Core Area 2	The percentage of the AA visited by humans almost daily for several weeks during an average growing season probably comprises: [*Note: Do not include visitors on trails outside of the AA unless more than half the wetland is visible from the trails and they are within 100 ft of the wetland edge. In that case add only the area occupied by the trail*].		Include visits by foot, canoe, kayak, or any non-motorized mode. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. [AM, PH, PU, SBM, WBF, WBN]
308			<5%. If F63 was answered ">95%", **SKIP to F67.**	1	
309			5-50%	0	
310			50-95%	0	
311			>95% of the AA	0	
312	F65	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on unfrozen soils within nearly all of the AA. Enter "1" if true.	0	[PH, PU]
313	F66	BMP - Wildlife Protection	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorized boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize disturbance of wildlife (except during hunting seasons). Enter "1" if true.	0	[AM, PU, WBF, WBN]
314	F67	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by certification groups. Evidence of these consumptive uses may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or might be obtained from communication with the land owner or manager. [FAv, FRv, PHv, Subsis, WBFv]
315			Low-impact commercial timber harvest (e.g., selective thinning)	0	
316			Commercial or subsistence-based harvesting of native plants or mushrooms	0	
317			Hunting	0	
318			Furbearer trapping	0	
319			Fishing	0	
320			None of the above	1	
321	F68	Domestic Wells	Wells or water bodies that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside a densely settled area). [NRv]
322			Within 500 ft	0	
323			500-1000 ft	0	
324			>1000 ft away, or none, or no information	1	

Stressor (S) Data Form for Non-Tidal Wetlands. WESPAK-SE version 2

Investigator: Site Name:
Date: Site Location:

S1

Wetter Water Regime - *Internal* Causes

In the last column, place a check mark next to any item that is likely to have caused a part of the wetland to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less). (The items you check are not used automatically in subsequent calculations. They are included simply so they may be considered when evaluating the factors in the table beneath them). [CS]

an impounding dam, dike, levee, weir, berm, road fill, or tidegate – within or downgradient from the wetland, or raising of outlet culvert elevation.	
excavation within the wetland, e.g., artificial pond, dead-end ditch	
excavation or reflooding of upland soils that adjoined the wetland, thus expanding the area of the wetland	
plugging of ditches or drain tile that otherwise would drain the wetland (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the wetland	
compaction (e.g., ruts) and/or subsidence of the wetland's substrate as a result of machinery, livestock, or off road vehicles	

If any items were checked above, then for each row of the table below, you may assign points (3, 2, or 1 as shown in header) in the last column. However, if you believe the checked items had no measurable effect in making any part of the AA wetter, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Spatial extent of resulting wetter condition	>95% of wetland or >95% of its upland edge (if any)	5-95% of wetland or 5-95% of its upland edge (if any)	<5% of wetland and <5% of its upland edge (if any)	0
When most of wetland's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the wetland that got wetter.				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
			Sum=	0
			Final Score=	0.00

S2

Wetter Water Regime - *External* Causes

*In the last column, place a check mark next to any item occurring in the wetland's **contributing area** (CA) that is likely to have caused a part of the wetland to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less).*

subsidies from stormwater, wastewater effluent, or septic system leakage	X
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the wetland	
removal of timber in the CA or along the wetland's tributaries	
removal of a water control structure or blockage in tributary upstream from the wetland	

If any items were checked above, then for each row of the table below, you may assign points (3, 2, or 1 as shown in header) in the last column. However, if you believe the checked items had no measurable effect in making any part of the AA wetter, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Spatial extent of resulting wetter condition	>20% of the wetland	5-20% of the wetland	<5% of the wetland	1
When most of wetland's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the wetland that got wetter.				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
			Sum=	2
			Final Score=	0.17

S3

Drier Water Regime - Internal Causes

In the last column, place a check mark next to any item located within or immediately adjacent to the wetland, that is likely to have caused a part of the wetland to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less).

ditches or drain tile in the wetland or along its edge that accelerate outflow from the wetland	
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage	
accelerated downcutting or channelization of an adjacent or internal channel (incised below the historical water table level)	
placement of fill material	
withdrawals (e.g., pumping) of natural surface or ground water directly out of the wetland (not its tributaries)	

If any items were checked above, then for each row of the table below, you may assign points in the last column. However, if you believe the checked items had no measurable effect in making any part of the AA drier, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Spatial extent of wetland's resulting drier condition	>95% of wetland or >95% of its upland edge (if any)	5-95% of wetland or 5-95% of its upland edge (if any)	<5% of wetland and <5% of its upland edge (if any)	0
When most of wetland's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the wetland that got drier.				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	6-12"	<6 inches	0
			Sum=	0
			Final Score=	0.00

S4

Drier Water Regime - External Causes

In the last column, place a check mark next to any item within the wetland's CA (including channels flowing into the wetland) that is likely to have caused a part of the wetland to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less).

a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the wetland	
relocation of natural tributaries whose water would otherwise reach the wetland	
instream water withdrawals from tributaries whose water would otherwise reach the wetland	
groundwater withdrawals that divert water that would otherwise reach the wetland	

If any items were checked above, then for each row of the table below assign points that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. However, if you believe the checked items had no measurable effect on the timing of water conditions in any part of the AA, then leave the "0's" for the scores in the following rows.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Spatial extent of wetland's resulting drier condition	>20% of the wetland	5-20% of the wetland	<5% of the wetland	0
When most of wetland's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the wetland that got drier.				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	1-12"	<1 inch	0
			Sum=	0
			Final Score=	0.00

S5

Altered Timing of Water Inputs

*In the last column, place a check mark next to any item that is likely to have caused the **timing** of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either **more muted** (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) **or more flashy** (larger or more frequent spikes but over shorter times). [FA, FR, INV, PH]*

flow regulation in tributaries or water level regulation in adjoining water body, orcontrol structure at water entry points that regulates inflow to the wetland	
snow storage areas that drain directly to the wetland	
increased pavement and other impervious surface in the CA	
straightening, ditching, dredging, and/or lining of tributary channels in the CA	

If any items were checked above, then for each row of the table below, you may assign points. However, if you believe the checked items had no measurable effect on the timing of water conditions in any part of the AA, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Spatial extent within the wetland of timing shift	>95% of wetland	5-95% of wetland	<5% of wetland	0
When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the wetland that experiences those.				
Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
			Sum=	0
			Final Score=	0.00

S6

Accelerated Inputs of Contaminants and/or Salts

In the last column, place a check mark next to any item -- occurring in either the wetland or its CA -- that is likely to have accelerated the inputs of contaminants or salts to the AA. [FA, NRv, PRv]

stormwater or wastewater effluent (including failing septic systems), landfills, industrial facilities	V
metals & chemical wastes from mining, shooting ranges, snow storage areas, oil/ gas extraction, other sources (see: http://map.dec.state.ak.us/apps/)	
oil or chemical spills (not just chronic inputs) from nearby roads	
spraying of pesticides, as applied to lawns, croplands, roadsides, or other areas in the CA	

If any items were checked above, then for each row of the table below, you may assign points. However, if you believe the checked items did not cumulatively expose the AA to significantly higher levels of contaminants and/or salts, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	active mine, mid-sized town, cropland	mildly impacting (reclaimed minie, low density residential)	1
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of the CA	2
			Sum=	4
			Final Score=	0.44

S7

Accelerated Inputs of Nutrients

In the last column, place a check mark next to any item -- occurring in either the wetland or its CA -- that is likely to have accelerated the inputs of nutrients to the wetland.

stormwater or wastewater effluent (including failing septic systems), landfills	V
fertilizers applied to lawns, ag lands, or other areas in the CA	V
livestock, dogs	
artificial drainage of upslope lands	

If any items were checked above, then for each row of the table below, you may assign points. However, if you believe the checked items did not cumulatively expose the AA to significantly more nutrients, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Type of loading	high density of unmaintained septic, some types of industrial sources	moderate density septic, cropland, secondary wastewater treatment plant	livestock, pets, low density residential	1
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of the CA	2
			Sum=	4
			Final Score=	0.44

S8

Excessive Sediment Loading *from Contributing Area*

In the last column, place a check mark next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the wetland from its CA. [FA, INV, SRv]

erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires	
erosion from construction, in-channel mach nery in the CA	
erosion from off-road vehicles in the CA	
erosion from livestock or foot traffic in the CA	
stormwater or wastewater effluent	V
sediment from road sanding, gravel mining, other mining, oil/ gas extraction	
accelerated channel downcutting or headcutting of tributaries due to altered land use	
other human-related disturbances within the CA	

If any items were checked above, then for each row of the table below, you may assign points (3, 2, or 1 as shown in header) in the last column. However, if you believe the checked items did not cumulatively add significantly more sediment or suspended solids to the AA, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	0
Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	0
Duration of sediment inputs to the wetland	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	0
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of the CA	2
			Sum=	2
			Final Score=	0.17

* **high**-intensity= extensive off-road vehicle use, plowing, grading, excavation, erosion with or without veg removal; **low**-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment

S9

Soil or Sediment Alteration *Within the Assessment Area*

In the last column, place a check mark next to any item present in the wetland that is likely to have compacted, eroded, or otherwise altered the wetland's soil. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less). [CS, INV, NR, PH]

compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods	
leveling or other grading not to the natural contour	
tillage, plowing (but excluding disking for enhancement of native plants)	
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland	
excavation	
ditch cleaning or dredging in or adjacent to the wetland	
boat traffic in or adjacent to the wetland and sufficient to cause shore erosion or stir bottom sediments	
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments	

If any items were checked above, then for each row of the table below, you may assign points. However, if you believe the checked items did not measurably alter the soil structure and/or topography, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Spatial extent of altered soil	>95% of wetland or >95% of its upland edge (if any)	5-95% of wetland or 5-95% of its upland edge (if any)	<5% of wetland and <5% of its upland edge (if any)	0
Recentness of significant soil alteration in wetland	current & ongoing	1-12 months ago	>1 yr ago	0
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	0
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	0
			Sum=	0

		Final Score=	0.00

Site Name or ID #:	035
Investigator Name:	Anne Leggett, Irina Lapina
Date of Field Assessment:	October 15, 2015
Nearest Town:	Ketchikan
Latitude (decimal degrees):	55.32784
Longitude (decimal degrees):	-131.61662
HUC12 Watershed # (from UAS web site):	190101020403
Approximate size of the Assessment Area (AA, in acres)	0.09
AA as percent of entire wetland (approx.)	100
Tidal phase during most of visit:	
What percent (approx.) of the **wetland** were you able to visit?	100
What percent (approx.) of the **AA** were you able to visit?	100
Have you attended a training session for this protocol? If so, indicate approximate month & year.	No
How many wetlands have you assessed previously using this protocol (approx.)?	0

Scores will appear below after data are entered in worksheets OF, F, and S. See Manual for definitions and descriptions of how scores were computed.

WESPAK-SE version 2 scores for this NON-tidal Wetland Assessment Area (AA):

Specific Functions or Values:	Function Score raw	Value Score raw	Function Score (normalized)	Function Rating	Value Score (normalized)	Value Rating	FV raw	FV Index	FV Index (normalized)	FUNCTION: Median of Normalized F Scores	FUNCTION: Thresholds for Function Rating (normalized score) Low is < or =	FUNCTION: Thresholds for Function Rating (normalized score) High is >	VALUE: Median of Normalized V Scores	VALUE: Thresholds for Value Rating (normalized score) Low is < or =	VALUE: Thresholds for Value Rating (normalized score) High is >
Surface Water Storage (WS)	2.15	0.00	1.09	Lower	0.00	Lower	0.55	1.09	0.00	2.95	2.89	6.34	3.06	1.85	5.00
Stream Flow Support (SFS)	5.50	1.23	6.60	Higher	1.85	Moderate	4.22	6.60	6.60	3.17	2.67	6.13	3.33	1.45	4.48
Streamwater Cooling (WC)	6.87	3.00	6.87	Higher	3.96	Moderate	5.41	6.87	6.64	4.00	3.36	5.87	1.98	2.11	5.49
Streamwater Warming (WW)	5.42	3.59	5.42	Moderate	6.68	Higher	6.05	6.05	5.29	5.42	3.33	6.80	2.78	2.78	6.63
Sediment & Toxicant Retention & Stabilization (SR)	3.38	10.00	1.58	Lower	10.00	Higher	5.79	5.79	5.90	3.13	3.36	6.52	0.84	2.05	5.86
Phosphorus Retention (PR)	3.89	4.44	0.85	Lower	6.44	Higher	3.65	3.65	3.13	3.34	3.06	6.17	1.27	2.45	5.73
Nitrate Removal & Retention (NR)	4.48	3.33	1.51	Lower	3.54	Moderate	2.53	2.53	2.53	2.33	2.19	4.64	3.25	2.17	4.94
Carbon Sequestration (CS)	5.73		3.20	Lower			3.20	3.20	3.20	6.53	3.66	6.43			
Organic Nutrient Export (OE)	7.24	6.67	10.46	Higher	6.71	Moderate	8.59	10.46	10.00	7.68	0.00	7.59	7.00	0.00	7.00
Anadromous Fish Habitat (FA)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	0.00	2.93	7.23	0.00	0.63	6.67
Resident & Other Fish Habitat (FR)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	0.00	0.00	7.43	0.00	1.50	7.76
Aquatic Invertebrate Habitat (INV)	4.91	2.11	4.27	Moderate	0.53	Lower	2.40	4.27	4.27	3.92	2.48	5.04	2.22	2.50	6.43
Amphibian Habitat (AM)	5.14	3.75	3.41	Lower	3.16	Moderate	3.29	3.41	2.55	4.40	3.59	6.74	4.21	2.43	5.19
Waterbird Feeding Habitat (WBF)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	4.60	0.00	5.68	2.53	0.85	4.07

Waterbird Nesting Habitat (WBN)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	4.58	0.00	6.44	6.90	1.67	8.70
Songbird, Raptor, & Mammal Habitat (SBM)	7.50	2.50	9.25	Higher	2.50	Lower	5.88	9.25	9.22	8.05	0.00	7.35	4.22	2.50	5.63
Pollinator Habitat (POL)	5.00	2.80	7.07	Higher	3.75	Moderate	5.41	7.07	6.87	4.94	2.45	5.38	4.15	2.65	5.83
Native Plant Habitat (PH)	6.36	4.20	8.27	Higher	2.28	Lower	5.27	8.27	8.31	5.24	4.52	6.51	3.78	3.78	6.46
Other Values or Attributes:															
Public Use & Recognition (PU)		3.75			5.34	Moderate	5.34	5.34	5.34				2.91	2.32	5.59
Subsistence & Provisioning Services (Subsis)		0.00			0.00	Lower	0.00	0.00	0.00				5.00	0.00	6.67
Wetland Sensitivity (Sens) - *not used in subsequent calculations*		3.35			2.87	Lower	2.87	2.87	1.21				5.91	5.03	7.46
Wetland Ecological Condition (EC) - *not used in subsequent calculations*		8.94			9.42	Higher	9.42	9.42	9.91				4.15	2.79	5.08
Stress Potential (STR) - *not used in subsequent calculations*		5.12			7.80	Higher	7.80	7.80	10.00				6.43	3.31	5.73
Summary Scores for Groups:								Group Score Not Normalized	Group Score Normalized	Group Rating					
HYDROLOGIC Group (WS)								0.00	0.00	Lower	3.08	5.91			
WATER QUALITY Group (max+avg/2 of SR, PR, NR, CS)								4.80	2.93	Lower	4.23	6.75			
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC, WW)								8.28	7.44	Higher	4.07	6.60			
FISH Group (max+avg/2 of FA, FR)								0.00	0.00	Lower	2.52	5.83			
AQUATIC HABITAT Group (max+avg/2 of AM, WBF, WBN)								1.70	0.00	Lower	4.04	6.82			
TERRESTRIAL HABITAT Group (max+avg/2 of SBM, PH, POL)								8.67	8.23	Higher	3.61	6.32			
SOCIAL GROUP (max+avg/2 of PU, Subsis)								5.34	5.89	Moderate	3.66	6.58			

Overall Score (see Manual for explanation of how the spreadsheet calculates it):	5.13
Overall Rating:	Moderate

AVG w/o Social	with Social	selected higher	normalized
5.67	5.87	5.87	5.13

	A	B	C	D	E
1	**Data Form OF (Office) for Non-tidal Wetlands. WESPAK-SE version 2.0.** Funded in part with qualified Outer Continental Shelf oil and gas revenues by the Coastal Impact Assistance Program, U.S. Fish & Wildlife Service.				**Site Name: 024**
2	DIRECTIONS: Conduct an assessment only after reading the accompanying Manual and explanations in column E below. Except where instructed otherwise, in the Data column change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this office data form requires 1-2 hours per site. For a listing of functions to which each question pertains, see bracketed codes in column E. For detailed descriptions of each WESPAK-SE model, see Appendix F of the accompanying Manual. Codes for functions and values are: WS= Water Storage, SFS= Stream Flow Support, WC= Water Cooling, WW= Water Warming, SR= Sediment Retention, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Export, INV= Invertebrates, FA= Anadromous Fish, FR= Resident Fish, AM= Amphibians, WBF= Feeding Waterbirds, WBN= Nesting Waterbirds, SBM= Songbirds, Mammals, & Raptors, POL= Pollinators, PH= Plant Habitat, PU= Public Use & Recognition, Subsis= Subsistence, EC=				**Site Location:** Saxman **Investigator:** Anne Leggett, Irina Lapina **Date:** October 15, 2015 **Site Notes: wetland within roadside ditch. Two streams flow into this wetland. Many seeps dripping into ditch. Probably also intercepts groundwater because located at the toeslope, and surface runoff from highway.**
3	**#**	**Indicator**	**Condition Choices**		**Explanations, Definitions**
4	OF1	Distance by Road to Nearest Population Center	Measured along the maintained road or boat landing that is nearest the AA, the distance to the nearest **population center** is:		"Population center" means a settled area with more than about 50 year-round residents per square mile. [FAv, FRv, NRv, WBFv, PH, PU, SBM, Subsis]
5			<0.5 mile	1	
6			0.5 - 2 miles	0	
7			2-5 miles	0	
8			5-10 miles	0	
9			>10 miles	0	
10	OF2	Wildlife Access	Draw a circle of **radius of 0.5 mile** from the center of the AA. If mammals and amphibians can move from the center of the AA to all other separate wetlands located within the circle without being forced to cross maintained roads (any width), lawns, bare ground, marine waters, and/or steep (>30%) slopes, mark 1= yes can move, or no other wetlands within that distance, or 0= no.	0	Many roads are mapped in the online WESPAK-SE Wetlands Module: http://seakgis.alaska.edu/flex/wetlands/ The route to other wetlands need not be direct – it may be circuitous to avoid the barrier, as long as the travel route remains entirely within the circle. [AM, SBM]
11	OF3	Distance to Nearest Maintained Road	From the **center** of the AA, the distance to the nearest maintained public road (dirt or paved) is:		Many roads are mapped in the online WESPAK-SE Wetlands Module: http://seakgis.alaska.edu/flex/wetlands/ [FAv, FRv, AM, PH, PU, SBM, WBN]
12			<100 ft	1	
13			100-500 ft	0	
14			500-1000 ft	0	
15			1000 ft - 0.5 mile	0	
16			0.5- 1 mile	0	
17			>1 mile	0	

	A	B	C	D	E
18	OF4	Distance to Natural Land Cover	The minimum distance from the AA **edge** to the edge of the closest patch or corridor of ***natural*** (but not necessarily native– see definition on right) land cover **larger than 100 acres**, is:		Natural land cover includes wooded areas, peatlands, vegetated wetlands, and most other areas of perennial cover. It includes low-intensity timber harvest areas and clearcuts harvested more than 10 years ago. It does not include water, glaciers, annual crops, residential areas, golf courses, recreational fields, fields mowed >1x per year, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It can include areas dominated by non-native plants if they provide perennial cover. Aerial imagery and land cover maps contained in the online WESPAK-SE Wetlands Module should be examined to answer this, and preferably should be verified during a site visit. Do not include parts of the natural cover patch or corridor that are narrower than 150 ft. [AM, SBM, Sens]
19			<150 ft. Or the AA itself contains >100 acres of vegetation.	0	
20			<150 ft, but completely separated from the 100-acre natural area**by any width** of roads, stretches of open water, bare ground, lawn, or impervious surface, AND the AA does not contain >100 acres of vegetation.	0	
21			150-300 ft, with or without interrupting features	1	
22			300-1000 ft, with or without interrupting features	0	
23			none of the above	0	
24	OF5	Size of Largest Nearby Tract or Corridor of Natural Land Cover	**Including the AA's vegetated area**, the largest patch or corridor that is **natural land cover** and is **contiguous with** vegetation in the AA (i.e., not completely separated by highways or channels that are uniformly wider than 150 ft), occupies:		View aerial imagery. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a linear gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. Land cover maps contained in the online WESPAK-SE Wetlands Module may be examined to answer this, and to use its measure tool to determine acreage. [AM, SBM, Sens, WBN]
25			<1 acre, or larger but with average width <150 ft	0	
26			1-10 acres	0	
27			10-100 acres	0	
28			100-1000 acres	0	
29			>1000 acres	1	
30	OF6	Natural Land Cover Extent	Within a **2-mile** radius measured from the **center** of the AA, the percent of the **land** that has natural land cover (see definition above) is:		Aerial imagery and land cover maps contained in the online WESPAK-SE Wetlands Module should be examined to answer this. [AM, SBM]
31			<5% of the land (excluding ocean and bay)	0	
32			5 to 20% of the land	0	
33			20 to 60% of the land	0	
34			60 to 90% of the land	1	
35			>90% of the land. **SKIP to OF8.**	0	
36	OF7	Type of Land Cover Alteration	Within a **2-mile** radius measured from the **center** of the AA, the area that is **not** natural land cover or water is mostly:		[AM, SBM]
37			impervious surface, e.g., paved road, parking lot, building, exposed rock.	1	
38			bare pervious surface, e.g., recent (5 yrs ago) clearcut, dirt or gravel road, plowed fields, landslide.	0	
39	OF8	Wetland Local Uniqueness	Refer to the online Wetlands Module> Land Classification Level 3. In the list below, enter a "1" next to all land cover types that are mapped as being intersected by the AA, **or** a "2" next to ones which (a) are present in the AA and (b) ALSO comprise **less than 10%** of the landscape outside of the AA but within 2 miles.		Aerial imagery should be examined to help answer this, and land cover maps contained in the online WESPAK-SE Wetlands Module may also be helpful, but should be verified during a site visit: [AMv, INVv, PHv, SBMv, POL, Sens]
40			Fresh Water	0	
41			Wetland	0	
42			Muskeg	0	
43			Herbaceous	0	
44			Shrubland (Low)	0	
45			Shrubland (Tall)	0	
46			Deciduous/Mixed Forest	0	
47			Conifer Forest - Young or Small	0	
48			Conifer Forest - Medium	0	
49			Conifer Forest - Large	0	
50			Wetland Shrub Forest	0	
51			other	0	
52			no Level 3 cover type maps available for this area, but from aerial imagery it appears that the AA contains a cover type (list above) that is absent from 90% of the landscape outside of the AA and within 2 miles. Enter "2" in the next column.	0	
53			no Level 3 cover type maps available for this area, but from aerial imagery it appears that the AA does NOT contain a cover type that is absent from 90% of the landscape outside of the AA and within 2 miles. Enter "1" in the next column.	0	
54	OF9	Distance to Locally Uncommon Cover Type	If any of the above were marked "2", the distance from the AA edge to the closest one that was so marked is:		[INVv, AMv, SBMv, POLv, PHv, Sens]
55			<150 ft	0	

	A	B	C	D	E
56			150 - 500 ft	0	
57			500 - 1000 ft	0	
58			1000 ft - 1 mile	0	
59			1-2 miles	0	
60			none of the above land cover classes were marked "2"	1	
61	OF10	Ponded Water in Landscape	Draw a circle of radius of **2 miles** centered on the AA. **Including** water ponded in the AA itself or in a fringing non-marine water body, the amount of water that is ponded (standing) during most of the year is:		**Ponded water** = any surface water greater than 1 acre that is not obviously part of a river, stream, or tidal system. In the online WESPAK-SE Wetlands Module, enable the Land Classification Level 1 layer and look for blue polygons. Also include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. [AM, PH, SBM, Sens, WBF, WBN]
62			0	1	
63			1 or 2	0	
64			3 to 6	0	
65			7 to 9	0	
66			10 to 12	0	
67			>12	0	
68	OF11	Ponded Water Proximity	The distance from the AA **edge** to the closest pond or lake that is **larger than 1 acre** and is **not** part of the same wetland, pond, or lake to which the AA is contiguous is:		"Uninterrupted" means no roads, other unvegetated lands, or lawns – regardless of their width. "Natural" land corridor means a corridor comprised of natural land cover as defined in OF4 above. To locate ponded waters, in the online WESPAK-SE Wetlands Module, enable the Land Classification Level 1 layer and look for blue polygons. If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. [AM, PH, SBM, Sens, WBF, WBN]
69			<300 ft, and connected with a natural land corridor	0	
70			<300 ft, but no uninterrupted natural land corridor	0	
71			300-1000 ft, and connected with a natural land corridor	0	
72			300-1000 ft, but no uninterrupted natural land corridor	0	
73			>1000 ft, and connected with a natural land corridor	0	
74			>1000 ft, but no uninterrupted natural land corridor	1	
75	OF12	Distance to Lake	The distance from the AA edge to the closest (but separate) **lake** (a non-tidal body of water that is ponded during most of the year and is **larger than 20 acres** or about 1000 ft on a side) during most of a normal year is:		In the online WESPAK-SE Wetlands Module, enable the Land Classification Level 1 layer and look for blue polygons larger than 20 acres. If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. [Sens, WBF, WBN]
76			<1 mile	0	
77			1-5 miles	1	
78			>5 miles and on the mainland or the same island	0	
79			>5 miles and on a different island	0	
80	OF13	Tidal Proximity	The distance from the AA edge to the closest **tidal water** body is:		[AM, FA, FR, INV, NR, OEv, PH, PR, PU, SBM, Sens, SR, Subsis, WBF, WBN, WS, WWv]
81			<300 ft	1	
82			300-1000 ft	0	
83			1000 ft - 1 mile	0	
84			1-5 miles	0	
85			>5 miles	0	

	A	B	C	D	E
86	OF14	Upland Edge Contact	Select one:		"other wetland" could be contiguous wetland that is classified differently by NWI, or the same wetland but will be unaffected by proposed alteration. [NR, SBM, Sens]
87			The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by other wetland or water.	0	
88			1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is mostly wider than the AA.	0	
89			25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	
90			50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	
91			More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly wider than the AA.	1	
92	OF15	Floodable Property	From floodplain maps, topographic maps, aerial imagery, and/or contacts with FEMA and public works departments, determine IF: downslope from the AA and within 2 miles, structures are within a mapped 100-year floodplain or flood damage to structures has been documented, and BOTH the following are true: (a) The downslope flood damages were (or would be) caused mainly by rising river levels associated with precipitation and snow or glacier melt, not by high tides, hillslope runoff, or sudden icefalls AND (b) Between the AA and the downslope damage area, peak flow in a connecting channel (if any) is NOT regulated by dams. If true, enter "1" in next column. If false, enter "0".	0	Ketchikan and perhaps a few other communities have maps showing the 100-year probability floodplain. Although not comprehensive, see also the online WESPAK-SE Wetlands Module: **SEAK Hydro Process** classified as "Flood Plain" channel. [WSv]
93	OF16	Glacier Fed	Refer to the Glaciers map in the online WESPAK-SE Wetlands Module. Select the first applicable choice:		[AM, FA, FR, INV, OEv, PRv, SFSv, SRv, WCv, WSv, WWv]
94			No upstream glacier feeds **surface** water to the AA, not even seasonally.	1	
95			A glacier feeds streamflow or other surface water to the AA and it obviously reduces water clarity. If that is unknown, assume it to be true if a glacier within 1 mile feeds a tributary to this wetland, or if glaciers cover >30% of the area that drains to this AA.	0	
96			A glacier feeds streamflow or other surface water to the AA, but there is little or no resultant reduction in water clarity.	0	
97	OF17	Fish Access or Use	Refer to the map in the online WESPAK-SE Wetlands Module: **Habitat Layers > Anadromous Waters Catalog**, and preferably verify by contacting a local ADFG biologist. Mark just the first choice that is true. The AA:		Streams with average gradients (measured over about a dozen feet) of more than 12%, can be assumed to be inaccessible to most fish unless data show otherwise. [AM, FA, FR, INV, NRv, PRv, Subsis, WBF, WBN]
98			a) is known to support **anadromous fish** feeding and/or spawning (some ADFG Class 1 streams).	0	
99			b) is probably accessible to anadromous and other fish (at least seasonally, at least for feeding, partially or entirely), but anadromous fish have not been **documented** (some Class 1 streams).	0	
100			c) is not accessible to anadromous fish, but other resident fish are known (or can be assumed) present (Class 2).	0	
101			d) is fishless (i.e., not accessible to anadromous fish and is known or can be assumed to have no resident fish). (Class 3, 4)	1	
102			e) fish presence and potential fish access are unknown and undeterminable.	0	
103	OF18	Designated IBA	See list in last column. Then if necessary refer to the map in the online WESPAK-SE Wetlands Module: Habitat Layers >**Important Bird Areas** (IBAs). The AA is within or contains part of an IBA. Enter 1= yes, 0= no.	0	Mendenhall Wetlands (Juneau), Berners Bay (Juneau), Port Snettisham (Juneau), Blacksand Spit (Yakutat), Icy Bay (Yakutat), Chilkat Bald Eagle Preserve (Haines), St. Lazaria Island (Sitka), Forrester Island (Prince of Wales-Outer Ketchikan), Stikine River Delta (Wrangell-Petersburg). [SBMv, WBFv, WBNv]
104	OF19	Deer Winter Habitat Capability	Refer to the map in the online WESPAK-SE Wetlands Module: **Habitat Layers > Deer Winter Habitat Suitability Value**. Enter 3 if Very High; 2 if High; 1 if Moderate; 0= Lower or all other.	0	The rating, assigned by the 2007 Southeast Alaska Conservation Assessment, assumes areas at lower elevations with more southerly exposures, and with a forest canopy that provides snow interception and thermal cover, constitute good habitat for deer during potentially limiting periods of severe winter weather. [SBM, Subsis]
105	OF20	Precipitation, Mean Annual	Refer to the Precipitation layer in the online WESPAK-SE Wetlands Module. The mean annual precipitation in the vicinity of the AA was modeled as (rounded to the nearest whole number):		The category breaks are based on the 10, 25, 50, 75, and 90th percentiles of modeled data for grid cells covering Southeast Alaska. The modeled data are from the Oregon State University PRISM Climate Group and are based on the climate normals for the period 1981-2010, as well as elevation and latitude. [SFSv, OE]
106			<67 inches	0	
107			67-87 inches	0	
108			88-112 inches	0	
109			113-139 inches	0	
110			140-165 inches	1	
111			>165 inches	0	
112			no information available	0	
113	OF21	Temperature, Mean Annual	Refer to the Temperature layer in the online WESPAK-SE Wetlands Module. The mean annual temperature in the vicinity of the AA was modeled as (rounded to the nearest whole number):		The category breaks are based on the 10, 25, 50, 75, and 90th percentiles of modeled data for grid cells covering Southeast Alaska. The modeled data are from the Oregon State University PRISM Climate Group and are based on the climate normals for the period 1981-2010, as well as elevation and latitude. [AM, CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WC, WS, WWv]
114			<38 degrees F	0	
115			38-40 degrees F	0	

	A	B	C	D	E
116			41-42 degrees F	0	
117			43-44 degrees F	0	
118			> 44 degrees F	1	
119			no information available	0	
120	OF22	Basic pH or Karst	The AA (a) is in a **karst** area as shown in the in the online WESPAK-SE Wetlands Module, or (b) has surface water that during most of the growing season has pH measured at >7.5 or CaCO3 alkalinity >100 mg/L, or (c) is known to be underlain by limestone bedrock with a very high (>70%) calcium carbonate content. Enter 1= yes, 0= no.	0	In karst landscapes, the bedrock is likely to have many subsurface cracks, channels, caves, and sinkholes, and presence of karst is suggested by prevalence of certain plants (e.g., maidenhair and holly ferns (*Adiantum pedatum, Polystichum braunii*), purple mountain saxifrage (*Saxifraga oppositifolia*), columbine (*Aquilegia formosa*). [AM, FA, FR, INV, OE, PH]
121	OF23	Granitic Soils	Refer to the map in the online WESPAK-SE Wetlands Module: Geology> **Granitic Geology**. The AA is underlain primarily by granitic formations or glacial till that is known to be granitic, as indicated by maps or preferably from direct observation. Enter 1= yes, 0= no.	0	If deep glacial till overlays the granitic bedrock it can obscure its effects. [FR, INV, OE, PH]
122	OF24	Upslope Soil Erodibility & Debris Flow Potential	A stream channel or upland within 200 ft upslope from the AA has been classified by the Forest Service, USDA, or other specialists as highly erodible, unstable, or a landslide hazard. Or, there is documentation of landslides, debris flows, or severe erosion above the AA within the past 20 years.		Base this on observations or (for most of the Tongass N.F. and adjoining private lands) consult the online WESPAK-SE Wetlands Module: Geology> Landslides. Consider steep upslope areas with shallow depth to bedrock and/or dominated by alder to be likely zones of past and possibly future erosion. [PH, PRv, Sens, SRv]
123			yes, and such conditions or classifications intersect the AA.	0	
124			yes, but the conditions or classifications do not reach or intersect the AA.	0	
125			no, or no information but very unlikely that AA is intersected by highly erodible lands or landslides	1	
126			no information	0	

	A	B	C	D	E
127	OF25	Toxicity Documented Upstream	In the online WESPAK-SE Wetlands Module, see **Impaired Waters (DEC)** and **Contaminated Sites (Active)**. Do those maps show a problem within the AA or in waters flowing **into** it, and the problem is that **metals, hydrocarbons**, or other substances in the sediment, water, or tissues are at levels known to be harmful to aquatic life or humans? Or, other sampling has identified such a problem? Select the **first** true statement. These conditions are present:		Check to be sure the problem is related to metals, hydrocarbons, other toxic substances – NOT to sediment, turbidity, TSS, bacteria, oxygen, or temperature: in the Wetlands Module, use the Identify tool to click on the line segment or area and scroll through all the text in the pop-up window to see the type of problem. If no quality-controlled sampling has been done, then a statement or rating documenting the problem and published in a recent agency report or official correspondence may be counted. Also, if time allows, query and retrieve water quality data from: http://www.waterqualitydata.us/ Do not speculate or infer toxic conditions from presence of potential pollution sources. The water quality problem must be ongoing, not only historical. [AM, FA, FR, SRv, STR, WBF, WBN]
128			within the AA	0	
129			in waters within 1 mile that flow **into** the AA.	0	
130			Sampling (not just absence of map symbols) indicates no problems.	0	
131			insufficient data (no map symbols & no sampling, or >1 mile upstream).	1	
132	OF26	Toxicity Documented Downstream	The Impaired Waters (DEC) and Contaminated Sites (Active) maps show such a problem within the AA or in waters **downslope from** the AA. Or, other sampling has identified such a problem downslope. Select the **first** true statement. These conditions are present:		See above. [SRv]
133			within 1 mile downslope, and connected to the AA by a channel	0	
134			within 1 mile downslope, but not connected to the AA by a channel	0	
135			sampling (not just absence of map symbols) indicates no problems	1	
136			insufficient data (no map symbols & no sampling, or >1 mile downslope)	0	
137	OF27	Drinking Water Source	Refer to the **Drinking Water Protection Areas** layer of the online WESPAK-SE Wetlands Module. Mark all that are true for the AA:		[NRv]
138			Zone A Ground Water	0	
139			Zone B Ground Water	0	
140			Zone A Surface Water	0	
141			Zone B Surface Water	0	
142			Zone C Surface Water	0	
143			Zone E Ground Water Surface Water Influence	0	
144			Zone F Ground Water Surface Water Influence	0	
145			Zone G Ground Water Surface Water Influence	0	
146			None of above	1	

	A	B	C	D	E
147	OF28	Elevation in Multi-scale Watersheds	In the CoverPg worksheet, write down the specific 12-digit HUC watershed in which the AA is located and the AA's elevation (obtained from GPS or a topographic map). Get this by referring to the map in the online WESPAK-SE Wetlands Module: **National Hydrography Dataset> Watershed Boundary Dataset**. Then in the **ShedData worksheet** (tab below) look up the AA's HUC codes and their cut-offs for upper, middle, and lower or e-third elevations, and determine to which one-third the AA belongs, in each row below:		[AM, CS, FA, FR, NR, OEv, PH, PR, PU, SBM, Sens, SFSv, SR, Subsis, WBF, WC, WS, WWv]
148			In its HUC8 (the watershed with a 12-digit code), the AA's elevation puts it in (enter one of the following): 3= upper one-third, 2= middle one-third, 1= lower one-third, 0= no data.	1	
149			In its HUC7 (the 10-digit* watershed), the AA's elevation puts it in (enter one of the following): 3= upper one-third, 2= middle one-third, 1= lower one-third, 0= no data. [The 10-digit HUC is obtained by deleting the last 2 digits of the 12-digit HUC code]	1	
150			In its HUC6 (the 8-digit* watershed) the AA's elevation puts it in (enter one of the following): 3= upper one-third, 2= middle one-third, 1= lower one-third, 0= no data. [The 8-digit HUC is obtained by deleting the last 4 digits of the 12-digit HUC code]	1	
151	OF29	Wetland Class Scarcity in HUC6	From your observations, note if the AA would be classified as predominantly Forest/Shrub, Moss/Emergent, or Water. Then, find your 12-digit HUC in column M of the **ShedData worksheet**. Select column N, O, or P of that worksheet (whichever represents the cover type you decided predominates in your AA) and enter its value in the cell to the right. If your HUC is not listed in the ShedData table, change the cell on the right to **blank** -->		Wetlands that are of a type that is scarcer within their HUC12 watershed (indicated by a higher score here) are considered to be of greater value (not necessarily function) for several biological groups. [AMv, PHv, POLv, SBMv, Sens, WBFv, WBNv]
152	OF30	Contributing Area (CA) Percent	On a topographic map, draw the approximate bounds of this AA's **contributing area** (*see Manual*). Relative to the extent of this contributing area (CA), the AA comprises:		The CA is basically the upslope area that has the potential to deliver water to the wetland, and is a subset of the watershed. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upriver lands that feed that flooding river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area – not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. [NR, PR, Sens, SR, WSv]
153			<1% of its CA (including but not limited to most wetlands flooded annually by a major river, many in karst landscapes, and most that have multiple tributaries).	1	
154			1 to 10% of its CA	0	
155			10 to 100% of its CA.	0	
156			Wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated. **SKIP TO OF34.**	0	
157	OF31	Unvegetated Surface in the Contributing Area	The proportion of the AA's contributing area (measured to no more than 1000 ft upslope) that is comprised of buildings, roads, parking lots, other pavement, exposed bedrock, debris flows, and other mostly-bare (but unfrozen) surface is about :		[FA, INV, NRv, PRv, SRv, WC, WSv, WWv]
158			<10%	0	
159			10 to 25%	1	
160			>25%	0	
161	OF32	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) input channels have been straightened, (c) upslope wetlands have been ditched extensively, (d) land cover is mostly non-forest, (e) CA slopes are steep, and/or (f) most CA soils are shallow and/or have high runoff coefficients. **This statement is:**		[NRv, PRv, SRv, WSv]
162			Mostly true	0	
163			Somewhat true	1	
164			Mostly untrue	0	
165	OF33	Aspect	The overland flow direction of most surface water (in streams or runoff) that enters the AA is:		If there are no inflowing streams: In what direction does most runoff or groundwater flow as it moves through this AA? If necessary consider the Aspect 20m map in the online WESPAK-SE Wetlands Module. [AM, NR, PH, POL, SFS, WC, WS, WWv]
166			Northward (N, NE). north-facing CA.	0	
167			Southward (S, SW). south-facing CA.	1	
168			other (E, SE, W, NW), or no detectable uphill slope or input channel (flat)	0	
169	OF34	Internal Gradient	The gradient along most of the flow path within the AA is:		For larger wetlands, go to the online Wetlands Module, click on Topographic for Basemap, zoom in closely until you see numbers on the contour lines. Measure a line drawn from highest to lowest elevation along the part of the wetland polygon having the greatest width measured perpendicular to contour lines. Then estimate elevational difference from the numbered contours and divide by the line length. For small wetlands, use a clinometer or iPhone app to measure gradient or estimate by
170			<2%, **or,** no slope is ever apparent (i.e., flat). Includes most depressional sites and ponds.	1	
171			2-5%	0	
172			6-10%	0	

	A	B	C	D	E
173			>10%	0	eye. [AM, CS, NR, OE, PR, SR, WBF, WBN, WS]
174	OF35	Internal Flow Distance (Path Length)	From measurement of wetland polygon width or intersected stream length in the online WESPAK-SE Wetlands Module: The straight-line horizontal distance from the wetland's inlet to outlet is: *[Note: If inlet and/or outlet are lacking, see guidance in last column]*		If wetland is on a slope, measure from the highest- to lowest-elevation point in the wetland polygon. I wetland is flat or a pond, use the maximum width measured perpendicular to topographic lines uphill from the wetland. Straight-line rather than channel distance is used here only for simplicity of measurement. The category breaks are based on the 10, 25, 50, 75, and 90th percentiles of intersected stream length of all Southeast Alaska non-tidal wetlands. [NR, OE, PR, SR, WS]
175			<150 ft	0	
176			150-300 ft	1	
177			300-800 ft	0	
178			800-2000 ft	0	
179			2000 ft - 1 mile	0	
180			>1 mile	0	
181	OF36	Relative Hydrologic Distance to Anadromous Stream	Determine the AA's Wetland_ID using the Identify tool in the online WESPAK-SE Wetlands Module (see Manual). From column B of the HydroDist worksheet (tab below), enter its score in the next column. If Wetland_ID or HydroDist is lacking, use the value from the closest nor tidal wetland.	0.30	[OEv]
182	OF37	Salmonid Watershed	Refer to map in the Manual (Appendix A, Fig. A-1). This AA's watershed is rated: 3=Very High (100%), 2= High (50-99%), 1= Moderate (10-49%), 0= all other.	0	The rating (from TNC) is based on number of salmonid species present in the watershed and habitat suitability (based on stream type and floodplain extent) relative to suitability of other waters in the same biogeographic province. [FAv, Subsis]
183	OF38	Subsistence Focal Areas	The AA or waters that directly adjoin it:		Subsistence uses are allowed even in communities designated as Non-subsistence if the use is by persons with subsistence permits. [FAv, FRv, Subsis]
184			is in Juneau or Ketchikan, and thus is a designated **Non**-subsistence Use Area (see WESPAK-SE Wetlands Module> ADFG Nonsubsistence Use Areas for exact boundaries)	1	
185			is accessible to salmon AND is a major salmon subsistence harvest area according to (a) Table B-6 of the manual, OR (b) Figures A2a-c of the manual (shown as a point on the maps)	0	
186			neither of the above	0	
187			no data (outside of the regions shown on the maps, and not listed in Table B-6)	0	
188	OF39	Geography	Mark ALL that are true. The AA is located:		[AMv, SBM, WBF, Sens]
189			in the Stikine, Aisek, Taiya-Chilkat-Skagway, or Taku deltas or floodplains.	0	
190			in another mainland area or on an island larger than 20 square miles.	1	
191			on an island smaller than 20 sq. mi. and separated completely from other lands by a gap wider than 150 feet created by tidal or marine waters.	0	
192	OF40	Unbrowsed Vegetation	The AA is on an island known to **lack** deer, elk, and moose. Enter 1 if yes, 0 if no.	0	[PH, SBM]
193	OF41	Amphibian Use	A native amphibian (Wood Frog, Western Toad, Columbia Spotted Frog, Northwestern Salamander, Long-toed Salamander, Rough-skinned Newt) has been detected under conditions similar to what now occur, by a qualified observer, or as indicated in the online Wetlands Module: Habitat Layers > Amphibian Sites. **Mark just the first choice that is true.**		Although not complete, additional records of amphibians and some species of vertebrates can be obtained by contacting the Alaska Natural Heritage Program or visiting their web site at: http://aknhp.uaa.alaska.edu/maps/biotics/ [AM, Sens]
194			in the AA	0	
195			outside the AA only, but within 0.5 mile and at nearly the same elevation (+ or - 500 ft).	0	
196			outside the AA only, and 0.5 to 2 miles away and at nearly the same elevation.	0	
197			other conditions, or no data	1	

	A	B	C	D	E
198	OF42	Nesting Waterbird Species of Conservation Concern	A waterbird species of conservation concern in Southeast Alaska (Common Loon, Red-throated Loon, Red-necked Grebe, Trumpeter Swan, Lesser Yellowlegs, Solitary Sandpiper) has been detected nesting semi-annually under conditions similar to what now occur, by a qualified observer. **Mark just the first choice that is true:**		"generally similar" means same type, where "type" is defined based on duration of ponded water [Sens, WBNv]
199			in the AA	0	
200			outside the AA but within 0.5 mile, in a generally similar wetland	0	
201			outside the AA and 0.5 to 2 miles away, in a generally similar wetland	0	
202			beyond 2 miles, or no recent observation of these species by a qualified observer under conditions similar to what now occur, or no data. **However**: at least one of the following have been confirmed **nesting** in the AA: Greater Yellowlegs, Wilson's Snipe, American Bittern, Sora, Sandhill Crane, any duck species.	0	
203			none of above, or no data	1	
204	OF43	Non-breeding (Feeding) Waterbird Species of Conservation Concern	One or more of these species – Pacific Loon, Yellow-billed Loon, Red-necked Grebe, Horned Grebe, Trumpeter Swan – has been detected feeding semi-annually under conditions similar to what now occur, by a qualified observer. **Mark just the first choice that is true:**		These are waterbird species of conservation concern that, in most cases, do not breed in Southeast Alaska, but feed here regularly. [Sens, WBFv]
205			in the AA	0	
206			outside the AA but within 0.5 mile, in a generally similar wetland	0	
207			outside the AA and 0.5 to 2 miles away, in a generally similar wetland	0	
208			beyond 2 miles, or no recent observation of these species by a qualified observer under conditions similar to what now occur, or no data.	1	
209	OF44	Songbird or Raptor Species of Conservation Concern	One or more of these species – Osprey, Peregrine Falcon, Northern (Queen Charlotte) Goshawk, Olive-sided Flycatcher, Rusty Blackbird – has been detected nesting semi-annually in the AA or along the AA's upland edge (within 300 ft) under conditions similar to what now occur, by a qualified observer. Mark just the first choice that is true:		These are wetland-associated songbird or raptor species of conservation concern that nest in Southeast Alaska. List is from Alaska Landbird Conservation Plan (Andres 1999), Alaska Natural Heritage Program, and other sources. [SBMv, Sens]
210			In the AA	0	
211			outside the AA but within 0.5 mile, in a generally similar wetland.	0	
212			outside the AA and 0.5 to 2 miles away, in a generally similar wetland.	0	
213			beyond 2 miles, or no recent observation of these species by a qualified observer under conditions similar to what now occur. **However**: at least one of the following have been confirmed nesting in the AA: Short-eared Owl, Alder Flycatcher, Warbling Vireo, Red-eyed Vireo, Northern Waterthrush, Common Yellowthroat, Red-winged Blackbird.	0	
214			none of above, or no data	1	
215	OF45	Plants of Conservation Concern	The AA contains an uncommon or imperiled wetland indicator plant that is (a) listed in Table C-6 of the Manual, or (b) is a native species that is not listed as occurring in Southeast Alaska in the PlantList worksheet, has been detected within the AA under conditions similar to what now occur, by a qualified observer, and:		Although not complete, records of plant species locations can be obtained online from the Consortium of Pacific Northwest Herbaria at: http://www.pnwherbaria.org/data/search.php [PHv, POLv, Sens]
216			more than 1 such feature or species is present in the AA	0	
217			only one such species or feature is present in the AA	1	
218			there are no recent observations of these in the AA by a qualified observer under conditions similar to what now occur, or no data.	0	
219	OF46	Cedar	The AA contains (a) more than1 acre of a mature (>24" dbh) living stand of cedar or (b) is in an area documented as Yellow Cedar Decline (see layer in online WESPAK-SE Wetlands Module).	0	[PHv, SBM]
220	OF47	Mitigation Investment	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Enter: yes= 1, no= 0. If no information, change to blank.	0	[PU]
221	OF48	Conservation Investment	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, enhance, the wetland (excluding mitigation wetlands). Enter: yes= 1, no= 0. If no information, change to blank.	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ [PU]
222	OF49	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, **unrelated to any regulatory requirements, and data are available to the public.** Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area. Enter: yes= 1, no= 0. If no information, change to blank.	0	[PU]

	A	B	C	D	E
1	**Data Form F (Field) for Non-tidal Wetlands. WESPAK-SE version 2.0.**				**Site Name: 024**
2	DIRECTIONS: Conduct an assessment only after reading the accompanying Manual and explanations in column E below. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this field data form requires 1-2 hours on a site. For a listing of functions to which each question pertains, see bracketed codes in column E. For detailed descriptions of each WESPAK-SE model, see Appendix F of the accompanying Manual. Codes for functions and values are: WS= Water Storage, SFS= Stream Flow Support, WC= Water Cooling, WW= Water Warming, SR= Sediment Retention, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Export, INV= Invertebrates, FA= Anadromous Fish, FR= Resident Fish, AM= Amphibians, WBF= Feeding Waterbirds, WBN= Nesting Waterbirds, SBM= Songbirds,				**Site Location: Saxman** **Investigator: Irina Lapina, Anne Leggett** **Date: October 15, 2015** **Site Notes: wetland within roadside ditch. Two streams flow into this wetland. Many seeps dripping into ditch. Probably also intercepts groundwater because located at the toeslope, and surface runoff from highway.**
3	#	**Indicator**	**Condition Choices**	**Data**	**Explanations, Definitions**
4	F1	Wetland Type	Most of the vegetated part of the AA (wetland Assessment Area) is a (select ONE):		[AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]
5	F1.1		Forested Peatland	0	Nearly all the AA is moss-covered and/or the soils to a depth of at least 4 inches are organic (sometimes deeper if not rocky). More tall (>3 ft) woody cover than herbaceous Trees often hemlock or cedar. Often with skunk cabbage (at least in seasonal channels), blueberries. Little or no open water. Includes shrubby fringes of open peatlands and fens. Not in active floodplain.
6	F1.2		Open Peatland	0	Nearly all the AA is moss-covered. Peat depth usually > 16 inches except where bedrock near surface. Tree cover is <5% and cover of tall (>3 ft) shrubs is <30%. Shore pine, Labrador tea, crowberry often occur. Often with small (<25 sq ft) scattered stair-step pools with acidic, stained water. Some examples are flat bogs, floating bogs, and sloping muskeg.
7	F1.3		Fen/ Marsh	0	Surface water is more extensive, at least seasonally. More emergent than tall (>3 ft) woody plant cover. Often sedges, deer cabbage, marsh marigold, horsetail, burreed, pond lily. If ground is moss-covered, it is largely obscured by sedges or other herbaceous plants. Soils often muck or peat, seldom coarse unless created by excavation. Often beaver-created, or at base of steep slopes, or in depressions or adjoining larger water bodies.
8	F1.4		Floodplain Wetland	1	At least once annually, surface water in a channel that flows through or adjoins the AA causes the width of surface water in the AA (perpendicular to the channel) to more than double. The increased width is due mainly to that channel inflow, not to hillslope seepage or runoff. Soils are silt or coarser (little or no organic soil or peat). Vegetation can be woody or herbaceous: often alder, willow, devil's club. Includes some (not all) wetlands in mapped floodplains. Consult municipal maps of floodplains if available, and the online WESPAK-SE Wetlands Module: SEAK Hydro Stream.
9	F1.5		Uplift Meadow	0	Within a few miles of tidewatter or a glacier, but nontidal, and mostly within 100 miles of Glacier Bay National Park. Little or no persistent surface water except in channels, which may be strongly downcut. Mostly sweetgale and/or herbaceous vegetation, e.g., silverweed, iris, Lyngbye's sedge. Tree cover usually <30%. Peat depth usually <16 inches. Resulted from uplift following isostatic rebound as a glacier receded within recent centuries.
10	F1.6		Tidal Marsh or Tidal Swamp. Do not continue. Use other spreadsheet.	0	Inundated by tide at least once annually and dominated by emergent herbaceous or woody plants. The level of surface water fluctuates every ~6 hours on a daily basis in response to tides. Do not include areas of beachgrass (*Leymus* or *Elymus mollis*, also called ryegrass) unless they are inundated at that frequency. Do not include areas that are entirely eelgrass or seaweeds.

	A	B	C	D	E
11	F2	% Saturated **Only**	The percentage of the AA that **lacks** surface water during an average year (that is, except perhaps for a few hours after snowmelt or rainstorms), but which is still a wetland, is:		This is the cumulative acreage of all areas lacking surface water in the AA. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC, WW]
12			less than 1%, or <0.01 acre (about 20 ft on a side) never has surface water. In other words, **all or nearly all of the AA is inundated permanently or at least seasonally.**	0	
13			1-25% of the AA never contains surface water.	0	
14			25-50% of the AA never contains surface water.		
15			50-99% of the AA never contains surface water.	0	
16			>99% of the AA never contains surface water, except for water flowing in channels and/or in pools that occupy <1% of the AA. **SKIP to F30.**	0	
17			>99% of the AA never contains surface water, and AA is not intersected by channels that have flow, not even for a few days per year. **SKIP to F30.**	0	
18	F3	% with **Persistent** Surface Water	The percentage of the AA that has **surface** water (either ponded or flowing, either open or obscured by vegetation) during **all** of the growing season during most years is:		0.01 acre is about 20 ft on a side if square. This is the cumulative acreage of all areas that have surface water. Sites fed by glaciers, or by unregulated streams that descend on north-facing slopes, tend to remain wet longer into the summer. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the local soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]
19			less than 1%, or <0.01 acre (whichever is less). **SKIP to F7.**	0	
20			1-25% of the AA, and mostly in narrow channels and/or small scattered pools.		
21			1-25% of the AA, and mostly in a single large pool, pond, and/or channel.	0	
22			25-50% of the AA	0	
23			50-95% of the AA	0	
24			>95% of the AA	0	
25	F4	Summertime Shading of Water	At mid-day during the warmest time when surface water is present, the area of water within the AA that is shaded by vegetation, incised channels, streambanks, or other features also present within the AA is:		Consider the aspect and surrounding topographic relief as well as vegetation height and density. [FA, WC, WW]
26			<5% of the water is shaded	0	
27			5-25% of the water is shaded		
28			25-50% of the water is shaded	0	
29			50-75% of the water is shaded	0	
30			>75% of the water is shaded	0	
31	F5	Fringe Wetland	The AA adjoins a lake, stream, or river whose wetted width (not counting the AA's wetland) during mean annual conditions is greater than 5[illegible] ft and also more than 5 times the vegetated wetland's average width (measured perpendicular to upland). If true, enter "1" and continue. If false, leave the C and continue.	0	[WBF, WBN, WC, WWv]
32	F6	Lacustrine Wetland	The AA borders a body of ponded open water whose size (not counting the AA's wetland) exceeds 20 acres during most of the growing season. Enter "1" if true, "0" if false.	0	The "vegetated areas" should not include submersed or floating-leaved aquatics. [FA, FR, PR, WBF, WBN]

	A	B	C	D	E
33	F7	% Flooded **Only** Seasonally	The percentage of the AA soil that is covered by surface water **only** during the wettest time of year, and for >2 continuous weeks during that time, is:		0.01 acre is about 20 ft on a side if square. This is the cumulative acreage of all areas in the AA that flood ONLY seasonally. Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. In riverine systems, the extent of this zone can be estimated by multiplying by 2 the bankful height and visualizing where that would intercept the land along the river. Although useful only as a general guide, the NWI's water regime modifier code and NRCS soil survey descriptions of the predominant soil types usually include information on flooding frequency and saturation persistence. The wettest times in Southeast Alaska typically occur during late fall, during rain events after the ground is frozen, and/or during spring snowmelt. Near melting glaciers, surface water may be present mainly in summer. [CS,
34			<1% or <0.01 acre, whichever is less. **SKIP to F9.**	0	
35			1-25%	1	
36			25-50%	0	
37			50-95%	0	
38			>95%	0	
39	F8	Annual Water Fluctuation Range	The maximum annual fluctuation in surface water within the AA is:		[AM, CS, INV, NR, OE, PH, PR, SR, WBN, WS]
40			<0.5 ft	0	
41			0.5 - 1 ft	0	
42			1-3 ft	1	
43			> 3 ft	0	
44	F9	Predominant Depth Class	During most of the growing season, surface water depth in **most** of the area where it is present is: [*Note: This is not asking for the maximum depth.*]		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if timing and safety allow, depths may be measured by drilling through winter ice. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the answer will be based on the depth of the most persistently inundated part of the wetland. Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC, WW]
45			<0.5 ft deep (but >0)	1	
46			0.5 - 1 ft deep	0	
47			1-2 ft deep	0	
48			2-6 ft deep	0	
49			>6 ft deep. True for many fringe wetlands.	0	
50	F10	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in the manual. [FR, INV, WBF, WBN]
51			One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	0	
52			One depth class that comprises 50-90% of the AA's inundated area.	1	
53			Neither of above. Multiple depth classes; none occupy more than 50% of the AA.	0	
54	F11	Open Water - Extent	During most of the growing season, the largest patch of **open** water that is in or bordering the AA is **>1 acre and mostly deeper than 1 ft.** If true enter "1" and continue, If false, enter "0" and **SKIP to F15.**	0	**Open water** is water that is not obscured by vegetation in aerial ("duck's eye") view. It includes vegetation floating on the water surface or entirely submersed beneath it. It may be flowing or ponded.
55	F12	Flat Shoreline Extent	The length of the AA's shoreline (along its ponded open water) that is bordered by areas that are **nearly flat** (a slope less than about 5%) is:		See diagram in the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [SR, WBN]
56			<1% of the shore length	0	
57			1-25%	0	
58			25-50%	0	
59			50-75%	0	
60			>75%	0	
61	F13	Width of AA's Vegetated Zone	At the driest time of year (or lowest water level), the width of vegetated area in the AA that separates adjoining uplands from **most of** the open water within or adjoining the AA is:		"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN]
62			1-5 ft	0	
63			5-25 ft	0	
64			25-100 ft	0	
65			100-300 ft	0	
66			>300 ft	0	

	A	B	C	D	E
67	F14	Non-vegetated Aquatic Cover	The cover for fish, aquatic invertebrates, and/or amphibians that is provided by horizontally incised banks, water deeper than 2 ft, and/or partly-submerged accumulations of wood thicker than 4 inches (NOT by living vegetation) is:		For this question, **do not consider herbaceous plants**. Consider only the wood that is at or above the water surface. Estimates of underwater wood based only on observations from terrestrial viewpoints are unreliable so should not be attempted. [AM, FA, FR, INV]
68			Little or none, or all water is shallower than 2 ft most of the year.	0	
69			Intermediate, e.g., 500 - 2500 cu. ft of instream wood per 1000 ft of channel.	0	
70			Extensive: >8 pieces of wood per stream reach (reach= 10x channel width), or >2700 cu.ft of instream wood per 1000 ft of channel, or >10% of bank length is incised.	0	
71	F15	All Ponded Water - Extent	During most of the growing season, the percentage of the AA that has **ponded** surface water (stagnant, or flows so slowly that fine sediment is not held in suspension) which is **either open or shaded by emergent vegetation** is:		Nearly all wetlands with surface water have some ponded water. [AM, CS, FA, FR, INV, NR, OE, Sens, SR, SBM, WBF, WBN, WC, WS, WW]
72			<1% or none, or occupies <100 sq. ft cumulatively. Enter "1" and **SKIP to F19.**	0	
73			1-25% of the AA, and mainly in small fishless pools. **Enter "1" and SKIP to F19.**	0	
74			1-25% of the AA, and mainly in a single large pool or pond, with or without fish access.	0	
75			5-30% of the AA.	1	
76			30-70% of the AA.	0	
77			70-95% of the AA.	0	
78			>95% of the AA.	0	
79	F16	Open Ponded Water - Extent	The percentage of the ponded water that is **open** (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is:		**Open water** may have floating aquatic vegetation provided it does not usually extend above the water surface. [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC, WW]
80			<1% or none, or largest pool occupies <100 sq. ft. Enter "1" and **SKIP to F19.**	0	
81			1-5% of the ponded water. Enter "1" and **SKIP to F19.**	0	
82			5-30% of the ponded water.	1	
83			30-70% of the ponded water.	0	
84			70-99% of the ponded water.	0	
85			100% of the ponded water. **SKIP to F18.**	0	
86	F17	Emergent Vegetation - Distribution	During most of the growing season, the spatial pattern of herbaceous vegetation that has **surface** water beneath it (emergent vegetation -- NOT floating-leaved plants) is mostly:		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]
87			scattered in small clumps, islands, or patches throughout the surface water area.	0	
88			intermediate	0	
89			clumped along the margin of the surface water area, or mostly surrounds a channel or central area of open water, or such vegetation covers <100 sq ft and <1% of the AA.	1	
90	F18	Floating Algae & Duckweed	At some time of the year, mats of algae and/or duckweed cover most of the AA's otherwise-unshaded water surface or blanket the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	0	[EC, PR, WBF]
91	F19	Ice Cover	Ice (not just snow) covers nearly all of the AA's water surface for more than 4 continuous weeks during most years, potentially altering the air-water exchange. If true, enter "1" in next column. If untrue, enter "0".	0	Available data suggest this ranking from shortest to longest ice duration based on location: Ketchikan, Annette, Sitka, Little Port Walter, Juneau, Yakutat, Annex Creek. However, local factors such as elevation, water body depth, and flow velocity should be considered. [AM, CS, FR, NR, OE, PR, Sens, SFS, SR, WBF, WS]
92	F20	Stained Surface Water	Most surface water is tea-colored (from tannins, not iron bacteria), and/or its pH is usually <5.5. If surface water not observed, enter "1" if organic soil depth exceeds 6 inches and vegetation is mostly moss and/or evergreens.	0	[FR, OE, PR, WW]
93	F21	Isolated Island	The AA contains (or is part of) an island within a lake, pond, or river, and is isolated from the shore by **water depths >3 ft** on all sides during an average June. The island may be solid, or it may be a floating vegetation mat suitable for nesting waterbirds.	0	[WBN]
94	F22	Beaver	Use of the AA by beaver during the past 5 years is (select most applicable ONE):		[FA, FR, PH, SBM, Sens, WBF, WBN]
95			**evident** from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags).	0	
96			**likely** based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater wetland, pond, or lake, or a perennial low or mid-gradient (<10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in vegetated areas near surface water.	0	

	A	B	C	D	E
97			**unlikely** because site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed. Bu beaver occur in the region (i.e., within 10 miles, or on same island).	0	
98			**none**. Beaver are absent from the region and/or the island.	1	
99	F23	Flowing Water - Extent	The percentage of the AA that has **flowing** water (flowing with enough force to keep sediment in suspension, and >1 inch deep and either open or shaded by emergent vegetation) **for >2 continuous weeks at the wettest time** of a typical year is:		
100			None. (Topographic maps also show no intersecting channels or floodplains. However, if the AA is entirely a lake or pond, enter a "1" regardless of whether maps show a channel intersecting it).	0	
101			1-25% of the AA (topo maps show one or more channels). Their wetted width does not expand >2x their width at annual low flow, e.g., many strongly incised or headwater channels.	1	
102			1-25% of the AA, and in (or adjoining) one or more channels whose wetted width expands >2x their width at annual low flow. Typically not i headwaters. SEAK Hydro Process maps may show "Flood Plain" channel.	0	
103			5-30% of the AA.	0	
104			30-70% of the AA.	0	
105			70-95% of the AA.	0	
106			>95% of the AA.	0	
107	F24	Inflow	At least once annually, surface water moves into the AA from a tributary stream or ditch that is at least 300 ft long, or from a lake or river. Often shown as a channel on a topo map (consult the SEAK Hydro Streams layer of the WESPAK-SE web site). If true, enter 1 and continue. If false, enter 0 and **SKIP to F28.**	1	[NRv, PH, PRv, SRv]
108	F25	**Input** Water Temperature	Based on lack of shade upstream or source characteristics, the inflow is likely to be warmer than the AA's surface water during part of most years. Enter 1= yes, 0= no.	0	[WC, WWv]
109	F26	Input Stream Gradient	The gradient of the tributary with the largest inflow, averaged up to 300 ft from the AA (excluding any portion of the distance where water travels through a pipe) is:		Estimate gradient by dividing the elevation difference by horizontal distance over 300 ft. [PRv, SRv]
110			<1%	0	
111			1-5%	0	
112			5-30%	1	
113			>30%	0	
114	F27	Throughflow Complexity	During its travel through the AA at the time of peak annual flow, **most** of the flowing water [select ONE]:		[FA, FR, INV, NR, OE, PR, SR, WS]
115			Does not bump into plant stems. Nearly all the water travels in unvegetated (often incised) channels that have little contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.	0	
116			bumps into **herbaceous** vegetation and follows a fairly **straight** path from entrance to exit (branched channels few or none, meandering slight or none).	1	
117			bumps into **herbaceous** vegetation and follows a fairly **indirect** path from entrance to exit (meandering, multi-branched, or braided).	0	
118			bumps into **tree trunks and/or shrub stems** and follows a fairly **straight** path from entrance to exit (branched channels few or none, meandering slight or none).	0	
119			bumps into tree trunks and/or shrub stems and follows a fairly **indirect** path from entrance to exit (meandering, multi-branched, or braided).	0	

	A	B	C	D	E
120	F28	Outflow Duration	The **most persistent** surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the **AA** and the closest off-site downslope water body is:		Path length is the length of a wetland measured in a straight line from inlet to outlet, or from highest to lowest elevation within the wetland (i.e., in the direction of predominant downhill surface flow) -- see OF35. Consult the hydrography layer of the WESPAK-SE web site if uncertain if AA is intersected by or near a channel. A channel is defined as an observably incised landform that transports surface water in a downhill direction during some part of a normal year. A larger difference in elevation between the wetland-upland boundary and the bottom of the wetland outlet (if any) indicates shorter outflow duration. The frequencies given are only approximate and are for a "normal" year. The connection need not occur during the growing season.[CS, FA, FR, NR, OE, PR, Sens, SFS, SR, WC, WS, WWv]
121			persistent (>9 months/year); almost always shown on stream maps, or determine from your dry-season observation.	1	
122			seasonal (14 days to 9 months/year, not necessarily consecutive); sometimes shown on stream maps.	0	
123			temporary (<14 days, not necessarily consecutive); seldom shown on stream maps.	0	
124			none – but maps show a stream or other water body that is downslope from the AA and within a distance that is less than the AA's *path length* (see definition, OF35). If so, mark "1" here and **SKIP TO F30.**	0	
125			no surface water flows out of the wetland except possibly during extreme events (less than once per 10 years). Or, water flows only into a wetland, ditch, or lake that lacks an outlet. If so, mark "1" here and **SKIP TO F30.**	0	
126	F29	Outflow Confinement	During major runoff events, in the places where surface water in a channel exits the AA or connected waters nearby, it:		"Major runoff events" would include biennial high water caused by storms and/or rapid snowmelt. [CS, NR, OE, PR, Sens, SR, WS]
127			mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural topography that does not appear to drain the wetland artificially during most of the growing season.	1	
128			leaves through natural exits, not mainly through artificial or temporary features.	0	
129			exported more quickly than usual due to ditches or pipes within the AA (or connected to its outlet or within 10 m of the AA's edge) which drain the wetland artificially, or water is pumped out of the AA.	0	
130	F30	Groundwater: Strength of Evidence	Select first applicable choice. In the AA:		Consult topographic maps to detect breaks in slope described here. Localized orange coloration associated with groundwater seeps may be most noticeable in ice formations along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv, SFS, WC, WS, WW]
131			(a) springs are observed, OR (b) water is markedly cooler in summer and warmer in winter (e.g., later ice formation) than in other wetlands nearby, OR (c) water level measurements from shallow wells, or high salinity/conductivity in undisturbed wetlands distant from potential marine influence suggest substantial groundwater discharge to the AA.	1	
132			(a) the upper end of the AA is located very close to the base of (but mostly not ON) a natural slope much steeper (usually >15%) than that within the AA and longer than 300 ft, OR (b) rust deposits ("iron floc"), colored precipitates, or dispersible natural oil sheen are prevalent in the AA, OR (c) AA water is remarkably clear in contrast to naturally stained or glacially-clouded waters typical in nearby wetlands, OR (d) AA is located at a geologic fault.	0	
133			Neither of above is true, although some groundwater may discharge to or flow through the AA, or groundwater influx is unknown.	0	
134	F31	Woody Cover Extent	**Within** the entire vegetated part of the AA, the percentage occupied by **woody plants taller than 3 feet** (shrubs, trees) is:		Do not count trees or shrubs if they merely hang into the wetland. They must be **rooted in soils that are saturated** for several weeks of the growing season. The "vegetated part" should not include floating-leaved or submersed aquatics. [NR, WBF, WBN]
135			<5% of the vegetated AA, or there is no woody vegetation in the AA. **SKIP to F41.**	1	
136			5-25%.	0	
137			25-50%	0	
138			50-75%	0	
139			>75%	0	
140	F32	Tree & Tall Shrub Canopy Extent	Within the vegetated part of the AA, just the **trees** that are taller than 20 ft occupy:		Do not count trees if they merely hang into the wetland. They must be rooted in soils that are saturated for several weeks of the growing season. The "vegetated part" should not include floating-leaved or submersed aquatics. [PH, SBM, Sens]
141			<1% of the vegetated AA, or the AA lacks trees. Enter "1" and **SKIP to F37.**	0	
142			1-25% of the vegetated AA	0	
143			25-50% of the vegetated AA	0	
144			50-95% of the vegetated AA	0	
145			>95% of the vegetated part of the AA	0	
146	F33	Deciduous Trees	Within the vegetated part of the AA, just the **deciduous trees** that are taller than 20 ft occupy:		Do not count trees if they merely hang into the wetland. They must be rooted in soils that are saturated for several weeks of the growing season. The "vegetated part" should not include floating-leaved or submersed aquatics. [CS, OE, INV, SBM, PH]
147			<1% of the vegetated AA	0	
148			1-25% of the vegetated AA	0	
149			25-50% of the vegetated AA	0	
150			50-95% of the vegetated AA	0	

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151			>95% of the vegetated part of the AA	0	
152	F34	Woody Diameter Classes	Mark all the classes of woody plants within the AA, but only IF they comprise **more than 5%** of the woody canopy within the AA. Do not count trees that adjoin but are not within the AA.		The trees and shrubs need not be wetland species. Measurements are the d.b.h., the diameter of the tree measured at 4.5 ft above the ground. [AM, CS, POL, SBM, Sens, WBN]
153			evergreen 1-4" diameter and >3 ft tall	0	
154			deciduous 1-4" diameter and >3 ft tall	0	
155			evergreen 4-9" diameter	0	
156			deciduous 4-9" diameter	0	
157			evergreen 9-21" diameter	0	
158			deciduous 9-21" diameter	0	
159			evergreen >21" diameter	0	
160			deciduous >21" diameter	0	
161	F35	Snags	The number of large snags (**diameter >8"**) in the AA plus the area within 100 ft uphill of the closest upland to the wetland edge is:		Snags are standing trees at least 10 ft tall that are mainly without bark or foliage. [POL, SBM, WBN]
162			Several (>2/acre) and a pond or lake of at least 1 acre is within 1 mile.	0	
163			Several (>2/acre) but above not true.	0	
164			Few or none	0	
165	F36	Downed Wood	The number of downed wood pieces **longer than 6 ft** and with diameter **>6",** and **not persistently submerged**, is:		Exclude temporary "burn piles." [AM, INV, POL, SBM]
166			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	0	
167			Few or none	0	

	A	B	C	D	E
168	F37	**Exposed** Shrub Canopy	Woody vegetation 3 to 20 ft tall that is not under the drip line of trees is:		The "vegetated part" may include moss, but it should not include floating-leaved or submersed aquatics. [AM, PH, SBM]
169			<5% of the vegetated AA and (if a fringe wetland) <5% of its water edge. Or <0.01 acre. **SKIP to F41.**	0	
170			5-25% of the vegetated AA or (if a fringe wetland) 5-25% of the water edge -- whichever is greater.	0	
171			25-50% of the vegetated AA or the water edge, whichever is greater.	0	
172			50-95% of the vegetated AA or the water edge, whichever is greater.	0	
173			>95% of the vegetated part of the AA or the water edge, whichever is greater.	0	
174	F38	Shrub Species Dominance	Determine which two native shrub species (3 to 20 ft tall) comprise the greatest portion of the native shrub cover. Then choose one:		[EC, PH, SBM, Sens]
175			those species together comprise **> 50%** of the areal cover of native shrub species.	0	
176			those species together do **not** comprise > 50% of the areal cover of native shrub species.	0	
177	F39	Woody-Herbaceous Interspersion	In "ducks-eye view", the distribution pattern of woody vegetation (including low shrubs) VS. unshaded herbaceous/moss vegetation within the AA is:		In larger forested wetlands, patchiness is best interpreted from aerial imagery. Images that show "coarse-grained" forests indicate presence of multiple age classes and/or numerous small openings, whereas those that show "fine-grained" forests suggest more even-aged, even-sized forest with little interspersion. [SBM, Sens]
178			(a) Woody cover and herbaceous/moss cover EACH comprise **30-70%** of the **vegetated part** of the AA, AND (b) There are many patches of woody vegetation scattered widely within herbaceous/moss vegetation, or many patches of herbaceous vegetation scattered widely within woody vegetation.	0	
179			(a) Woody cover and herbaceous/moss EACH comprise 30-70% of the vegetated AA, AND (b) There are few patches ("islands") of woody vegetation scattered widely within herbaceous vegetation, or few patches of herbaceous/moss vegetation ("gaps") scattered widely within woody vegetation.	0	
180			(a) Woody cover **OR** herbaceous/moss comprise **>70%** of the vegetated AA, AND (b) There are several patches of the other scattered within it. (e.g., forested AAs with patches – not limited to corridors – of skunk cabbage, or muskeg with scattered shrubs).	0	
181			(a) Woody over OR herbaceous/moss comprise >70% of the vegetated AA, AND (b) The other is absent or is mostly in a single area or distinct zone with almost no intermixing of woody and unshaded herbaceous/moss vegetation.	0	
182	F40	Deciduous Shrubs	Woody vegetation in the 3 to 20 ft height class which is **deciduous** (e.g., blueberry, menziesia, alder) comprises:		Select only the first true statement. The trees or shrubs do not have to be wetland species, as long as they are in the AA or overhang its water. Deciduous shrubs are especially likely to occur on mineral soils with little moss ground cover, such as burns, clearcuts, landslides, avalanche paths, abandoned beaver flowages, areas of recent glacial rebound or deglaciation, heavily grazed or drained lands, and floodplains. [CS, INV, OE, PH, SBM]
183			<1% of the AA's vegetated area, or largest patch occupies less than 400 sq. ft	0	
184			1-25% of the vegetated area	0	
185			25-50% of the vegetated area	0	
186			50-75% of the vegetated area	0	
187			>75% of the vegetated area	0	
188	F41	N Fixers	The percent of the AA's shrub plus ground cover that is nitrogen-fixing plants (e.g., alder, sweetgale, arctic rush, lupine, clover, other		"Ground cover" includes both moss and herbaceous vegetation. Do not include N-fixing algae or lichens. Select only the first true statement. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
189			<1% or none	1	
190			1-25% of the shrub plus ground cover, in the AA or along its water edge (whichever has more).	0	
191			25-50% of the shrub plus ground cover, in the AA or along its water edge (whichever has more).	0	
192			50-75% of the shrub plus ground cover, in the AA or along its water edge (whichever has more).	0	
193			>75% of the shrub plus ground cover, in the AA or along its water edge (whichever has more).	0	
194	F42	Moss Extent	The cover of peat-forming moss is:		Exclude moss growing on trees or rocks. [CS, PH]
195			<5% of the vegetated ground cover.	1	
196			5-25% of the vegetated ground cover.	0	
197			25-50% of the vegetated ground cover.	0	
198			50-95% of the vegetated ground cover.	0	
199			>95% of the vegetated ground cover.	0	

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200	F43	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that lack surface water at some time of the year. Viewed from 6 inches above the soil surface, the condition in the part of that area that is most likely to be exposed to flowing water, runoff, or wind near the end of the growing season, or is otherwise more likely to erode (e.g., due to slope, land use practices) is:		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is present under a tree or shrub canopy should be counted. [AM, EC, INV, NR, OE, POL, PR, SBM, Sens, SR]
201			little or no (<5%) *bare ground* is visible between erect stems or under canopy and ground surface is extensively blanketed by moss, lichens, graminoids with great stem densities, or plants with ground-hugging foliage.	0	
202			Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded parts of the AA	0	
203			Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise **more than** 5% of the unflooded parts of the AA	1	
204			mostly (>50%) bare ground or ground covered only with thatch.	0	
205			Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	
206	F44	Ground Irregularity	Consider the parts of the AA that lack surface water at some time of the year. Excluding slash from logging, the number of small pits, raised mounds, hummocks, boulders, upturned trees, animal burrows, gullies, natural levees, wide soil cracks, and microdepressions is:		"Microtopography" refers mainly to the patchiness of vertical relief of >6 inches and is represented only by inorganic features, except where living plants have created depressions or mounds (hummocks) of soil. Do not count incised channels and other "macro" features. If parts of the AA are flat but others have substantial microtopography, base your answer on which condition predominates in the parts of the AA that lack persistent water. [AM, EC, INV, NR, PH, POL, PR, SBM, SR, WS]
207			Few or none (minimal microtopography; <1% of that area)	1	
208			Intermediate	0	
209			Several (extensive micro-topography)	0	
210	F45	Upland Inclusions	Within the AA, inclusions of upland that individually are >100 sq. ft. are:		Inclusions are slightly elevated "islands" or "pockets" dominated by upland vegetation and soils. Do not count as inclusions the elevated roots of trees or logs unless supported by a mound of mineral soil meeting the size threshold. Upland inclusions may sometimes be created by fill. [AM, NR, SBM]
211			Few or none	1	
212			Intermediate (1 - 10% of vegetated part of the AA).	0	
213			Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0	
214	F46	Soil Texture	In **most** parts of the AA that lack persistent water, the texture of soil in the uppermost layer is: *[To determine this, use a trowel to check in at least 3 widely spaced locations, and use the soil texture key in Appendix C of the Manual. If organic, use shovel to dig down to 16" depth or until hitting mineral soil, whichever is first, then measure.]*		"Organic" includes muck, mucky peat, peat, and mucky mineral soils that comprise the "Oi" horizon. These soils are much less common in floodplains. Do not include duff (loose organic surface material, e.g., dead plant leaves and stems). If texture varies greatly, base your answer on which texture predominates in the parts of the AA that lack persistent water. [CS, NR, OE, PH, PR, Sens, SFS, WS]
215			Loamy: includes loam, sandy loam	1	
216			Fines: includes silt, glacial flour, clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam.	0	
217			Organic, from surface to within 4 inches of surface only. Exclude live roots unless from moss.	0	
218			Organic, from surface to within 16 inches of surface only. Exclude live roots unless from moss.	0	
219			Organic, from surface to greater than 16 inch depth. Exclude live roots unless from moss.	0	
220			Coarse: includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash.	0	
221	F47	Shorebird Feeding Habitats	Within the AA, the extent of mudflats, and/or non-acidic ponded areas shallower than 2 inches, and/or unwooded shortgrass areas that meet the definition of shorebird habitat (column E) is usually:		This addresses needs of many but not all migratory sandpipers, plovers, and related species. [WBF]
222			none, or <100 sq. ft within the AA.	1	
223			100-1000 sq. ft. within the AA.	0	
224			1000 – 10,000 sq. ft. within the AA.	0	
225			>10,000 sq. ft within the AA.	0	
226	F48	Largest Herbaceous Patch	The **area** of the largest patch of herbaceous vegetation (e.g., sedges, grasses, skunk cabbage, other forbs **–excluding mosses** and submerged and floating aquatics) **within** the AA is: *[Note: Do not include areas where the herbaceous canopy is so thin that moss is visible beneath it during the height of the growing season*].		0.1 acre is about 66 ft on a side if square. If the AA is smaller than the wetland within which it is located, extend the patch to include contiguous herbaceous vegetation in the same wetland (but a different AA) and revise the area estimate. Include herbaceous patches that are under a forest canopy as well as those visible in aerial imagery. [PH, SBM, Sens, WBF, WBN]
227			<0.1 acre. **SKIP to F54.**	1	
228			0.1 - 1 acre	0	
229			1 to 10 acres	0	
230			10 to 100 acres	0	
231			100 to 1000 acres	0	
232			>1000 acres	0	

	A	B	C	D	E
233	F49	Unshaded Herbaceous Extent	As **visible in birds-eye view**, herbaceous vegetation (**excluding** mosses and submerged and floating aquatics) comprises:		"Birds-eye view" means vertical view from about 500 ft above the wetland surface, and thus excludes herbaceous vegetation hidden beneath a tree or shrub canopy. [WBF, WBN, POL]
234			<5% of the vegetated part of the AA. Mark "1" here and **SKIP to F54.**	0	
235			5-25% of the vegetated AA	0	
236			25-50% of the vegetated AA	0	
237			50-95% of the vegetated AA	0	
238			>95% of the vegetated AA	0	
239	F50	Forb Cover	The percent of the vegetated ground cover that is **forbs** (e.g., skunk cabbage, buckbean, wildflowers) reaches an annual maximum of:		**forbs** = flowering non-woody vascular plants (excludes grasses, sedges, ferns, mosses). Exclude horsetail (*Equisetum*) even though technically it is a forb. [POL]
240			<5% of the vegetated ground cover	0	
241			5-25% of the vegetated ground cover	0	
242			25-50% of the vegetated ground cover	0	
243			50-95% of the vegetated ground cover	0	
244			>95% of the vegetated ground cover. **SKIP to F52.**	0	
245	F51	Sedge Cover	Sedges (*Carex* spp.) and/or cottongrass (*Eriophorum angustifolium)* occupy:		[CS]
246			<5% of the vegetated ground cover, or <0.01 acre	0	
247			5-50% of the vegetated ground cover	0	
248			50-95% of the vegetated ground cover	0	
249			>95% of the vegetated ground cover	0	

	A	B	C	D	E
250	F52	Herbaceous Species Dominance	Determine which two native herbaceous (forb, graminoid, fern) species comprise the greatest portion of the herbaceous cover that is unshaded by a woody canopy. Then choose one:		[EC, INV, PH, POL, Sens]
251			those species together comprise **> 50%** of the areal cover of **native** herbaceous plants at any time during the year.	0	
252			those species together do **not** comprise > 50% of the areal cover of native herbaceous plants at any time during the year.	0	
253	F53	Invasive & Non-native Cover	Invasive plants in this region may include (for example): creeping buttercup, reed canary grass, orange hawkweed, annual blue grass, timothy grass, Canadian thistle, field sow-thistle, Japanese knotweed, European mountain ash, white clover, alsike clover, others noted in PlantList worksheet (also in Table B-3 of the manual). The condition in the AA is:		[EC, PH, POL, Sens]
254			apparently no invasive species are present**in** the AA.	0	
255			Invasive species are present but comprise <5% of the herbaceous and <5% of the shrub cover.	0	
256			Invasive species comprise 5-20% of the herb or shrub cover.	0	
257			Invasive species comprise 20-50% of the herb or shrub cover.	0	
258			Invasive species comprise >50% of the herb or shrub cover.	0	
259	F54	Weed Source Along Upland Edge	Along the wetland-upland boundary, the percent of the upland edge (within 10 ft of wetland) that is occupied by plant species that are considered invasive is: (see list in above question, plus others in PlantList worksheet or Table B-3 of the manual)		If the wetland has no upland edge, or upland edge is <10% of wetland's perimeter, then answer for the portion of the upland closest to the wetland. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that invasive species cannot be identified, answer "none". [PH]
260			none of the upland edge (invasives apparently absent)	0	
261			some (but <5%) of the upland edge	0	
262			5-50% of the upland edge	0	
263			most (>50%) of the upland edge	1	
264	F55	Natural Cover in Buffer	Along the wetland-upland edge and extending 100 ft upslope, the percentage of the upland that contains**natural** (not necessarily native – see column E) land cover taller than 6 inches is:		**Natural land cover** includes wooded areas, peatlands, vegetated wetlands, and most other areas of perennial vegetation. It does not include water, glaciers, annual crops, residential areas, golf courses, recreational fields, fields mowed >1x per year, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It can include areas with invasive plants. If the AA does not adjoin upland, base your answer on the closest upland. [AM, FA, FR, INV, NRv, PH PRv, SBM, Sens, SRv, WBN]
265			<5%	0	
266			5 to 30%	0	
267			30 to 60%	1	
268			60 to 90%	0	
269			>90%. **SKIP to F58.**	0	
270	F56	Type of Cover in Buffer	Within 100 ft upslope of the wetland-upland edge closest to the AA, the upland land cover that is NOT unmanaged vegetation or water is mostly (mark ONE):		[AM, FA, INV, NRv, PH, SBM, WBN]
271			impervious surface, e.g., paved road, parking lot, building, exposed rock.	1	
272			bare or nearly bare pervious surface or managed vegetation, e.g., lawn, mostly-unvegetated clearcut, landslide, unpaved road, dike.	0	

	A	B	C	D	E
273	F57	Slope from Disturbed Lands	The average percent slope of the land, measured from the AA's wetland-upland edge and extending uphill to the most extensive and/or closest **disturbance feature within 100 ft,** is:		**Disturbance feature** = building, paved area, recently cleared area, dirt road, lawn, annually-harvested row crops. Use judgment to decide if extent or proximity is more influential for a noted disturbance. If the AA is only part of a wetland and does not have an upland edge, evaluate this along the upland edge closest to the AA. Estimate slope by dividing the elevation difference (between the wetland and disturbed area) by their horizontal distance apart. [NRv, PRv, Sens, SRv]
274			<1% (flat – almost no noticeable slope)	0	
275			2-5%	0	
276			5-30%	1	
277			>30%	0	
278	F58	Cliffs, Banks, Beaver, Muskrat	In the AA or within 300 ft, there are (a) muskrat houses or beaver lodges, or (b) mineral licks, or (c) elevated terrestrial features such as cliffs talus slopes, stream banks, or excavated pits (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Enter 1 (yes) or 0 (no).	0	Do not include upturned trees as potential den sites. [POL, SBM]
279	F59	New Wetland	The AA is (or is within, or contains) a "new" wetland resulting from human actions (e.g., excavation, impoundment) or debris or lava flows, receding glacier, sea level rise, or other factors affecting what once was **upland (non-hydric) soil.**		Do not include wetlands created by beaver dams except for the part where flooding affected uplands (not just existing wetlands and streams). Determine this using historical aerial photography, old maps, soil maps, or permit files as available [CS, NR, OE, PH, PRv, Sens, SRv]
280			No	0	
281			yes, and most recently created, deglaciated, or uplifted 20 - 100 years ago	1	
282			yes, and most recently created, deglaciated, or uplifted 3-20 years ago	0	
283			yes, and most recently created, deglaciated, or uplifted within last 3 years	0	
284			yes, but time of origin unknown	0	
285			unknown if new within 20 years or not	0	
286	F60	Visibility	The maximum percent of the AA that is visible from the best vantage point on public roads, public parking lots, public buildings, or well-defined public trails that intersect, adjoin, or are within 300 ft of the wetland (select one) is:		[PU, WBFv]
287			<25%	0	
288			25-50%	0	
289			>50%	1	
290	F61	Ownership	Most of the AA is (select one):		In the online WESPAK Wetlands Module, generalized ownership category can be viewed but consult local tax maps if possible. [PU]
291			publicly owned **conservation** lands that exclude new timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles).	0	
292			publicly owned **resource use** lands (allowed activities such as timber harvest, mining, or intensive recreation), or unknown.	1	
293			owned by non-profit conservation organization or lease holder who allows public access.	0	
294			other private ownership, including Tribes.	0	
295	F62	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select **ALL** statements that are true of the AA as it currently exists:		Some trails, roads, and Interpretive centers are shown in the online WESPAK Wetlands Module. Enable the Recreation layer > Recreation Facilities. [PU]
296			Walking is physically possible in (not just near) >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets.	1	
297			Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed part of the year by boats arriving via contiguous waters.	1	
298			Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
299			The AA contains or adjoins a **public** boat dock or ramp, or is within 0.5 mile of a ferry terminal, airstrip, public lodge, campsite, snowmobile park, or picnic area.	0	

	A	B	C	D	E
300	F63	Core Area 1	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [*Note: Do not include visitors on trails outside of the AA unless more than half the wetland is visible from the trails and they are within 100 ft of the wetland edge. In that case add* ***only*** *the area occupied by the trail.*]		Include visits by foot, canoe, kayak, or any non-motorized mode. Judge this based on proximity to population centers, roads, trails, accessibility of the wetland to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. [AM, FAv, FRv, PH, PU, SBM, WBF, WBN]
301			<5% and no inhabited building is within 300 ft of the AA	0	
302			<5% and inhabited building is within 300 ft of the AA	1	
303			5-50% and no inhabited building is within 300 ft of the AA	0	
304			5-50% and inhabited building is within 300 ft of the AA	0	
305			50-95%	0	
306			>95% of the AA	0	
307	F64	Core Area 2	The percentage of the AA visited by humans almost daily for several weeks during an average growing season probably comprises: [*Note: Do not include visitors on trails outside of the AA unless more than half the wetland is visible from the trails and they are within 100 ft of the wetland edge. In that case add only the area occupied by the trail.*]		Include visits by foot, canoe, kayak, or any non-motorized mode. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. [AM, PH, PU, SBM, WBF, WBN]
308			<5%. If F63 was answered ">95%", **SKIP to F67.**	0	
309			5-50%	0	
310			50-95%	0	
311			>95% of the AA	1	
312	F65	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on unfrozen soils within nearly all of the AA. Enter "1" if true.	0	[PH, PU]
313	F66	BMP - Wildlife Protection	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorized boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize disturbance of wildlife (except during hunting seasons). Enter "1" if true.	0	[AM, PU, WBF, WBN]
314	F67	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by certification groups. Evidence of these consumptive uses may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or might be obtained from communication with the land owner or manager [FAv, FRv, PHv, Subsis, WBFv]
315			Low-impact commercial timber harvest (e.g., selective thinning)	0	
316			Commercial or subsistence-based harvesting of native plants or mushrooms	0	
317			Hunting	0	
318			Furbearer trapping	0	
319			Fishing	0	
320			None of the above	1	
321	F68	Domestic Wells	Wells or water bodies that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside a densely settled area). [NRv]
322			Within 500 ft	0	
323			500-1000 ft	0	
324			>1000 ft away, or none, or no information	1	

Stressor (S) Data Form for Non-Tidal Wetlands. WESPAK-SE version 2	Investigator:	Site Name:	
	Date:	Site Location:	

S1 Wetter Water Regime - *Internal* Causes

In the last column, place a check mark next to any item that is likely to have caused a part of the wetland to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less). (The items you check are not used automatically in subsequent calculations. They are included simply so they may be considered when evaluating the factors in the table beneath them). [CS]

an impounding dam, dike, levee, weir, berm, road fill, or tidegate – within or downgradient from the wetland, or raising of outlet culvert elevation.	x
excavation within the wetland, e.g., artificial pond, dead-end ditch	X
excavation or reflooding of upland soils that adjoined the wetland, thus expanding the area of the wetland	
plugging of ditches or drain tile that otherwise would drain the wetland (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the wetland	
compaction (e.g., ruts) and/or subsidence of the wetland's substrate as a result of machinery, livestock, or off road vehicles	

If any items were checked above, then for each row of the table below, you may assign points (3, 2, or 1 as shown in header) in the last column. However, if you believe the checked items had no measurable effect in making any part of the AA wetter, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Spatial extent of resulting wetter condition	>95% of wetland or >95% of its upland edge (if any)	5-95% of wetland or 5-95% of its upland edge (if any)	<5% of wetland and <5% of its upland edge (if any)	2
When most of wetland's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the wetland that got wetter.				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
			Sum=	3
			Final Score=	**0.25**

S2 Wetter Water Regime - *External* Causes

*In the last column, place a check mark next to any item occurring in the wetland's **contributing area** (CA) that is likely to have caused a part of the wetland to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less).*

subsidies from stormwater, wastewater effluent, or septic system leakage	X
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the wetland	X
removal of timber in the CA or along the wetland's tributaries	X
removal of a water control structure or blockage in tributary upstream from the wetland	

If any items were checked above, then for each row of the table below, you may assign points (3, 2, or 1 as shown in header) in the last column. However, if you believe the checked items had no measurable effect in making any part of the AA wetter, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Spatial extent of resulting wetter condition	>20% of the wetland	5-20% of the wetland	<5% of the wetland	3
When most of wetland's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the wetland that got wetter.				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
			Sum=	4
			Final Score=	**0.33**

S3

Drier Water Regime - Internal Causes

In the last column, place a check mark next to any item located within or immediately adjacent to the wetland, that is likely to have caused a part of the wetland to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less).

ditches or drain tile in the wetland or along its edge that accelerate outflow from the wetland	
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage	
accelerated downcutting or channelization of an adjacent or internal channel (incised below the historical water table level)	
placement of fill material	
withdrawals (e.g., pumping) of natural surface or ground water directly out of the wetland (not its tributaries)	

If any items were checked above, then for each row of the table below, you may assign points in the last column. However, if you believe the checked items had no measurable effect in making any part of the AA drier, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Spatial extent of wetland's resulting drier condition	>95% of wetland or >95% of its upland edge (if any)	5-95% of wetland or 5-95% of its upland edge (if any)	<5% of wetland and <5% of its upland edge (if any)	0
When most of wetland's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the wetland that got drier.				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	6-12"	<6 inches	0
			Sum=	0
			Final Score=	0.00

S4

Drier Water Regime - External Causes

In the last column, place a check mark next to any item within the wetland's CA (including channels flowing into the wetland) that is likely to have caused a part of the wetland to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less).

a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the wetland	
relocation of natural tributaries whose water would otherwise reach the wetland	
instream water withdrawals from tributaries whose water would otherwise reach the wetland	
groundwater withdrawals that divert water that would otherwise reach the wetland	

If any items were checked above, then for each row of the table below assign points that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. However, if you believe the checked items had no measurable effect on the timing of water conditions in any part of the AA, then leave the "0's" for the scores in the following rows.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Spatial extent of wetland's resulting drier condition	>20% of the wetland	5-20% of the wetland	<5% of the wetland	0
When most of wetland's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the wetland that got drier.				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	1-12"	<1 inch	0
			Sum=	0
			Final Score=	0.00

S5

Altered Timing of Water Inputs

*In the last column, place a check mark next to any item that is likely to have caused the **timing** of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either **more muted** (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) **or more flashy** (larger or more frequent spikes but over shorter times). [FA, FR, INV, PH]*

flow regulation in tributaries or water level regulation in adjoining water body, or control structure at water entry points that regulates inflow to the wetland	

	snow storage areas that drain directly to the wetland				
	increased pavement and other impervious surface in the CA				X
	straightening, ditching, dredging, and/or lining of tributary channels in the CA				X
	If any items were checked above, then for each row of the table below, you may assign points. However, if you believe the checked items had no measurable effect on the timing of water conditions in any part of the AA, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.				
		Severe (3 points)	Medium (2 points)	Mild (1 point)	
	Spatial extent within the wetland of timing shift	>95% of wetland	5-95% of wetland	<5% of wetland	2
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
	Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the wetland that experiences those.				
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
				Sum=	3
				Final Score=	0.25
S6	**Accelerated Inputs of Contaminants and/or Salts**				
	In the last column, place a check mark next to any item – occurring in either the wetland or its CA – that is likely to have accelerated the inputs of contaminants or salts to the AA. [FA, NRv, PRv]				
	stormwater or wastewater effluent (including failing septic systems), landfills, industrial facilities				X
	metals & chemical wastes from mining, shooting ranges, snow storage areas, oil/ gas extraction, other sources (see: http://map.dec.state.ak.us/apps/)				
	oil or chemical spills (not just chronic inputs) from nearby roads				
	spraying of pesticides, as applied to lawns, croplands, roadsides, or other areas in the CA				
	If any items were checked above, then for each row of the table below, you may assign points. However, if you believe the checked items did not cumulatively expose the AA to significantly higher levels of contaminants and/or salts, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.				
		Severe (3 points)	Medium (2 points)	Mild (1 point)	
	Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	active mine, mid-sized town, cropland	mildly impacting (reclaimed minie, low density residential)	2
	Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	3
	AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of the CA	3
				Sum=	8
				Final Score=	0.89
S7	**Accelerated Inputs of Nutrients**				
	In the last column, place a check mark next to any item – occurring in either the wetland or its CA – that is likely to have accelerated the inputs of nutrients to the wetland.				
	stormwater or wastewater effluent (including failing septic systems), landfills				
	fertilizers applied to lawns, ag lands, or other areas in the CA				
	livestock, dogs				X
	artificial drainage of upslope lands				
	If any items were checked above, then for each row of the table below, you may assign points. However, if you believe the checked items did not cumulatively expose the AA to significantly more nutrients, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.				
		Severe (3 points)	Medium (2 points)	Mild (1 point)	
	Type of loading	high density of unmaintained septic, some types of industrial sources	moderate density septic, cropland, secondary wastewater treatment plant	livestock, pets, low density residential	1

Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	3
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of the CA	2
			Sum=	6
			Final Score=	0.67

S8 **Excessive Sediment Loading *from Contributing Area***

In the last column, place a check mark next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the wetland from its CA. [FA, INV, SRv]

erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires	
erosion from construction, in-channel machinery in the CA	
erosion from off-road vehicles in the CA	
erosion from livestock or foot traffic in the CA	
stormwater or wastewater effluent	
sediment from road sanding, gravel mining, other mining, oil/ gas extraction	X
accelerated channel downcutting or headcutting of tributaries due to altered land use	
other human-related disturbances within the CA	X

If any items were checked above, then for each row of the table below, you may assign points (3, 2, or 1 as shown in header) in the last column. However, if you believe the checked items did not cumulatively add significantly more sediment or suspended solids to the AA, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	1
Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	3
Duration of sediment inputs to the wetland	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	3
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of the CA	3
* **high**-intensity= extensive off-road vehicle use, plowing, grading, excavation, erosion with or without veg removal; **low**-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment			Sum=	10
			Final Score=	0.83

S9 **Soil or Sediment Alteration *Within the Assessment Area***

In the last column, place a check mark next to any item present in the wetland that is likely to have compacted, eroded, or otherwise altered the wetland's soil. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less). [CS, INV, NR, PH]

compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods	
leveling or other grading not to the natural contour	
tillage, plowing (but excluding disking for enhancement of native plants)	
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland	
excavation	
ditch cleaning or dredging in or adjacent to the wetland	X
boat traffic in or adjacent to the wetland and sufficient to cause shore erosion or stir bottom sediments	
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments	

If any items were checked above, then for each row of the table below, you may assign points. However, if you believe the checked items did not measurably alter the soil structure and/or topography, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	

Spatial extent of altered soil	>95% of wetland or >95% of its upland edge (if any)	5-95% of wetland or 5-95% of its upland edge (if any)	<5% of wetland and <5% of its upland edge (if any)	3
Recentness of significant soil alteration in wetland	current & ongoing	1-12 months ago	>1 yr ago	2
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	2
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	1
			Sum=	8
			Final Score=	0.67

Site Name or ID #:	024
Investigator Name:	Anne Leggett, Irina Lapina
Date of Field Assessment:	October 15, 2015
Nearest Town:	Ketchikan, AK
Latitude (decimal degrees):	55.32243
Longitude (decimal degrees):	-131.60503
HUC12 Watershed # (from UAS web site):	190101020403
Approximate size of the Assessment Area (AA, in acres)	0.064
AA as percent of entire wetland (approx.)	100
Tidal phase during most of visit:	
What percent (approx.) of the **wetland** were you able to visit?	100
What percent (approx.) of the **AA** were you able to visit?	100
Have you attended a training session for this protocol? If so, indicate approximate month & year.	No
How many wetlands have you assessed previously using this protocol (approx.)?	1

Scores will appear below after data are entered in worksheets OF, F, and S. See Manual for definitions and descriptions of how scores were computed.

WESPAK-SE version 2 scores for this NON-tidal Wetland Assessment Area (AA):

										FUNCTION			VALUE		
											Thresholds for Function Rating (normalized score)			*Thresholds for Value Rating (normalized score)*	
Specific Functions or Values:	Function Score raw	Value Score raw	**Function Score (normalized)**	**Function Rating**	**Value Score (normalized)**	**Value Rating**	FV raw	FV Index	**FV Index (normalized)**	Median of Normalized F Scores	Low is < or =	High is >	Median of Normalized V Scores	Low is < or =	High is >
Surface Water Storage (WS)	4.51	3.75	3.78	Moderate	3.75	Moderate	3.76	3.78	2.22	2.95	2.89	6.34	3.06	1.85	5.00
Stream Flow Support (SFS)	4.33	1.57	5.20	Moderate	2.36	Moderate	3.78	5.20	5.20	3.17	2.67	6.13	3.33	1.45	4.48
Streamwater Cooling (WC)	4.58	3.89	4.58	Moderate	5.13	Moderate	4.86	4.86	4.49	4.00	3.36	5.87	1.98	2.11	5.49
Streamwater Warming (WW)	7.30	2.63	7.30	Higher	4.90	Moderate	6.10	7.30	6.78	5.42	3.33	6.80	2.78	2.78	6.63
Sediment & Toxicant Retention & Stabilization (SR)	4.46	10.00	2.94	Lower	10.00	Higher	6.47	6.47	7.56	3.13	3.36	6.52	0.84	2.05	5.86
Phosphorus Retention (PR)	5.02	6.67	2.54	Lower	10.00	Higher	6.27	6.27	5.96	3.34	3.06	6.17	1.27	2.45	5.73
Nitrate Removal & Retention (NR)	5.40	6.75	2.93	Moderate	7.70	Higher	5.31	5.31	5.31	2.33	2.19	4.64	3.25	2.17	4.94
Carbon Sequestration (CS)	5.13		2.04	Lower			2.04	2.04	2.04	6.53	3.66	6.43			
Organic Nutrient Export (OE)	5.12	6.67	7.40	Moderate	6.71	Moderate	7.05	7.40	7.40	7.68	0.00	7.59	7.00	0.00	7.00
Anadromous Fish Habitat (FA)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	0.00	2.93	7.23	0.00	0.63	6.67
Resident & Other Fish Habitat (FR)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	0.00	0.00	7.43	0.00	1.50	7.76
Aquatic Invertebrate Habitat (INV)	6.27	2.85	7.04	Higher	1.42	Lower	4.23	7.04	7.04	3.92	2.48	5.04	2.22	2.50	6.43
Amphibian Habitat (AM)	3.43	4.54	0.30	Lower	4.60	Moderate	2.45	2.45	1.46	4.40	3.59	6.74	4.21	2.43	5.19

Waterbird Feeding Habitat (WBF)	4.14	6.00	5.70	Higher	7.79	Higher	6.75	6.75	7.65	4.60	0.00	5.68	2.53	0.85	4.07
Waterbird Nesting Habitat (WBN)	4.58	0.00	6.62	Higher	0.00	Lower	3.31	6.62	6.62	4.58	0.00	6.44	6.90	1.67	8.70
Songbird, Raptor, & Mammal Habitat (SBM)	4.94	3.33	6.10	Moderate	3.33	Moderate	4.72	6.10	5.90	8.05	0.00	7.35	4.22	2.50	5.63
Pollinator Habitat (POL)	1.39	0.00	1.25	Lower	0.00	Lower	0.63	1.25	0.66	4.94	2.45	5.38	4.15	2.65	5.83
Native Plant Habitat (PH)	4.90	5.00	3.71	Lower	3.35	Lower	3.53	3.71	2.42	5.24	4.52	6.51	3.78	3.78	6.46
Other Values or Attributes:															
Public Use & Recognition (PU)		3.68			5.22	Moderate	5.22	5.22	5.22				2.91	2.32	5.59
Subsistence & Provisioning Services (Subsis)		0.00			0.00	Lower	0.00	0.00	0.00				5.00	0.00	6.67
Wetland Sensitivity (Sens) - *not used in subsequent calculations*		2.44			0.00	Lower	0.00	0.00	0.00				5.91	5.03	7.46
Wetland Ecological Condition (EC) - *not used in subsequent calculations*		1.72			1.81	Lower	1.81	1.81	1.91				4.15	2.79	5.08
Stress Potential (STR) - *not used in subsequent calculations*		7.74			10.00	Higher	10.00	10.00	10.00				6.43	3.31	5.73
Summary Scores for Groups:								**Group Score Not Normalized**	**Group Score Normalized**	**Group Rating**					
HYDROLOGIC Group (WS)								2.22	2.22	Lower	3.08	5.91			
WATER QUALITY Group (max+avg/2 of SR, PR, NR, CS)								6.39	5.52	Moderate	4.23	6.75			
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC, WW)								6.79	4.09	Moderate	4.07	6.60			
FISH Group (max+avg/2 of FA, FR)								0.00	0.00	Lower	2.52	5.83			
AQUATIC HABITAT Group (max+avg/2 of AM, WBF, WBN)								6.44	5.77	Moderate	4.04	6.82			
TERRESTRIAL HABITAT Group (max+avg/2 of SBM, PH, POL)								4.45	2.61	Lower	3.61	6.32			
SOCIAL GROUP (max+avg/2 of PU, Subsis)								5.22	5.73	Moderate	3.66	6.58			

	AVG w/o Social	with Social	selected higher	normalized
	4.57	4.74	4.74	3.79

Overall Score (see Manual for explanation of how the spreadsheet calculates it):	3.79
Overall Rating:	Moderate

FormDB: Information Copy-pasted from worksheet DBpaste.

		Segment ID#:		
Q#	Indicator	Paste Transposed Numbers Starting in Cell Below	Name	Automated Scoring Explanation
DB1	Predominant Coastal Class (BC Class)	14.00	BCclass	See table in Manual for names associated with the number codes.
DB2	Scarcity of This Coastal Class in Region	0.57	classfreq	If you changed DB1, you must change this number too. See directions in Manual.
DB3	Subregion	0.00	subregn	1= Outer Coast (high salinity, cool sea surface temperature); **0.5**= North Inside Passage (low salinity, cool sea surface temperature); **0**= South Inside Passage (low salinity, warm sea surface temperature).
DB4	Exposure Class	0.25	exposure	1 if Exposed, **0.75** if Very Exposed or Semi-exposed, **0.5** if Semi-Protected, **0.25** if Protected, **0** if Very Protected. If no data for this segment, select one of these scores based on your observations.
DB5	Slope of Intertidal	0.50	tidalslope	1 if flat, **0.5** if inclined, **0** if steep.
DB6	Number of Biobands (main)	0.50	numbands1	Do not edit. **0** if 1, **0.33** if 2, **0.66** if 3, **1.00** if 4 (of 4 possible).
DB7	Number of Biobands (all)	0.31	numbandsall	Do not edit. **0** if <3, **0.25** if 3-4, **0.50** if 5-6, **0.75** if 7-8, **1.00** if >8
DB8	Seagrass	0.00	eelgrass	**0**= absent, **0.75**= patchy, **1**= mostly continuous along segment shore
DB9	Canopy Kelp	0.00	kelp	**0**= absent, **0.75**= patchy, **1**= mostly continuous along segment shore
DB10	Marsh	0.00	marsh	**0**= absent, **0.75**= patchy, **1**= mostly continuous along segment shore
DB11	Mussel Bioband	0.00	mussel	**0**= none or no data, **1**= present
DB12	Eulachon Spawning	0.00	eulachon	**0**= none or no data, **1**= present
DB13	Herring Spawning	0.00	herring	**0**= none or no data, **1**= present
DB14	Distance to Anadromous Stream (in meters)	0.00	distAnad	The score was determined by dividing by 1709 the distance (in m) to nearest anadromous stream shown in ADFG Catalog (unless better data identified) and subtracting that number from 1 so that shore segments intersected or close to anadromous streams score higher. If nearest is farther than 1 mile, the score was set to **0**.
DB15	Seal/SeaLion/SeaOtter Concentration	0.00	haulout	**0**= none or no data, **1**= present
DB16	Seabird Density: Summer	0.25	seabird_S	Do not edit. **0** if <7.10, **0.25** if 7.10-18.74, **0.50** if 18.75-40.05, **0.75** if 40.06-98.24, **1.00** if >98.24
DB17	Seabird Density: Winter	0.25	seabird_W	Do not edit. **0** if <4.94, **0.25** if 4.94-10.64, **0.50** if 10.65-18.42, **0.75** if 18.43-30.50, **1.00** if >30.50
DB18	Deer Wintering Suitability	0.43	deerhab	Do not edit. **0** if 0, **0.25** if 0.01-0.30, **0.50** if 0.31-0.50, **0.75** if 0.51-0.80, **1.00** if >0.80
DB19	Bear Habitat Suitability	0.00	bearhab	Do not edit. **0** if 0, **0.25** if 1-16, **0.50** if 17-47, **0.75** if 48-70, **1.00** if >70
DB20	Number of Mapped Cover Types in Buffer	0.40	numcovertypes	Do not edit. Number of types divided by potential number of types (10).
DB21	Salmon Habitat (score for all species), Watershed Scale	0.35	salmoshedAll	TNC score normalized by subregional maximum.
DB22	Salmon Habitat (score for species with best habitat), Watershed Scale	0.68	salmoshedBest	TNC score normalized by subregional maximum.
DB23	Estuarine Predominance, Watershed Scale	0.86	shedestu	TNC score normalized by subregional maximum.
DB24	Marbled Murrelet Nesting Habitat, Watershed Scale	0.47	shedmamu	TNC score normalized by subregional maximum.
DB25	Older Growth Riparian Forest, Watershed Scale	0.16	shedbigtrees	TNC score normalized by subregional maximum.
DB26	Cumulative Index of Human Activity (TNC index)	0.31	intactness	Do not edit. **1.00** if <0.18; **0.75** if 0.18-0.57, **0.50** if 0.58-1.04, **0.25** if 1.05-1.78, **0** if >1.78
DB27	Watershed Carbon Output, Spring	0.07	C_outS	Do not edit. **0** if <4.85; **0.25** if 4.85-6.27, **0.50** if 6.28-8.16, **0.75** if 8.17-11.22, **1.00** if >11.22
DB28	Watershed Carbon Output, Fall	0.07	C_outF	Do not edit. **0** if <7.08; **0.25** if 7.08-8.77, **0.50** if 8.78-10.83, **0.75** if 10.84-14.27, **1.00** if >14.27
DB29	Karst Geology	0.00	karst	**0** if none shown on map & none observed, **1** if map or your observations indicate karst

Form M. Indicators measured at UAS web site or with Google Earth Pro					
	Segment ID#:				
Q#	Indicator	Code Choices (select one and enter in next column)	Enter Numeric Code Here	Name	Explanation
m1	Width of Intertidal Zone: Maximum (in feet)	**0** if <150', **0.25** if 150-300', **0.5** if 300-500', **0.75** if 500-3000', **1** if >3000'.	0.00	tidalwidth	In Google Earth (or other imagery), determine the segment's maximum width (in ft) measured approximately perpendicular to the tree line. However, if less than 10% of the segment is that wide (i.e., that maximum is only associated with a narrow protrusion), report a maximum width that represents more of the shore segment.
m2	Width of **Vegetated** Intertidal (marsh, NOT seaweed): Maximum ft.	**0** if <10' or none, **0.25** if 10-50', **0.5** if 50-100', **0.75** if 100-1000', **1** if >1000'.	0.00	marshwidth	See instructions above.
m3	Width of Wooded Buffer: Minimum ft.	**0** if <10' or none, **0.25** if 10-50', **0.5** if 50-500', **0.75** if 500-1000', **1** if >1000'.	0.25	buffwidth	Determine the buffer's minimum width (in ft) measured approximately perpendicular to the HHW line. Proceeding uphill, stop the measurement where a linear feature (e.g., road, clearcut) interrupts forest along more than half of the shore segment's length.
m4	Percent-Slope of Contributing Area	**1** if <10%, **0.75** if 10-25%, **0.5** if 25-35%, **0.25** if 35-45%, **0** if >45%	0.75	shedslope	See instructions in Manual and use Google Earth Pro to measure.
m5	Distance to Nearest Mapped Stream (in ft)	**1** if <100' or stream intersects the shore segment, **0.75** if 100-300', **0.5** if 300-1000', **0.25** if 1000'-1 mile, **0** if >1 mile.	0.00	diststream	To show streams, view a topo map or go to the UAS web site: http://seakgis.alaska.edu/flex/wetlands/ In menu on right, check the box next to National Hydrography Data Set and check the box having a "+" to expand the menu. Then check High Resolution> Flow Direction. Measure the direct distance but not farther than 1 mile.
m6	Distance to Nearest Lake/Pond (in miles)	**1** if <0.5 mi, **0.75** if 0.5-1 mi, **0.5** if 1-2 mi, **0.25** if 2-5 mi, **0** if >5 miles.	0.50	distpond	Use Google Earth or topo map. Measure the direct distance but not farther than 5 miles.
m7	Distance to Nearest Town (in miles)	**1** if <0.5 mi, **0.75** if 0.5-2 mi, **0.5** if 2-5 mi, **0.25** if 5-10 mi, **0** if >5 miles.	1.00	distpop	Go to the UAS web site: http://seakgis.alaska.edu/flex/wetlands/ Scroll to the bottom of the menu on the right and check "Towns". Measure the direct distance.
m8	Distance to Nearest Residence or Busy Access Point (in ft)	**0** if <100 ft or is present in the shore segment, **0.5** if 100-1000 ft, **1** if >1000 ft.	0.00	distbdg	Use Google Earth and local knowledge. "Busy access point" can include harbors, boat landings, public docks, picnic areas visited semi-daily during busiest times of the year. Do not measure further than 1000 ft.
m9	Distance to Nearest Segment of Same Coastal Class (in ft)	**0** if <1000', **0.25** if 1000-2000', **0.5** if 2000-3000', **0.75** if 3000'-1 mile, **1** if >1 mile.	0.75	distsameclass	Go to the UAS web site: http://seakgis.alaska.edu/flex/wetlands/ Scroll to near the bottom of the menu on the right and check "ShoreZone". Then check "Units" to show the shore segments. Also check "Derived ShoreZone Attributes"> "Coastal Class" (NOT Habitat Class). Uncheck other boxes. The "segment of same class" means segment of the same COLOR. Do not measure further than 1 mile. If no others within 1 mile, enter a 1.
m10	Number of Different Coastal Classes within 1 mile	**0** if <3, **0.25** if 3-5, **0.5** if 6-8, **0.75** if 9 to 11, **1** if >11	0.75	numclasses	see above, and the Manual.
m11	Number of Segments of Same Coastal Class within 1 mile	**0** if >6, **0.25** if 5-6, **0.5** if 3-4, **0.75** if 1-2, **1** if none	0.00	numsameclass	see above, and the Manual.
m12	Number of Eagle Nests within 2 miles	**0** if 0, **0.25** if 1, **0.5** if 2-5, **0.75** if 6-17, **1** if >17	1.00	eaglenests	At the UAS web site, in the menu on the right check "Habitat Layers". Expand the menu and check "Documented Eagle Nest Sites".
m13	IBA (Important Bird Area).	**1** if true, **0** if false.	0	partIBA	coded 1 if true, 0 if false. See boundaries on UAS website if the shore segment may be within these areas: Mendenhall Wetlands (Juneau), Berners Bay (Juneau), Port Snettisham (Juneau), Blacksand Spit (Yakutat), Icy Bay (Yakutat), Chilkat Bald Eagle Preserve (Haines), St. Alaria Island (Sitka), Forrester Island (Prince of Wales-Outer Ketchikan), Stikine River Delta (Wrangell-Petersburg).

Q#	Indicator	Condition Choices	Mark "1" for Choice(s) Here	Wt	Score	Name
F1	**Percent of Intertidal Flooded by High Tide (most days)**	What percentage of the substrate downgradient of the annual HHW line is likely to be flooded by tide once daily during MOST days of the month?			0.67	floodpct
		<1%		0	0	
		1-9%		1	0	
		10-24%		2	0	
		25-49%		3	0	
		50-74%	1	4	4	
		75-89%		5	0	
		90-99%		6	0	
		>99%		5	0	
F2	**Seaweed Cover: Percent of Intertidal**	Within the part that is alternately flooded and unflooded daily (i.e., the lower elevations), how much appears to be covered by macro-algae (seaweed)? Estimate the cover as it would exist at its annual maximum.			0.83	algapct
		<1%		0	0	
		1-9%		1	0	
		10-24%		2	0	
		25-49%		3	0	
		50-74%		4	0	
		75-89%	1	5	5	
		90-99%		6	0	
		>99%		5	0	
F3	**Canopy Kelp & Seagrasses: Percent of Segment Length**	What percent of the segment's length, measured parallel to the shore, is comprised of canopy kelps, eelgrass, and/or surfgrass? Estimate the cover as it would exist at the time of annual maximum growth.			0.25	kelppct
		none (absent or trace)		0	0	
		1-24%	1	1	1	
		25-49%		2	0	
		50-74%		3	0	
		>75%		4	0	
F4	**Tide Pools**	Does the segment contain tide pools, salt pannes, or tidal ponds? Include only those that contain some water of 2-12 inch depth at low tide.			0.00	tidepools
		No	1	0	0	
		Yes, but only a few		1	0	
		Yes, and numerous		2	0	
F5	**Trees Fallen in Water**	Does the segment's intertidal zone contain trees, still with branches, that have fallen into or been carried into this segment by currents? Do not include branchless driftwood or trees that have been cut.			0.00	Lwood
		No	1	0	0	

		Yes, but only a few		1	0	
		Yes, and numerous		2	0	
F6	**Cloudy Water**	Select one:			1.00	turbid
		High confidence that the segment's water is cloudy most of the year as a result of nearby glacier meltwater, erosion, or mining.		0	0	
		Low confidence that the segment's water is cloudy most of the year (or high confidence that it is cloudy only infrequently) as a result of nearby glacier meltwater, erosion, or mining. These sediment sources are usually close to tidewater in this estuary.		1	0	
		The segment's water is almost never cloudy as a result of nearby glacier meltwater, erosion, or mining.	1	2	2	
F7	**Human Use Indicators**	Mark ALL features with likely impacts on the vegetation, sediments, water flow, water quality, or hazards to wildlife in a large portion of the segment. The features may be either in or out of the segment.			0.00	altered
		Maintained trails	1	1	1	
		Tire tracks or evidence of compaction by off-road machinery use		2	0	
		Docks or piers : with probable impact on longshore currents or waves	1	2	2	
		Docks or piers : with little/no impact on longshore currents or waves		1	0	
		Berms or dikes: with probable impact on tidal timing or amplitude in blocked area.		2	0	
		Berms or dikes: with little/no impact on tidal timing or amplitude in blocked area.		1	0	
		Log transfer facility		2	0	
		Marine debris (plastics, styrofoam, etc. carried in by water)		1	0	
		Litter (decay-resistant items left onsite by people)		1	0	
F8	**Bulkheads, Seawalls, and Levees (Shoreline Armoring)**	The percentage of this segment's Supratidal edge length that is armored (protected from erosion) by vertical bulkheads/ riprap, is:				armoring
		none	1	0	0	
		less than half		1	0	
		more than half		2	0	
F9	**Artificial Muting of Tidal Prism**	Compared to historical conditions, does any tidal part of the segment receive tidal water less frequently, or with a time delay of minutes to hours, as a result of human alterations either within the segment or downgradient, e.g., berms, dikes, inadequate culverts, tidegates? Or, the daily tidal prism within the segment is now more muted (less amplitude than historically, delayed inflow outflow) as a result of human alterations?				muting
		no	1	0	0	
		yes, and alterating feature was installed more than 10 years ago		1	0	
		yes, and alterating feature was installed recently (<10 years ago)		2	0	
F10	**Potential Disturbance of Wildlife by Boats**	During late summer (waterbird molting time), motorized boat traffic in the vicinity of the segment is:			0.00	boats
		infrequent (few or none daily) and mostly distant (>300 ft) from the segment.		2	0	
		intermediate		1	0	
		frequent (multiple incursions per day) and/or within the segment.	1	0	0	

F11	**Woody Diameter Classes**	Mark all the classes of woody plants within the segment's 100-foot buffer, but only IF they comprise more than 5% of the woody canopy or subcanopy within the buffer.			0.63	treedivers
		evergreen 1-4" diameter and >3 ft tall	1			
		deciduous 1-4" diameter and >3 ft tall	1			
		evergreen 4-9" diameter	1			
		deciduous 4-9" diameter	1			
		evergreen 9-21" diameter	1			
		deciduous 9-21" diameter				
		evergreen >21" diameter				
		deciduous >21" diameter				
F12	**Alder & Sweetgale Cover**	What percentage of the segment's 100-foot buffer contains alder or sweetgale?			0.25	nfixers
		<1%		0	0	
		1-24%	1	1	1	
		25-49%		2	0	
		50-75%		3	0	
		>75%		4	0	
F13	**Berry Producers**	What percentage of the segment's 100-foot buffer contains blueberry, salmonberry, or other woody plants with fleshy fruit?			0.25	berries
		<1%		0	0	
		1-24%	1	1	1	
		25-49%		2	0	
		50-75%		3	0	
		>75%		4	0	
F14	**Wildlife Sign**	Does the segment have cliffs or structures used by nesting seabirds, kingfishers, or swallows? Or are there signs of bear or deer visiting the segment, e.g., trails, scat, tracks, or sighting? Enter **1** if either is true, **0** if none observed.			0.00	wildsign
F15	**Salinity**	At or near high tide, the salinity of water at the segment's subtidal edge, in parts per thousand, is: [change to blank if no measurement possible]				salin
F16	**Notable Bird Concentrations**	Enter a "1" for each of the following bird species if you know they have been documented at these levels by qualified wildlife biologists or your own survey in the segment, or in subtidal waters within 100 m, or in the upland buffer. Do not speculate. Exclude birds that only fly over and do not land in this segment.				rarebirds
		Sandhill crane >10 individuals				
		Scoters >250, Goldeneye >150, or Harlequin Duck >100 individuals				
		Loons & Grebes >20 individuals				
		Snow Goose >100, Canada Goose >500, or Mallard >150 individuals				
		Shorebirds >100 individuals or any nesting Black Oystercatcher				
		Short-eared Owl (any)				
		No information available	1			

Nearshore Assessment Tool for Southeast Alaska (NATAK-SE version 1.0)

Calculator created by Dr. Paul Adamus (acamus7@comcast.net) for the Southeast Alaska Land Trust, April 2016, with funding from the Coastal Impact Assistance Program, U.S. Fish & Wildlife Service, through the Alaska Department of Commerce, Community, and Economic Development, Grant #10-CIAP-0009, "Habitat Mapping and Analysis Project".

Phys_Iden (from ShoreZone):	12_01_0154_0
Latitude (decimal degrees)	55.32831
Longitude (decimal degrees)	-131.61769
Date Visited:	10/14/2015
Time of Visit (begin):	
Time of Visit (end):	
Time of Low Tide:	
Observer Initials:	IL, AL
Length (m) of Shore Segment	500

Was a Biosurvey Done? (if yes, report the following):	Transect 1	Transect 2	Transect 3
Length (m) of Low Zone			
Length (m) of Mid Zone			
Length (m) of High Zone			

	Rapid + Biosurvey			Rapid Only			
Resource or Function	**Raw Score**	**Normalized* Score**	**Rating**	**Raw Score**	**Normalized* Score**	**Rating**	**Definition**
Subsidy Function				5.10	4.64	Moderate	Conditions that indicate the capacity of a shore segment and its associated watershed to produce and/or export carbon and associated micronutrients to subtidal waters on a net annual basis.
Food Web Diversity				2.61	0.42	Lower	Conditions that support large number of intertidal macroinvertebrate and seaweed species per unit area.
Focal Fish				2.96	9.48	Higher	Conditions that support relatively large number of focal fish species (salmonids, eulachon, herring).
Sea & Shore Birds				3.20	3.98	Moderate	Conditions that support relatively high density (concentrations) or large number of bird species that regularly use shoreline habitats: geese, gulls, shorebirds, cranes, some ducks, loons, grebes, cormorants, and alcids).
Pinnipeds				1.67	1.90	Lower	Conditions that support relatively high density (concentrations) of seals or sea lions.
Buffer Wildlife				3.31	0.01	Lower	For songbirds and raptors that regularly use shoreline habitats (shoreline forests & meadows that are within 100 ft landward of annual HHW): Conditions that support relatively high density & productivity, large number of taxa, and/or taxa that contribute the most to regional avifauna due to their restricted distribution. Also, conditions that support relatively high density of deer and/or bears at any season.
Filter Function				1.67	2.67	Lower	Conditions that indicate the capacity of a shore segment to detain sediment and/or process some pollutants before those enter subtidal waters.

* **normalized** means the raw scores were automatically converted to scale of 0 to 10 by comparing to the range of scores found among the regional sample of 47 shore segments, using this formula: 10*(raw score - regional minimum) / (regional maximum - regional minimum). Rating categories were defined by natural breaks in the score distribution of each resource or function among the 47 shore segments.

** A score of 0 does **not** mean the resource or function is absent from a segment. It only means that segment may have equal or less capacity than the lowest-scoring one, for that resource or function, among the 47 segments that were assessed to calibrate its model.

FormDB: Information Copy-pasted from worksheet DBpaste.

		Segment ID#:		
Q#	Indicator	Paste Transposed Numbers Starting in Cell Below	Name	Automated Scoring Explanation
DB1	Predominant Coastal Class (BC Class)	12	BCclass	See table in Manual for names associated with the number codes.
DB2	Scarcity of This Coastal Class in Region	0.63	classfreq	If you changed DB1, you must change this number too. See directions in Manual.
DB3	Subregion	0.00	subregn	**1=** Outer Coast (high salinity, cool sea surface temperature); **0.5=** North Inside Passage (low salinity, cool sea surface temperature); **0=** South Inside Passage (low salinity, warm sea surface temperature).
DB4	Exposure Class	0.50	exposure	**1** if Exposed, **0.75** if Very Exposed or Semi-exposed, **0.5** if Semi-Protected, **0.25** if Protected, **0** if Very Protected. If no data for this segment, select one of these scores based on your observations.
DB5	Slope of Intertidal	1.00	tidalslope	**1** if flat, **0.5** if inclined, **0** if steep.
DB6	Number of Biobands (main)	0.75	numbands1	Do not edit. **0** if 1, **0.33** if 2, **0.66** if 3, **1.00** if 4 (of 4 possible).
DB7	Number of Biobands (all)	0.46	numbandsall	Do not edit. **0** if <3, **0.25** if 3-4, **0.50** if 5-6, **0.75** if 7-8, **1.00** if >8
DB8	Seagrass	0.00	eelgrass	**0**= absent, **0.75**= patchy, **1**= mostly continuous along segment shore
DB9	Canopy Kelp	1.00	kelp	**0**= absent, **0.75**= patchy, **1**= mostly continuous along segment shore
DB10	Marsh	0.00	marsh	**0**= absent, **0.75**= patchy, **1**= mostly continuous along segment shore
DB11	Mussel Bioband	0	mussel	**0**= none or no data, **1**= present
DB12	Eulachon Spawning	0.00	eulachon	**0**= none or no data, **1**= present
DB13	Herring Spawning	0.00	herring	**0**= none or no data, **1**= present
DB14	Distance to Anadromous Stream (in meters)	0.88	distAnad	The score was determined by dividing by 1709 the distance (in m) to nearest anadromous stream shown in ADFG Catalog (unless better data identified) and subtracting that number from 1 so that shore segments intersected or close to anadromous streams score higher. If nearest is farther than 1 mile, the score was set to**0**.
DB15	Seal/SeaLion/SeaOtter Concentration	0.00	haulout	**0**= none or no data, **1**= present
DB16	Seabird Density: Summer	0.25	seabird_S	Do not edit. **0** if <7.10, **0.25** if 7.10-18.74, **0.50** if 18.75-40.05, **0.75** if 40.06-98.24, **1.00** if >98.24
DB17	Seabird Density: Winter	0.01	seabird_W	Do not edit. **0** if <4.94, **0.25** if 4.94-10.64, **0.50** if 10.65-18.42, **0.75** if 18.43-30.50, **1.00** if >30.50
DB18	Deer Wintering Suitability	0.10	deerhab	Do not edit. **0** if 0, **0.25** if 0.01-0.30, **0.50** if 0.31-0.50, **0.75** if 0.51-0.80, **1.00** if >0.80
DB19	Bear Habitat Suitability	0.03	bearhab	Do not edit. **0** if 0, **0.25** if 1-16, **0.50** if 17-47, **0.75** if 48-70, **1.00** if >70
DB20	Number of Mapped Cover Types in Buffer	0.50	numcovertypes	Do not edit. Number of types divided by potential number of types (10).
DB21	Salmon Habitat (score for all species), Watershed Scale	0.86	salmoshedAll	TNC score normalized by subregional maximum.
DB22	Salmon Habitat (score for species with best habitat), Watershed Scale	0.93	salmoshedBest	TNC score normalized by subregional maximum.
DB23	Estuarine Predominance, Watershed Scale	0.88	shedestu	TNC score normalized by subregional maximum.
DB24	Marbled Murrelet Nesting Habitat, Watershed Scale	0.67	shedmamu	TNC score normalized by subregional maximum.
DB25	Older Growth Riparian Forest, Watershed Scale	0.58	shedbigtrees	TNC score normalized by subregional maximum.
DB26	Cumulative Index of Human Activity (TNC index)	0.29	intactness	Do not edit. **1.00** if <0.18; **0.75** if 0.18-0.57, **0.50** if 0.58-1.04, **0.25** if 1.05-1.78, **0** if >1.78
DB27	Watershed Carbon Output, Spring	0.08	C_outS	Do not edit. **0** if <4.85; **0.25** if 4.85-6.27, **0.50** if 6.28-8.16, **0.75** if 8.17-11.22, **1.00** if >11.22
DB28	Watershed Carbon Output, Fall	0.08	C_outF	Do not edit. **0** if <7.08; **0.25** if 7.08-8.77, **0.50** if 8.78-10.83, **0.75** if 10.84-14.27, **1.00** if >14.27
DB29	Karst Geology	0.00	karst	**0** if none shown on map & none observed, **1** if map or your observations indicate karst

Form M. Indicators measured at UAS web site or with Google Earth Pro					
	Segment ID#:				
Q#	Indicator	Code Choices (select one and enter in next column)	Enter Numeric Code Here	Name	Explanation
m1	Width of Intertidal Zone: Maximum (in feet)	**0** if <150', **0.25** if 150-300', **0.5** if 300-500', **0.75** if 500-3000', **1** if >3000'.	0.25	tidalwidth	In Google Earth (or other imagery), determine the segment's maximum width (in ft) measured approximately perpendicular to the tree line. However, if less than 10% of the segment is that wide (i.e., that maximum is only associated with a narrow protrusion), report a maximum width that represents more of the shore segment.
m2	Width of **Vegetated** Intertidal (marsh, NOT seaweed): Maximum ft.	**0** if <10' or none, **0.25** if 10-50', **0.5** if 50-100', **0.75** if 100-1000', **1** if >1000'.	0.00	marshwidth	See instructions above.
m3	Width of Wooded Buffer: Minimum ft.	**0** if <10' or none, **0.25** if 10-50', **0.5** if 50-500', **0.75** if 500-1000', **1** if >1000'.	0.00	buffwidth	Determine the buffer's minimum width (in ft) measured approximately perpendicular to the HHW line. Proceeding uphill, stop the measurement where a linear feature (e.g., road, clearcut) interrupts forest along more than half of the shore segment's length.
m4	Percent-Slope of Contributing Area	**1** if <10%, **0.75** if 10-25%, **0.5** if 25-35%, **0.25** if 35-45%, **0** if >45%	0.75	shedslope	See instructions in Manual and use Google Earth Pro to measure.
m5	Distance to Nearest Mapped Stream (in ft)	**1** if <100' or stream intersects the shore segment, **0.75** if 100-300', **0.5** if 300-1000', **0.25** if 1000'-1 mile, **0** if >1 mile.	1.00	diststream	To show streams, view a topo map or go to the UAS web site: http://seakgis.alaska.edu/flex/wetlands/ In menu on right, check the box next to National Hydrography Data Set and check the box having a "+" to expand the menu. Then check High Resolution> Flow Direction. Measure the direct distance but not farther than 1 mile.
m6	Distance to Nearest Lake/Pond (in miles)	**1** if <0.5 mi, **0.75** if 0.5-1 mi, **0.5** if 1-2 mi, **0.25** if 2-5 mi, **0** if >5 miles.	0.50	distpond	Use Google Earth or topo map. Measure the direct distance but not farther than 5 miles.
m7	Distance to Nearest Town (in miles)	**1** if <0.5 mi, **0.75** if 0.5-2 mi, **0.5** if 2-5 mi, **0.25** if 5-10 mi, **0** if >5 miles.	1.00	distpop	Go to the UAS web site: http://seakgis.alaska.edu/flex/wetlands/ Scroll to the bottom of the menu on the right and check "Towns". Measure the direct distance.
m8	Distance to Nearest Residence or Busy Access Point (in ft)	**0** if <100 ft or is present in the shore segment, **0.5** if 100-1000 ft, **1** if >1000 ft.	0.00	distbdg	Use Google Earth and local knowledge. "Busy access point" can include harbors, boat landings, public docks, picnic areas visited semi-daily during busiest times of the year. Do not measure further than 1000 ft.
m9	Distance to Nearest Segment of Same Coastal Class (in ft)	**0** if <1000', **0.25** if 1000-2000', **0.5** if 2000-3000', **0.75** if 3000'-1 mile, **1** if >1 mile.	0.00	distsameclass	Go to the UAS web site: http://seakgis.alaska.edu/flex/wetlands/ Scroll to near the bottom of the menu on the right and check "ShoreZone". Then check "Units" to show the shore segments. Also check "Derived ShoreZone Attributes"> "Coastal Class" (NOT Habitat Class). Uncheck other boxes. The "segment of same class" means segment of the same COLOR. Do not measure further than 1 mile. If no others within 1 mile, enter a 1.
m10	Number of Different Coastal Classes within 1 mile	**0** if <3, **0.25** if 3-5, **0.5** if 6-8, **0.75** if 9 to 11, **1** if >11	0.50	numclasses	see above, and the Manual.
m11	Number of Segments of Same Coastal Class within 1 mile	**0** if >6, **0.25** if 5-6, **0.5** if 3-4, **0.75** if 1-2, **1** if none	0.50	numsameclass	see above, and the Manual.
m12	Number of Eagle Nests within 2 miles	**0** if 0, **0.25** if 1, **0.5** if 2-5, **0.75** if 6-17, **1** if >17	1.00	eaglenests	At the UAS web site, in the menu on the right check "Habitat Layers". Expand the menu and check "Documented Eagle Nest Sites".
m13	IBA (Important Bird Area).	**1** if true, **0** if false.	0	partIBA	coded 1 if true, 0 if false. See boundaries on UAS website if the shore segment may be within these areas: Mendenhall Wetlands (Juneau), Berners Bay (Juneau), Port Snettisham (Juneau), Blacksand Spit (Yakutat), Icy Bay (Yakutat), Chilkat Bald Eagle Preserve (Haines), St. Alaria Island (Sitka), Forrester Island (Prince of Wales-Outer Ketchikan), Stikine River Delta (Wrangell-Petersburg).

F16	**Notable Bird Concentrations**	Enter a "1" for each of the following bird species if you know they have been documented at these levels by qualified wildlife biologists or your own survey in the segment, or in subtidal waters within 100 m, or in the upland buffer. Do not speculate. Exclude birds that only fly over and do not land in this segment.				rarebirds
		Sandhill crane >10 individuals				
		Scoters >250, Goldeneye >150, or Harlequin Duck >100 individuals				
		Loons & Grebes >20 individuals				
		Snow Goose >100, Canada Goose >500, or Mallard >150 individuals				
		Shorebirds >100 individuals or any nesting Black Oystercatcher				
		Short-eared Owl (any)				
		No information available	1			

Nearshore Assessment Tool for Southeast Alaska (NATAK-SE version 1.0)

Calculator created by Dr. Paul Adamus (adamus7@comcast.net) for the Southeast Alaska Land Trust, April 2016, with funding from the Coastal Impact Assistance Program, U.S. Fish & Wildlife Service, through the Alaska Department of Commerce, Community, and Economic Development, Grant #10-CIAP-0009, "Habitat Mapping and Analysis Project".

Phys_Iden (from ShoreZone):	12_01_0174_0
Latitude (decimal degrees)	55.313666
Longitude (decimal degrees)	-131.58968
Date Visited:	10/15/2016
Time of Visit (begin):	
Time of Visit (end):	
Time of Low Tide:	
Observer Initials:	IL, AL
Length (m) of Shore Segment	300

Was a Biosurvey Done? (if yes, report the following):	Transect 1	Transect 2	Transect 3
Length (m) of Low Zone			
Length (m) of Mid Zone			
Length (m) of High Zone			

	Rapid + Biosurvey			Rapid Only			
Resource or Function	**Raw Score**	**Normalized* Score**	**Rating**	**Raw Score**	**Normalized* Score**	**Rating**	**Definition**
Subsidy Function				2.88	1.37	Lower	Conditions that indicate the capacity of a shore segment and its associated watershed to produce and/or export carbon and associated micronutrients to subtidal waters on a net annual basis.
Food Web Diversity				3.38	2.15	Lower	Conditions that support large number of intertidal macroinvertebrate and seaweed species per unit area.
Focal Fish				5.41	23.02	Higher	Conditions that support relatively large number of focal fish species (salmonids, eulachon, herring).
Sea & Shore Birds				4.59	6.98	Higher	Conditions that support relatively high density (concentrations) or large number of bird species that regularly use shoreline habitats: geese, gulls, shorebirds, cranes, some ducks, loons, grebes, cormorants, and alcids).
Pinnipeds				6.29	7.19	Higher	Conditions that support relatively high density (concentrations) of seals or sea lions.
Buffer Wildlife				3.92	1.58	Lower	For songbirds and raptors that regularly use shoreline habitats (shoreline forests & meadows that are within 100 ft landward of annual HHW): Conditions that support relatively high density & productivity, large number of taxa, and/or taxa that contribute the most to regional avifauna due to their restricted distribution. Also, conditions that support relatively high density of deer and/or bears at any season.
Filter Function				1.67	2.67	Lower	Conditions that indicate the capacity of a shore segment to detain sediment and/or process some pollutants before those enter subtidal waters.

* **normalized** means the raw scores were automatically converted to scale of 0 to 10 by comparing to the range of scores found among the regional sample of 47 shore segments, using this formula: 10*(raw score - regional minimum) / (regional maximum - regional minimum). Rating categories were defined by natural breaks in the score distribution of each resource or function among the 47 shore segments.

** A score of 0 does **not** mean the resource or function is absent from a segment. It only means that segment may have equal or less capacity than the lowest-scoring one, for that resource or function, among the 47 segments that were assessed to calibrate its model.

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Q#	Indicator	Condition Choices	Mark "1" for Choice(s) Here	Wt	Score	Name
F1	**Percent of Intertidal Flooded by High Tide (most days)**	What percentage of the substrate downgradient of the annual HHW line is likely to be flooded by tide once daily during MOST days of the month?			0.67	floodpct
		<1%		0	0	
		1-9%		1	0	
		10-24%		2	0	
		25-49%		3	0	
		50-74%	1	4	4	
		75-89%		5	0	
		90-99%		6	0	
		>99%		5	0	
F2	**Seaweed Cover: Percent of Intertidal**	Within the part that is alternately flooded and unflooded daily (i.e., the lower elevations), how much appears to be covered by macro-algae (seaweed)? Estimate the cover as it would exist at its annual maximum.			0.33	algapct
		<1%		0	0	
		1-9%		1	0	
		10-24%	1	2	2	
		25-49%		3	0	
		50-74%		4	0	
		75-89%		5	0	
		90-99%		6	0	
		>99%		5	0	
F3	**Canopy Kelp & Seagrasses: Percent of Segment Length**	What percent of the segment's length, measured parallel to the shore, is comprised of canopy kelps, eelgrass, and/or surfgrass? Estimate the cover as it would exist at the time of annual maximum growth.			0.00	kelppct
		none (absent or trace)	1	0	0	
		1-24%		1	0	
		25-49%		2	0	
		50-74%		3	0	
		>75%		4	0	
F4	**Tide Pools**	Does the segment contain tide pools, salt pannes, or tidal ponds? Include only those that contain some water of 2-12 inch depth at low tide.			0.00	tidepools
		No	1	0	0	
		Yes, but only a few		1	0	
		Yes, and numerous		2	0	
F5	**Trees Fallen in Water**	Does the segment's intertidal zone contain trees, still with branches, that have fallen into or been carried into this segment by currents? Do not include branchless driftwood or trees that have been cut.			0.50	Lwood
		No		0	0	
		Yes, but only a few	1	1	1	
		Yes, and numerous		2	0	
F6	**Cloudy Water**	Select one:			1.00	turbid
		High confidence that the segment's water is cloudy most of the year as a result of nearby glacier meltwater, erosion, or mining.		0	0	
		Low confidence that the segment's water is cloudy most of the year (or high confidence that it is cloudy only infrequently) as a result of nearby glacier meltwater, erosion, or mining. These sediment sources are usually close to tidewater in this estuary.		1	0	
		The segment's water is almost never cloudy as a result of nearby glacier meltwater, erosion, or mining.	1	2	2	
F7	**Human Use Indicators**	Mark ALL features with likely impacts on the vegetation, sediments, water flow, water quality, or hazards to wildlife in a large portion of the segment. The features may be either in or out of the segment.			0.00	altered
		Maintained trails	1	1	1	
		Tire tracks or evidence of compaction by off-road machinery use		2	0	

		Docks or piers : with probable impact on longshore currents or waves	1	2	2	
		Docks or piers : with little/no impact on longshore currents or waves		1	0	
		Berms or dikes: with probable impact on tidal timing or amplitude in blocked area.		2	0	
		Berms or dikes: with little/no impact on tidal timing or amplitude in blocked area.	1	1	1	
		Log transfer facility		2	0	
		Marine debris (plastics, styrofoam, etc. carried in by water)		1	0	
		Litter (decay-resistant items left onsite by people)		1	0	
F8	**Bulkheads, Seawalls, and Levees (Shoreline Armoring)**	The percentage of this segment's Supratidal edge length that is armored (protected from erosion) by vertical bulkheads/ riprap, is:				armoring
		none	1	0	0	
		less than half		1	0	
		more than half		2	0	
F9	**Artificial Muting of Tidal Prism**	Compared to historical conditions, does any tidal part of the segment receive tidal water less frequently, or with a time delay of minutes to hours, as a result of human alterations either within the segment or downgradient, e.g., berms, dikes, inadequate culverts, tidegates? Or, the daily tidal prism within the segment is now more muted (less amplitude than historically, delayed inflow outflow) as a result of human alterations?				muting
		no	1	0	0	
		yes, and alterating feature was installed more than 10 years ago		1	0	
		yes, and alterating feature was installed recently (<10 years ago)		2	0	
F10	**Potential Disturbance of Wildlife by Boats**	During late summer (waterbird molting time), motorized boat traffic in the vicinity of the segment is:			0.00	boats
		infrequent (few or none daily) and mostly distant (>300 ft) from the segment.		2	0	
		intermediate		1	0	
		frequent (multiple incursions per day) and/or within the segment.	1	0	0	
F11	**Woody Diameter Classes**	Mark all the classes of woody plants within the segment's 100-foot buffer, but only IF they comprise more than 5% of the woody canopy or subcanopy within the buffer.			0.50	treedivers
		evergreen 1-4" diameter and >3 ft tall	1			
		deciduous 1-4" diameter and >3 ft tall	1			
		evergreen 4-9" diameter	1			
		deciduous 4-9" diameter	1			
		evergreen 9-21" diameter				
		deciduous 9-21" diameter				
		evergreen >21" diameter				
		deciduous >21" diameter				
F12	**Alder & Sweetgale Cover**	What percentage of the segment's 100-foot buffer contains alder or sweetgale?			0.25	nfixers
		<1%		0	0	
		1-24%	1	1	1	
		25-49%		2	0	
		50-75%		3	0	
		>75%		4	0	
F13	**Berry Producers**	What percentage of the segment's 100-foot buffer contains blueberry, salmonberry, or other woody plants with fleshy fruit?			0.25	berries
		<1%		0	0	
		1-24%	1	1	1	
		25-49%		2	0	
		50-75%		3	0	
		>75%		4	0	
F14	**Wildlife Sign**	Does the segment have cliffs or structures used by nesting seabirds, kingfishers, or swallows? Or are there signs of bear or deer visiting the segment, e.g., trails, scat, tracks, or sighting? Enter **1** if either is true, **0** if none observed.	0		0.00	wildsign
F15	**Salinity**	At or near high tide, the salinity of water at the segment's subtidal edge, in parts per thousand, is: [change to blank if no measurement possible]				salin

Attachment D: Essential Fish Habitat Assessment and Coordination with NMFS

Projects: 67685, 67571

Essential Fish Habitat Assessment

to support Categorical Exclusion Document

South Tongass Highway
Deermount Street to Saxman Widening & Saxman to Surf Street Pavement Rehabilitation

Alaska Department of Transportation and Public Facilities – Southcoast Region

Ketchikan, Alaska

June 20, 2017

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Table of Contents

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1.0 Introduction

The Alaska Department of Transportation and Public Facilities (DOT&PF) – Southcoast Region proposes improvements to South Tongass Highway in the cities of Ketchikan and Saxman for the safe movement of vehicle, bicycle, and pedestrian traffic in a corridor approximately 3 miles long (**Figure 1**). The proposed project starts at the Deermount Street intersection (Milepost [MP] 2.6) in Ketchikan and ends at Surf Street (MP 5.5) in the community of Saxman. This section of highway parallels the east channel of the Tongass Narrows and crosses one stream (#101-47-10300) known to support Pacific salmon (Johnson and Litchfield 2016).

The estuarine and marine waters of the Tongass Narrows and the anadromous stream within the project corridor are identified as essential fish habitat (EFH) for Pacific salmon (North Pacific Fishery Management Council [NPFMC] 2012). Tongass Narrows is also identified as EFH by the federal fishery management plan (FMP) for groundfish of the Gulf of Alaska (GOA) (NPFMC 2016). Placing intertidal fill and installing a fish passage culvert, as proposed by the project, have the potential to affect EFH. The DOT&PF has assumed the responsibilities of the Federal Highway Administration under 23 U.S. Code 326 to document the potential environmental impacts of the proposed roadway project.

In accordance with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act[1] (MSFCMA), this abbreviated EFH assessment summarizes components of the proposed project that may affect EFH and/or FMP species, identifies proposed conservation measures to minimize effects, and presents an analysis of potential impacts to EFH and managed species. An abbreviated consultation procedure is being used because the proposed action would not result in substantial[2] adverse effects to EFH.

The MSFCMA defines EFH as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The MSFCMA notes that:

> *…for the purpose of interpreting the definition of EFH, 'waters' include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; 'substrate' includes sediment, hard bottom, structures underlying the waters, and associated biological communities, 'necessary' means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and 'spawning, breeding, feeding, or growth to maturity' covers a species full life cycle.*

2.0 Proposed Action

The project proposes to widen the highway[3] to meet current design standards, improve drainage (including new inlets, storm drains, ditches, and culverts), relocate utilities, widen and/or reconstruct existing sidewalks and the multi-use pathway, and construct a non-motorized

[1] A provision of the MSFCMA requires that Fisheries Management Councils identify and protect EFH for fish species managed by a federal FMP (U.S.C. 1853 (a)(7)).
[2] Substantial adverse effects are those that may pose a relatively serious threat to EFH and typically could not be alleviated through minor modifications to the proposed action (National Marine Fisheries Service [NMFS] 2004).
[3] The South Tongass Highway is an undivided, two-lane roadway classified as a minor arterial road.

pathway that would extend to Saxman (where none currently exists). The purpose of the project is to improve operations along the South Tongass Highway between Deermount Street and Surf Street. The project will flatten horizontal curves and cut back slopes in some locations to improve sight distances and reduce the risk of rockslides. This project will involve the following activities, as necessary:

- Rehabilitate pavement;
- Reconstruct existing pathway and provide new portions of pathway to make the pathway continuous throughout the project;
- Improve drainage (including new inlets, storm drainages, ditches, culverts);
- Modify horizontal and vertical alignment where feasible to improve safety;
- Excavate rock in some locations to accommodate realignment and widening; and
- Relocate overhead and underground utilities as needed.

The project would be accomplished during two construction phases. Rehabilitation of the southern portion of the project from Saxman (MP 4.5) to Surf Street (MP 5.5) is planned to occur in 2018 (Phase 1). Road widening between Deermount Street (MP 2.6) and Saxman (MP 4.5) is anticipated to begin in 2019 (Phase 2). Construction dates are contingent on the availability of funding, acquisition of required permits, and other factors.

The highway crosses several streams within the project corridor, of which only one is known to support anadromous Pacific salmon (Minnillo 2016). The other streams within the project corridor include small, high-gradient drainages where fish have either not been captured or would not be expected to occur due to unsuitable habitat (e.g., steep gradient).

Proposed activities that may affect EFH and/or FMP fish species include installing a new fish passage culvert to restore fish passage in anadromous stream #101-47-10300 and removing the old culvert; and placing fill within Tongass Narrows in order to widen the highway in some places. These activities are described in more detail below. This document focuses on project components that may affect EFH.

2.1. Install Fish Passage Culvert

The DOT&PF proposes to improve fish passage in stream #101-47-10300 by replacing the wooden box culvert[4] with a new fish passage culvert designed in accordance with the Memorandum of Agreement (MOA) between the DOT&PF and the Alaska Department of Fish and Game (ADF&G) regarding the design, permitting, and construction of culverts for fish passage (2001).

Due to the presence of bedrock at the crossing, this site is a candidate for an open bottom box culvert with the construction of pools along its length to maintain the natural gradient of the stream through the culvert. The stream width at ordinary high water (OHW) is 14 ft as identified by ADF&G in the Fish Passage Site 10103208 report dated August 11, 2013. The culvert needs to meet Stream Simulation conditions, as defined in the MOA, must be greater than 90 percent OHW stream width as surveyed by ADF&G, and match the existing natural stream grade

[4] Wooden box culvert, 10 ft wide, 8 ft tall and 52 ft long, corresponds to Station 139+70 (HDR 2016c).

through the road crossing. To meet these conditions the proposed box culvert would span 16 feet, 10 inches with a height of 8 feet 4 inches and have a slope of 5 percent. A culvert of this size has capacity upwards of 1,500 cfs, so the flood having a 1 percent exceedance potential in any given year would pass with no backwater at the inlet. The new culvert will be located in the same location as the existing culvert; therefore, no stream relocation is proposed.

Installation of the new culvert would require the construction contractor to operate heavy equipment in the stream channel and place fill below OHW. The stream would be temporarily diverted during construction. Temporary coffer dams would likely be installed upstream and downstream of the culvert to isolate work areas from stream flow while the old culvert is removed and the new culvert is installed. The stream would be temporarily diverted, likely through a diversion pipe, using a pump. The construction contractor would also need to dewater the isolated work area using a pump. The contractor would follow stipulations set forth in the Title 16 permit, as required by the ADF&G.

Culvert replacement is anticipated to occur in 2018; in-water work in stream #101-47-10300 would occur within a timing window approved by the ADF&G, as specified in the Title 16 permit authorization, to minimize potential impacts to fish and EFH.

2.2. Place Marine Fill (Widen Roadway)

The placement of fill in marine waters would be necessary in some areas to accommodate widening of the highway. Tidal elevations provided below are referenced to mean lower low water (MLLW) vertical datum based on levels from the National Ocean Service Benchmark No. 37. For the Ketchikan area, MLLW is 0 feet (ft), high tide line (HTL) is 19.4 ft above MLLW and mean high water (MHW) is 14.4 ft above MLLW.

Based on the current design, fill would be placed across an estimated 4 acres below HTL, including nearly 3 acres below MHW, which is EFH (**Section 3**). Fill placement would impact about 2.67 acres of EFH (**Section 4**). The fill would be approximately 5 ft thick and have a 2 ft horizontal to 1 ft vertical slope.

On some sections of the highway, rock slopes would need to be excavated to mitigate potential rockfall issues and accommodate roadway widening. The DOT&PF is in the process of collecting samples to determine the materials' suitability for re-use as marine fill for this project. This involves collecting surface rock samples from existing road cuts and natural bedrock outcrops and drilling core samples to characterize the range of weathering conditions and sulfide content. The construction contractor would be required to properly dispose of excavated material if found unsuitable for re-use as fill.

3.0 EFH Designations in the Project Area

EFH is defined by textual and spatial descriptions in the FMPs developed by regional Fishery Management Councils. The NPFMC identifies habitat in the GOA as essential for Pacific salmon and groundfish species (NPFMC 2012, 2016). Spatial data available on the EFH viewer maintained by the National Marine Fisheries Service (NMFS) indicates that estuarine and

marine waters[5] in the Tongass Narrows provides EFH for Chinook (*Oncorhynchus tshawytscha*), chum (*O. keta*), coho (*O. kisutch*), sockeye (*O. nerka*), and pink salmon (*O. gorbuscha*) as well as Dover sole (*Microstomus pacificus*) (NMFS 2016a). The Anadromous Waters Catalog (AWC) currently identifies one anadromous stream (#101-47-10300) in the project area; the stream provides essential freshwater habitat for chum and pink salmon downstream of the wooden box culvert (Johnson and Litchfield 2016).

Several other marine fish species may occur in the Tongass Narrows at various times and life stages. The textual descriptions provide broad habitat associations for several species, but insufficient data are available for NMFS to spatially identify EFH beyond general distribution for many species (NPFMC 2016, NMFS 2016a). Spatial data does not currently exist for big skate (*Raja binoculata*), longnose skate (*R. rhina*), octopus, sharks, and the shallow water flatfish complex (NPFMC 2016).

In an effort to determine marine species to include in this assessment, the Nearshore Fish Atlas of Alaska (NOAA 2016) and existing EFH assessments and recent consultations in the vicinity of the Tongass Narrows were reviewed. Several previous consultations identify EFH for Pacific salmon in the Tongass Narrows and mention Pacific herring (*Clupea pallasii*) use, but do not identify the Tongass Narrow as EFH for groundfish (NMFS 2013, 2012, 2009, 2007a, 2006). Species of sculpin, flatfish, and forage fish, including Pacific sand lance (*Ammodytes hexapterus*), have been documented to use nearshore habitat in the Tongass Narrows[6] (NMFS 2007b, 2008).

The Nearshore Fish Atlas of Alaska does not include fish sampling sites within the Tongass Narrows. Capture data from five relatively nearby Fish Atlas sites confirms the presence of forage fish, including Pacific sand lance, snake prickleback (*Lumpenus sagitta*), and crescent gunnel (*Pholis laeta*); juvenile coho, chum and pink salmon; several sculpin species; copper rockfish (*Sebastes caurinus*); two flatfish species; and low numbers of Pacific cod (*Gadus macrocephalus*) in nearshore waters (NOAA 2016).

The subsections below present a summary of freshwater, estuarine, and marine habitat conditions within the vicinity of the project, and ecological notes on several FMP-managed fish species. In some cases, the discussion of habitat and fish species extends beyond the limits of the project area to provide additional context.

[5] Marine EFH for salmon in Alaska includes all estuarine and marine areas utilized by salmon of Alaska origin, extending from the influence of tidewater and tidally submerged habitats to limits of the U.S. Exclusive Economic Zone; marine habitat extends from the mean high line to the 200-nautical-mile limit offshore; the estuarine component includes the area within the mean high tide line and the salinity transition zone within nearshore waters (NPFMC 2012).

[6] Consultations prior to 2005 identify Tongass Narrows' inshore habitat as supporting Pacific cod, arrowtooth flounder (*Atheresthes stomias*), walleye pollock (*Theragra calcogramma*), Pacific ocean perch (*Sebastes alutus*), yelloweye rockfish (*S. ruberrimus*), sablefish (*Anoplopoma fimbria*), sculpin (NMFS 2004); rougheye rockfish (*S. aleutianus*), dusky rockfish (*S. ciliatus*), shortraker rockfish (*S. borealis*) (HDR 2003).

3.1. Habitat

3.1.1. Freshwater EFH (Stream #101-47-10300)

Anadromous stream #101-47-10300 flows under the South Tongass Highway through a wooden box culvert within the project footprint. The outlet of the wooden box culvert is perched and is a barrier to upstream fish migration (Eisenman and Nurco 2013; Minnillo 2012).

The AWC identifies stream #101-47-10300 as habitat for chum and pink salmon downstream of the wooden box culvert (Johnson and Litchfield 2016). While this stream is not listed by the AWC as supporting coho salmon, a single juvenile coho salmon was captured in a minnow trap set in a slow-water pool just downstream of the wooden box culvert in August 2016. Biologists have confirmed Dolly Varden (*Salvelinus malma*) and cutthroat trout (*O. clarkii*) presence upstream of the highway; Pacific salmon have not been captured or observed upstream of the wooden box culvert (Minnillo 2012; Eisenman and Nurco 2013; HDR 2016a).

Downstream of the culvert, the stream flows for about 650 ft before emptying into Tongass Narrows. Stream wetted widths ranged from about 6 to 15 ft during an August 2016 survey, with small pools as deep as 2 ft. Cobbles and gravels dominated the substrate. Boulders were also present and were much more abundant downstream of the culvert, along the banks and within the stream channel, than upstream of the culvert (HDR 2016a).

3.1.2. Marine EFH (Tongass Narrows)

The Tongass Narrows is a relatively narrow channel between Gravina Island and Revillagigedo Island; its mid-channel depth ranges from about 89 ft (27 meters) to 157 ft (48 meters). Several anadromous fish streams that support Pacific salmon and other fish species contribute freshwater input into the Narrows. The Narrows splits into two channels, around Pennock Island near its southern end; farther south it meets the northern end of Nichols Passage, which eventually opens into Clarence Strait. The project area is located along the Narrows' east channel opposite the southern portion of Pennock Island.

Tongass Narrows provides EFH for five Pacific salmon species, Dover sole, and is known to support several other fish species. Surveys to determine species composition were not conducted in the marine environment for this project. An office-based effort to assess habitat functions of nearshore intertidal habitats within the project area was conducted in 2016 using the *Manual for the Nearshore Assessment Tool for Alaska: Southeast* (NATAK-SE) (Adamus and Harris 2016) (HDR 2016b). The assessment identified the nearshore area within the project area as relatively high functioning for the fish category (HDR 2016b).

Additionally, previous sampling to document species composition and describe habitat conditions along the Narrows' shoreline has been conducted at select locations (HDR 2000, 2001; NOAA 2016). Previous researchers confirmed that littoral (intertidal and shallow subtidal) habitats along the Tongass Narrows represent a range of habitat types from sand to gravel to bedrock, and that biota found in each of these habitats was generally typical of that expected for this area of SE Alaska (HDR 2001). The paragraphs that follow provide a general description of Tongass Narrows' marine habitat; this information was also presented in marine

reconnaissance technical memoranda and EFH Assessments developed for the Gravina Access Project (HDR 2000, 2001, 2003).

> *The Tongass Narrows is characterized by strong tidal currents and by steep bedrock or coarse gravel-cobble-boulder shoreline. Lower intertidal and shallow subtidal areas are often sandy or mixed gravel, sand, and shell, with varied amounts of silt (mixed fines). At other areas, however, such as at rocky points and along the northwest shore of Pennock Island, bedrock slopes steeply to subtidal depths. Subtidal habitats, like those in the intertidal zone, are a mix of bedrock outcrops or ledges, boulder-cobble slopes and, where lower slopes permit, sandy gravel bottoms, often mixed with significant amounts of shell debris. The steeply sloped subtidal margins of the Tongass Narrows extend from the lower intertidal zone to the deeper, flatter center of the channel at depths of -80 to -150 ft MLLW. For the most part, these subtidal slopes are swept by strong tidal currents and support a number of kelp and other algal species down to depths of about -40 ft MLLW.*
>
> *Several small natural coves and areas protected by constructed breakwaters provide wave and current protection for marine habitats with sand or gravel bottoms. Extensive areas of riprap bank protection and filling occur along the northeastern shoreline of the City of Ketchikan. Construction of numerous buildings on pilings over the intertidal and shallow subtidal zone and shoreline protection along about a mile of shoreline of Gravina Island near the airport and ferry has substantially modified shorelines in these areas.*
>
> *Totals of 136 plant and 151 animal taxa were identified in fieldwork completed in the intertidal zone in January and July 2000 (HDR 2001). In areas where natural coarse gravel-cobble-boulder, sand, mud, or mixed-fine shorelines occur, lower beaches contain diverse microhabitats providing prey for ground fish and salmonid species. Ground fish prey include a variety of epibenthic crustaceans, especially amphipods and several crab and shrimp species, as well as infaunal clams, gastropods, and polychaete worms.*

Nearshore habitats are particularly important to juvenile salmon as they transition from freshwater to saltwater conditions, and complex nearshore areas with relatively shallow slopes provide essential feeding habitat, refuge from predators, and shelter from high currents. Nearshore habitats are used by juvenile salmon during spring migration for feeding, resting, and predator avoidance. Juvenile chum and Chinook salmon often feed and rear in nearshore estuarine habitats for a longer duration than other Pacific salmon. While juvenile chum and pink salmon move to nearshore habitats soon after freshwater emergence, juvenile chum salmon tend to linger and forage in the intertidal areas longer than juvenile pink salmon. Chum salmon likely rear in nearshore waters throughout the Tongass Narrows during spring and summer prior to moving farther offshore. Nearshore intertidal and shallow subtidal habitats with substrate conditions that allow easy burial are also important for juvenile flatfish species that rear in nearshore areas (NMFS 2016b).

The Alaska Shorezone program classifies shoreline habitats throughout Alaska into coastal classes, or shore 'types', based on substrate type, across-shore width (>30 meters or <30 meters), and slope (steep [>20°], inclined [5-20°], or flat [<5°]) (Harper and Morris 2014; NOAA 2016). The majority of habitat in the Tongass Narrows within about 5 miles of the project is classified as wide rock/sediment platform (flat) gravel and sand beach; manmade permeable

structures; narrow rock/sediment ramps (inclined) gravel and sand beach; wide sediment sand and gravel (flat) beach; or estuaries dominated by organics (Harper and Morris 2014; NOAA 2016).

The Alaska Shorezone program does not identify eelgrass beds in the project area; recent eelgrass bed survey data for the project area were not found to be available (Scholl 2017). Vegetated intertidal and subtidal areas are considered important for fish habitat (Harper and Morris 2014; NOAA 2016). Eelgrass (*Zostera marina*) and kelp vegetation supports high biodiversity and provides important habitat for juvenile rockfish and other species (Murphy et al. 2000). Eelgrass beds provide habitat for epibenthic zooplankton and are used as spawning substrate by Pacific herring. Previous surveys in the Narrows documented the presence of patchy or small eelgrass beds in many areas with appropriate strata (gravel, sand, silty sand) from near or just above MLLW to maximum depth of 16 ft MLLW throughout the Narrows (HDR 2001).

3.2. Federal FMP-Managed Species

3.2.1. Pacific salmon

3.2.1.1. PINK SALMON

In southeast Alaska, pink salmon typically enter local spawning streams between late June and mid-August; however, spawning timing can vary with different salmon runs in adjacent streams or even within the same stream (Bethers et al. 1995). In the Ketchikan area, adult pink salmon presence in spawning streams would be expected in August (Piazza 2016). Pink salmon generally spawn in small rivers near the coast and in intertidal stream channels and estuaries near the mouths of rivers (Kingsbury 1994; Bethers et al. 1995). Stream 101-47-10300 is identified as supporting pink salmon (Johnson and Litchfield 2016).

Favored spawning habitat includes shallow riffles located in both freshwater and intertidal channels, where flowing water breaks over coarse gravel or cobbles, and in the downstream ends of pools (Kingsbury 2004; National Academy of Sciences 1971). Pink salmon mature and complete their entire life cycle in 2 years. The 2-year life span has created genetically distinct populations such that salmon that spawn in odd and even years in a particular stream are reproductively isolated from each other.

Pink salmon spend the least amount of time in freshwater environments, compared to other Pacific salmon species. Juvenile pink salmon do not over-winter in streams but generally emigrate to saltwater soon after emergence. In southeast Alaska, juvenile pink salmon typically emerge and move downstream in late March or April (Mortenson et al. 2000).

Juvenile pink salmon form schools and reside in nearshore habitat for several weeks to feed on epibenthic organisms and small zooplankton (Mortenson et al. 2000). Rapid growth during this early marine residency appears to be important for reducing size-selective predation/mortality (Heard et al. 2001). Studies in Prince William Sound found that while juvenile pink salmon use low, medium, and exposed, high gradient nearshore habitats, medium-gradient (12-25 percent slope) nearshore areas appeared most important (Celewycz and Wertheimer 1994). During their

first several weeks in marine waters, juvenile pink salmon typically follow shorelines, and then move farther offshore as they grow (Mortenson et al. 2000). Juvenile pink salmon likely utilize the nearshore habitat in the Tongass Narrows throughout the spring and early summer prior to moving offshore.

3.2.1.2. CHUM SALMON

In southeast Alaska, chum salmon typically return to their natal streams in July and early August and spawn by the end of September (Bethers et al. 1995). Chum salmon spawn in small side channels, upwelling areas, and similar to pink salmon they spawn in small streams and intertidal (Bethers et al. 1995; Buklis No date). Stream 101-47-10300 is identified as supporting chum salmon (Johnson and Litchfield 2016).

Chum salmon fry generally emerge from the gravel in March and April (Bethers et al. 1995). Chum salmon fry, like pink salmon, do not overwinter in the streams but move downstream shortly after emergence (Kingsbury 1994). However, juvenile chum salmon tend to linger and forage in the intertidal areas longer than juvenile pink salmon. Estuaries are important for chum salmon rearing during spring and summer where they feed and grow. Like pink salmon, juvenile chum salmon feed primarily on planktonic zooplankton and epibethnic organisms while in nearshore marine waters (Heard et al. 2001). Studies in Prince William Sound found that juvenile chum salmon feed primarily in low to medium gradient nearshore habitats (<25 percent slope) and very few tend to occupy steep gradient (>45 percent) habitats (Celewycz and Wertheimer 1994). Juvenile chum salmon feed in nearshore habitat throughout the Tongass Narrows, likely throughout spring and summer, prior to moving offshore and into the Gulf of Alaska. In southeast Alaska, most chum salmon mature at 4 years of age.

3.2.1.3. COHO SALMON

Coho salmon occupy more diverse habitats during its lifecycle than other anadromous salmonids using freshwater, nearshore, and offshore environments (Elliott 2007). In Alaska, adult coho salmon enter their spawning stream systems between July and November, usually during periods of high runoff. Fall-run coho salmon typically start arrive in the Tongass Narrows in mid to late August and ascent spawning streams from mid-late September and October (Piazza 2016). While summer run coho salmon typically move into the creeks by mid-July, there are no summer run coho streams along the project corridor (Piazza 2016).

While the AWC does not identify stream #101-47-10300 as providing habitat for coho salmon, a single juvenile coho salmon was captured in a minnow trap set downstream of the highway in August 2016; none were captured upstream of the highway (HDR 2016a). The presence of coho salmon was not documented during other recent sampling events on stream #101-47-10300 (Minnillo 2012; Eisenman and Nurco 2013; Quinn 2014). The AWC does identify several nearby streams that drain into the Tongass Narrows from Revillagigedo and Gravina islands as supporting coho salmon (Johnson and Litchfield 2016).

Coho salmon eggs develop during the winter and hatch in early spring, and the embryos remain in the gravel until they emerge in May or June (Bethers et al. 1995). The newly emerged fish occupy shallow stream margins, usually among submerged woody debris, undercut banks, or other slower-water habitats (Bethers et al. 1995; Elliott 2007). Coho salmon typically reside in

freshwater streams from 1 to 3 years before out-migrating to sea (Elliott 2007; Bethers et al. 1995).

Timing of juvenile outmigration typically occurs from early April through late May throughout southeast Alaska. Juvenile coho salmon use nearshore habitat throughout the Tongass Narrows prior to moving farther offshore, ultimately to open waters of the GOA. High seas tagging shows that maturing southeast Alaska coho typically move northward throughout the spring and appear to concentrate in the central GOA in June (Elliott 2007). Most coho salmon stay at sea for about 18 months prior to returning to spawn in natal streams (Elliott 2007).

3.2.1.4. CHINOOK SALMON

Chinook salmon normally enter freshwater streams from May through July and spawn from mid-June to August (Delaney 2008). Ketchikan Creek (stream #101-47-10250) is the closest stream identified by the AWC as supporting Chinook salmon (Johnson and Litchfield 2016). While stream #101-47-10300 does not support Chinook salmon, intertidal and marine habitat throughout Tongass Narrows provides EFH for Chinook salmon.

Chinook salmon eggs generally hatch in late winter or early spring in Alaska, depending primarily on the water temperature and timing of spawning (Delaney 2008). Most Alaskan juvenile Chinook salmon rear in fresh water main channel areas for at least one year, then smolt and out-migrate the following spring (Delaney 2008). Chinook salmon spend between 1 and 5 years feeding in the ocean before returning to freshwater streams to spawn.

The Southern Southeast Regional Aquaculture Association (SSRAA) has three hatchery sites on Revillagigedo Island and releases millions of marked salmon into the wild each year. The nearest release site is the Deer Mountain facility, where the SSRAA releases thousands of juvenile Chinook salmon, transported from the Whitman Lake Hatchery, into Ketchikan Creek (SSRAA 2016).

3.2.1.5. SOCKEYE SALMON

Adult sockeye salmon generally migrate to their natal freshwater stream in June and July and finish spawning by late August (Bethers et al. 1995). Sockeye salmon use a wide variety of spawning habitats such as rivers, streams, and upwelling areas along lake beaches (ADF&G 1994). Ketchikan Creek (stream #101-47-10250) is the closest stream identified by the AWC as supporting sockeye salmon (Johnson and Litchfield 2016). While stream #101-47-10300 does not support sockeye salmon, intertidal and marine habitat throughout Tongass Narrows is considered EFH for this species.

Sockeye salmon eggs incubate and hatch during the fall and winter (Bethers et al. 1995). Fry emerge from the gravel typically in the early spring and then move into their rearing areas (Kingsbury 1994). In systems with lakes, juveniles usually spend one to three years in fresh water before migrating to the ocean in the spring whereas juveniles in systems without lakes migrate to the ocean soon after emerging (Kingsbury 1994). Juvenile out-migration to saltwater typically occurs by the end of June (Bethers et al. 1995). Most sockeye salmon spend between one to four years in the saltwater before returning to their natal stream to spawn (Kingsbury 1994).

3.2.2. Groundfish

The NPFMC identifies various groundfish stocks[7] of commercial importance specific to the GOA and EFH for each life stage, where data are available. Survey data describing species composition and use of habitats within the project area were not found to be available. While some groundfish reside in deeper waters as adults, many species rely on shallow nearshore marine and/or estuarine habitat during some part of their life cycle (Thom and Williams 2001 in NPFMC 2016).

A description of select groundfish species is provided below, referencing habitat depth associations provided in the FMP. Those most applicable to the project area include estuarine, intertidal, and subtidal nearshore habitats; and inner (1-50 meters deep) and middle (50-100 meters deep) shelf regions.

3.2.2.1. DOVER SOLE

The NPFMC identifies essential habitat for Dover sole eggs and larvae as pelagic waters along the entire shelf (0 to 200 meters) and slope (200 to 3,000 meters) throughout the GOA (2016). While insufficient data area available to identify essential habitat for early juveniles, essential habitat for late juveniles includes the lower portion of the water column along the middle (50 to 100 meters), outer (100 to 200 meters), and upper slope (200 to 500 meters) throughout the GOA where sand and mud substrate occurs. Spawning occurs from February through May (NPFMC 2016). The EFH mapper currently identifies Tongass Narrows as EFH for late juvenile and mature Dover sole (NMFS 2016a).

3.2.2.2. SCULPIN SPECIES

The sculpin family includes numerous species that have successfully adapted to a wide range of salinities and environments. Cottids are found in freshwater as well as in marine and estuarine areas of high and low salinity. Sculpin are bottom-dwelling fish that live in tide pools or in shallow or deep marine waters. Sculpins are known to use a wide range of habitats including intertidal pools, and all shelf habitats with a wide range of substrates, including mud, sand, and gravel. Adults and late juveniles can be found in the middle shelf regions. Sculpin species are anticipated to use nearshore habitat through the Tongass Narrows.

3.2.2.3. PACIFIC COD

Pacific cod are demersal schooling fish that concentrate in shelf edge and upper slope habitat from January through April. Spawning occurs in these deeper waters in the spring, followed by a general movement to shallower waters (<100 meters) in summer (DiCosimo 2001). Pacific cod prefer mud, sandy mud, muddy sand, or sand in deep waters (Morrow 1980). All lifestages of this species use the inner shelf habitat (1-50 m) and early juveniles may use nearshore subtidal habitat, although data are insufficient to describe EFH for this life stage (NPFMC 2016).

The general distribution area for this species does not appear to extend into the Tongass Narrows; however, use of habitat within the Tongass Narrows is possible. Relatively low numbers of Pacific cod have been captured in beach seines from Fish Atlas sites in the region (NOAA 2016).

[7] GOA managed stocks include Walleye pollock, Pacific cod, sablefish, Pacific halibut and several flatfish and rockfish species.

3.2.2.4. WALLEYE POLLOCK

Walleye pollock eggs and larvae are pelagic and are found on the middle and outer continental shelves of the GOA. Juvenile pollock inhabit the inner, middle, and outer continental shelves and oceanographic features such as basins, fronts, and upwelling. Adults are semidemersal (generally demersal but sometimes near the surface). Pollock spawn in waters more than 90 meters (295 feet) deep. Adult walleye pollock congregate where food is concentrated in middle and outer continental shelf areas, feeding on a variety of fishes and crustaceans, but primarily on krill.

The general distribution area for this species does not appear to extend into the Tongass Narrows; however, use of habitat within the Tongass Narrows is possible. Based on habitat preferences juveniles would be most likely to use habitat in the Tongass Narrows.

3.2.2.5. ARROWTOOTH FLOUNDER

The arrowtooth flounder is a relatively large flatfish. The general distribution area for this species does not appear to extend into the Tongass Narrows (NPFMC 2016). However, use of habitat within the Tongass Narrows is possible. While data are insufficient to describe habitat essential for juveniles, they typically occupy shallow areas until they are about 10 to 15 cm long (NPFMC 2016). Adults overwinter near shelf margins and upper slope areas to avoid extreme cold temperatures, and migrate to middle and inner shelf regions in April or May when temperatures warm. Spawning may occur as early as September through March (NPFMC 2016).

3.2.2.6. ROCKFISH

Pacific ocean perch, northern rockfish, shortraker rockfish, rougheye rockfish, dusky rockfish, yelloweye rockfish, thornyhead rockfish are identified in the FMP for groundfish in the GOA. The NMFS EFH Mapper does not identify the Tongass Narrows as EFH for rockfish (NMFS 2016a), and the general distribution maps do not appear to extend into the Tongass Narrows (NPFMC 2016). However, rockfish species may occur in the Tongass Narrows to varying degrees during certain life stages.

Most rockfish species inhabit rocky area in shallow to moderately deep waters, while other species occupy offshore habitats with silty and sandy substrates (Mecklenburg et al. 2001). Typical of many other marine fish, juvenile rockfish tend to utilize shallower habitats than adults (Mecklenburg et al. 2001). Studies have shown that relatively large numbers of juvenile rougheye rockfish are frequently associated with rocky habitat on both shallow and deep shelf habitats of the GOA (references cited in NPFMC 2016). Adult and juvenile yelloweye rockfish tend to be associated with bays and island passes (NPFMC 2016).

3.2.2.7. SABLEFISH

Sablefish typically inhabit relatively deep water; however, sablefish can also be found in nearshore waters as well as offshore waters (Mecklenburg et al. 2001). Younger fish tend to occupy surface and upper waters of the inner shelf and may inhabit shallow waters before descending deeper (Mecklenburg et al. 2001; NPFMC 2016). Juvenile sablefish may spend 3 to 4 years in demersal habitat along shorelines (NPFMC 2016).

The general distribution area for this species does not appear to extend into the Tongass Narrows; however, this species likely occurs in the Tongass Narrows.

3.2.2.8. SKATES

Juvenile and adult skates can be found in the middle shelf regions. Skates are known to use a broad range of substrate types (mud, sand, gravel, and rock) and can typically be found in the lower portion of the water column.

4.0 Analysis of Effects to EFH

This section presents an analysis of effects the proposed action may have on EFH and managed fish species. An adverse effect refers to any impact that reduces quality or quantity of EFH, and may include direct (e.g., habitat loss or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), site-specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 Code of Federal Regulations [CFR] § 600.810).

4.1. Direct Effects

Direct impacts to FMP-managed fish species and EFH resulting from placing marine fill and constructing a fish passage culvert may include:

- Addition of freshwater EFH (permanent)
- Elimination of intertidal EFH due to fill placement (permanent)
- Habitat alteration (permanent)
- Modification of habitat function (permanent)
- Changes in hydrologic patterns (permanent)
- Increased turbidity (temporary-during construction)
- Re-suspension and distribution of contaminants, if present (temporary-during construction)

4.1.1. Freshwater Habitat

Replacing the wooden box culvert with a fish passage culvert would improve existing fish passage conditions into stream 101-47-10300. The new culvert would provide upstream access to habitat upstream of the highway, habitat which is currently inaccessible to most fish. Once the new culvert is installed, the project is anticipated to increase the amount of available EFH because additional upstream habitat would become accessible to Pacific salmon and other species that was previously inaccessible. Pockets of gravel that appear suitable to support spawning Pacific salmon were observed upstream of the culvert (Eisenman and Durco 2014; HDR 2016a) and within the tributary stream. Gravel will be placed in the new culvert in accordance with permit stipulations. Habitat throughout the stream, including upstream of the highway, appears suitable to support rearing salmonids, such as Dolly Varden, cutthroat trout, and potentially coho salmon.

During construction, the project may result in temporary, localized, and relatively minor impacts to EFH. For example, temporarily diverting the creek to allow the installation of the new culvert would temporarily impair habitat function. Other temporary impacts could include a temporary

increase in turbidity levels during construction. The timing of in-water work in stream 101-47-10300 would be developed through coordination with the ADF&G during the Title 16 fish habitat permitting process. Impacts would be minimized by adhering to BMPs during construction, as outlined in the SWPPP, to prevent erosion and runoff from entering aquatic habitats.

In accordance with the MOA[8], the new culvert would maintain natural stream conditions and flow. The proposed work would not adversely alter existing hydrology of the stream. Once construction has ceased, the project would not be expected to permanently cause increased turbidity or otherwise adversely impact EFH or FMP-managed species. The proposed road improvements are not expected to result in higher levels of traffic or otherwise lead to increased levels of erosion rates into waters.

Fill would be placed in EFH below OHW for the installation of fish passage culvert. Overall, however, the project would increase the amount of EFH accessible to Pacific salmon in stream 101-47-10300, which is anticipated to have an overall positive affect on Pacific salmon. Construction activities are anticipated to have minimal, temporary impacts on EFH and would not adversely affect managed fish stocks.

4.1.2. Marine Habitat

Fill would be placed across an estimated 4 acres below the HTL, including 2.67 acres below MHW, which is considered EFH. Fill placement would therefore eliminate about 2.67 acres of EFH across about 4,000 linear ft of shoreline habitat along the Tongass Narrows' east channel (see attached **Figures**). The amount of habitat eliminated would not constitute a substantial[9] reduction in the overall amount of EFH available in the surrounding Tongass Narrows waters. Results of an aquatic site assessment confirm that nearshore habitat throughout the project area appears to support fish, as nearshore habitat received relatively high scores using NATAK-SE. The project would avoid placing fill and eliminating nearshore habitats that received the highest ratings (HDR 2016b).

Most fill would be placed during low tidal stages when the site is not inundated by tidewater; this would minimize the potential for fish mortality or injury from direct burial. Placing fill in subtidal areas may bury fish or other organisms since those habitats would be inundated by water during fill placement. While some fish may be fatally injured during construction, population level affects are not anticipated. Placing fill would result in a temporary increase in turbidity, which has the potential to harm fish and temporarily reduce habitat quality in surrounding waters. Impacts to fish and EFH from a temporary increase in turbidity are anticipated to be relatively minor, localized, and not affect managed fish species at the population level.

Existing substrate under the fill footprint would be permanently replaced. The ecological function of affected habitat may be altered due to the physical change in substrate (size and depth). Typically, shallow nearshore slopes are important to juvenile salmon for shelter from high velocity currents and predators, and for feeding (NMFS 2011). Researchers have demonstrated

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[8] *Memorandum of Agreement (MOA) between the DOT&PF and the Alaska Department of Fish and Game (ADF&G) regarding the design, permitting, and construction of culverts for fish passage (August 3, 2001).*

[9] Substantial adverse effects are those that may pose a relatively serious threat to EFH and typically could not be alleviated through minor modifications to the proposed action (NMFS 2004).

that rapid growth of juvenile salmon is important for survival (Heard et al. 2001). Studies in Prince William Sound found that juvenile chum salmon feed primarily in low to medium gradient nearshore habitats (<25 percent slope) and very few tend to occupy steep gradient (>45 percent) habitats, whereas juvenile pink salmon were found to use low (<12 percent), medium (12-25 percent), and exposed, steep gradient habitats (Celewycz and Wertheimer 1994).

Existing habitat within the intertidal fill footprint likely supports rearing juvenile salmon and groundfish. Habitat within the fill footprint is mapped as narrow, low to moderately inclined (5-20 percent slope), mixed gravel and sand beach and gravel beach on rock and sediment dominated substrate; wide and flat (<5 percent slope) mixed sand and gravel fan on sediment dominated substrate; and narrow, low to moderately inclined (5-20 percent slope) sand and gravel beach on sediment-dominated substrate. Large-diameter (class IV riprap) armor rock placed at an estimated 2:1 slope (or 50 percent slope) would serve as the new substrate. Fill that eliminates low gradient habitat or native substrate in coastal waters may negatively affect juvenile salmon and juvenile flatfish rearing habitat in the area (NMFS 2016b).

Based on habitat preferences, portions of the modified shoreline habitat may no longer be optimal or suitable feeding habitat for juvenile chum salmon. By eliminating shallow, low to moderately sloped nearshore habitat, the project would also eliminate habitat currently suitable for rockfish and other groundfish. While alteration of the physical habitat may affect some habitat function, the project would not result in a blockage to juvenile or adult fish migration. Population level impacts to FMP managed species are not anticipated to result from this project.

The presence of armor rock is not anticipated to substantially change hydraulic patterns in this area. It is anticipated that post-project hydraulic conditions would remain suitable to support juvenile Pacific salmon and other FMP managed fish species.

4.2. Indirect Effects

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur.

The replacement of the natural shoreline habitat and the physical change to habitat from fill placement has the potential to affect the availability of vegetative cover, prey, and existing predator-prey relationships in the remaining habitat and surrounding waters. The presence of armor rock may influence fish species presence and increase the surface area of available habitat when inundated. Potential changes in fish species composition and distribution has the potential to affect the predator-prey relationships. However, the proposed project is not expected to substantially change fish species distribution, result in a substantial loss of prey species populations upon which managed fish species rely, or change the fecundity of managed species.

4.3. Cumulative Effects

Cumulative effects are impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (40 CFR § 1508.7). Cumulative effects can result from several individually minor impacts, which

may be collectively substantial over time. An analysis of cumulative effects is intended in a generic sense to examine actions occurring within a watershed or marine ecosystem that adversely affect the ecological structure or function of EFH.

The proposed project, when considered with past, present, and other future actions, would contribute to a cumulative effect on EFH. The effect, however, is anticipated to be relatively minor. As the shoreline of Tongass Narrows has been previously modified through past development, the quality and quantity of EFH has been reduced. Extensive areas of riprap bank protection and fill placement have occurred along the northeastern shoreline of the City of Ketchikan. Construction of numerous buildings on pilings over the intertidal and shallow subtidal zone has modified shorelines in these areas. Leaching from creosote pilings and shading from overwater structures have affected habitat quality. Human induced shoreline protection activities have similarly modified about a mile of the shoreline of Gravina Island in the vicinity of the airport and airport ferry.

5.0 Proposed Conservation Measures

The following conservation and mitigation measures to avoid and minimize unavoidable impacts to EFH have been incorporated into the project design:

- The project was designed with the minimum road dimensions required to meet the overall project purpose.
- Where practicable and to minimize impacts to wetlands and waters, the design will incorporate 2:1 side slopes, as recommended as minimum for slope stability and traffic safety.
- The new fish passage culvert (stream 101-47-10300) would provide upstream passage to habitat currently unavailable; the culvert would result in an increase in available EFH. The new culvert would be sized, designed, constructed, and maintained to match the gradient and width of the stream, accommodate flood flows, and would be large enough to provide migratory passage of adult and juvenile Pacific salmon in compliance with the *August 2001 ADF&G and DOT&PF Fish Pass Memorandum of Agreement*, the Fishway Act (or Fish Passage Act, Alaska Statute [AS] 16.05.841), the Anadromous Fish Act (AS 16.05871), and the Magnuson-Stevens Act.
- The contractor would be required to comply with conditions outlined in the ADF&G Title 16 Fish Habitat Permit. The DOT&PF commits to conducting in-water work in stream 101-47-10300 under the conditions of an ADF&G Title 16 Fish Habitat permit including any specified in-water work timing windows.
- Disturbed stream banks would be re-contoured to approximate original conditions and re-seeded with native vegetation to minimize erosion.
- The contractor would comply with a project-specific Stormwater Pollution Prevention Plan (SWPPP), which would clearly describe best management practices required during construction to prevent erosion and runoff from entering aquatic habitats.
- Existing drainage patterns would be maintained; properly sized and designed culverts would be used in appropriate locations to maintain the natural flow patterns and timing of surface water inflows to adjacent wetlands and waters.

- Standard spill-prevention measures would be implemented during construction; spill cleanup equipment (e.g., oil-absorbent pads) would be available on-site during construction. The contractor would be required to comply with an APDES permit.
- The contractor would use clean, contaminant-free fill material during construction.
- Prior to conducting work in the intertidal area, the DOT&PF would remove visible plastic debris to minimize the potential for these materials to be inadvertently dispersed into marine waters during construction activities.
- Intertidal fill would be placed during low tide conditions to minimize impacts to managed fish species and EFH.
- Necessary permits and agency approvals would be obtained prior to construction, and any permit stipulations would be incorporated into the contract specifications.
- DOT&PF will pay compensatory mitigation for impacts for fill in wetlands and waters of the US, including EFH, as a requirement of the United States Army Corps of Engineers Section 10/404 permit.

6.0 Figures

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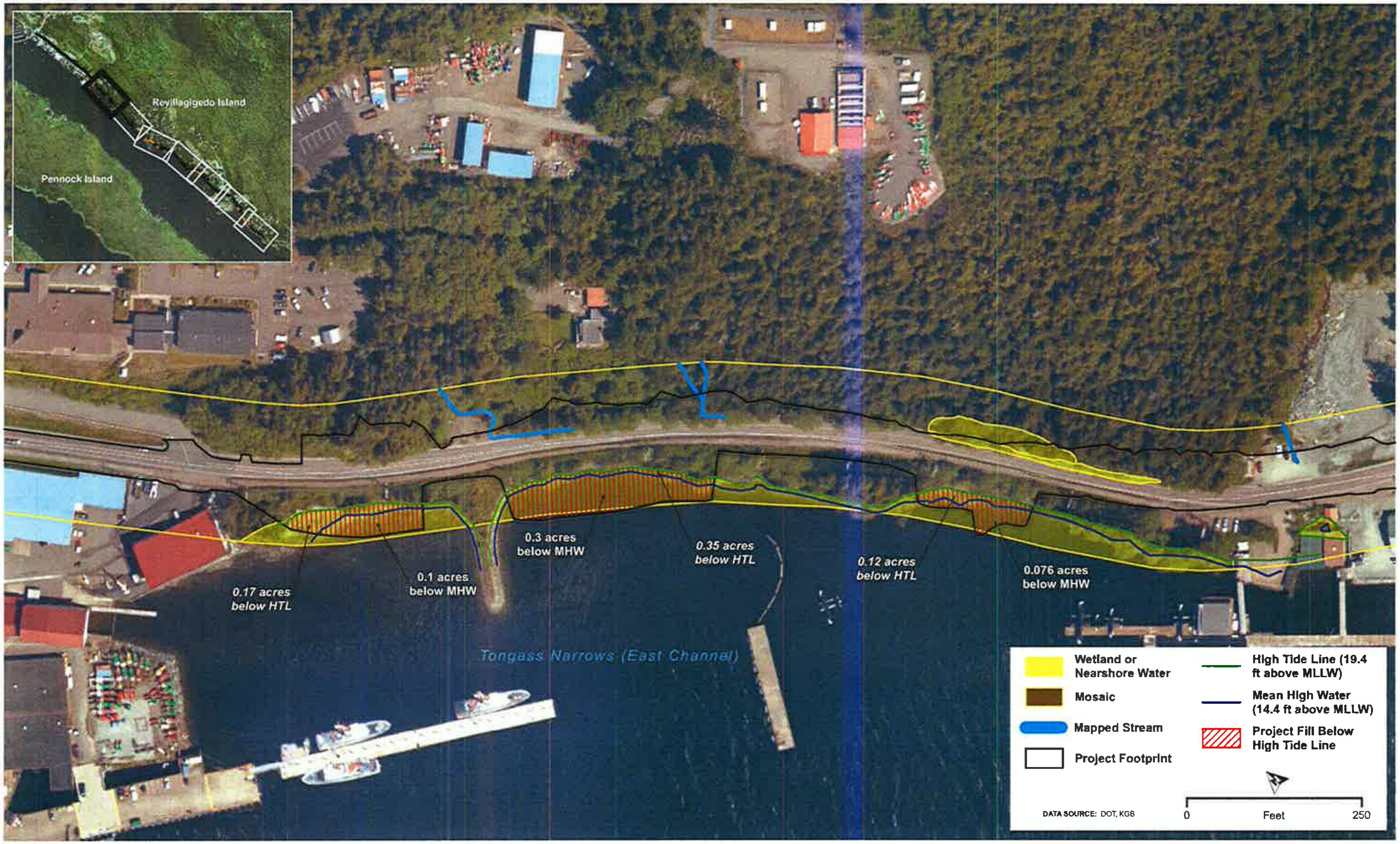


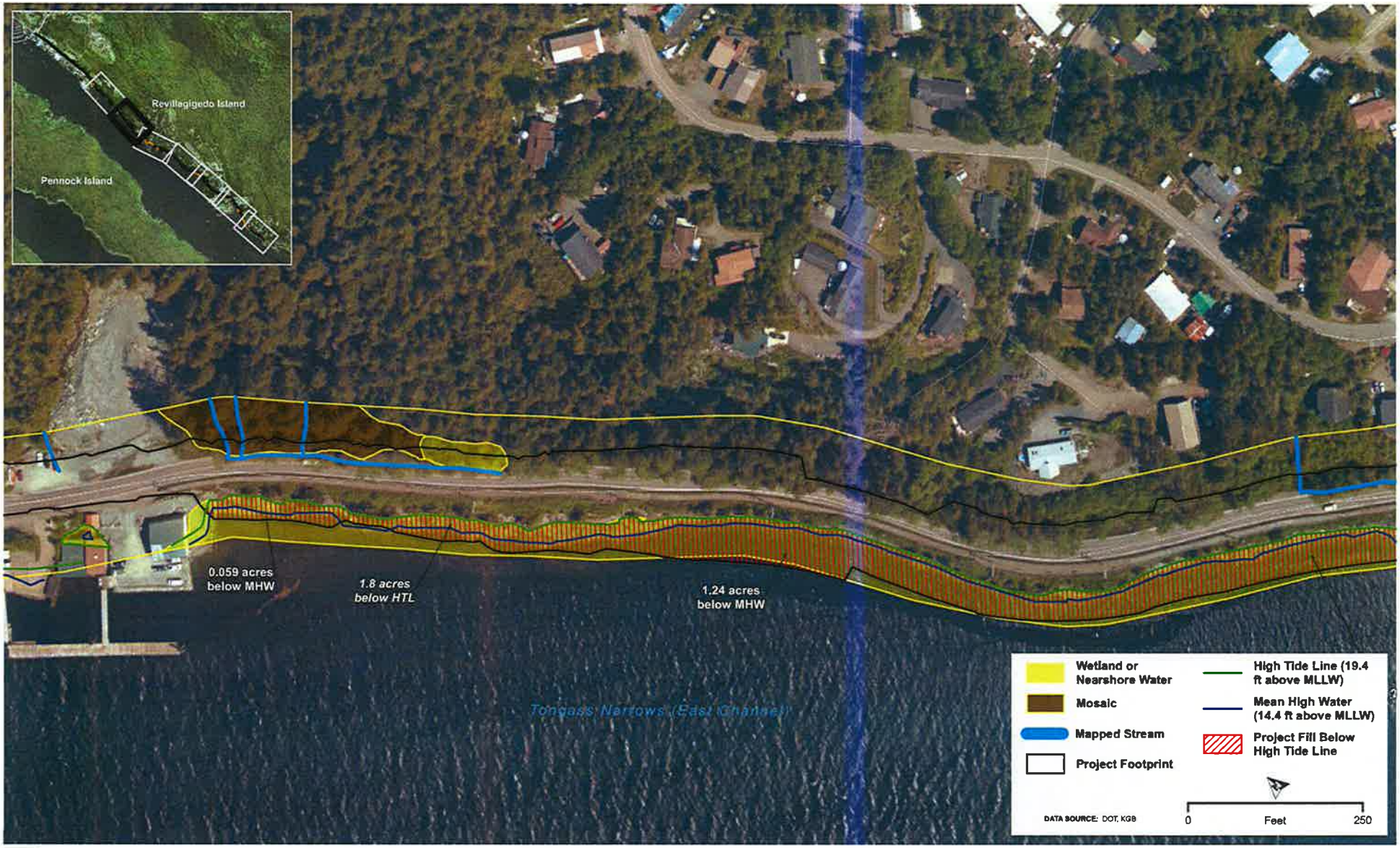
HDR

SOUTH TONGASS HIGHWAY

PROJECT FILL IN TIDAL WATERS - DECEMBER 2016 DRAFT DESIGN

TILE 1 OF 7 FIGURE 1

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS



SOUTH TONGASS HIGHWAY

PROJECT FILL IN TIDAL WATERS - DECEMBER 2016 DRAFT DESIGN

TILE 2 OF 7 FIGURE 1

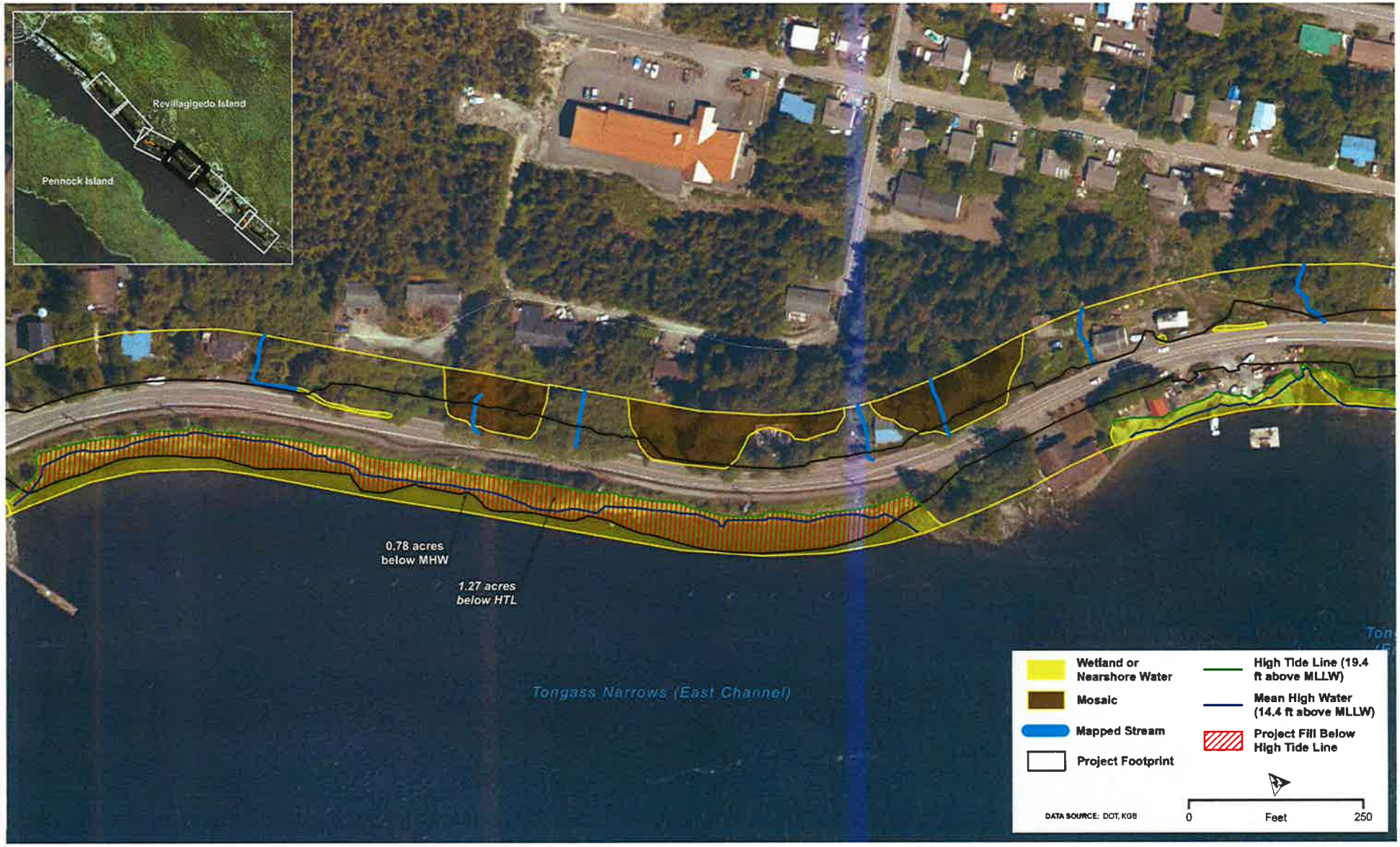
HDR

SOUTH TONGASS HIGHWAY

PROJECT FILL IN TIDAL WATERS - DECEMBER 2016 DRAFT DESIGN

TILE 3 OF 7 FIGURE 1

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS



HDR

SOUTH TONGASS HIGHWAY

PROJECT FILL IN TIDAL WATERS - DECEMBER 2016 DRAFT DESIGN

TILE 4 OF 7 FIGURE 1

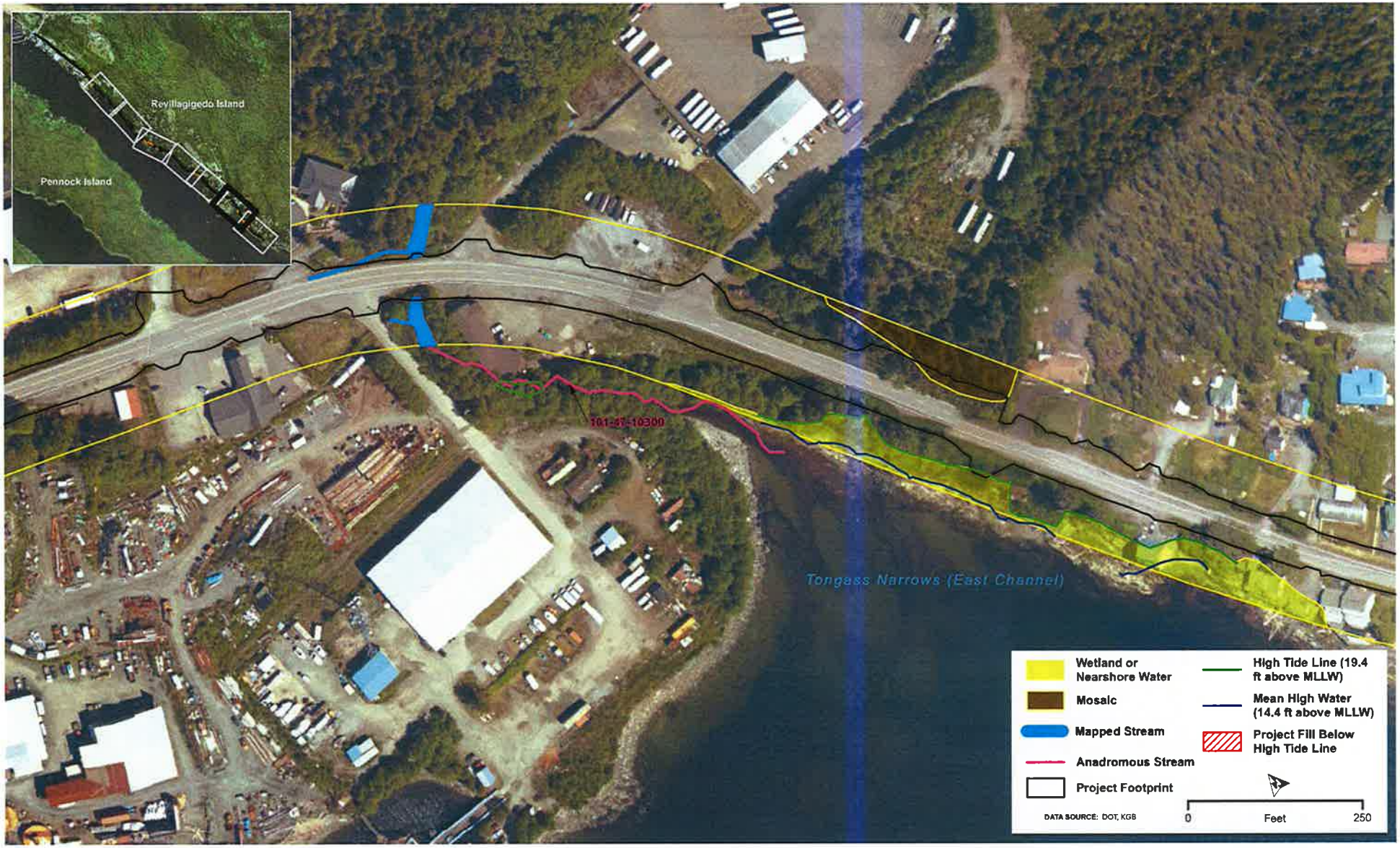
HDR

SOUTH TONGASS HIGHWAY

PROJECT FILL IN TIDAL WATERS - DECEMBER 2016 DRAFT DESIGN

TILE 5 OF 7 FIGURE 1

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS



HDR

SOUTH TONGASS HIGHWAY

PROJECT FILL IN TIDAL WATERS - DECEMBER 2016 DRAFT DESIGN

TILE 6 OF 7 FIGURE 1

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

SOUTH TONGASS HIGHWAY

PROJECT FILL IN TIDAL WATERS - DECEMBER 2016 DRAFT DESIGN

TILE 7 OF 7 FIGURE 1

SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

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NMFS Coordination

Meeting Log

May 5, 2017

Project No.: 67571 67685 KTN: S Tongass, Deermont to Surf

Meeting with: Alicia Bishop, Marine Biologist, Protected Services Division
National Oceanic & Atmospheric Administration
National Marine Fisheries Service (NMFS)
709 W. 9the St. Room 461
Juneau AK 99802
(907) 586-7224

And: Jim Scholl, Project Environmental Coordinator
DOT&PF, Southcoast Region
POB 112506
Juneau AK 99811-2506
(907) 465-4498

Subject: Potential consultation under the Marine Mammal and Endangered Species Act / No Effect determination

I was in the Federal Building downtown and stopped into NMFS offices to see if there was someone available that I could discuss whether consultation was necessary for embankment protection (fill) beneath high tide line given the Contractor would be placing fill in dry conditions at low tide events.

There are several areas along the length of the project where we plan to place rock to armor the prosed highway embankment. There is about 4 acres of fill beneath High Tide Line (HTL) and about 2.6 acres of that total is beneath mean High Water (MHW).

Alicia said there is only one threatened species, the Humpback Whale, which might be in the area. However, if all the work will be in the dry there is no concern. She also said the action agency can make a call of no effect. Alicia said she understands FHWA has delegated authority for certain projects to DOT&PF. So, if this is a project FHWA has delegated authority, DOT&PF can determine if there is No Effect to Marine Mammals and Endangered/Threatened Species.

DOT&PF will restrict the Contractor to placement of fill beneath HTL to low tide events beneath the fill footprint ("dry" conditions). The subject project has been assigned to the State there will be No Effect to Marine Mammals or Endangered/Threatened Species.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

May 16, 2017

Jim Scholl
Environmental Analyst
Alaska Department of Transportation and Public Facilities
Southeast Region
6860 Glacier Highway
P.O. Box 112506
Juneau, AK 99811-2506

Re: South Tongass Highway Pavement
Rehabilitation
Essential Fish Habitat Assessment

Dr. Mr. Scholl:

The National Marine Fisheries Service (NMFS) has reviewed the Essential Fish Habitat (EFH) Assessment for the South Tongass Highway Deermount Street to Saxman Widening and Saxman to Surf Street Pavement Rehabilitation, Project Numbers 67685 and 67571. The project proposes to widen the highway to meet current design standards, improve drainage, relocate utilities, widen and/or reconstruct existing sidewalks and the multi-use pathway, and construct a non-motorized pathway that would extend to Saxman (where none currently exists). The purpose of the project is to improve operations along the South Tongass Highway between Deermount Street and Surf Street. Proposed activities that may affect EFH and/or fishery management plan (FMP) managed fish species include: installing a culvert in anadromous stream #101-47-10300 and placing fill below the high tide line (HTL) in Tongass Narrows. Fill would be placed in an estimated four acres below HTL.

Essential Fish Habitat

Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires federal agencies to consult with NMFS on all actions that may adversely affect EFH. EFH has been designated in the project area for anadromous salmon. Five species of Pacific salmon utilize the water and habits in Tongass Narrows. Marine EFH for the salmon fisheries in Alaska includes all estuarine and marine areas utilized by Pacific salmon of Alaska origin, extending from the influence of tidewater and tidally submerged habitats to the limits of the EEZ (Appendix A, page 13 of the FMP for the Salmon Fisheries in the EEZ off Alaska). Anadromous stream # 101-47-10300 is catalogued for pink and chum salmon. It is not catalogued for coho salmon, however a juvenile coho salmon was captured in a minnow trap set in the stream according to the EFH Assessment.

Early life history stages of groundfish species utilize the nearshore intertidal habitats within the project area. The EFH Assessment did a good job of identifying marine fish that may use the nearshore habitats in Tongass Narrows. The EFH Assessment identified the

nearshore area within the project area as relatively high functioning for the fish category. The *Manual for Nearshore Assessment Tool for Alaska*: *Southeast* (NATAK-SE) developed by Adamus and Harris was used to evaluate the nearshore area.

This project will require an Army Corps of Engineers (COE) permit for fill in waters of the United States. The EFH Assessment does not document whether the proposed action is the least environmentally damaging practicable alternative (LEDPA) to impact waters of the United States, while meeting the purpose and need. In addition to the LEDPA the EFH Assessment should identify how impacts to waters of the United States have been avoided and minimized to the greatest extent practicable. The EFH Assessment does not identify mitigation for the impact to waters of the United States resulting from the estimated four acres of fill below the HTL. Section five of the EFH Assessment provides proposed conservation measures. NMFS has additional conservation measures.

EFH Conservation Recommendations

In accordance with Section 305(b)(4)(A) of the MSA, NMFS makes the following EFH Conservation Recommendations.

1. For the culvert replacement on stream # 101-47-10300: all in-water work shall take place between June 1 and August 1; fish shall be removed from the project site before the site is completely de-watered (in accordance with Alaska Department of Fish and Game permits).

2. For the estimated four acres of fill below HTL: NMFS recommends compensatory mitigation or in-lieu fees on four acres of habitat paid at a three to one ratio, in accordance with filling a relatively high functioning nearshore habitat.

Cindy Hartmann Moore is the point of contact for this project and can be reached at cindy.hartmann@noaa.gov or by phone at (907) 586-7585.

Sincerely,

James W. Balsiger, Ph.D. for JB
Administrator, Alaska Region

cc: Randy.p.virgil@usace.army.mil, Corps, Juneau
Jackie.Timothy@alaska.gov, ADF&G, Juneau
Mark.Minnillo@alaska.gov, ADF&G
Steve_Brockmann@fws.gov, FWS, Juneau

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THE STATE
of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and Public Facilities

SOUTHCOAST REGION
DESIGN & ENGINEERING SERVICES
Preconstruction

6860 Glacier Highway
PO Box 112506
Juneau, Alaska 99801-2506
Main: (907) 465-4444
Toll free: (800) 575-4540
Fax: (907) 465-8485

June 16, 2017

James Balsinger, Ph.D.
Administrator, Alaska Region
US Department of Commerce, National Oceanic Atmospheric Administration
National Marine Fisheries Service (NMFS)
POB 21668
Juneau, AK 99802-1668

Subject: 67571 67685 Ketchikan: S. Tongass Highway, Deermont to Surf
Essential Fish Habitat (EFH) Assessment

Dear Dr. Balsinger,

We reviewed your letter dated May 16, 2017. Thank you for your careful review of the project EFH Assessment. We agree with NMFS comments and proposed conservation recommendations with some caveats.

NMFS points out the EFH assessment does not document that the proposed project is the Least Environmentally Damaging Practicable Alternative (LEDPA); a requirement of the project US Army Corps of Engineers (USACE) Section 10/404 permit. DOT&PF does not determine the LEDPA; that is the responsibility of the USACE. DOT&PF determines the preferred alternative that best meets purpose and need[1] under the National Environmental Policy Act (NEPA). We have, however, documented our measures to avoid and minimize our fill in EFH as a part of the proposed conservation measures[i].

NMFS recommends compensatory mitigation to be paid at a 3:1 ratio for impacts to 4 acres of EFH. The USACE will accept or reject DOT&PF's proposed ratio based on a fully developed DOT&PF design and permit application. DOT&PF will commit to pay compensatory mitigation as a requirement of the Section 10/404 process and the NMFS recommendation will be considered. However a DOT&PF may propose a lesser ratio.

NMFS recommends culvert replacement work on stream #101-47-10300 take place between June 1 and August 1. This work window is an Alaska Department of Fish and Game (ADF&G)

[1] DOT&PF has assumed the responsibilities of the Federal Highway Administration under 23 U.S.C. 326

decision under the Alaska Statute, Title 16, Fish Habitat (FH) permit. ADF&G informs us that Pink Salmon begin spawning as early as August with emergence as late as mid-May. Sediment from construction activities may impair spawning and egg viability. As a part of the FH permit application, erosion and sediment controls will be proposed by DOT&PF based on a fully developed design. NMFS proposed work window will be considered under the FH permitting process. However, DOT&PF or ADF&G may propose a different work window.

We hope NMFS will complete consultation based on a revised EFH that will be submitted by June 23, 2017. If you have questions you may contact me at john.barnett@alaska.gov or by phone at (907) 465-4504 or contact Jim Scholl, Project Environmental Coordinator, at jim.scholl@alaska.gov or by phone at (907) 465-4498.

Sincerely,

John Barnett
Regional Environmental Manager

Cc: Randal P. Vigil, USACE Juneau
Steve Brockman, US Fish & Wildlife Service, Juneau
Jackie Timothy, ADF&G, Juneau
Mark Minnillo, ADF&G, Craig

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[1] While the EFH Assessment dated March 22, 2017 included avoidance and minimization measures as a part of the conservation recommendations, they are reorganized here for clarity:

To avoid fill in the intertidal zone beneath High Tide Line (HTL) the project is designed to minimum road width that meets purpose and need.

To avoid impacts to EFH and managed fish species,

- intertidal fill would be placed during low tide conditions
- prior to conducting work in the intertidal area, the DOT&PF would remove visible plastic debris to minimize the potential for these materials to be inadvertently dispersed into marine waters during construction activities.

To minimize fill in the intertidal zone, the design calls for the steepest possible embankment slope angle, 2:1.

To minimize impacts to EFH

- existing drainage patterns would be maintained; properly sized and designed culverts would be used in appropriate locations to maintain the natural flow patterns and timing of surface water inflows to adjacent EFH.
- Standard spill-prevention measures would be implemented during construction; spill cleanup equipment (e.g., oil-absorbent pads) would be available on-site during construction.
- The contractor would use clean, contaminant-free fill material during construction.
- Disturbed stream banks would be re-contoured to approximate original conditions and re-seeded with native vegetation to minimize erosion into EFH.

From: Scholl, James W (DOT) [mailto:jim.scholl@alaska.gov]
Sent: Friday, June 23, 2017 8:22 AM
To: cindy.hartmann@noaa.gov
Cc: Snead, Carol V; Barnett, John C (DOT); Pyeatt, David A (DOT)
Subject: RE: 67571 67685 / RE: South Tongass Highway Rehabilitation Project - EFH

Thanks Cindy.

Jim Scholl
Environmental Analyst
ADOT&PF Southcoast Region
6860 Glacier Highway
POB 112506
Juneau Alaska 99811-2506

jim.scholl@alaska.gov

(907) 465 4498
(907) 465 2016 FAX

From: Cindy Hartmann - NOAA Federal [mailto:cindy.hartmann@noaa.gov]
Sent: Thursday, June 22, 2017 6:41 PM
To: Scholl, James W (DOT)
Subject: Re: 67571 67685 / RE: South Tongass Highway Rehabilitation Project - EFH

Jim, thanks for sending the letter & attachment to be electronically. i haven't received it as a hard copy yet.
Yes, this completes consultation. We gave you our recommendations and you replied to our recommendations.
NMFS can provide EFH comments/recommendations during the COE permit process and elevate through the COE process when appropriate.

Best Regards,
Cindy

On Tue, Jun 20, 2017 at 3:06 PM, Scholl, James W (DOT) <jim.scholl@alaska.gov> wrote:

Cindy, Attached is the letter sent last week accepting NMFS recommendations with some caveats and a revised EFH assessment incorporating corresponding changes to the conservation recommendations. I believe this completes consultation. Am I correct?

Thank you,

Jim Scholl
Environmental Analyst
ADOT&PF Southcoast Region
6860 Glacier Highway
POB 112506
Juneau Alaska 99811-2506

jim.scholl@alaska.gov

(907) 465 4498
(907) 465 2016 FAX

Attachment E:
Bald Eagle Consultation Documentation

DOT&PF/USFWS Consultation Documents

PHONE LOG

DATE: February 17, 2017

PROJECT: 67571 67685 KTN: S Tongass: Deermont to Saxman

CONTACT: Jordan Muir, Raptor/Permits Section Lead, FWS, and Jim Scholl, DOT&PF Project Environmental Coordinator

NOTES: Jordan called me in response to my email dated 11/21/16. I told Jordan that both Tribes were especially concerned about using exclusionary devices during construction. They are concerned the eagles will not return to the nests after construction and are opposed to any exclusionary device.

Jordan said FWS would not issue a permit in the breeding season without an exclusionary device. The only way for DOT&PF to obtain an eagle permit was to perform construction activities that may lead to a "take" outside the breeing season.

From: Scholl, James W (DOT)
Sent: Monday, November 21, 2016 3:48 PM
To: Stephen B. Lewis (steve_b_lewis@fws.gov); Jordan Muir (Jordan_Muir@fws.gov)
Subject: 67571 67685 KTN S Tongass Improvements / Your advice with Bald Eagle nest avoidance

Steve, Jordan, I hope you can help me. The project improves S Tongass in Ketchikan and is in the preliminary design phase. There are 3 nests, very close to the project limits, that will be affected. Nest 1 is 16 ft., nest 2 is 16 ft., and nest 3 is 5 ft. away from the construction area (see attached graphics). All are on the water side of the highway.

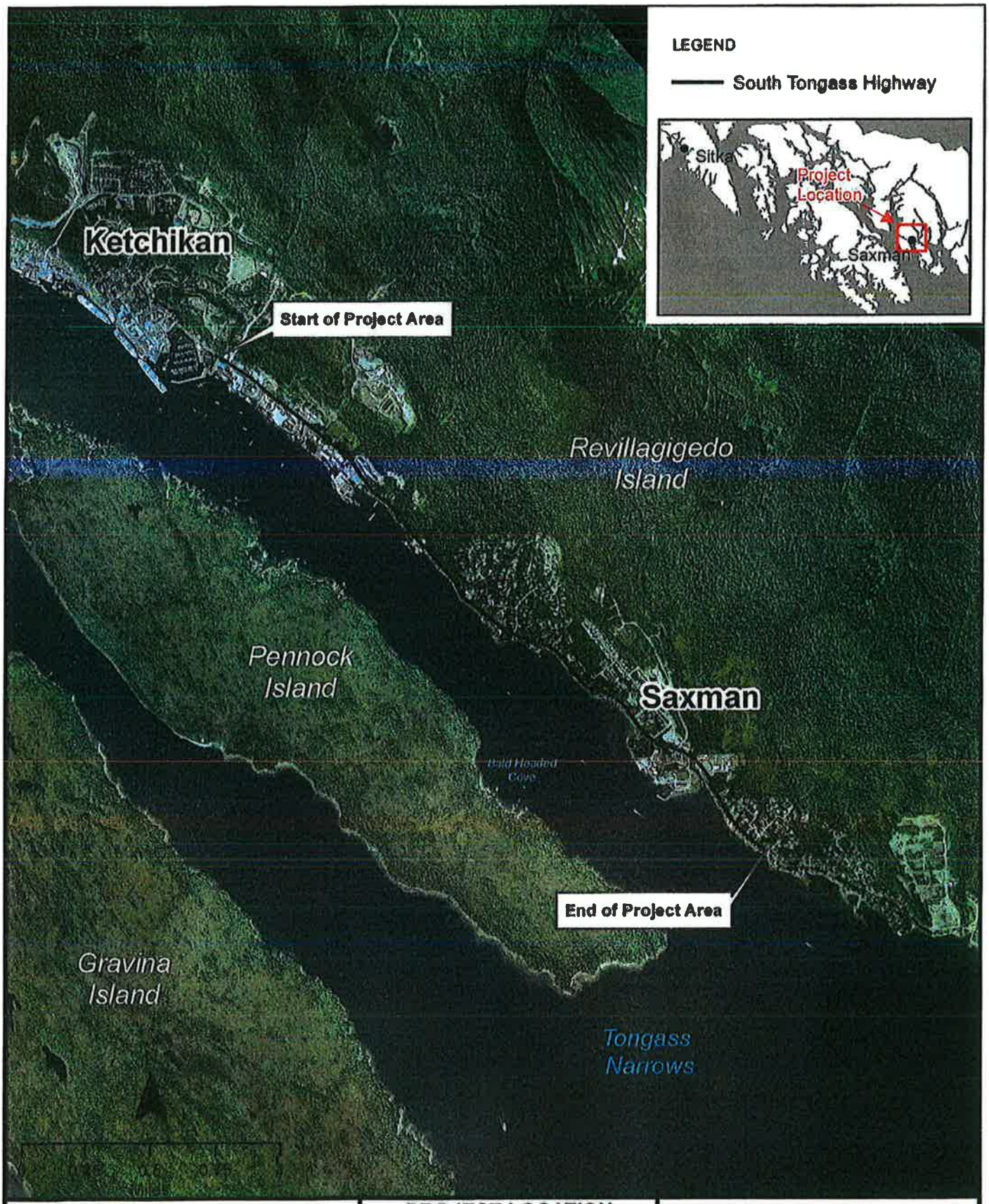
It is not possible to avoid construction for the entire breeding season due to weather constraints. On the mountain side of the road there are 2 properties on the National Register of Historic Places (Chief Ka Shakes House and Totem Row Park). So we can't move the road uphill away from the nests. We have not identified all the drill and shoot areas yet but bedrock is near the surface so we will be blasting near the nests (I will recommend blasting mats). Also, during grubbing activities the potential is high we will snag a tree root. From the attached photo you will see no vegetation or topography between the road and the nests.

I intend to apply for a take permit under 50 CFR 22.26 because the propensity for a take is high. What I would like to do is recommend an exclusionary device. Do you have any suggestions for the exclusionary device or any other measures to prevent eagles from using the nests during the breeding season? Thanks!

Jim Scholl
Environmental Analyst
ADOT&PF Southcoast Region
6860 Glacier Highway
POB 112506
Juneau Alaska 99811-2506

jim.scholl@alaska.gov

(907) 465 4498
(907) 465 2016 FAX



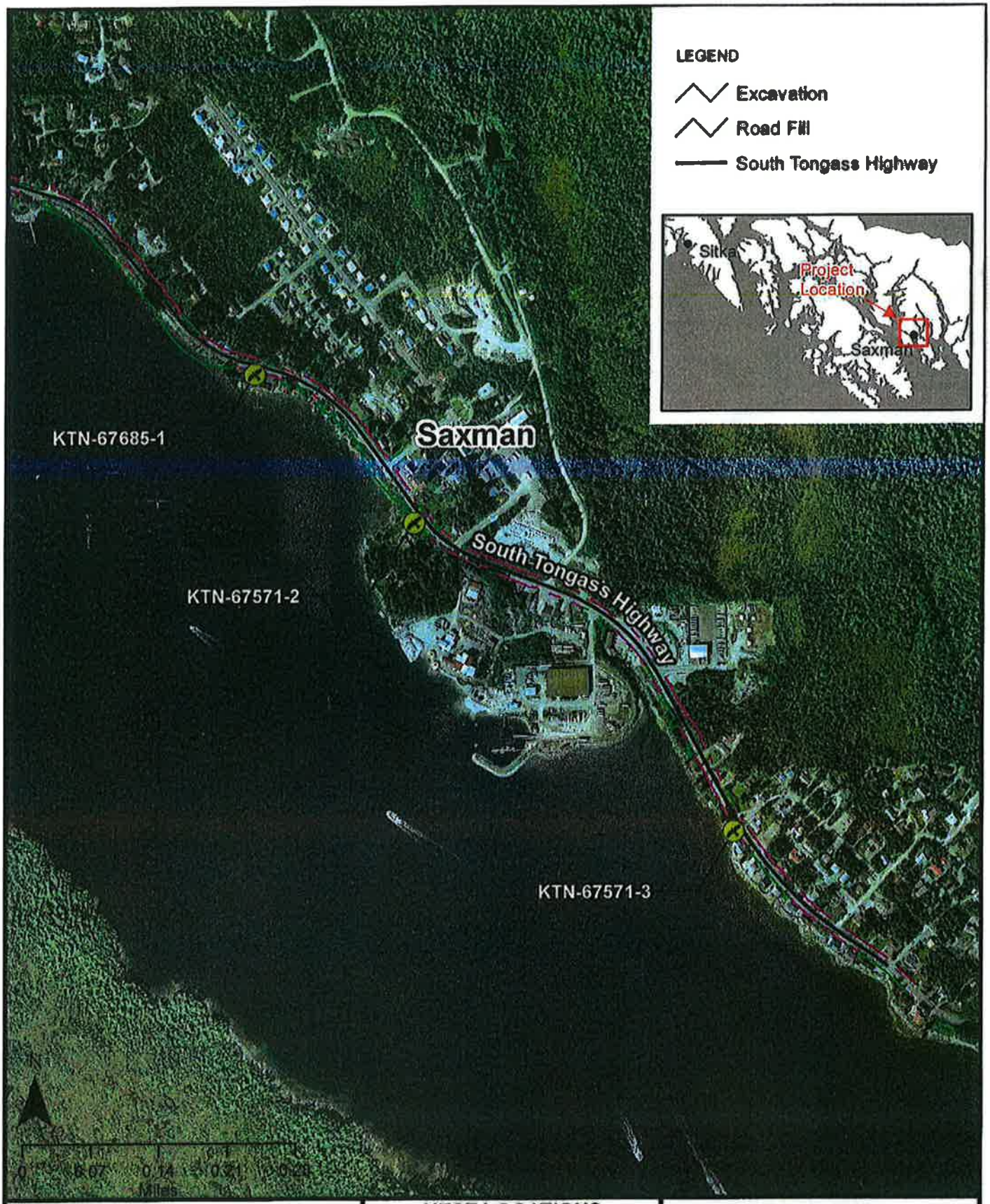
WATERBODIES:
TONGASS NARROWS

PROJECT LOCATION

APPLICATION BY:
ALASKA STATE DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
SOUTHCOAST REGION

KTN-DEERMOUNT TO SAXMAN WIDENING
KTN-SAXMAN TO SURF STREET REHABILITATION
DOT PROJECT NUMBERS: 67571 AND 67986
AT: SAXMAN, ALASKA
LOCATED IN: SECTIONS 32, 33 T75S, R91E
SECTION 04 T76S, R91E, COPPER RIVER MERIDIAN

DATE: 11/4/2016



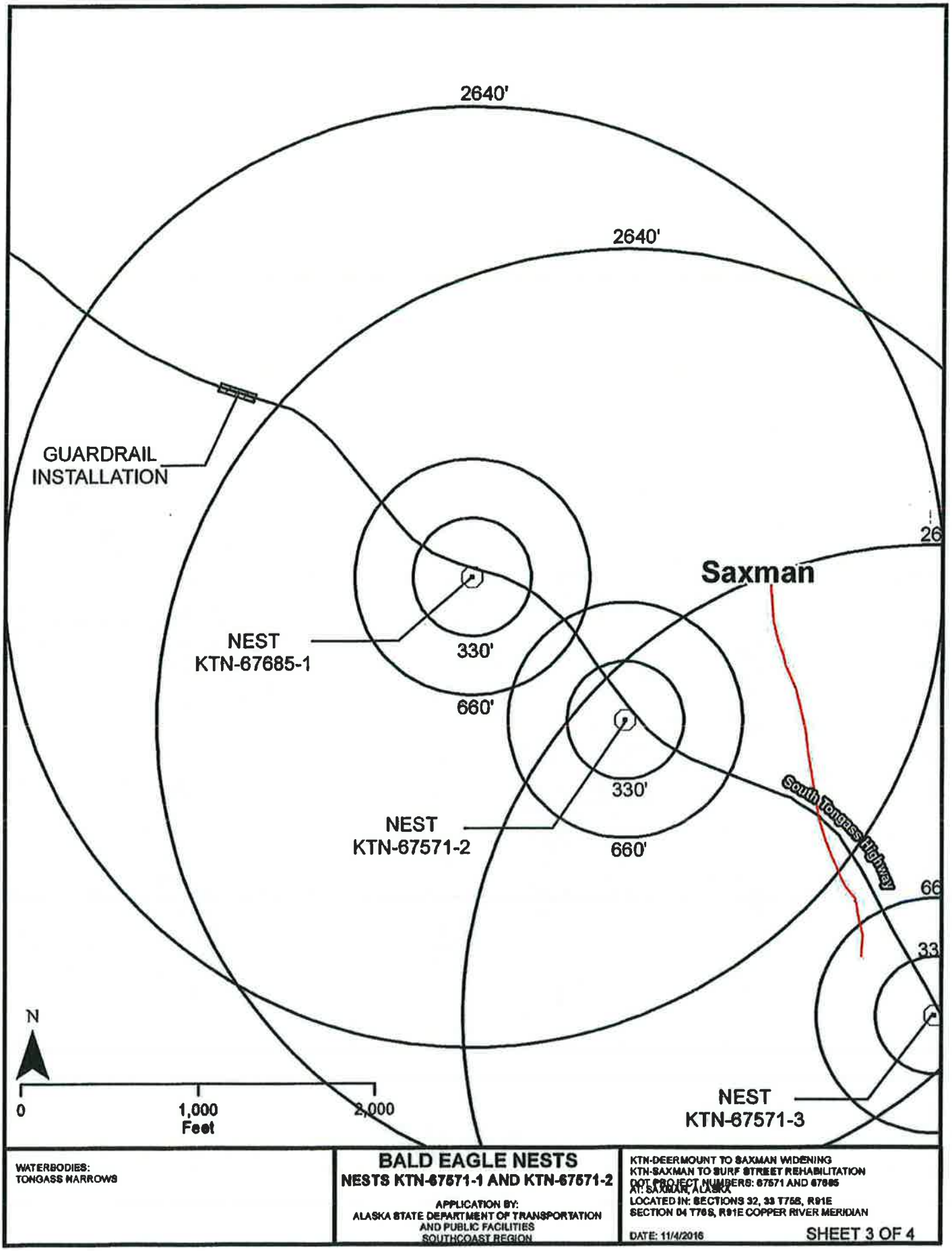
WATERBODIES:
TONGASS NARROWS

NEST LOCATIONS

APPLICATION BY:
ALASKA STATE DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
SOUTHCOAST REGION

KTN-DEERMOUNT TO SAXMAN WIDENING
KTN-SAXMAN TO SURF STREET REHABILITATION
DOT PROJECT NUMBERS: 67571 AND 67685
AT: SAXMAN, ALASKA
LOCATED IN: SECTIONS 32, 33 T76S, R91E
SECTION 04 T75S, R91E, COPPER RIVER MERIDIAN

DATE: 11/4/2016



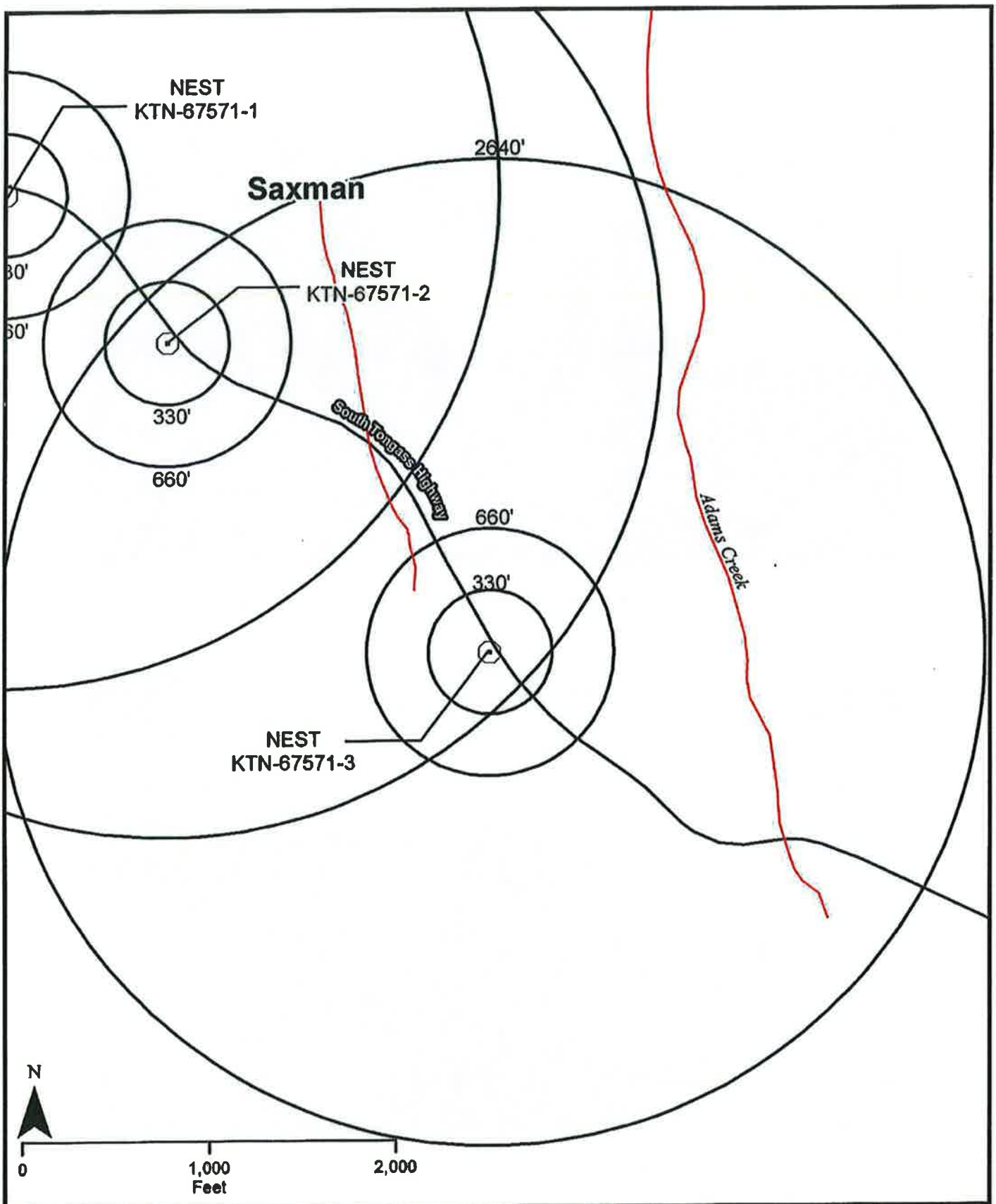
WATERBODIES:
TONGASS NARROWS

BALD EAGLE NESTS
NESTS KTN-67571-1 AND KTN-67571-2

APPLICATION BY:
ALASKA STATE DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
SOUTHCOAST REGION

KTN-DEERMOUNT TO SAXMAN WIDENING
KTN-SAXMAN TO SURF STREET REHABILITATION
DOT PROJECT NUMBERS: 67571 AND 67685
AT: SAXMAN, ALASKA
LOCATED IN: SECTIONS 32, 33 T75S, R91E
SECTION 04 T76S, R91E COPPER RIVER MERIDIAN

DATE: 11/4/2016



WATERBODIES:
TONGASS NARROWS

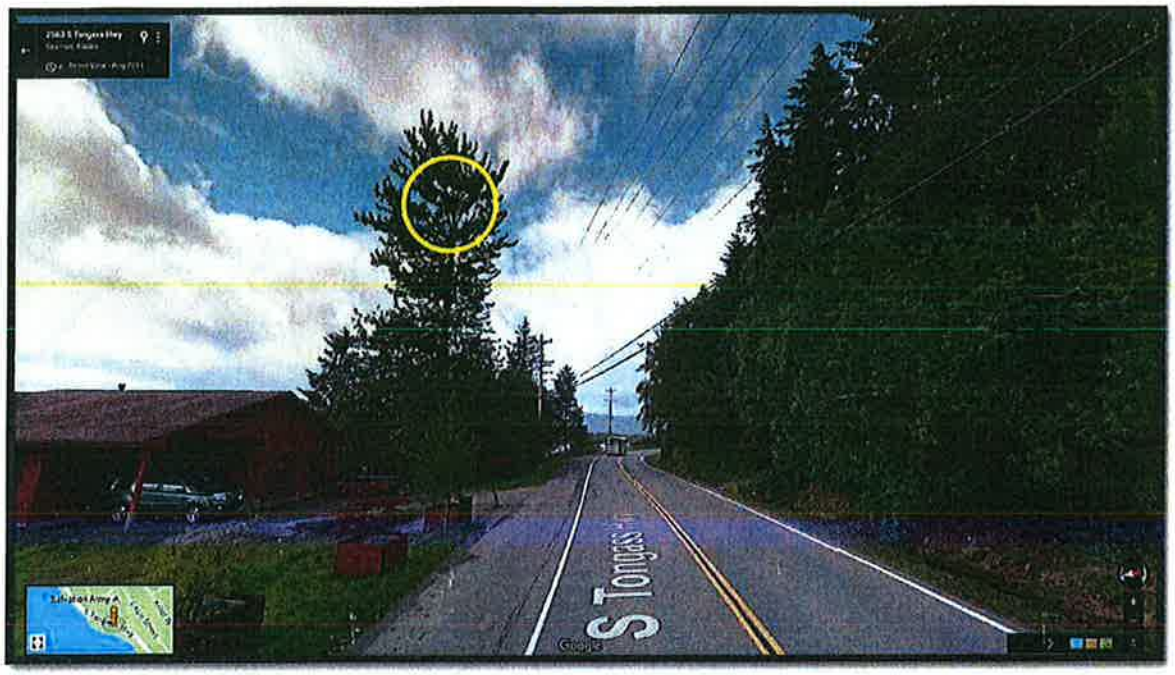
BALD EAGLE NESTS
NEST KTN-67571-3

APPLICATION BY:
ALASKA STATE DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
SOUTHCOAST REGION

KTN-DEERMOUNT TO SAXMAN WIDENING
KTN-SAXMAN TO SURF STREET REHABILITATION
DOT PROJECT NUMBERS: 67571 AND 67666
AT: SAXMAN, ALASKA
LOCATED IN: SECTIONS 32, 33 T75S, R91E
SECTION 04 T76S, R91E, COPPER RIVER MERIDIAN

DATE: 11/4/2016

SHEET 4 OF 4



Nest KTN-67685-1 looking north from South Tongass Highway

Nest KTN-67685-1 looking northwest from South Tongass Highway

Nest KTN-67571-2 looking northwest from South Tongass Highway

Nest KTN-67571-2 looking south from South Tongass Highway

Nest KTN-67571-3 looking north from South Tongass Highway

Nest KTN-67571-3 looking at nest tree from South Tongass Highway

Attachment F: Phase I Environmental Site Assessment Reports

Phase I Environmental Site Assessment

Anderes Oil, 900 Stedman Street, Ketchikan, AK

Prepared for:

State of Alaska

Department of Transportation and Public Faciliites

Anchorage, AK

July 6, 2017

Contents

Appendices

Acronyms

AAI	All Appropriate Inquiry
ADEC	Alaska Department of Environmental Conservation
AIRS	Aerometric Information Retrieval System
AST	Aboveground Storage Tank
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESQG	Conditionally Exempt Small-Quantity Generator
CREC	Controlled Recognized Environmental Condition
DOT & PF	Alaska Department of Transportation and Public Facilities
DRO	Diesel-range organics
EDR	Environmental Data Resources, Inc.
ENF	Enforcement
EPA	United States Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
°F	Degrees Fahrenheit
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FINDS	Facility Index System
GRO	Gasoline-range organics
HDR	HDR Engineering, Inc.
HMIRS	Hazardous Materials Information Reporting System
ISA	Initial Site Assessment
HWS Permit	Active TSD facilities
LUST	Leaking Underground Storage Tank
LQG	Large Quantity Generators
mg/kg	milligram per kilogram
NFA	No Further Action
NPL	National Priority List
PCB	polychlorinated biphenyl

RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
SQG	Small Quantity Generators
SPL	Superfund Programs List
Spills	Spills Database
USCG	United States Coast Guard
USGS	United States Geological Survey
UST	underground storage tank

Note: An additional acronym list is located in Appendix A.

Executive Summary

HDR Engineering, Inc. (HDR) has conducted a Phase I Environmental Site Assessment (Phase I ESA) of Anderes Oil facility, located at 900 Stedman Street in Ketchikan, Alaska. The Phase I ESA has been prepared for the Alaska Department of Transportation and Public Facilities (DOT&PF). DOT&PF requested the Phase I ESA of the aforementioned property for due diligence as part of the South Tongass Highway Deermount to Surf Street Rehabilitation Project (the Project) in the Ketchikan Gateway Borough, Alaska. A portion of Anderes Oil may be acquired for permanent or temporary right-of-way during construction of the Project.

The Anderes Oil property, referenced herein as the "Subject Property", consists of a bulk petroleum facility situated on a narrow strip of land between Stedman Street and Tongass Narrows. Five large-volume aboveground storage tanks (ASTs), several associated buildings, and a pier are currently located onsite. The northernmost portion of the Subject Property, located along Stedman Street, is being considered for acquisition. Please refer to the Project Location and Project Detail Maps (Figures 1 and 2, respectively) for further detail.

The area in the vicinity of the Subject Property consists of commercial, industrial, and undeveloped properties, and Stedman Street (South Tongass Highway). The Subject Property is bound to the northeast by Stedman Street, to the northwest by Trident Seafood, to the southeast by Alaska General Seafoods, and to the southwest by Tongass Narrows.

This Phase I ESA identifies recognized environmental conditions (RECs) that may adversely affect the Subject Property, and was conducted in accordance with the scope and limitations of the ASTM International (ASTM) Practice E1527-13. This report includes a summary of the site reconnaissance conducted on February 16, 2017, a review of environmental databases, a review of historical data sources, and personal interviews. Any exceptions to or deletions from these ASTM practices are described later in this report.

Findings

- The 1.9-acre Subject Property consists of a petroleum bulk plant, located at 900 Stedman Street, Ketchikan, Alaska. The Subject Property elevation is approximately five feet above mean sea level (AMSL). Tongass Narrows borders the Subject Property to the south.
- The Subject Property is located on the southwest side of Revillagigedo Island in Southeast Alaska. It is bound on the south by the East Channel of Tongass Narrows. Revillagigedo Island is located mostly within the Western Metamorphic Belt, a zone of structurally deformed and deeply metamorphosed gneiss. Onsite soil is a well-drained, very gravelly silt loam, with moderate infiltration rates.
- The groundwater flow direction is assumed to be to the south, toward Tongass Narrows. Groundwater is presumed to generally be less than 10 feet in depth, based on Alaska Department of Environmental Conservation (ADEC) site closure documents associated with the nearby sites. Based on the Subject Property's proximity to Tongass Narrows, tidal influence on groundwater is expected.
- Anderes Oil was listed in the Emergency Response Notification System (ERNS), Fuels Program, U.S. Aerometric Information Retrieval System (US AIRS), Facility Index System (FINDS), Enforcement and Compliance History Information (ECHO), Resource Conservation

and Recovery Act (RCRA) Non-Generator/No Longer Reporting (NonGen/NLR), and SPILLS databases by Environmental Data Resources, Inc. (EDR). The ERNS releases were associated with a surface water sheen on Tongass Narrows in 2016 and a practice drill conducted in 1998. The SPILLS listing is associated with the release of 50 gallons of gasoline in January 1999. The case was closed on the same day the release was reported. Anderes Oil was listed as a RCRA NonGen/NLR in 1989. No RCRA violations were noted in the EDR report.

- The Subject Property was included in the EDR-provided Sanborn maps for the years 1927, 1946 and 1969. The Subject Property and surrounding area had been developed for commercial and industrial use since at least 1927. The Subject Property was depicted as "native dwellings" associated with the Fidalgo Island Packing Company in the 1927 and 1946 maps. The Subject Property was depicted as the Socony-Mobil Oil Company Bulk Plant in the 1969 map. Adjacent properties included the Fidalgo Island Packing Company to the northwest and the New England Fish Company to the southeast.
- The Subject Property was listed as Anderes Oil Company and Mobile Oil Company in the 1992 city directory, and as Anderes Oil in the 1995, 2003, and 2013 city directories. The Subject Property was not listed in the 1992, 1999, and 2008 city directories. Properties along Stedman Street in the vicinity of the Subject Property were primarily commercial and industrial between 1992 and 2013, and included Trident Seafoods/Canners, Community Connections Warehouse, Schmolck Mechanical Contractors, and Kanaway Seafoods.
- The Subject Property was included in the EDR-provided aerial photographs for the years 1948, 1979, 1982, and 2014. The Subject Property was heavily treed, and buildings were not discernible in the 1948 photograph. Five ASTs, several buildings, and a pier were located on the Subject Property in 2014. Commercial and industrial development had occurred along Stedman Street in the vicinity of the Subject Property, in all available aerial photographs.
- The Subject Property was included in the EDR-provided topographic maps for the years 1954, 1970, 1991, 1994/1995. Land use noted in other historical records was confirmed by the topographic maps. Storage tanks were depicted on the Subject Property on the 1991 topographic map.
- No interviews were conducted as part of the Phase I ESA based on conversations with the User.
- On February 16, 2017, HDR personnel conducted site reconnaissance activities of the Subject Property and surrounding area from nearby public property and right-of-way. Five large ASTs were noted on the Subject Property, in a concrete-lined secondary containment structure located along the property border with Stedman Street. An office building and another outbuilding were also noted at the Subject Property. No staining was noted from the public right-of-way on or around the ASTs. Alaska General Seafoods was located immediately southeast of the Subject Property, and Trident Seafood was located immediately northwest of the Subject Property. Undeveloped land and a restaurant were located immediately northeast of the Subject Property beyond Stedman Street.

Opinions

HDR has reviewed the stated data sources, which are part of the ASTM E 1527-13 assessment protocol. Based upon the review of the data, HDR has developed the following professional opinions:

- The Subject Property has been a bulk petroleum facility since at least 1969. Five ASTs are present on the Subject Property along Stedman Street. Two petroleum releases have been reported at the facility. However, releases occurring prior to the mid 1980s may not have been reported to regulatory agencies. The historical use of the Subject Property as a petroleum bulk plant, and likelihood for unreported/undocumented releases associated with this land use, is considered a REC.
- Volatile organic compounds (VOCs) in the subsurface can pose a vapor intrusion risk to the Subject Property. It is possible that an accumulation of vapors could be encountered in the subsurface around buildings and along underground utility corridors. Although releases to the environment have not been recorded at the Subject Property, historical use as a petroleum bulk plant since at least 1969 increases the likelihood that unreported releases at the facility have occurred and could contribute to soil vapor issues.

Based upon the above-detailed Findings and Opinions, HDR concludes that RECs have been identified for the Subject Property, as presented in the Findings section above. The following statement is required by ASTM E 1527-13 as a declaration of whether RECs were found within the Subject Property:

HDR has performed a Phase I ESA in conformance with the scope and limitations of ASTM E 1527-13 of the Anderes Oil property, located at 900 Stedman Street, in Ketchikan, Alaska (Subject Property). Any exceptions to or deletions from these practices are described in previous sections of this report. This report has revealed indication of RECs in connection with the Subject Property.

Recommendations

Recommendations included in this report were developed through the investigative procedures described in the Scope of Services, Significant Assumptions, and Limitations sections of this report. These findings should be reviewed within the context of the limitations provided in the Limitations section (Section 1.3).

Based on the stated Findings and Conclusions, HDR makes the following recommendations:

Recommendation 1

Based on the current Project plans, ground disturbance activities associated with installation of a drainage line and grading activities to match the Subject Property with the new Stedman Street grade will occur within a temporary construction easement on the Subject Property. Based on conversations with ADOT&PF personnel, a Phase II Site Assessment is not recommended within the temporary construction easement. However, HDR recommends that construction contractors should be instructed to immediately stop all subsurface activities in the event that previously unidentified, potentially hazardous materials are encountered, or significantly stained soil is found during construction. Contractors should be instructed to follow all applicable regulations regarding discovery and response for hazardous materials encountered during the construction process. In addition, a Contaminated Media Management Plan is recommended as an addendum to the Hazardous

Materials Control Plan to provide contractors information on how to manage previously unidentified contaminated media.

Recommendation 2

HDR recommends that DOT&PF consider the "shelf life" of Phase I documents in determining risk. ASTM E 1527-13 states that a conforming "Phase I" report is valid for a period of 180 days, and may be updated during the 180-day to 1-year timeframe. The report is valid for use in any of the CERCLA defenses ONLY if it is updated within this time frame. If more than 1 year passes from the final report date, the Phase I effort would need to be repeated to remain in compliance with ASTM and the "All Appropriate Inquiry" protections.

1.0 Introduction

1.1 Purpose

The purpose of this Phase I Environmental Site Assessment (ESA) is to document the evaluation of the Subject Property for indications of "recognized environmental conditions" (RECs). The ASTM International (ASTM) Practice E 1527-13 defines the following categories of REC:

REC

The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions (see definition below).

ASTM E 1527-13 defines release as a release of any hazardous substance or petroleum product shall have the same meaning as the definition of "release" in CERCLA 42 U.S.C. § 9601(22)).

Historical REC (HREC)

A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

Controlled REC (CREC)

A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

Additional conditions that are not included under the definitions of a REC, but are defined by ASTM Practice 1527-13 include:

De minimis

A condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis conditions are not recognized environmental conditions nor controlled recognized environmental conditions.

Business Environmental Risk

A risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice.

Consideration of business environmental risk issues may involve addressing one or more non-scope considerations.

1.2 Report Users

HDR Engineering, Inc. (HDR) has received authorization from DOT&PF to conduct a Phase I ESA of Anderes Oil, located at 900 Stedman Street in Ketchikan, Alaska. This Phase I ESA has been prepared for DOT&PF, and only DOT&PF has the right to rely on the contents of this ESA.

1.3 Scope of Services, Significant Assumptions, and Limitations

The services provided for this project consisted of the following:

- Provide a description of the Subject Property including current land uses (Sections 2.1 through 2.3)
- Provide a general description of the topography, soils, geology, and groundwater flow direction (Section 2.4)
- Review reasonably ascertainable and reviewable regulatory information published by federal, state, local, tribal, health, and/or environmental agencies pertaining to the Subject Property (Sections 4.1 and 4.2)
- Review historical data sources for the Subject Property, including aerial photographs, topographic maps, fire insurance maps, city directories, and other readily available development data (Section 4.3)
- Review previous environmental liens, activity use limitations (AULs), and previous environmental investigation if provided (Section 4.4)
- Interview of the current owner and other persons that have knowledge of the development history of the Subject Property (Section 4.6)
- Conduct an area reconnaissance and an environmental review—including a visual review of adjoining properties—with a focus on indications of hazardous substances, petroleum products, polychlorinated biphenyls (PCBs), wells, storage tanks, solid waste disposal pits and sumps, and utilities (Sections 4.7 and 4.8)
- Determine data gaps in the information obtained and comment on their significance in identifying RECs for the Subject Property (Section 5.0)
- Prepare a written report of methods, findings, opinions, and conclusions (Section 6.0)
- Provide Recommendations (Section 7.0)

The goal of this scope of services is to assist the user in identifying conditions in the Subject Property that may indicate risks regarding hazardous materials storage, disposal, or other impacts. The resulting report may qualify the user for relief from liabilities as one of three "defenses" identified in the 2002 Brownfields Amendments to CERCLA Section 9607 (All Appropriate Inquires (AAI) subsections). These three defenses include:

1 The "innocent landowner" defense to potential liabilities under 42 United States Code [U.S.C.] § 9601;

2 The "contiguous land owner" defense pursuant to 42 U.S.C. § 9607q; and

3 The "bona fide prospective purchaser" defense pursuant to 42 U.S.C. §9607r.

Federal regulations (42 U.S.C §9601(35)(A) & (B), §9607(b)(3), §9607(q); and §9607(r)), promulgated by the United States (U.S.) Environmental Protection Agency (EPA), require that

liability release be based (in part) on completion of AAI prior to purchase of a property. Those inquiries are documented by Phase I reports, or ESAs. EPA has agreed that the recently developed ASTM guidance (ASTM Practice E 1527-13: 3.2.6) specifies and interprets AAI requirements.

A user is defined by ASTM Practice E 1527-13 as the party seeking to use Practice E 1527 to complete an ESA of the project area and may include a potential purchaser of land in the Subject Property, a potential tenant of the Subject Property, an owner of land in the Subject Property, a lender, or a manager of the Subject Property. Investigative areas not included in the standard ASTM ESA scope include: asbestos, lead-based paint, lead in drinking water, radon or urea formaldehyde, wetland issues, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, and high voltage power lines.

Indoor air quality from sources such as mold and asbestos is not included in the ASTM standard **except to the extent that indoor air impacts are related to Superfund release and/or caused by releases of hazardous substances into subsurface soil or groundwater (vapor intrusion).**

The potential for vapor encroachment or intrusion into structures in the Subject Property are considered and identified from onsite or offsite sources based on the experience of the Environmental Professional.

The scope of services for this ESA Study also does not include the completion of soil borings, the installation of groundwater monitoring wells, or the collection of soil or groundwater samples. State and national policies and standards relevant to vapor intrusion are in flux and subject to change.

HDR has made certain assumptions in preparing the scope of this assessment:

- *Data gathered from public information sources (i.e., libraries or public regulatory agencies) are accurate and reliable.*
- *Site operations reflect site conditions relative to potential releases and no intentional concealment of environmental conditions or releases has occurred.*
- *Interview information is directly reported as gathered by the assessor and is limited by the accuracy of the interviewee's recollection and experience.*
- *Published geologic information and site observations made by the environmental professional are used to estimate likely contaminant migration pathways in the subsurface. These estimates by the environmental professional are limited in accuracy and are generally cross-referenced with existing information about similar sites and environmental releases in the area.*
- *Regulatory information is limited to sites identified after the late 1980s because reliable records were not kept by regulatory agencies prior to that time frame.*

The findings and conclusions presented in this report are based on the procedures described in ASTM Practice E 1527-13, informal discussions with various agencies, a review of the available literature cited in this report, conditions noted at the time of this Phase I ESA, and HDR's interpretation of the information obtained as part of this Phase I ESA. The findings and conclusions are limited to the specific Study and properties described in this report, and by the accuracy and completeness of the information provided by others.

An ESA cannot entirely eliminate uncertainty regarding the potential for RECs. Conducting this assessment is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs in connection with the Subject Property within reasonable limits of time and cost. In conducting its

services, HDR used a degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession practicing in the same locality. This Phase I ESA conforms to the level of documentation required in ASTM Practice E 1527-13. However, HDR may omit discussion of certain records; i.e., sources deemed, in HDR's professional opinion, to be inapplicable or of limited value to the specific needs of this client. In accordance with ASTM; however, if the lack of available documentation results in a data gap, this data gap is identified herein and its significance is discussed.

2.0 Site Description

2.1 Location and Legal Description

The Subject Property consists of an approximately 1.9-acre parcel, located at 900 Stedman Street, Ketchikan, Alaska (Figure 1, Subject Property Location Map and Figure 2, Subject Property Detail Map). The Subject Property is situated along a narrow strip of land located between Stedman Street and Tongass Narrows. DOT&PF plans to acquire a portion of the Subject Property along Stedman Street, for use as a permanent or temporary right-of-way during construction of the South Tongass Highway Deermount to Surf Street Rehabilitation Project (the Project).

2.2 Site and Vicinity Characteristics

The United States Geological Survey (USGS) 7.5-minute Topographic Map Series (Quadrangle Maps, Ketchikan B-5 SW, 1991) was reviewed for this Phase I ESA. The Subject Property elevation is approximately 5 feet above mean sea level (AMSL). The topography of the Subject Property is relatively flat, with topography sloping slightly downward to the southwest toward Tongass Narrows.

The surrounding area consists primarily of industrial and commercial properties, undeveloped land, and Stedman Street (South Tongass Highway). The Subject Property is bound to the northeast by Stedman Street, followed by undeveloped land, and a restaurant. The Subject Property is bound to the northwest by Trident Seafood, followed by a coffee bar and the Community Connections building. The Subject Property is bound to the southwest by Tongass Narrows. The Subject Property is bound to the southeast by the Alaska General Seafoods fish processing facility.

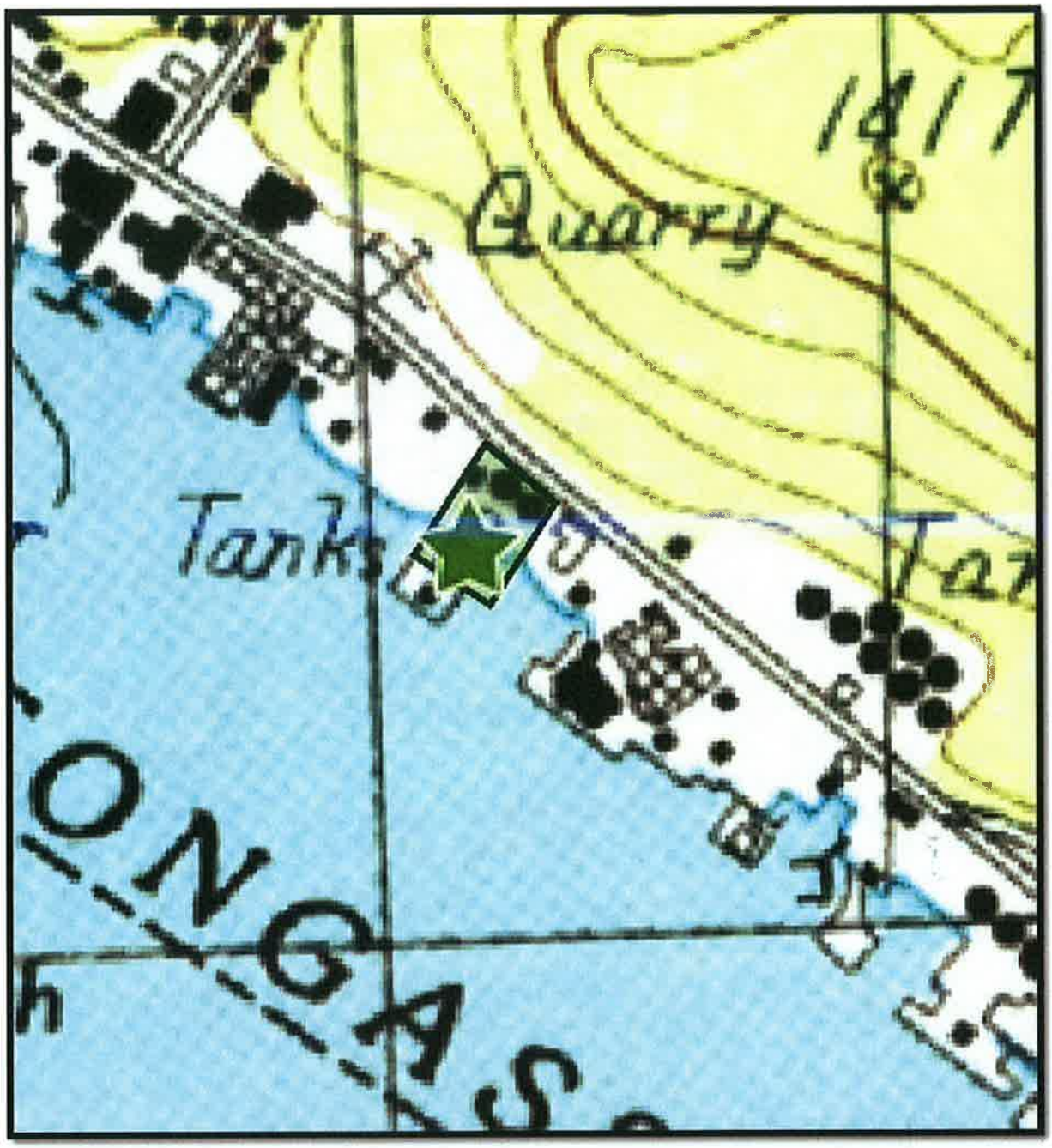


Figure 1. Subject Property Location Map

Figure 2. Site Detail Map

2.3 Description of Structures, Roads, and Other Site Improvements

The Subject Property is occupied by Anderes Oil, located on the southwest side of Stedman Street in Ketchikan, Alaska. Five large aboveground storage tanks (ASTs), an office and warehouse buildings are located in the northern portion of the Subject Property. A pier extends off the southern portion of the Subject Property into Tongass Narrows.

2.4 Area Geology and Hydrogeology

The Subject Property is located on the southwest side of Revillagigedo Island in Southeast Alaska. It is bound on the southwest by the East Channel of Tongass Narrows. Revillagigedo Island is located mostly within the Western Metamorphic Belt, a zone of structurally deformed and deeply metamorphosed gneiss. Alexander and Taku terrane outcrops recount a history of many deformations and intrusive magmatic episodes. Stresses along the fractured surfaces created a type of metamorphic rock known as mylonite, a banded or streaky rock that forms through shearing of rocks that have been smeared along fault zones. In this area, the Alexander terrane was thrust beneath the Taku terrane along a low-angle fault in Late Jurassic time. The Taku terrane is a belt of folded and metamorphosed sedimentary and volcanic rocks of Permian and mid-Triassic age that is linked to the Yukon-Tanana terrane through zircon mineral heritage. Later, in Middle to Late Cretaceous time, tectonic compression from the accretion of the Alexander terrane to the mainland severely deformed the rocks (Conner 2014).

The United States Department of Agriculture Soil Conservation Service, National Cooperative Soil Survey classifies soil on the Subject Property as Typic Humicryods. Typic Humicryods soil is a well-drained, very gravelly silt loam, with moderate infiltration rates.

Portions of the Subject Property are located in the 100-year flood plain. The FEMA Flood Insurance Rate Map that covers the Subject Property is 0200030002B.

Groundwater is presumed to generally be less than 10 feet in depth, based on ADEC site closure documents associated with nearby properties (see Section 4. 1 below). Discontinuous, likely perched groundwater was encountered at facilities within 0.25 miles of the Subject Property. The groundwater flow direction in the area is presumed to generally follow surface topography, to the south toward Tongass Narrows. Based on the Subject Property's proximity to Tongass Narrows, tidal influence on groundwater is expected.

Ketchikan has a maritime climate, characterized by mild summers and cool, wet winters. Annual precipitation averages approximately 152 inches. Approximately 63 percent of the annual precipitation falls between September and February. The average maximum temperature is approximately 52 degrees Fahrenheit (°F) and the average minimum temperature is 39° F (WRCC 2016).

3.0 User-Provided Information

The DOT&PF provided HDR with background information related to the Project and maps of the project area.

4.0 Records Review

4.1 Environmental Records Review

Environmental Database Resources, Inc. (EDR) was contracted by HDR to complete a database search for the Subject Property, which included a search area of up to one mile from the Subject Property boundary. The database search was produced by EDR on February 9, 2017, and included federal, state, local, and tribal databases, as well as EDR proprietary databases, as defined by ASTM E 1527-013. The results of the database search are summarized in Table 1 and the following paragraphs below. A complete copy of the EDR environmental database report is included in Appendix A.

Table 1 – Summary of Environmental Database Search

Database	Description	Listings in Search Radius	Listings of Concern to the Subject Property
FEDERAL ASTM STANDARD			
RCRA CESQG	RCRAInfo is EPA's comprehensive information system, providing access to data supporting the RCRA of 1976 and the HSWA of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the RCRA. Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste per month.	1	0
ERNS	Emergency Response Notification System (ERNS) records and stores information on reported releases of oil and hazardous substances	2	2
RCRA Non-Generator	RCRAInfo is EPA's comprehensive information system, providing access to data supporting the RCRA of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.	3	1
FINDS	Facility Index System (FINDS) contains both facility information and "pointers" to other sources that contain more detail.	1	1
ECHO	The Enforcement and Compliance History Information (ECHO) database provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.	1	1
FUELS PROGRAM	The Fuels Program listing includes facilities that are registered under Part 80 (Code of Federal Regulations) EPA Fuels Program. All companies are now required to submit new and updated registrations.	2	1
US AIRS (AFS)	The Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS) database is a subsystem of the AIRS. AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. It is used to track emissions and compliance data from industrial plants.	1	1

Database	Description	Listings in Search Radius	Listings of Concern to the Subject Property
STATE and LOCAL ASTM STANDARD			
SHWS	State Hazardous Waste Sites (SHWS) records are the state's equivalent to CERCLIS. These sites may or may not already be listed on the Federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.	14	0
SWF/LF	Solid Waste Facility/Landfill Site (SWF/LF) type sites typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.	1	0
LUST	The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Minnesota Pollution Control Agency's Leak Sites list.	4	0
UST	Registered Underground Storage Tanks. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.	4	0
SPILLS	Spills Database. Oil and hazardous substance releases to be reported to the Department of Environmental Conservation.	1	1
INST CONTROL	A listing of contaminated sites with institutional controls	2	0
AIRS	The AIRS database is a listing of permitted AIRS facilities.	1	1
EDR HIGH RISK HISTORICAL RECORDS			
EDR Hist Auto	EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.	1	0
Total listings		**39**	**9**

HDR reviewed the listings reported within the database search area. Listings or sites that were noted by the Environmental Professional as being of potential concern to the Subject Property are listed in the table above, and described in further detail in the following bullets. The remaining listings were not considered to be of concern to the Subject Property, based on factors such as distance, hydraulic gradient, geology, or regulatory or clean-up status. Figure 3 provides approximate locations of the facilities based on Map ID.

- Anderes Oil – 900 Stedman Street, Ketchikan, AK (ERNS, Fuels Program, US AIRS, FINDS, ECHO, RCRA NonGen/NLR, SPILLS). The listing is associated with the Subject Property.

Two releases at the facility were reported in the ERNS databases, and one release at the facility was listed in the SPILLS database. One ERNS listing is related to an unknown sheen noted in Tongass Narrows, near the facility, in May 2016. The second ERNS listing is associated with a practice drill conducted in 1998. The SPILLS listing is associated with the release of 50 gallons of gasoline in January 1999. The case was closed on the same day the release was reported. The facility is listed in the Fuels Program databases as a non-renewable fuels importer facility and truck loading terminal/locomotive marker facility. Anderes Oil was listed as a RCRA NonGen/NLR in 1989. No RCRA violations were noted in the EDR report.

A review of the Orphan Summary (unmappable sites due to insufficient address information) did not list any orphan sites within one mile of the Subject Property.

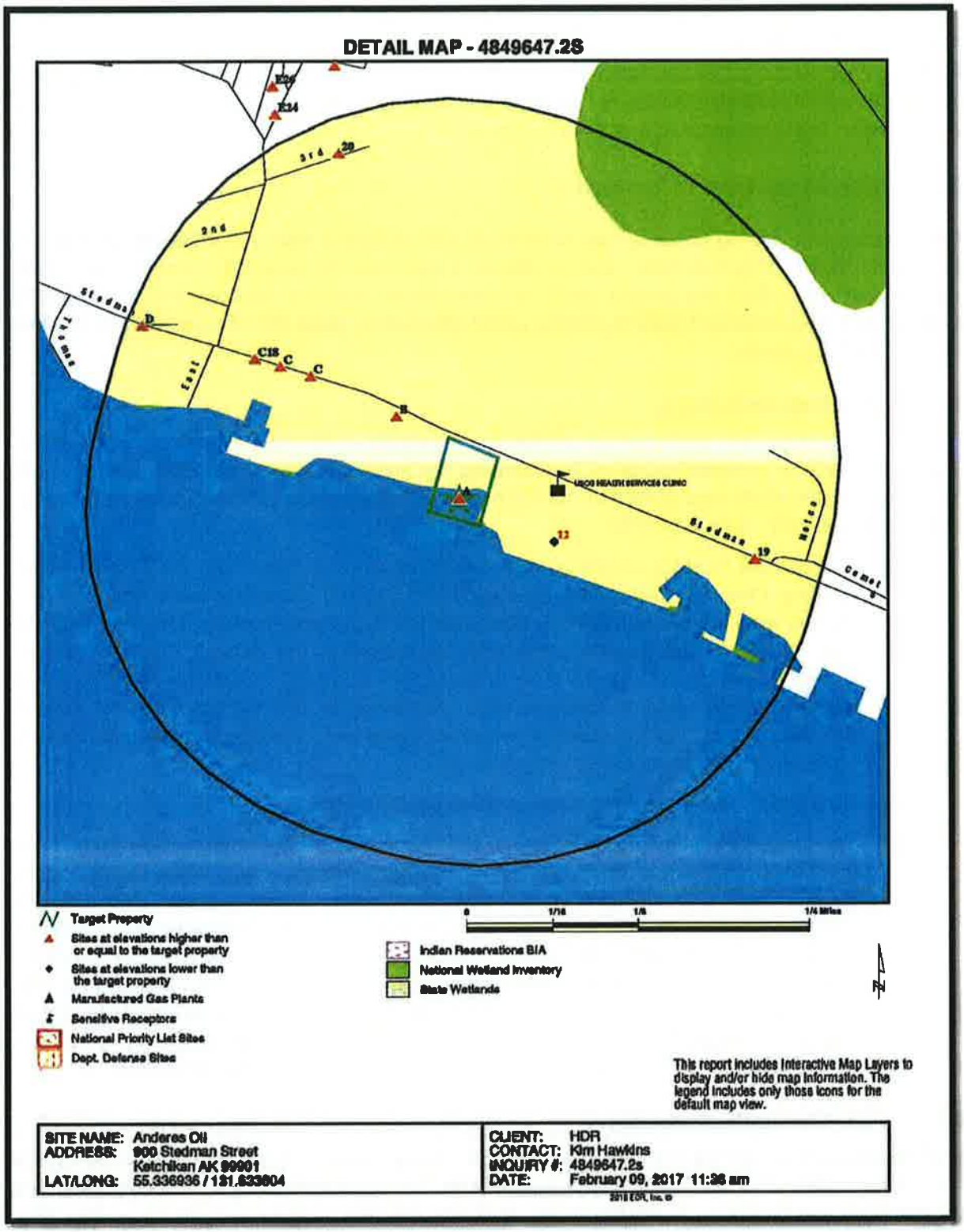


Figure 3. Environmental Database Search Map

4.2 Additional Regulatory Information

4.2.1 Agency File Review

HDR searched ADEC's Contaminated Sites Search database for additional information about the Subject Property. Anderes Oil was not listed in the database, and no additional information was available from ADEC's Contaminated Sites Program.

4.3 Historical Use Information

The objective of reviewing historical use information is to develop a history of previous land uses in the vicinity of the project corridor, and to assess these uses for potential hazardous materials impacts that may affect the project. HDR reviewed those historical sources that were readily available and reviewable and likely to provide useful information, given the time and cost constraints inherent in ESA projects.

4.3.1 Fire Insurance Maps

Fire insurance maps are produced by private fire insurance companies to indicate uses of the Subject Property on specified dates. HDR requested fire insurance maps from EDR, the copyright holder for the Sanborn® map collection. Sanborn maps were available for the Subject Property for coverage years 1927, 1946, and 1969.

1927: The Subject Property consisted of native dwellings associated with the Fidalgo Island Packing Company. Additional Fidalgo Island Packing Company bunk and boarding houses were located immediately northwest of the Subject Property. The New England Fish Company was located immediately southwest of the Subject Property. Nearby structures associated with the New England Fish Company included a boiler house, a salmon cannery, and a machine shop. Northeast of the Subject Property beyond Stedman Street, the surrounding properties consisted of scattered dwellings and an undeveloped, steeply wooded mountainside.

1946: No significant changes were noted on 1946 Sanborn map.

1969: The Subject Property was depicted as the Socony-Mobil Oil Company Bulk Plant. Four large steel oil tanks, a filling stem, and buildings associated with office space and oil storage were also depicted on the Subject Property. A planked pier extended into Tongass Narrows. Nearby bunk and boarding houses located northwest of the Subject Property were associated with the NEFCO Fidalgo Packing Company Salmon Cannery. The boiler house remained located adjacent to the southeast of the Subject Property. However, the salmon cannery building and machine shop previously depicted at the New England Fish Company were no longer present. Cold storage and fish packing facilities were located on the property, southeast of the former salmon cannery building.

4.3.2 City Directory Information

EDR obtained city telephone directories for addresses along Stedman Street for the coverage years 1992, 1995, 1999, 2003, 2008, and 2013 (Appendix B). The Subject Property was listed as Anderes Oil Company and Mobile Oil Company is the 1992 city directory, and as Anderes Oil in the 1995, 2003, and 2013 city directories. The Subject Property was not listed in the 1999 and 2008 city directories. Properties along Stedman Street in the vicinity of the Subject Property were primarily commercial and industrial between 1992 and 2013, and included Trident Seafoods/Canners,

Community Connections Warehouse, Schmolck Mechanical Contractors, Kanaway Seafoods, NOAA Ship Fairweather, Tesoro Alaska, Petro Marine Services, Ketchikan Gateway Borough Bus Transit, and US Coast Guard.

4.3.3 Historical Aerial Photographs

Historical aerial photographs are valuable for the environmental assessor to review features of properties on and near the Subject Property over a long period of time. HDR reviewed historical aerial photographs provided by EDR. Historical aerial photographs were reviewed from the years 1948, 1979, 1982, and 2014.

1948: The Subject Property was heavily treed, and buildings were not discernible. Commercial and industrial development was present northwest and southeast of the Subject Property, along the southwest side of Stedman Street. Several large ASTs were located approximately 0.1 miles southeast of the Subject Property, along Stedman Street.

1979: Several ASTs, multiple buildings, and a pier had been constructed on the Subject Property. Additional commercial and industrial development had occurred along Stedman Street to the northwest and southeast. Additional ASTs had been constructed on the north side of Stedman Street, approximately 0.1 miles southeast of the Subject Property, along Stedman Street. Land had also been cleared approximately 0.3 miles east of the Subject Property, in the vicinity of the Ketchikan Landfill.

1982: The Subject Property and surrounding area were relatively unchanged in 1982.

2014: The Subject Property and surrounding area were relatively unchanged in 2014. Five ASTs were now present at the Subject Property. The hillside north-northwest of the Subject Property, beyond Stedman Street, had been excavated, and an office building had been constructed.

4.3.4 Historical Topographic Maps

Historical topographic maps provide an overview of the area relative to potential previous land uses. HDR reviewed historical topographic maps of the Subject Property and surrounding area dated 1954, 1970, 1991, and 1994. These maps served to verify the information gathered in the historic aerial photograph review. Storage tanks were depicted on the Subject Property on the 1991 topographic map. Additional ASTs were depicted east-southeast of the Subject Property, across Stedman Street.

4.4 Environmental Liens, Activity and Use Limitations (AULs), and Additional Information

No information regarding the chain-of-title ownership history or environmental liens recorded against facilities located within the Subject Property was provided by the user. No Institutional Controls were noted for the Subject Property on the ADEC Contaminated Sites Search database.

4.5 Summary of Previous Environmental Investigations

No previous environmental investigations were provided or reviewed during preparation of this report.

4.6 Interviews

4.6.1 Site Interviews

No site interviews were conducted as part of this Phase I ESA, based on conversations with the User, and contact information was not provided for key site personnel.

4.6.2 Offsite Interviews

No offsite interviews were conducted as part of this Phase I ESA based on conversations with the User.

4.7 Site Reconnaissance

On February 16, 2017, HDR personnel conducted site reconnaissance activities on the Subject Property and surrounding area from public right-of-way along Stedman Street. Photographs of the site reconnaissance are included in Appendix C.

Five large ASTs were noted on the Subject Property, in a concrete-lined secondary containment structure located along the property border with Stedman Street. An office building and another outbuilding were also noted at the Subject Property. No staining or indications of leaks were noted from the public right-of-way on or around the ASTs.

Alaska General Seafoods was located immediately southeast of the Subject Property, and Trident Seafood was located immediately northwest of the Subject Property. Two ASTs were located on the north portion of the Trident Seafoods property, approximately 0.1 miles northwest of the Subject Property. Undeveloped land and a restaurant were located immediately northeast of the Subject Property on the northeast side of Stedman Street.

4.8 Utilities and PCBs

Subsurface utilities including water, sewer, and telecommunication are expected in the vicinity of the Subject Property. Pole-mounted transformers were noted along the northeast side of Stedman Street near the Subject Property. Non-PCB containing stickers were noted on several of the pole-mounted transformers. HDR contacted Ketchikan Public Utilities to obtain information related to potential polychlorinated biphenyls (PCBs) associated with their transformers. Mr. Mark Adams reported that no PCB-containing transformers remain in use within Ketchikan Public Utilities' system.

4.9 Vapor Intrusion Potential

According to EPA guidance, vapor intrusion is a general term for migration of the vapor phase of VOCs from any subsurface contaminant source, such as contaminated soil or groundwater, through the soil and into an overlying building. The two general classes of VOCs that account for a large number of soil and groundwater contamination sites in the United States are petroleum hydrocarbons and non-petroleum hydrocarbon fuel additives, and chlorinated solvents.

The potential for vapor intrusion was evaluated for the Subject Property. Based on the historical and current use of the Subject Property as a bulk petroleum facility, vapor intrusion is a concern due to a higher likelihood that unreported/undocumented releases of petroleum to the subsurface have occurred.

5.0 Data Gap Analysis

The ASTM E 1527-13 standards require a listing of "data gaps," including data failure, encountered during the investigative process that may affect the validity of the conclusions drawn by the Environmental Professional. The ASTM E 1527-13: 12. 7 Standard also requires that the Environmental Professional estimate the relative importance of the data gaps. Generally, gaps in available data are related to the availability of historical data sources for specific sites of concern.

The Environmental Professional uses multiple historical data sources as a method to provide coverage for data gaps. Historical information is collected on a recurring basis, and the passage of time between data sets may or may not constitute a significant gap in data coverage. For this project, the following items may constitute a data gap as defined by ASTM:

- Lack of environmental lien search.
- Lack of site interviews.
- Absence of historical records prior 1927 (earliest historical source, which depicts numerous dwellings on the Subject Property and salmon canneries in the immediate vicinity).

The lack of an environmental lien search is not considered a significant data gap based on results of ADEC's online Contaminated Sites Search database, which lists applicable institutional controls, including AULs. The lack of site interviews is not considered a significant data gap based the presence of detailed historical records and site information available in the records obtained from ADEC file review records. Although the earliest available historical records show industrial development on the Subject Property, the absence of historical records prior to 1927 is not considered a significant data gap in light of the extensive information available from other sources.

6.0 Findings and Conclusions

HDR has conducted a Phase I Environmental Site Assessment (Phase I ESA) of the Anderes Oil facility, located at 900 Stedman Street in Ketchikan, Alaska. The Phase I ESA has been prepared for DOT&PF. DOT&PF is requesting a Phase I ESA of the aforementioned property for due diligence as part of the South Tongass Highway Deermount to Surf Street Rehabilitation Project (the Project) in the Ketchikan Gateway Borough, Alaska. A portion of Anderes Oil may be acquired for permanent or temporary right-of-way during construction of the Project.

This Phase I ESA identifies RECs that may adversely affect the Subject Property, and was conducted in accordance with the scope and limitations of the ASTM Practice E1527-13. Any exceptions to or deletions from this practice are described previously in this report. Included in this Phase I ESA are a summary of the site reconnaissance conducted on February 15, 2017; the review of environmental databases; the review of historical data sources; and review of information provided by DOT&PF. The ESA process resulted in the following findings and conclusions.

6.1 Findings

- The 1.9-acre Subject Property consists of a petroleum bulk plant, located at 900 Stedman Street, Ketchikan, Alaska. The Subject Property elevation is approximately five feet AMSL. Tongass Narrows borders the Subject Property to the south.
- The Subject Property is located on the southwest side of Revillagigedo Island in Southeast Alaska. It is bound on the south by the East Channel of Tongass Narrows. Revillagigedo

Island is located mostly within the Western Metamorphic Belt, a zone of structurally deformed and deeply metamorphosed gneiss. Onsite soil is a well-drained, very gravelly silt loam, with moderate infiltration rates.

- The groundwater flow direction is assumed to be to the south, toward Tongass Narrows. Groundwater is presumed to generally be less than 10 feet in depth, based on ADEC site closure documents associated with the nearby sites. Based on the Subject Property's proximity to Tongass Narrows, tidal influence on groundwater is expected.
- Anderes Oil was listed in the ERNS, Fuels Program, US AIRS, FINDS, ECHO, RCRA NonGen/NLR, and SPILLS databases by EDR. The ERNS releases were associated with a surface water sheen on Tongass Narrows in 2016 and a practice drill conducted in 1998. The SPILLS listing is associated with the release of 50 gallons of gasoline in January 1999. The case was closed on the same day the release was reported. Anderes Oil was listed as a RCRA NonGen/NLR in 1989. No RCRA violations were noted in the EDR report.
- The Subject Property was included in the EDR-provided Sanborn maps for the years 1927, 1946 and 1969. The Subject Property and surrounding area had been developed for commercial and industrial use since at least 1927. The Subject Property was depicted as "native dwellings" associated with the Fidalgo Island Packing Company in the 1927 and 1946 maps. The Subject Property was depicted as the Socony-Mobil Oil Company Bulk Plant in the 1969 map. Adjacent properties included the Fidalgo Island Packing Company to the northwest and the New England Fish Company to the southeast.
- The Subject Property was listed as Anderes Oil Company and Mobile Oil Company in the 1992 city directory, and as Anderes Oil in the 1995, 2003, and 2013 city directories. The Subject Property was not listed in the 1992, 1999, and 2008 city directories. Properties along Stedman Street in the vicinity of the Subject Property were primarily commercial and industrial between 1992 and 2013, and included Trident Seafoods/Canners, Community Connections Warehouse, Schmolck Mechanical Contractors, and Kanaway Seafoods.
- The Subject Property was included in the EDR-provided aerial photographs for the years 1948, 1979, 1982, and 2014. The Subject Property was heavily treed, and buildings were not discernible in the 1948 photograph. Five ASTs, several buildings, and a pier were located on the Subject Property in 2014. Commercial and industrial development had occurred along Stedman Street in the vicinity of the Subject Property, in all available aerial photographs.
- The Subject Property was included in the EDR-provided topographic maps for the years 1954, 1970, 1991, 1994/1995. Land use noted in other historical records was confirmed by the topographic maps. Storage tanks were depicted on the Subject Property on the 1991 topographic map.
- No interviews were conducted as part of the Phase I ESA based on conversations with the User.
- On February 16, 2017, HDR personnel conducted site reconnaissance activities of the Subject Property and surrounding area from nearby public property and right-of-way. Five large ASTs were noted on the Subject Property, in a concrete-lined secondary containment structure located along the property border with Stedman Street. An office building and another outbuilding were also noted at the Subject Property. No staining was noted from the public right-of-way on or around the ASTs. Alaska General Seafoods was located immediately southeast of the Subject Property, and Trident Seafood was located

immediately northwest of the Subject Property. Undeveloped land and a restaurant were located immediately northeast of the Subject Property beyond Stedman Street.

6.2 Opinions

HDR has reviewed the stated data sources, which are part of the ASTM E 1527-13 assessment protocol. Based upon the review of the data, HDR has developed the following professional opinions:

- The Subject Property has been a bulk petroleum facility since at least 1969. Five ASTs are present on the Subject Property along Stedman Street. Two petroleum releases have been reported at the facility. However, releases occurring prior to the mid 1980s may not have been reported to regulatory agencies. The historical use of the Subject Property as a petroleum bulk plant, and likelihood for unreported/undocumented releases associated with this land use, is considered a REC.
- VOCs in the subsurface can pose a vapor intrusion risk to the Subject Property. It is possible that an accumulation of vapors could be encountered in the subsurface around buildings and along underground utility corridors. Although releases to the environment have not been recorded at the Subject Property, historical use as a petroleum bulk plant since at least 1969 increases the likelihood that unreported releases at the facility have occurred and could contribute to soil vapor issues.

6.3 Conclusions

Based upon the above-detailed Findings and Opinions, HDR concludes that RECs have been identified for the Subject Property, as presented in the Findings section above. The following statement is required by ASTM E 1527-13 as a declaration of whether RECs were found within the Subject Property.

HDR has performed a Phase I ESA in conformance with the scope and limitations of ASTM E 1527-13 of the Anderes Oil property, located at 900 Stedman Street, in Ketchikan, Alaska (Subject Property). Any exceptions to or deletions from these practices are described in previous sections of this report. This report has revealed indication of RECs in connection with the Subject Property.

7.0 Recommendations

Recommendations included in this report were developed through the investigative procedures described in the Scope of Services, Significant Assumptions, and Limitations sections of this report. These findings should be reviewed within the context of the limitations provided in the Limitations section (Section 1.3).

Based on the stated Findings and Conclusions, HDR makes the following recommendations:

Recommendation 1

Based on the current Project plans, ground disturbance activities associated with installation of a drainage line and grading activities to match the Subject Property with the new Stedman Street grade will occur within a temporary construction easement on the Subject Property. Based on conversations with ADOT&PF personnel, a Phase II Site Assessment is not recommended within the temporary construction easement. However, HDR recommends that construction contractors should

be instructed to immediately stop all subsurface activities in the event that previously unidentified, potentially hazardous materials are encountered, or significantly stained soil is found during construction. Contractors should be instructed to follow all applicable regulations regarding discovery and response for hazardous materials encountered during the construction process. In addition, a Contaminated Media Management Plan is recommended as an addendum to the Hazardous Materials Control Plan to provide contractors information on how to manage previously unidentified contaminated media.

Recommendation 2

HDR recommends that DOT&PF consider the "shelf life" of Phase I documents in determining risk. ASTM E 1527-13 states that a conforming "Phase I" report is valid for a period of 180 days, and may be updated during the 180-day to 1-year timeframe. The report is valid for use in any of the CERCLA defenses ONLY if it is updated within this time frame. If more than 1 year passes from the final report date, the Phase I effort would need to be repeated to remain in compliance with ASTM and the "All Appropriate Inquiry" protections.

8.0 Qualifications of Environmental Professionals

8.1 Signatures and Qualifications

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in Section 312.10 of 40 Code of Federal Regulations [C.F.R.] Part 312.

We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property. We have developed and performed the appropriate inquires in conformance with standards and practices set forth in 40 CFR Part 312.

The preceding report has been prepared in general conformance with standard industry practice for performance of ESAs, and includes the applicable portions of the investigation procedures codified in ASTM E 1527-13, Standard Practice for Environmental Site Assessments: Environmental Site Assessment Process. The end user of this report may rely on the contents, findings, and conclusions to be accurate within the limitations stated in this report and in the ASTM standard. The report also complies with specific requirements supplied by the client.

Kimberly Hawkins
Environmental Professional

Hong Spores, CPG
Environmental Professional
Senior Hydrogeologist

8.1.1 Qualifications of Environmental Professionals

This Phase I ESA was performed by the following HDR personnel:

Kim Hawkins is an environmental scientist with over 16 years of experience in environmental assessments and investigations. She has conducted the hazardous materials evaluations associated with Environmental Impact Statements Environmental Assessments (EA), Phase I and Phase II ESA, and Environmental Baseline Surveys (EBS) throughout Washington, Oregon, Alaska, and Canada. Kim has conducted extensive sampling of environmental media, including soil, groundwater, surface water, sediment, and air, as well as asbestos and lead-based paint (LBP). She has overseen underground storage tank removals and assessments, and has developed mitigation plans for contaminated media.

8.1.2 Qualifications of QA/QC Review Professionals

Quality Assurance / Quality Control was performed by the following HDR Personnel:

Ms. Hong T. Spores, CPG, is a qualified environmental professional, as defined by ASTM Practice E 1527-13, and has 15 years of experience in the assessment and remediation of impacted properties and compliance with environmental regulations. She has a BS in Geology from the University of Minnesota and an MBA from the University of St. Thomas. Ms. Spores specializes in investigations of hazardous materials-impacted properties for public and private sector clients. She is highly

knowledgeable of federal, state, and local environmental regulations and standards, along with environmental due diligence relating to real estate transactions. Her experience covers assessments ranging from agricultural properties to industrial facilities located in more than 20 states.

9.0 References

ADEC. 2017. Alaska DEC Contaminated Sites Search. Available online at: http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/Search Accessed February 15, 2017.

ASTM Practice E 1527-13. 2013. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

Conner, Cathy. 2014. Roadside Geology of Alaska. Missoula, MT: Mountain Press Publishing Company.

Environmental Data Resources. Report. 2017. Anderes Oil, 900 Stedman Street, Ketchikan, AK, Inquiry Number 4849647.2s; EDR Radius Map Report with GeoCheck, EDR City Directory Abstract, Certified Sanborn Map Report, Vapor Encroachment Screen, EDR Aerial Photo Decade Package, and EDR Historical Topo Map Report. February 9, 2007.

Federal Emergency Management Agency. 1990. Flood Insurance Rate Map. Product ID 0200030002B. Accessed February 14, 2017. https://msc.fema.gov/portal/search

Western Regional Climate Center. 2016. Available online at http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?akketc Accessed May 26, 2016.

A: EDR Report

Anderes Oil
900 Stedman Street
Ketchikan, AK 99901

Inquiry Number: 4849647.2s
February 09, 2017

The EDR Radius Map™ Report with GeoCheck®

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Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

900 STEDMAN STREET
KETCHIKAN, AK 99901

COORDINATES

Latitude (North):	55.3369360 - 55° 20' 12.96"
Longitude (West):	131.6336040 - 131° 38' 0.97"
Universal Tranverse Mercator:	Zone 9
UTM X (Meters):	332961.6
UTM Y (Meters):	6135230.0
Elevation:	5 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	N/A
Source:	U.S. Geological Survey

MAPPED SITES SUMMARY

Target Property Address:
900 STEDMAN STREET
KETCHIKAN, AK 99901

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1		900 STEDMAN ST	ERNS		TP
A2		900 STEADMAN ST	ERNS		TP
A3	ANDERES OIL INC	900 STEDMAN ST	FUELS PROGRAM		TP
A4	ANDERES OIL	900 STEDMAN ST	US AIRS		TP
A5	ANDERES OIL INC - KE	900 STEDMAN ST	FINDS, ECHO		TP
A6	ANDERES OIL CO	900 STEDMAN ST	RCRA NonGen / NLR		TP
A7	900 STEADMAN ST., KE		SPILLS		TP
A8	ANDERES OIL	900 STEADMAN ST.	AIRS		TP
B9	PETRO MARINE SERVICE	1100 STEDMAN STREET	RCRA-CESQG, ICIS, FINDS, ECHO	Higher	217, 0.041, NW
B10	KETCHIKAN BULK PLANT	1100 STEDMAN ST	FUELS PROGRAM	Higher	217, 0.041, NW
B11	PETRO MARINE KETCHIK	1100 STEDMAN STREET	SHWS, INST CONTROL, AIRS	Higher	217, 0.041, NW
12	USDOT CG CUTTER PLAN	1300 STEDMAN ST USCG	RCRA NonGen / NLR	Lower	293, 0.055, ESE
C13		655 STEDMAN ST	EDR Hist Auto	Higher	582, 0.110, NW
C14	GAS AT LAST - KETCHI	655 STEDMAN STREET	SHWS	Higher	582, 0.110, NW
C15	GAS AT LAST - KETCHI	655 STEDMAN STREET	LUST	Higher	582, 0.110, NW
C16	SCMOLCK PLUMBING	638 STEDMAN ST	UST	Higher	677, 0.128, NW
C17	TATSUDA'S GAS AT LAS	633 STEDMAN ST	UST, Financial Assurance	Higher	704, 0.133, NW
C18	IRELAND TRANSFER & S	615 STEDMAN ST	UST	Higher	805, 0.152, NW
19	TESORO KETCHIKAN TER	1010 STEDMAN ST	RCRA NonGen / NLR	Higher	1057, 0.200, ESE
20	YELLOW TAXI SOURDOUG	P.O. BOX 767 1531 DE	LUST	Higher	1186, 0.225, NNW
D21	KETCHIKAN WASTEWATER	400 STEDMAN ST	LUST	Higher	1257, 0.238, WNW
D22	KETCHIKAN WASTEWATER	400 STEDMAN ST	SHWS	Higher	1257, 0.238, WNW
D23	WASTEWATER PUMP STAT	400 STEDMAN	UST	Higher	1257, 0.238, WNW
E24	YELLOW TAXI	531 DEERMOUNT STREET	SHWS	Higher	1425, 0.270, NNW
25	SOUTH COAST SHOPS	COFFMAN COVE P.O.W.	SHWS	Higher	1512, 0.286, NNW
E26	YELLOW TAXI SOURDOUG	P.O. BOX 767 1531 DE	SHWS	Higher	1527, 0.289, NNW
27	KETCHIKAN TANK FARM	4 MILE STEDMAN STREE	SHWS, INST CONTROL	Lower	1829, 0.346, WNW
28	KETCHIKAN DEER MOUNT		SWF/LF	Higher	2079, 0.394, ENE
29	USCG KETCHIKAN BASE	1 MILE SOUTH TONGASS	SHWS	Higher	2385, 0.452, ESE
30	KETCHIKAN SPRUCE MIL	BAWDEN STREET, SE OF	SHWS, LUST	Higher	2519, 0.477, WNW
31	CITY OF KETCHIKAN PU	201 FRONT STREET	SHWS, LUST	Lower	2937, 0.556, West
32	FORMER KETCHIKAN HOS	347 BAWDEN STREET	SHWS, BROWNFIELDS	Higher	3092, 0.586, WNW
F33	KIA - KETCHIKAN AIR	1600 AIRPORT TERMINA	SHWS	Higher	3144, 0.595, WNW
F34	KETCHIKAN POLICE STA	361 MAIN ST	SHWS	Higher	3260, 0.617, WNW
35	KETCHIKAN CORRECTION	1201 SCHOENBAR	SHWS	Higher	3381, 0.640, NNW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
900 STEDMAN ST 900 STEDMAN ST KETCHIKAN, AK	ERNS	N/A
900 STEADMAN ST 900 STEADMAN ST KETCHIKAN, AK 99901	ERNS	N/A
ANDERES OIL INC 900 STEDMAN ST KETCHIKAN, AK 99901	FUELS PROGRAM	N/A
ANDERES OIL 900 STEDMAN ST KETCHIKAN, AK 99999	US AIRS Database: US AIRS MINOR, Date of Government Version: 10/12/2016 EPA plant ID:: 110022936929	N/A
ANDERES OIL INC - KE 900 STEDMAN ST KETCHIKAN, AK 99901	FINDS Registry ID:: 110025243500 ECHO	N/A
ANDERES OIL CO 900 STEDMAN ST KETCHIKAN, AK 99901	RCRA NonGen / NLR EPA ID:: AKD035420215	AKD035420215
900 STEADMAN ST., KE KETCHIKAN, AK 99901	SPILLS Case Closed: 01/22/1999 Facility Id: 99119802201 Spill ID: 12815	N/A
ANDERES OIL 900 STEADMAN ST. KETCHIKAN, AK 99901	AIRS Facility Id: 1366	N/A

EXECUTIVE SUMMARY

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ..... Federal Facility Site Information listing
SEMS ..... Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ..... Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-SQG ..... RCRA - Small Quantity Generators

Federal institutional controls / engineering controls registries

LUCIS ..... Land Use Control Information System
US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls

State and tribal leaking storage tank lists

INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

FEMA UST ..... Underground Storage Tank Listing

AST ..... Regulated Aboveground Storage Tanks
INDIAN UST ..... Underground Storage Tanks on Indian Land

State and tribal institutional control / engineering control registries

ENG CONTROLS ..... Engineering Controls Site Listing

State and tribal voluntary cleanup sites

VCP ..... Voluntary Cleanup Program sites
INDIAN VCP ..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS ..... Identified and/or Proposed Brownfields Sites

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY ..... Recycling Facilities
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
IHS OPEN DUMPS ..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ..... Delisted National Clandestine Laboratory Register
CDL ..... Illegal Drug Manufacturing Sites
US CDL ..... National Clandestine Laboratory Register

Local Land Records

LIENS 2 ..... CERCLA Lien Information

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
SPILLS 90 ..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS ..... Formerly Used Defense Sites
DOD ..... Department of Defense Sites
SCRD DRYCLEANERS ..... State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ..... Financial Assurance Information
EPA WATCH LIST EPA WATCH LIST
2020 COR ACTION ..... 2020 Corrective Action Program List
TSCA ..... Toxic Substances Control Act

EXECUTIVE SUMMARY

TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US MINES	Mines Master Index File
UXO	Unexploded Ordnance Sites
DOCKET HWC	Hazardous Waste Compliance Docket Listing
COAL ASH	Coal Ash Disposal Sites
DRYCLEANERS	Drycleaner Facility Listing
Financial Assurance	Financial Assurance Information Listing
NPDES	Wastewater Discharge Permit Listing
UIC	UIC Information
ABANDONED MINES	Abandoned Mines

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR Hist Cleaner	EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	Recovered Government Archive Solid Waste Facilities List
RGA LUST	Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 09/12/2016 has revealed that there is 1 RCRA-CESQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PETRO MARINE SERVICE	***1100 STEDMAN STREET***	***NW 0 - 1/8 (0.041 mi.)***	***B9***	***12***

State- and tribal - equivalent CERCLIS

SHWS: State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with where cleanup will be paid for by potentially responsible parties.

A review of the SHWS list, as provided by EDR, and dated 01/03/2017 has revealed that there are 14 SHWS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PETRO MARINE KETCHIK Facility Status: Cleanup Complete - Institutional Controls Hazard ID: 3888	***1100 STEDMAN STREET***	***NW 0 - 1/8 (0.041 mi.)***	***B11***	***17***
GAS AT LAST - KETCHI Facility Status: Cleanup Complete Hazard ID: 24638	655 STEDMAN STREET	NW 0 - 1/8 (0.110 mi.)	C14	39
KETCHIKAN WASTEWATER Facility Status: Cleanup Complete Hazard ID: 25073	400 STEDMAN ST	WNW 1/8 - 1/4 (0.238 mi.)	D22	45
YELLOW TAXI Facility Status: Active Hazard ID: 2991	531 DEERMOUNT STREET	NNW 1/4 - 1/2 (0.270 mi.)	E24	47
SOUTH COAST SHOPS Facility Status: Cleanup Complete Hazard ID: 2552	COFFMAN COVE P.O.W.	NNW 1/4 - 1/2 (0.286 mi.)	25	50
YELLOW TAXI SOURDOUG Facility Status: Cleanup Complete Hazard ID: 25107	P.O. BOX 767 1531 DE	NNW 1/4 - 1/2 (0.289 mi.)	E26	51
USCG KETCHIKAN BASE Facility Status: Active	1 MILE SOUTH TONGASS	ESE 1/4 - 1/2 (0.452 mi.)	29	57

Hazard ID: 1184

KETCHIKAN SPRUCE MIL	***BAWDEN STREET, SE OF***	***WNW 1/4 - 1/2 (0.477 mi.)***	***30***	***65***
Facility Status: Cleanup Complete Hazard ID: 25633				
FORMER KETCHIKAN HOS	***347 BAWDEN STREET***	***WNW 1/2 - 1 (0.586 mi.)***	***32***	***70***
Facility Status: Active Hazard ID: 25353				
KIA - KETCHIKAN AIR	1600 AIRPORT TERMINA	WNW 1/2 - 1 (0.595 mi.)	F33	72
Facility Status: Cleanup Complete Hazard ID: 24520				
KETCHIKAN POLICE STA	361 MAIN ST	WNW 1/2 - 1 (0.617 mi.)	F34	73
Facility Status: Cleanup Complete Hazard ID: 24601				
KETCHIKAN CORRECTION	1201 SCHOENBAR	NNW 1/2 - 1 (0.640 mi.)	35	77
Facility Status: Cleanup Complete Hazard ID: 23016				

Lower Elevation	Address	Direction / Distance	Map ID	Page
KETCHIKAN TANK FARM	***4 MILE STEDMAN STREE***	***WNW 1/4 - 1/2 (0.346 mi.)***	***27***	***54***
Facility Status: Cleanup Complete - Institutional Controls Hazard ID: 902				
CITY OF KETCHIKAN PU	***201 FRONT STREET***	***W 1/2 - 1 (0.556 mi.)***	***31***	***67***
Facility Status: Cleanup Complete Hazard ID: 26120				

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Department of Pollution Control & Ecology's Permit Data System Facilities database.

A review of the SWF/LF list, as provided by EDR, and dated 12/27/2016 has revealed that there is 1 SWF/LF site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
KETCHIKAN DEER MOUNT		ENE 1/4 - 1/2 (0.394 mi.)	28	57
Permit: SW3A024-20 Facility Status: Active Permit Status: Current				

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Pollution Control & Ecology's LUST Notice Information.

A review of the LUST list, as provided by EDR, and dated 11/14/2016 has revealed that there are 4

LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
GAS AT LAST - KETCHI eventid: 24638 Facility Status: Cleanup Complete	655 STEDMAN STREET	NW 0 - 1/8 (0.110 mi.)	C15	40
YELLOW TAXI SOURDOUG eventid: 25107 Facility Status: Cleanup Complete	P.O. BOX 767 1531 DE	NNW 1/8 - 1/4 (0.225 mi.)	20	45
KETCHIKAN WASTEWATER eventid: 25073 Facility Status: Cleanup Complete	400 STEDMAN ST	WNW 1/8 - 1/4 (0.238 mi.)	D21	45
KETCHIKAN SPRUCE MIL eventid: 25633 Facility Status: Cleanup Complete	***BAWDEN STREET, SE OF***	***WNW 1/4 - 1/2 (0.477 mi.)***	***30***	***65***

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Pollution Control & Ecology's RST Owner & Facilities database.

A review of the UST list, as provided by EDR, and dated 11/14/2016 has revealed that there are 4 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SCMOLCK PLUMBING Facility Id: 67 Tank Status: Permanently Out of Use	638 STEDMAN ST	NW 1/8 - 1/4 (0.128 mi.)	C16	41
TATSUDA'S GAS AT LAS Facility Id: 424 Tank Status: Permanently Out of Use Tank Status: Currently In Use	***633 STEDMAN ST***	***NW 1/8 - 1/4 (0.133 mi.)***	***C17***	***41***
IRELAND TRANSFER & S Facility Id: 1003 Tank Status: Permanently Out of Use	615 STEDMAN ST	NW 1/8 - 1/4 (0.152 mi.)	C18	42
WASTEWATER PUMP STAT Facility Id: 2019 Tank Status: Permanently Out of Use	400 STEDMAN	WNW 1/8 - 1/4 (0.238 mi.)	D23	47

State and tribal institutional control / engineering control registries

INST CONTROL: Contaminated sites that have institutional controls.

A review of the INST CONTROL list, as provided by EDR, and dated 01/03/2017 has revealed that there are 2 INST CONTROL sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PETRO MARINE KETCHIK	***1100 STEDMAN STREET***	***NW 0 - 1/8 (0.041 mi.)***	***B11***	***17***

Facility Status: Cleanup Complete - Institutional Controls
Hazard ID: 3888

Lower Elevation	Address	Direction / Distance	Map ID	Page
KETCHIKAN TANK FARM	*4 MILE STEDMAN STREE*	*WNW 1/4 - 1/2 (0.346 mi.)*	*27*	*54*

Facility Status: Cleanup Complete - Institutional Controls
Hazard ID: 902

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 09/12/2016 has revealed that there are 2 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
TESORO KETCHIKAN TER	1010 STEDMAN ST	ESE 1/8 - 1/4 (0.200 mi.)	19	43

Lower Elevation	Address	Direction / Distance	Map ID	Page
USDOT CG CUTTER PLAN	1300 STEDMAN ST USCG	ESE 0 - 1/8 (0.055 mi.)	12	37

FUELS PROGRAM: This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

A review of the FUELS PROGRAM list, as provided by EDR, and dated 11/21/2016 has revealed that there is 1 FUELS PROGRAM site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
KETCHIKAN BULK PLANT	1100 STEDMAN ST	NW 0 - 1/8 (0.041 mi.)	B10	17

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include

gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there is 1 EDR Hist Auto site within approximately 0.125 miles of the target property.

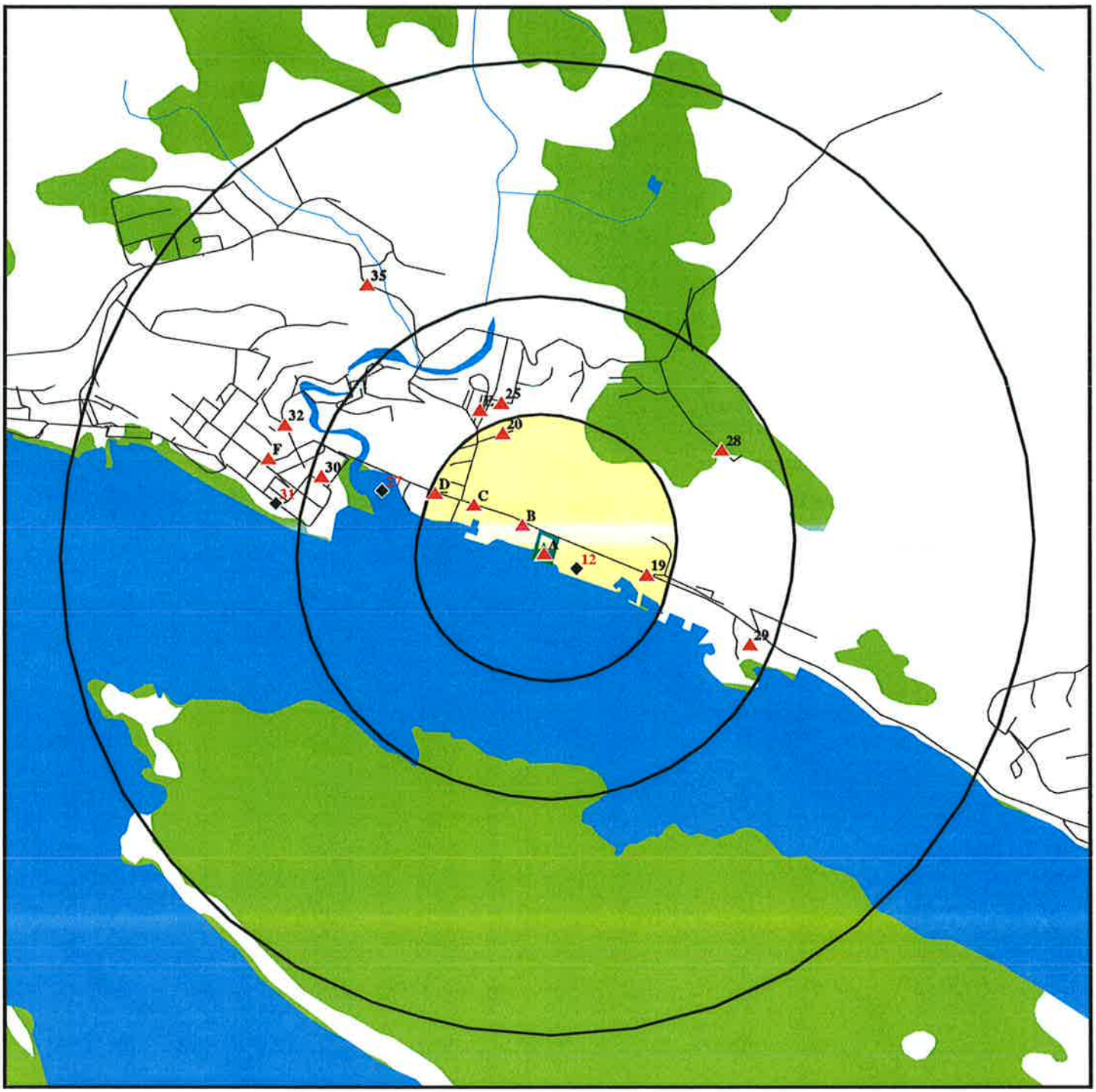
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	655 STEDMAN ST	NW 0 - 1/8 (0.110 mi.)	C13	38

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 18 records.

Site Name	Database(s)
USDOT CG KETCHICAN BASE	CORRACTS, RCRA-SQG, RAATS, FTTS, HIST FTTS
KETCHIKAN PUBLIC UTILITIES - WATER	SHWS
KETCHIKAN CREDIT UNION ONE HOTS	SHWS, VCP
KETCHIKAN PULP COMPANY - INSTRUMEN	SHWS
KETCHIKAN SPRUCE MILL	SHWS
CALDER MINE FACILITY	SHWS, INST CONTROL
KPC HASSLER ISLAND LOG. CAMP	SHWS, INST CONTROL
USCG KETCHIKAN FIRING RANGE	SHWS, INST CONTROL, VCP, SPILLS
CITY OF KETCHIKAN CHARCOAL POINT W	SHWS, LUST, NPDES
WESTSIDE SERVICE STATION KETCHIKAN	SHWS, INST CONTROL
KETCHIKAN PUBLIC WORKS WAREHOUSE	SHWS
BAILEY POWER PLANT	SHWS, INST CONTROL, SPILLS, AIRS
ADOT&PF KETCHIKAN AIRPORT FERRY TE	SHWS, LUST
TEMSCO HELICOPTERS	SHWS
WATER STREET EASEMENT LOTS 6 & 8	SHWS, INST CONTROL
KETCHIKAN PUBLIC UTILITIES - WATER	LUST
KETCHIKAN PULP COMPANY - INSTRUMEN	LUST
CITY OF KETCHIKAN LANDFILL	ODI

OVERVIEW MAP - 4849647.2S

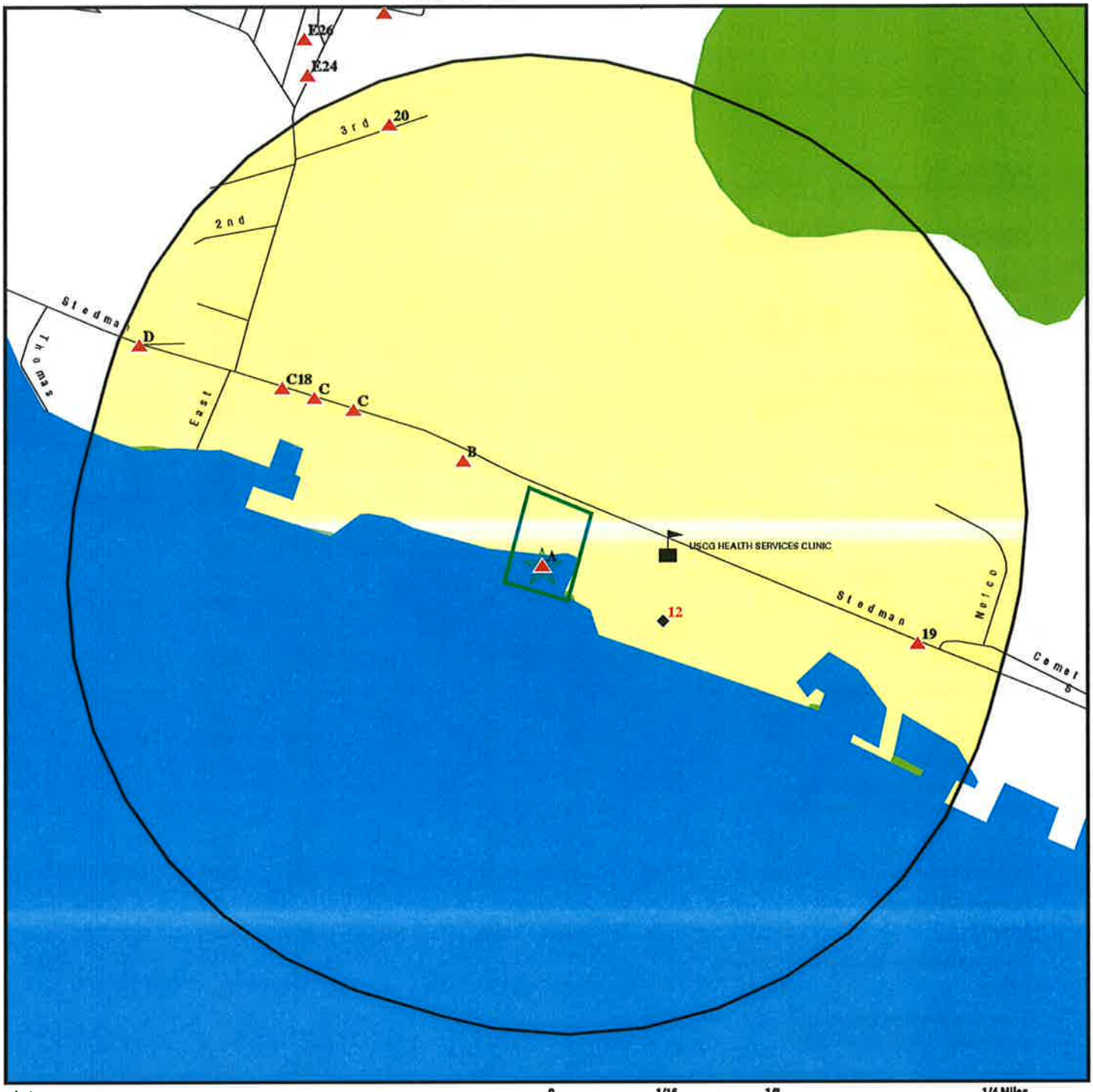


- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- National Wetland Inventory
- State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Anderes Oil	CLIENT: HDR
ADDRESS: 900 Stedman Street Ketchikan AK 99901	CONTACT: Kim Hawkins
LAT/LONG: 55.336936 / 131.633604	INQUIRY #: 4849647.2s DATE: February 09, 2017 11:36 am

DETAIL MAP - 4849647.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- National Wetland Inventory
- State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Anderes Oil	CLIENT: HDR
ADDRESS: 900 Stedman Street Ketchikan AK 99901	CONTACT: Kim Hawkins
LAT/LONG: 55.336936 / 131.633604	INQUIRY #: 4849647.2s DATE: February 09, 2017 11:36 am

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		1	0	NR	NR	NR	1
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP	2	NR	NR	NR	NR	NR	2
State- and tribal - equivalent CERCLIS								
SHWS	1.000		2	1	6	5	NR	14
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	1	NR	NR	1
State and tribal leaking storage tank lists								
LUST	0.500		1	2	1	NR	NR	4
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UST	0.250		0	4	NR	NR	NR	4
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS	0.500		0	0	0	NR	NR	0
INST CONTROL	0.500		1	0	1	NR	NR	2
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
SWRCY	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP	1	NR	NR	NR	NR	NR	1
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250	1	1	1	NR	NR	NR	3
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP	1	NR	NR	NR	NR	NR	1
US MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP	1	NR	NR	NR	NR	NR	1
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
AIRS	TP	1	NR	NR	NR	NR	NR	1
COAL ASH	0.500		0	0	0	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
ABANDONED MINES	0.500		0	0	0	NR	NR	0
ECHO	TP	1	NR	NR	NR	NR	NR	1
FUELS PROGRAM	0.250	1	1	0	NR	NR	NR	2
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		1	NR	NR	NR	NR	1
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		9	8	8	9	5	0	39

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
Target Property **900 STEDMAN ST**
KETCHIKAN, AK

ERNS **2016149311**
N/A

Site 1 of 8 in cluster A

Actual:
5 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

A2
Target Property **900 STEADMAN ST**
KETCHIKAN, AK 99901

ERNS **98428142**
N/A

Site 2 of 8 in cluster A

Actual:
5 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

A3
Target Property **ANDERES OIL INC**
900 STEDMAN ST
KETCHIKAN, AK 99901

FUELS PROGRAM **1016158600**
N/A

Site 3 of 8 in cluster A

Actual:
5 ft.

FUELS PROGRAM:

Program Type:	Diesel
Company Seq. ID:	4924
Business Activity:	Non-Renewable Fuels Importer, Pipeline/Pass-Through Terminal, Truck Loading Terminal/Locomotive Marker Facility
Company Name:	ANDERES OIL INC
Company Address:	900 STEDMAN ST PO BOX 5858 KETCHIKAN, AK 99901
Facility ID:	82737, 82737, 82737
Facility Type:	Diesel/Biodiesel
Facility Activity:	Mobile Facility, Non Renewable Fuels Importer Facility, Truck Loading Terminal/Locomotive Marker Facility
Subject to 80.1403:	Not reported
Fuel Only For Off Road:	Not reported
Fuel Created:	Not reported
D Code:	Not reported

A4
Target Property **ANDERES OIL**
900 STEDMAN ST
KETCHIKAN, AK 99999

US AIRS **1009603064**
N/A

Site 4 of 8 in cluster A

Actual:
5 ft.

US AIRS MINOR:

Envid:	1009603064
Region Code:	10
Programmatic ID:	AIR 1000000002130A0003
Facility Registry ID:	110025243500
D and B Number:	Not reported
Primary SIC Code:	Not reported
NAICS Code:	424710
Default Air Classification Code:	MIN

ANDERES OIL (Continued) **1009603064**

Facility Type of Ownership Code: POF
Air CMS Category Code: Not reported
HPV Status: Not reported

US AIRS MINOR:
Region Code: 10
Programmatic ID: AIR 1000000002130A0003
Facility Registry ID: 110025243500
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2009-09-02 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 10
Programmatic ID: AIR 1000000002130A0003
Facility Registry ID: 110025243500
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: New Source Performance Standards
Activity Date: 2009-09-02 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

A5 **ANDERES OIL INC - KETCHIKAN BULK FUEL PLANT & MARINE FUEL DO** **FINDS 1016053482**
Target Property **900 STEDMAN ST** **ECHO N/A**
KETCHIKAN, AK 99901

Site 5 of 8 in cluster A

Actual: 5 ft.

FINDS:

Registry ID: 110025243500

Environmental Interest/Information System
AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and

ANDERES OIL INC - KETCHIKAN BULK FUEL PLANT & MARINE FUEL DO (Continued) **1016053482**

corrective action activities required under RCRA.

AIR MINOR

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and it Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

GREENHOUSE GAS REPORTER

ECHO:
Envid: 1016053482
Registry ID: 110025243500
DFR URL: http://echo.epa.gov/detailed_facility_report?fid=110025243500

A6 Target Property **ANDERES OIL CO** **RCRA NonGen / NLR** **1000214734**
900 STEDMAN ST **AKD035420215**
KETCHIKAN, AK 99901

Site 6 of 8 in cluster A

Actual: 5 ft.

RCRA NonGen / NLR:
Date form received by agency: 10/17/1989
Facility name: ANDERES OIL CO
Facility address: 900 STEDMAN ST
KETCHIKAN, AK 99901
EPA ID: AKD035420215
Mailing address: PO BOX 5858
KETCHIKAN, AK 999015858
Contact: E ANDERES
Contact address: PO BOX 5858
KETCHIKAN, AK 99901
Contact country: US
Contact telephone: (907) 225-2163
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: ANDERES E PARTNER
Owner/operator address: Not reported
Not reported
Owner/operator country: Not reported
Owner/operator telephone: Not reported

ANDERES OIL CO (Continued) **1000214734**

Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: Yes
Used oil transfer facility: No
Used oil transporter: No

. Waste code: NONE
. Waste name: None

Violation Status: No violations found

A7 Target Property **900 STEADMAN ST., KETCHIKAN** **SPILLS** **S103822314 N/A**

KETCHIKAN, AK 99901

Site 7 of 8 in cluster A

Actual: 5 ft.

SPILLS:
Facility ID: 99119802201
Facility Type: Other
Facilty Subject Type: Not reported
Region: Land - Ketchikan
Spill ID: 12815
Spill Name: ANDERES OIL FIRE
Spill Date: 01/22/1999
Case Closed: 01/22/1999
Substance ID: Noncrude Oil
Substance Subject Type: Gasoline
Substance Area: Southeast Alaska
Area Name: Southeast Alaska
Quantity Released: 50
Quantity Potential: Not reported
Unit: Gallons
Cause: Other
Cause Type: Other
Responsible Party: ANDERES OIL - NO ENTRY, NO ENTRY
Response: Phone Follow-up
Source Type: Other
Latitude: 55.34236
Longitude: -131.6563

A8
Target
Property

ANDERES OIL
900 STEADMAN ST.
KETCHIKAN, AK 99901

AIRS **S113927604**
N/A

Site 8 of 8 in cluster A

Actual:
5 ft.

AIRS:

Facility ID:	1366
Region:	Not reported
Responsible Officials:	Robert Cox
Classification:	Synthetic Minor [SM]
Owner Name:	CPD Alaska LLC (formerly Crowley Marine Servies, Inc.)
Owner Address:	1102 SW Massachusetts Seattle WA 98121-1438
Operating:	Yes
Full PTE:	Not reported
AFS ID:	Not reported
SIC Code:	4911
Inspector:	David Jones
File Number:	PAL 1366
Sanctioned:	No
Pending or Active Permits:	1

B9
NW
< 1/8
0.041 mi.
217 ft.

PETRO MARINE SERVICES - KETCHIKAN BULK PLANT
1100 STEDMAN STREET
KETCHIKAN, AK 99901

RCRA-CESQG **1000313720**
ICIS **AKD000834846**
FINDS
ECHO

Site 1 of 3 in cluster B

Relative:
Higher

Actual:
17 ft.

RCRA-CESQG:

Date form received by agency:	08/04/2014
Facility name:	PETRO MARINE SERVICES KETCHIKAN
Facility address:	1100 STEDMAN ST KETCHIKAN, AK 99901
EPA ID:	AKD000834846
Mailing address:	STEDMAN ST KETCHIKAN, AK 99901
Contact:	RANDI PICKRELL
Contact address:	STEDMAN ST KETCHIKAN, AK 99901
Contact country:	US
Contact telephone:	(907) 225-2106
Contact email:	RANDIP@PETRO49.COM
EPA Region:	10
Land type:	Private
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Phone Log

August 8, 2017

Project No.: 67571 67685 KTN: S Tongass, Deermont to Surf

Call To: Sally Schlichting, ADEC Contaminated Sites Unit Manager
(907) 465-5076

Call From: Jim Scholl, DOT&PF
465-4498

Subject: Recommendations of the Phase 1 Site Survey

I called Sally to inform her of the upcoming project and discuss "next steps" arising from recommendations in the Phase 1 Site Survey. All control measures would be agreed to before construction. Sally accepted all of the recommendations for further action and sent me the guidance document to follow, *Managing Petroleum Contamination in Construction Projects.* Sally asked me to send her the Site Survey which I did via FTP.

We discussed all of the sites,

Andres Oil There is a long history of petroleum product storage and corresponding control measures. The recommendation is to perform a Phase 2 site survey once we have a final design. Based on what we find, control measures will be developed in coordination with DEC and responsible parties (RP's). We will also determine how and where we can store contaminated materials in coordination with the RP's and DEC.

The Cleaners There a history of petroleum products and solvent storage and corresponding control measures. The recommendation is to perform a Phase 2 site survey once we have a final design. Based on what we find, we develop control measures in coordination with DEC and responsible parties (RP's). We will also determine how and where we can store contaminated materials in coordination with the RP's and DEC.

Tesoro/Unocal Bulk Plant There is a long history of petroleum product storage and corresponding control measures. The recommendation is to perform a Phase 2 site survey once we have a final design. Based on what we find, control measures will be developed in coordination with DEC and responsible parties (RP's). We will also determine how and where we can store contaminated materials in coordination with the RP's and DEC.

Petro Marine There is a long history of petroleum product storage and corresponding control measures. The recommendation is to perform a Phase 2 site survey once we have a final design. Based on what we find, control measures will be developed in coordination with DEC and

responsible parties (RP's). We will also determine how and where we can store contaminated materials in coordination with the RP's and DEC.

Ketchikan Tank Farm There is a long history of petroleum product storage and corresponding control measures. The recommendation is to perform a Phase 2 site survey once we have a final design. Based on what we find, control measures will be developed in coordination with DEC and responsible parties (RP's). We will also determine how and where we can store contaminated materials in coordination with the RP's and DEC.

USCG Base Ketchikan There is a long history of petroleum product storage and corresponding control measures. The recommendation is to perform a Phase 2 site survey once we have a final design. Based on what we find, control measures will be developed in coordination with DEC and responsible parties (RP's). We will also determine how and where we can store contaminated materials in coordination with the RP's and DEC.

Floyd's On Site Repair Service The recommendation is to perform a Phase 2 site survey once we have a final design. Based on what we find, control measures will be developed in coordination with DEC and responsible parties (RP's). We will also determine how and where we can store contaminated materials in coordination with the RP's and DEC.

Henderson's Auto Service The potential is low to uncover petroleum products however the recommendation is to use a PID to sample in the area to be excavated. Based on what we find, control measures will be developed in coordination with DEC and responsible parties (RP's). We will also determine how and where we can store contaminated materials in coordination with the RP's and DEC.

Phone Log

August 9, 2017

Project No.: 67571 67685 KTN: S Tongass, Deermont to Surf

Call To: Sally Schlichting, ADEC Contaminated Sites Unit Manager
(907) 465-5076

Call From: Jim Scholl, John Barnett DOT&PF
465-4498, 465-4504

Subject: Recommendations of the Phase 1 Site Survey

John and I called Sally back to refine the conversation we had yesterday. DOT&PF would not be performing Phase 2 site surveys at each of the sites discussed yesterday. Instead we would perform PID testing to indicate the presence of contamination. We would work with each of the responsible parties (RP's) and DEC to develop a control plan prior to construction.

Contamination could be encountered during excavation near any of the sites listed in yesterday's phone log. Although DOT&PF may remove contaminated soils from the ROW, it would be the RP's responsibility to properly stockpile, and dispose of the contaminated material.

Sally said she was fine with our proposal; a Phase 2 site survey was costly at not necessary just to determine the presence of petroleum contamination.

To recap a portion of yesterday's discussion, the sites we discussed were,

Andres Oil, The Cleaners, Tesoro/Unocal Bulk Plant, Petro Marine
Ketchikan Tank Farm, USCG Base Ketchikan, Floyd's On Site Repair Service, and
Henderson's Auto Service.

Attachment G:
Hydrologic and Hydraulic Report

Hydrologic and Hydraulic Report

South Tongass Highway: Deermount to Saxman and Saxman to Surf

Version 2

Alaska Department of Transportation & Public Facilities

Project #67685, 67571

Ketchikan and Saxman, Alaska
January 10, 2017

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Acronyms and Abbreviations

ADF&G	Alaska Department of Fish and Game
CCTV	Closed Circuit Television
CFR	Code of Federal Regulations
cfs	cubic feet per second
CMP	Corrugated Metal Pipe
CPP	Corrugated Plastic Pipe
DEM	Digital Elevation Model
DOT&PF	Alaska Department of Transportation and Public Facilities
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
HDPE	High-Density Polyethylene
IFSAR	Interferometric Synthetic Aperture Radar
KGB	Ketchikan Gateway Borough
M&O	Maintenance and Operations
MLLW	Mean Lower Low Water
MP	Milepost
NFIP	National Flood Insurance Program
NRCS	National Resource Conservation Service
OHW	Ordinary High Water
RCP	Reinforced Concrete Pipe
ROW	Right-Of-Way
SCS	Soil Conservation Service
SIR	Scientific Investigations Report
USCG	U.S. Coast Guard
USGS	U.S. Geological Survey

1 Introduction

This Hydrologic and Hydraulic Report (H&H report) presents the findings of the 2015 hydrologic reconnaissance effort conducted for the South Tongass Highway Rehabilitation project for the Alaska Department of Transportation and Public Facilities (DOT&PF). Located in the Ketchikan Gateway Borough (KGB), the proposed project includes the rehabilitation of approximately 3 miles of the South Tongass Highway and related non-motorized facilities from Deermount Street in Ketchikan, Milepost (MP) 2.6, to Surf Street in Saxman, MP 5.5.

The purpose of this report is to expand upon the Field Report, which was written following field reconnaissance on October 14, 15 and 16 of 2015. The Field Report documented and evaluated the existing conditions at each site. This report provides an assessment of the hydrology, develops preliminary recommendations and hydraulic designs, and provides the Hydrologic and Hydraulic Summary for all of the culverts. The H&H report also serves as the Hydrologic and Hydraulic Report for culverts over 48 inches as prescribed in the ADOT&PF Preconstruction Manual.

2 Project Area

The proposed project is located on Revillagigedo Island in the KGB, within Sections 29,30,32,33, T75S, R91E, and Section 4, T76S, R91E on the U.S. Geological Survey (USGS) Quadrangle Map Ketchikan B-5, Copper River Meridian (). South Tongass Highway runs adjacent to the southwest coast of Revillagigedo Island, beginning at the Ferry Terminal Access Road and North Tongass Highway junction in Ketchikan's north end and continuing 15 miles south, through the community of Saxman, to Beaver Falls.

The South Tongass Highway Rehabilitation project starts at the Deermount Street intersection (MP 2.6) and ends at approximately Surf Street (MP 5.5). Few waterways are spanned by the South Tongass Highway project, and only one Alaska Department of Fish & Game (ADF&G) catalogued anadromous waterway is located within the project's boundary.

All elevations discussed in this assessment, including tidal, are based on Mean Lower Low Water (MLLW) vertical datum, which is based on levels from the National Ocean Service Benchmark No. 37.

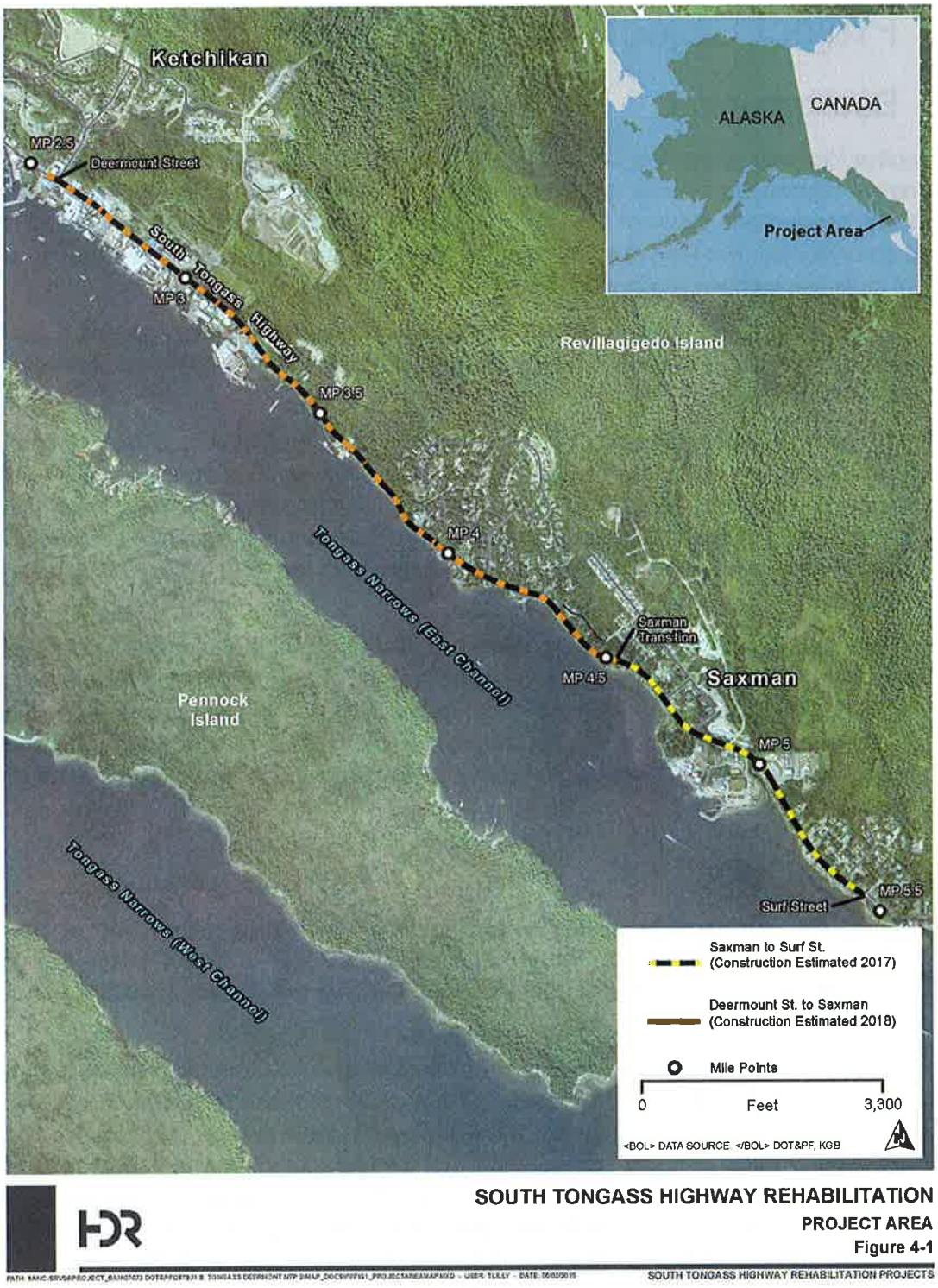


Figure 2-1. Vicinity Map

3 Project Objectives

3.1 Background

South Tongass Highway serves the Cities of Ketchikan and Saxman as well as the entire KGB. South Tongass Highway is a minor arterial and the only highway on Revillagigedo Island that provides travel connections between the City of Ketchikan and communities to the south. The highway is an undivided, two-lane roadway with many private driveways, limited shoulders, and an adjacent multi-use pathway along most sections.

In the 1990s, an Environmental Assessment evaluated improvements along the entire South Tongass corridor, including the construction of a separate pedestrian and bicycle pathway on the water side of the highway.

The South Tongass Highway Rehabilitation project would widen the highway to current design standards, reconstruct the multi-use pathway, extend the pathway through Saxman, improve drainage (including new inlets, storm drains, ditches, and culverts), and relocate utilities. Rock cuts may be needed to widen the road in some locations. Bus stop turnouts and shelters may be constructed at locations to be determined in coordination with the KGB Transit Manager and the City of Saxman.

This project has two planned construction phases: the first phase is the southern portion from Saxman (MP 4.5) to Surf Street (MP 5.5), and the second phase is the segment between Deermount Street (MP 2.6) and Saxman (MP 4.5). Construction on the first phase, Saxman to Surf Street, is anticipated to begin in 2017. Construction on the Deermount Street to Saxman section is slated to start in 2018. Construction dates are contingent on the availability of funding and other factors.

3.2 Study Objectives

The purpose of this project is to resurface, restore, and rehabilitate the section of South Tongass Highway between Deermount Street in Ketchikan (MP 2.6) to Surf Street in Saxman (MP 5.5) and related non-motorized facilities to improve the safe movement of vehicle, bicycle, and pedestrian traffic.

The project will straighten horizontal curves and cut back slopes in some locations to improve sight distances, which may reduce the number of accidents at those locations. Restoring a smooth and uniform roadway surface for the travelling public would reduce maintenance costs by facilitating efficient snow removal, reduce snow and ice entrapment in wheel ruts, and allow proper drainage and efficient snow removal. Rock slopes along the highway are over-steepened and show signs of raveling. Similar conditions have contributed to recent rock slides on other sections of South Tongass Highway. The project may include refreshing rock slopes by cutting deeper into the hillside, which will reduce the risk of rock slides.

The existing pedestrian/bicycle pathway will be rehabilitated and a new pathway will be constructed to provide the missing link between Surf Street and Saxman. In some sections, the embankments and retaining walls along the existing pathway show varying degrees of distress

and failure. These need to be restored for improved structural integrity and safety for pathway users.

This project would include the following components, as necessary:

- Modification of horizontal and vertical alignment where warranted and cost effective to improve safety;
- Rock excavation to accommodate realignment and widening;
- Excavation and reconstruction of the existing embankment at selected locations;
- Construction of mechanically stabilized earth walls or other wall structures as appropriate;
- Drainage improvements, including culvert replacement and ditching;
- Removal and replacement of guardrail as warranted;
- Replacement of handrails and chain link fence;
- Replacement of public and private staircases for access to adjacent properties;
- Resolution of right-of-way (ROW) encroachments (removal or permitting); and
- Relocation of overhead and underground utilities.

3.3 Scope of Work

The scope of work for this report builds upon the findings of the Field Report and addresses requirements outlined in the Preconstruction Manual regarding culverts larger than 48 inches in diameter. The Scope of Work consists of the following tasks:

- Obtain existing data, including mapping, aerial photography, record drawings, and available data on anadromous and resident fish use.
- Perform interviews with DOT&PF maintenance and operations (M&O) personnel to document flooding, tidal, debris, icing, erosion, or other hydraulic and hydrologic history and existing conditions.
- Delineate drainage basins and determine drainage basin characteristics.
- Calculate flood flows for all streams crossed by the project, including fish passage flows for fish streams.
- Categorize drainages as Culverted Non-Fish Streams (Level 1), Culverted Fish Streams (Level 2), Stormwater Sewer System (Level 3), and Surface Drainage (Ditch) (Level 4). No bridge sites were located within the project boundaries, and as such, the Bridge category was not used.
- Develop recommendations for each culvert, including preliminary fish passage designs.

4 Data Collection

Data collected for this report included a ground survey of the project corridor, performed by R&M Engineering-Ketchikan during fall 2015 and a pipe video-scoping effort to visually document the storm drain network at the north end of the project, performed by DOT&PF in Spring 2016.

Record drawings for the project area include:

- State of Alaska, Department of Highways, *Deermount St. to South City Limits Grading, Drainage & Paving, As Built Plans, Plan and Profile Proposed Highway Project*, RS-0902(4), 1976

Coordination with Mark Minnillo, ADF&G, in a letter dated May 11, 2016, indicates that only Fish Passage Site 10103208, Anadromous Waterway Catalogue number 101-47-10300, is located within the project corridor. Based on the map provided by ADF&G, Fish Passage Site 10103208 corresponds to Saxman Creek, which is located at Project Station 139+70 in Saxman.

5 Reconnaissance Surveys

The field reconnaissance and data collection was performed on June 29 and October 14-16, 2015. The field personnel walked the project corridor and inspected each accessible culvert along South Tongass Highway within the project's boundaries. At each culvert, the field crew performed and documented the following items:

- Location: GPS coordinates gathered with a handheld Garmin GPS unit.
- Condition: observation of corrosion, observation of structural integrity of both inlet and outlet when accessible, and comments of overall adequacy based on observations.
- Hydraulic adequacy: observation of waterline marks inside the culvert, evidence of backwater or ponding at inlet, and general culvert capacity observations.
- Photographs were taken at each inlet, contributing inflow area, and outlet, where accessible.
- Categorization:
    - Culverted Non-Fish Streams (Level 1)
    - Culverted Fish Streams (Level 2)
    - Stormwater Sewer System (Level 3)
    - Surface Drainage (Ditch) (Level 4)

A Field Report was subsequently prepared that summarizes the findings of the field efforts and is included as Appendix B to this document. The field report includes preliminary recommendations for each culvert or cross drain system.

6 Persistent Problem Areas

During two site visits, HDR personnel coordinated with DOT&PF M&O staff to document existing flooding, debris, icing, erosion, and other hydrologic issues. In general, DOT&PF M&O personnel showed HDR staff several locations of frequent flooding and reoccurring maintenance issues. These sites include:

- MP 0.3 (near Station 17+00), where a corrugated metal pipe (CMP) slot drain captures runoff from the road and parking area of a fuel station, but frequently clogs, and M&O activities are hampered by lack of access to remove sediment from the system;
- MP 0.7 (Station 37+08), where frequent clogging at the intake and heavy sedimentation in the outlet have constricted flow;
- Site near MP 3 (Station 153+30) where several driveways do not have underdrains and the cross drains across South Tongass Highway are damaged, with corrosion present, and appear undersized.

M&O personnel also stated a preference for high-density polyethylene (HDPE) pipe over metal or aluminum for any culvert replacements due to the corrosion experienced by the metal culverts within the project's boundaries. Detailed meeting minutes are included with Appendix B.

7 Hydrology and Hydraulics

The following sections include a description of the drainage basin delineated for each Level 1 and Level 2 waterway, as well as a discussion of the existing conveyance structure, recommended improvements, and any other items of note. Culverts designated as Level 3 and Level 4 are included with descriptions of condition and presence of seeps noted. All descriptions of left or right side of a channel are looking downstream. Table 7-1 provides details of the existing culverts.

HDR conducted field reconnaissance on October 14, 15 and 16 of 2015. The field effort was based on drainage structure locations as indicated in the following sources:

- Deermount St. to South City Limits Grading, Drainage and Paving: Project No. RS-0902 (4) As-Builts from Wayne Construction Company with project completion date October 31, 1977.
- South Tongass Highway Widening Projects
    - Deermont to Saxman, Project No. 67685
    - Saxman to Surf, Project No. 67571

Based on the field reconnaissance, HDR engineers determined additional information was required with focus on the stormdrain system at the north end of the project. Visual inspection from the street surface was deemed inadequate so a request for closed circuit television (CCTV) inspection of this system was drafted and sent to DOT&PF on January 1, 2016.

CCTV inspection was performed by DOT&PF on April 29, 2016 and video was reviewed by HDR in May 2016.

R&M Engineering performed site survey of the existing highway between Deermont and Surf streets during the week of October 11, 2015 which overlapped with the HDR field team.

Because both the CCTV inspection and survey were completed following HDR's field efforts, the condition of several culverts is noted as Unknown. Culverts at the north end of the project that were listed in the As-Built information may have been abandoned or not fully inspected by CCTV so conditions are unknown. Culverts with data source identified as Survey with condition noted as Unknown were assumed to be buried due to construction of private or public projects. Details and photos are presented in the Field Report, an appendix to this report.

Table 7-1. Existing Conveyance Structures

Project Station	Crossing Designation	Hillside Seep Present	Condition	Existing Conveyance Structure				
				Type	Size (inches)	Number of Barrels	Length (feet)	Data Source
12+68.57 to 13+08.41, 14'L	Level 3	No	Unknown	CPP	18	1	40	1
13+10.08	Level 3	No	Unknown	CMP	18	1	38	1
13+14.21 to 13+84.47, 22'R	Level 3	No	Unknown	CMP	18	1	60, Outlet not found	1
13+90.73	Level 3	No	Poor	RCP	24	1	150, Outlet not found	2
13+90.11 to 16+17.63, 26'L	Level 3	No	Unknown	CMP	8	1	273	1
16+14.44	Level 3	No	Poor	CMP	18	1	52	2
16+37.81	Level 3	No	Poor	CPP	18	1	5	2
16+90 to 17+45, 18'L	Level 3	No	Fair	CMP Slot Drain	Unknown	1	50	3
17+60.55	Level 3	No	Poor	RCP	24	1	48	2
18+52.39	Level 3	No	Unknown	CMP	24	1	105, with MH at road CL	1
23+82.81 to 25+29.43, 14'R	Level 3	No	Poor	CMP	18	1	148	2
26+80.41	Level 3	No	Poor	CMP	36	1	318	2
26+80.41, 15'R	Level 3	No	Unknown	CMP	24	1	Origin not found	1
26+80.41, 15'R	Level 3	No	Unknown	CMP	18	1	Origin not found	1
26+81.75 to 28+31.99	Level 3	No	Failure	CMP	18	1	150	2
28+45.85	Level 3	No	Failure	CMP	18	1	42	2
30+55.93	Level 3	No	Unknown	RCP	24	1	63	1

Table 7-1. Existing Conveyance Structures

Project Station	Crossing Designation	Hillside Seep Present	Condition	Existing Conveyance Structure				
				Type	Size (inches)	Number of Barrels	Length (feet)	Data Source
31+33.77, 18'R	Level 3	No	Poor	CMP	18	1	19	2
34+34.05, 18'R	Level 3	No	Unknown	CMP	12	1	28	1
34+35.28 to 36+99.67, 16'R	Level 3	No	Poor	CMP	18	1	267	2
37+08.85	Level 3	No	Poor	RCP	36	1	72	1, 4
38+04.96, 17'R	Level 3	No	Good	CPP	12	1	10	2
42+30.59, 16'R	Level 3	No	Unknown	CMP	18	1	12	1
42+54.60	Level 1	No	Poor	RCP	36	2	56	1, 4
53+01.19	Level 4	No	Poor	CMP	18	1	68	1, 4
56+31.86	Level 4	No	Failure	CMP	18	1	55	1, 4
58+03.69	Level 1	No	Fair	CMP	36	1	50	1, 4
62+04.01	Level 4	No	Poor	CMP	32	1	62	1, 4
64+50.16	Level 4	Yes	Poor	CMP	24	1	43	1, 4
66+89.41	Level 1	No	Poor	CMP	48	1	107	1, 4
67+21.30, 50'R	Level 3	No	Good	CPP	12	1	Origin not found	1, 4
69+07.34	Level 4	Yes	Poor	CMP	24	1	61	1, 4
70+20.61	Level 1	No	Fair	CMP	30	1	62	1, 4
74+16.87	Level 4	No	Poor	CMP	18	1	49	1, 4
75+87.64	Level 4	No	Unknown			1	Unknown	1, 4
76+81.61	Level 4	Yes	Poor	CMP	18	1	49	1, 4
78+88.19	Level 4	Yes	Poor	CMP	36	1	52, Outlet not found	1, 4
82+43.21	Level 4	No	Poor	CMP	18	1	50	1, 4
84+18.47	Level 4	Yes	Poor	CMP	30	1	62	1, 4
86+11.1	Level 4	Yes	Poor	CMP	18	1	56	1, 4

Table 7-1. Existing Conveyance Structures

Project Station	Crossing Designation	Hillside Seep Present	Condition	Existing Conveyance Structure				
				Type	Size (inches)	Number of Barrels	Length (feet)	Data Source
88+73.95	Level 1	No	Failure	CMP	48	2	70	1, 4
93+60.80	Level 1	No	Poor	CMP	48	1	125	1, 4
94+42.34 to 94+80.89, 20'L	Level 4	No	Unknown	CMP	12	1	38	1
94+80.85	Level 4	No	Unknown	CMP	12	1	76, Outlet not found	1
94+80.89 to 95+12.76, 22'L	Level 4	No	Unknown	CMP	12	1	32	1
97+47.51	Level 4	Yes	Failure	CMP	18	1	72, Outlet not found	1, 4
100+16.78	Level 4	Yes	Poor	CMP	36	1	74	1, 4
100+80.95	Level 4	Yes	Poor	CMP	18	1	81	1, 4
103+47.53	Level 1	No	Poor	CMP	48	1	88	1, 4
104+24.87	Level 4	Yes	Poor	CMP	18	1	73	1, 4
106+19.06	Level 4	Yes	Poor	CMP	18	1	51	1, 4
107+57.87	Level 4	Yes	Poor	CMP	18	1	69	1, 4
108+88.69	Level 4	No	Poor	CMP	18	1	56	1, 4
110+40.89	Level 4	Yes	Poor	CMP	18	1	56	1, 4
111+36.66	Level 4	No	Poor	CMP	18	1	58	1, 4
113+36.65	Level 4	Yes	Poor	CMP	18	1	60	1, 4
114+68.51	Level 4	Yes	Failure	CMP	18	1	93, Outlet not found	1, 4
116+90.80	Level 4	Yes	Poor	CMP	18	1	65	1, 4
117+94.60	Level 4	Yes	Poor	CMP	18	1	54	1, 4
120+09.77	Level 1	No	Failure	CMP	36	1	82	1, 4

Table 7-1. Existing Conveyance Structures

Project Station	Crossing Designation	Hillside Seep Present	Condition	Existing Conveyance Structure				
				Type	Size (inches)	Number of Barrels	Length (feet)	Data Source
124+12.21	Level 4	No	Good	CPP	24	1	62	1, 4
125+03.02 to 125+72.96, 30'L	Level 4	No	Unknown	CMP	12	1	70	1
125+72.96 to 126+32.71, 30'L	Level 4	No	Unknown	CMP	18	1	60	1
125+92.88 to 126+32.71, 30'+L	Level 4	No	Unknown	CMP	18	1	77, Inlet not found	1
126+32.70	Level 4	Yes	Poor	CMP	24	1	63	1, 4
126+32.71 to 126+92.35, 32'L	Level 4	No	Unknown	CMP	18	1	60	1
128+67.64	Level 4	No	Unknown			1	Unknown	1, 4
132+50.65	Level 4	No	Poor	CMP	18	1	53	1, 4
136+66.54	Level 4	No	Poor	CMP	18	1	221	1, 4
139+70.09	Level 2	No	Poor	Wood Box	8'H, 10'W	1	56	1, 4
143+06.29	Level 4	No	Fair	CPP	18	1	47	1, 4
146+51.45	Level 4	No	Fair	CMP	18	1	42	1, 4
148+44.91	Level 4	No	Poor	CMP	18	1	63	1, 4
151+31.17	Level 4	Yes	Poor	CMP	36	1	58	1, 4
153+30.03	Level 4	No	Failure	CMP	18	1	50, Outlet not found	1, 4
156+77.00	Level 4	Yes	Fair	CPP	18	1	70	1, 4
158+95.63	Level 4	No	Poor	CMP	18	1	107	1, 4
161+56.81	Level 4	Yes	Failure	CMP	18	1	120	1, 4
162+90.19	Level 4	Yes	Poor	CMP	18	1	50, Outlet not found	1, 4

Table 7-1. Existing Conveyance Structures

Project Station	Crossing Designation	Hillside Seep Present	Condition	Existing Conveyance Structure				
				Type	Size (inches)	Number of Barrels	Length (feet)	Data Source
163+99.10 to 164+85.70, 26'L	Level 4	No	Unknown	CPP	18	1	88	1
164+85.96	Level 4	No	Fair	CMP	18	1	76	1, 4
164+85.70 to 165+80.77, 25'L	Level 4	No	Unknown	CPP	18	1	100	1

Data Source:
1= R&M Ketchikan Survey, data from AutoCAD files, dated January 29, 2016.
2= DOT&PF Pipe Scoping, data from video of scoping and field notes dated April 29, 2016.
3= Interview with Loren Star, DOT&PF, October 16, 2015
4= HDR Field reconnaissance, October 14-16, 2015, done prior to survey or CCTV inspection.

Note:

CMP = corrugated metal pipe
CPP = corrugated plastic pipe
RCP = reinforced concrete pipe

Level 1: Culverted Non-Fish Streams
Level 2: Culverted Fish Streams
Level 3: Stormwater Sewer System
Level 4: Localized Surface Drainage (Ditch to Culvert)

7.1 Project Hydrology

Design flows are as recommended by the *Alaska Preconstruction Manual*, Section 1120.5. For culverts on primary highways, the design flow is the flood having a 2 percent chance of being equal to or exceeded in any given year. In addition, none of the culverts within the project area are in mapped Federal Emergency Management Agency (FEMA) designated flood areas.

There are no stream flow data for any of the drainages within the project area. Therefore, HDR calculated design flows for each waterway using the methodology described in *Estimating Flood Magnitude and Frequency at Gaged and Ungaged Sites on Streams in Alaska and Conterminous Basins in Canada, Based on Data through Water Year 2012 (USGS Scientific Investigations Report 2016-5024).* For those basins that did not meet the minimum basin area to use methods described in Scientific Investigations Report (SIR) 2016-5024, methods from the National Resource Conservation Service (NRCS) were used to calculate runoff flows; specifically, the Soil Conservation Service (SCS) curve number method was employed.

Drainage areas are based on USGS topographic mapping supplemented by aerial photography, interferometric synthetic aperture radar (IFSAR) data to generate Digital Elevation Models (DEM), and ground surveys to delineate drainage basins; basin sizes for Level 1 and Level 2 culverts are identified in Table 7-2.

Challenges arose when attempting to delineate individual basins; small basin size and dense coniferous forests lead to questions of accuracy from digital surfaces. DEMs generated from IFSAR data are idealized solid surface models on five-meter grids and rely on radar penetration through narrow canyons and dense coniferous canopies. As such, the models do not account for surface changes such as drainage ditches, deep narrow canyons in dense forested areas, or other subtle changes in slope or direction. This was the case when delineating the basin discharging flow from Saxman Creek through the conveyance structure at project Station 139+70. Flow paths and basin delineation in GIS was determined to be inaccurate: Saxman Creek has been mapped by ADF&G in the Anadromous Waters Catalog, and there are two dam structures on Saxman Creek which have documented water use permits and indicate where water is discharged (AK00145 – Saxman Upper Dam and AK00084 – Saxman Lower Dam). The modified basin is presented in Appendix A, Supplemental Documentation.

Design flows were calculated for those basins that met the minimum criteria for basin size for valid use of the regression equations, which is 0.4 square mile (256 acres). After delineating the drainage basins using each existing culvert crossing as a pour point, only one basin met the criteria for SIR 2016-5024, with a basin size of 1.0 square mile, which discharges through the conveyance structure at project Station 139+70. The remaining eight basins were less than 0.2 square mile. HDR used the SCS curve number method, with the 50-year, 24-hour storm used for runoff calculation. The curve number method was also compared with physical observation and inspection of the existing drainage structures conveying stream flow as seen during the site visit. Observed high water indications including erosion lines and staining inside the culvert barrels were observed near springline elevation for the culverts which correlated to model outputs for water elevation during the 50-year events; comparing modeled and observed conditions was deemed the most accurate method to size culverts for basins composed of steep slopes and dense forests.

Based on modeled flows and field observations of site conditions, the culverts at Stations 42+55, 70+21, and 120+10 are recommended to be increased in size; the culvert at Station 139+70 is recommended to be replaced with a box culvert to meet fish passage design criteria; and the remaining culverts are to be replaced with the same diameter HDPE culvert.

Table 7-2. Parameters used for Flow Calculations

Station	Drainage [a] Basin Area (square miles)	Average Stream Slope [b]	Existing Culvert Slope [c]	Flow Calculation Method Used	50-YR Flow (cfs)	100-YR Flow (cfs)	Comments
42+55	0.07	32.2%	1.8%	NRCS SCS	33	36	Upsize to 48" arch pipe culvert due to backwater evidence. Current 36" double barrel system is two thirds filled with sediment. Backwater likely due to reduced conveyance of existing structure.
58+04	0.05	24.6%	5.6%	NRCS SCS	23	26	No flooding issues stated by M&O, replace in-kind with 36" single barrel round culvert.
66+89	0.10	26.6%	9.6%	NRCS SCS	46	51	No flooding issues stated by M&O, replace in-kind with 48" single barrel round culvert.
70+21	0.09	30.9%	4.5%	NRCS SCS	41	45	Upsize to 48" culvert due to backwater evidence, replacing 30" single barrel round culvert.
88+74	0.08	11.6%	6.8%	NRCS SCS	35	39	No flooding issues stated by M&O, replace in-kind with 48" double barrel round culvert.
93+61	0.12	15.6%	8.6%	NRCS SCS	53	59	No flooding issues stated by M&O, replace in-kind with 48" single barrel round culvert.
103+48	0.04	11.0%	13.2%	NRCS SCS	19	21	No flooding issues stated by M&O, replace in-kind with 48" single barrel round culvert.
120+10	0.03	11.0%	7.0%	NRCS SCS	14	15	Upsize to 48" round culvert due to backwater evidence, replacing 36" single barrel round culvert.
139+70	1.00	28.8%	8.0%	USGS SIR 2016-5024	593	671	Fish passage culvert required per ADF&G.

[a] Minimum applicable basin size for regression equations is 0.4 square mile (256 acres) per USGS SIR 2016-5024.
[b] Determined via IFSAR topographic data.
[c] Determined via survey data provided by R&M Ketchikan.

NOTE:
1. Mean annual precipitation for basin 139+70 is 173.6 inches (1971-2000 PRISM Climate Group Data Set).
2. Percent area of basins composed of lakes for all basins is zero.
3. cfs = cubic feet per second

HDR attempted to calculate fish passage flows for the Station 139+70 waterway using the methodology described in *Estimating Annual High-Flow Statistics and Monthly and Seasonal Low-Flow Statistics for Ungaged Sites on Streams in Alaska and Conterminous Basins in*

Canada (USGS Water Resources Investigations Report 03-4114, 2003, Region 1). The minimum drainage basin used to develop the regression equations for Region 1 was 1.82 square miles; the Sta. 139+70 drainage basin of 1.0 square mile is not valid for use with these regression equations. As such, the WRI report would not be expected to produce valid flow estimates for the stream crossing at Sta. 139+70, but may be used as a reference point.

HDR also used methods described in the Federal Highway Administration Hydraulic Engineering Circular No. 29 dated October 2010; guidelines given in Table 5.1 indicate that for the State of Alaska, the estimated low flow shall be 40-percent of the 2-year flood (50-percent return interval). Both methods indicate a low flow of 70 cfs is to be expected.

An initial model was created using HY-8 to determine if the proposed structures would pass calculated discharges for each basin. This is a preliminary model as final roadway elevations and design are not yet complete. This section will be updated prior to final design submittal.

The preliminary model reinforces observations made in the field that all existing culvert structures are inlet controlled; projecting upstream edge of culvert, steep culvert slopes and general steep downstream slopes are typical. The proposed structures will also be inlet controlled for the same reasons as listed above. However, several culverts will be upsized thereby increasing capacity and decreasing headwater elevations. The preliminary model results indicate that all proposed structures can pass the calculated discharges exceeding the one percent return interval flows.

In addition to streamflow, some of the conveyance structures within the project area may also be subject to tidal influences, so the potential tidal effects were evaluated. The tide gage in Ketchikan is located on the pier of the U.S. Coast Guard (USCG) station and is operated by the National Oceanic and Atmospheric Administration (NOAA). The measured tidal elevations, relative to the MLLW vertical datum, are listed in Table 7-3 for Ketchikan and were developed from 19 years of tidal records extending from January 1983 to December 2001.

Table 7-3. Ketchikan Tidal Fluctuations

Tidal Datum	Elevation, feet (MLLW datum)
Highest Observed Water	21.3
Mean Higher High Water	15.5
Mean High Water	14.5
Mean Sea Level	8.1
Mean Tide Level	8.1
Mean Low Water	1.6
Mean Lower Low Water (MLLW)	0
Lowest Observed Water	-5.3

7.2 Hydraulic History

The hydraulic history of the site includes the following pertinent information:

1. Tidal influence (Table 7-3) for several culverted streams is expected, though a more thorough investigation will be done concurrently with final design of the roadway project.
2. Basin sizes are small and the stream channels nearest road crossings have been highly modified. No flood of record elevations are known, however local knowledge of flooding issues were identified from local DOT&PF personnel and are provided in Section 6.
3. None of the streams are navigable per the General Definition of 33 Code of Federal Regulations (CFR) 329.4.
4. The stream draining to Station 139+70, identified as an anadromous fish stream, has a confluence 400 feet upstream of the highway crossing. The tributary stream is incised to bedrock so no changes are anticipated following construction. No other tributaries or confluences were identified on any other stream in the project area.
5. No mining activity is known to currently occur or that is planned for the future in the project area. A Mineral Closing Order exists for a tract of land within T.75S., R.91E., and T.76S., R91E. of the Copper River meridian which has made this area unavailable for staking mining claims, leasehold locations or prospecting site locations.
6. All culverted streams appear to be clearwater streams, with bedrock outcrops present at numerous locations. The anadromous stream draining to Station 139+70 has an old rootwad retaining streambed sediment and is fully crossing the stream about 400 feet upstream from the highway, just upstream from the previously noted confluence. The rootwad is likely windfall from a historic storm or was left during logging operations in the basin. The initial proposal for the project is to remove this rootwad and allow sediment to continue migrating naturally, increasing fish spawning habitat.
7. No flooding issues related to icing problems were reported by DOT&PF personnel during the in-person interview with HDR engineers.
8. The geomorphology for culverted streams in this reach consists of incised streams with bedrock visible in numerous areas including inlets to culverts. No evidence of channel meandering is present. Stream channels near road crossings have been modified to direct flow through culverts. The small basin size has not created more complex stream networks.
9. Culverted streams are clearwater streams with large cobbles and boulders, observed between 6 and 24 inches. Bedload is minimal, as observed in the field. No sieve analysis has been completed to date.

7.3 Fish Passage at Station 139+70 – Level 2

This section provides additional details on the basin with design flows developed for the fish passage culvert at Station 139+70. HDR determined fish presence at each of the sites based on coordination with ADF&G and the *Anadromous Water Catalog*. Table 7-4 presents stream and basin characteristics.

Table 7-4. Fish Passage Culvert Criteria

Stream Name	Saxman Creek
Drainage Area	1.0 square mile
Design Flood Frequency	50-year
Design Discharge	593 cfs
Existing Structure	10' wide, 8' tall, by 52' long wooden box culvert
Fish Presence	Yes – chum and pink salmon
ADF&G AWC No.	101-47-10300
ADF&G Fish Passage Site No.	10103208

At Station 139+70, the existing wooden box culvert is creating a fish passage barrier with a 3-foot perched outlet. Due to the presence of bedrock at the crossing, this site is a candidate for an open bottom box culvert with the construction of pools along its length to maintain the natural gradient of the stream through the culvert. The ordinary high water (OHW) stream width was surveyed as 14 feet by ADF&G in the Fish Passage Site 10103208 report dated August 11, 2013. To meet the Stream Simulation requirements for design as defined in the Memorandum of Agreement between ADF&G and DOT&PF for the design, permitting, and construction of culverts for fish passage, dated August 2001, a proposed culvert must be greater than 90 percent OHW stream width as surveyed by ADF&G and match the existing natural stream grade through the road crossing. Therefore, an initially proposed box culvert would span 14 feet 4 inches with a height of 8 feet 4 inches and have a slope of 5 percent. A culvert of this size has capacity upwards of 1,200 cfs with a headwater to culvert height ratio of 1.5, so the flood having a 1 percent exceedance potential in any given year would pass with no adverse backwater at the inlet.

8 Location Hydraulic Studies

The 23 Code of Federal Regulations, part 650.111, "Location Hydraulic Studies," prescribes how the project will interact with mapped regulatory floodplains. Within thousands of communities across the United States, FEMA coordinates the National Flood Insurance Program (NFIP). One major component of the NFIP is the publication of Flood Insurance Rate Maps (FIRMs), designating riverine and tidal floodplains and establishing base flood elevations. KGB participates in the NFIP and is assigned community number 020003. A portion of the South Tongass Highway Rehabilitation project is shown on FIRM map 0200030002B, dated April 16, 1990.

The Flood Insurance Study (FIS) for KGB, also dated April 16, 1990, contains detailed studies of four creeks in Ketchikan; however, none of the four creeks are located within the project boundaries. Consequently, no base flood elevations have been established for any of the creeks spanned by the South Tongass Highway.

Tidal flooding along the Tongass Narrows was not studied by detailed methods in the FIS; however, an analysis of tide gage information approximated the flood boundary to an elevation of 22 feet MLLW along the coastline. Within the project reach, the mapped portion of the Tongass Narrows extends from the Deermount Street intersection to the USCG station. No floodplain boundaries are mapped from the USCG station to Saxman.

The KGB FIS does not contain any reports of flooding along South Tongass Highway while only localized, non-riverine flooding was reported by DOT&PF M&O personnel.

The approximate floodplain shown on FIRM map 0200030002B does not affect the South Tongass Highway between Deermount Street and the USCG station. However, the KGB planning and community development maps do show the approximate floodplain intersecting South Tongass Highway at one location by the USCG station. The KGB-mapped approximated floodplain extends to the guardrail of South Tongass Highway for a distance of less than 5 feet across from a small pullout just east of the USCG station. The discrepancy could be explained by KGB using a more accurate basemap than the FIRM map and transferring the FIRM boundary as an overlay into its map.

As design progresses, the approximate floodplain can be added to the project drawings using the survey data to establish where the elevation of 22 feet MLLW falls relative to the existing culverts. Use of current survey data can assist in clarifying the project's location relative to the approximate floodplain boundary.

Though the project area does not include any mapped floodplains, the proposed drainage work for the project will replace culverts with the same or larger diameters based on hydrology and hydraulics presented in this report. Consequently, floodplain encroachments beyond the existing condition are not anticipated relative to the culvert replacements with no increases to floodwater elevations expected. Existing capacity for all culverts over 48-inches in diameter was found to be adequate, and this report does not recommend downsizing any culverts.

For the non-motorized path, design continues and fill may be placed within the approximated floodplain of 22 feet MLLW along the Tongass Narrows. As the flooding experienced by the non-motorized path is of a coastal nature, as compared to riverine, any fill potentially placed below 22 feet MLLW would not increase the tidal elevations of the Tongass Narrows. The non-motorized path may represent limited fill within the approximated floodplain of the Tongass Narrows; however, the tidal elevations will not increase based on the non-motorized path's impacts.

To be in compliance with Executive Order 13690, dated January 29, 2015, federally funded projects must determine if they are located in a floodplain based on best available information. Flooding information may come from M&O reports, FEMA effective FIRMs, newspapers, and other reliable sources. If the project is located within a floodplain, evaluation of the project's design resilience is then evaluated. No reports of riverine or coastal flooding problems along the South Tongass Highway were identified by any of these sources.

Of the approaches outlined in the EO 13690, the Climate-Informed Science approach provides the most relevance for the riverine portions of the South Tongass Highway project. Projected climate information for Ketchikan was obtained from the Scenarios Network for Alaska + Arctic Planning (SNAP) website (*https://www.snap.uaf.edu/*). SNAP's climate models project that precipitation in Ketchikan will vary within a 4-15% range monthly, both higher and lower, of 1990

values by 2099. The largest monthly projected increase was 20% for October with January precipitation estimated to fall 10% over the study range. Averaging the monthly projected precipitations yields an annual net increase of 7% during the projection horizon.

While the SNAP data recommends using its data to evaluate trends over time, the precipitation increases provide an approach to estimate higher future flood flows. The hydrology calculations were initially repeated with precipitation values 10-15% higher than used in the base analysis. The result was that each of the proposed culverts could pass the higher flows with no backwater. However, the SNAP data provides an estimate in annual precipitation magnitude and spatial estimates, not in rainfall intensity. Due to this fact, low confidence exists in extrapolating SNAP data for direct augmentation of rainfall intensities. Instead, the proposed culverts were analyzed for a theoretical maximum capacity as initially modeled. This approach resulted in the values displayed in Table 8-1, which show a minimum of 40% excess capacity in the structures, with most having more capacity.

Table 8-1. Excess Capacity for Proposed Structures

Culvert Station	50-yr Flow, cfs	100-yr Flow, cfs	Proposed Culvert Slope	Culvert Size	Capacity, HW/h=1, cfs	Capacity, HW/h=1.5, cfs	Percent Excess Capacity
42+55	33	36	2%	48" Arch	60	90	64%
58+04	23	26	2%	36"	30	45	43%
66+89	46	51	4%	48"	60	100	49%
70+21	41	45	4%	48"	60	100	55%
88+74	35	39	4%	48"	60	100	61%
93+61	53	59	4%	48"	60	100	41%
103+48	19	21	4%	48"	60	100	79%
120+10	14	15	4%	48"	60	100	85%
139+70	515	593	4%	14.3'x8.33'	700	1,200	51%

As such, the culverts would be expected to handle future higher flows without issue.

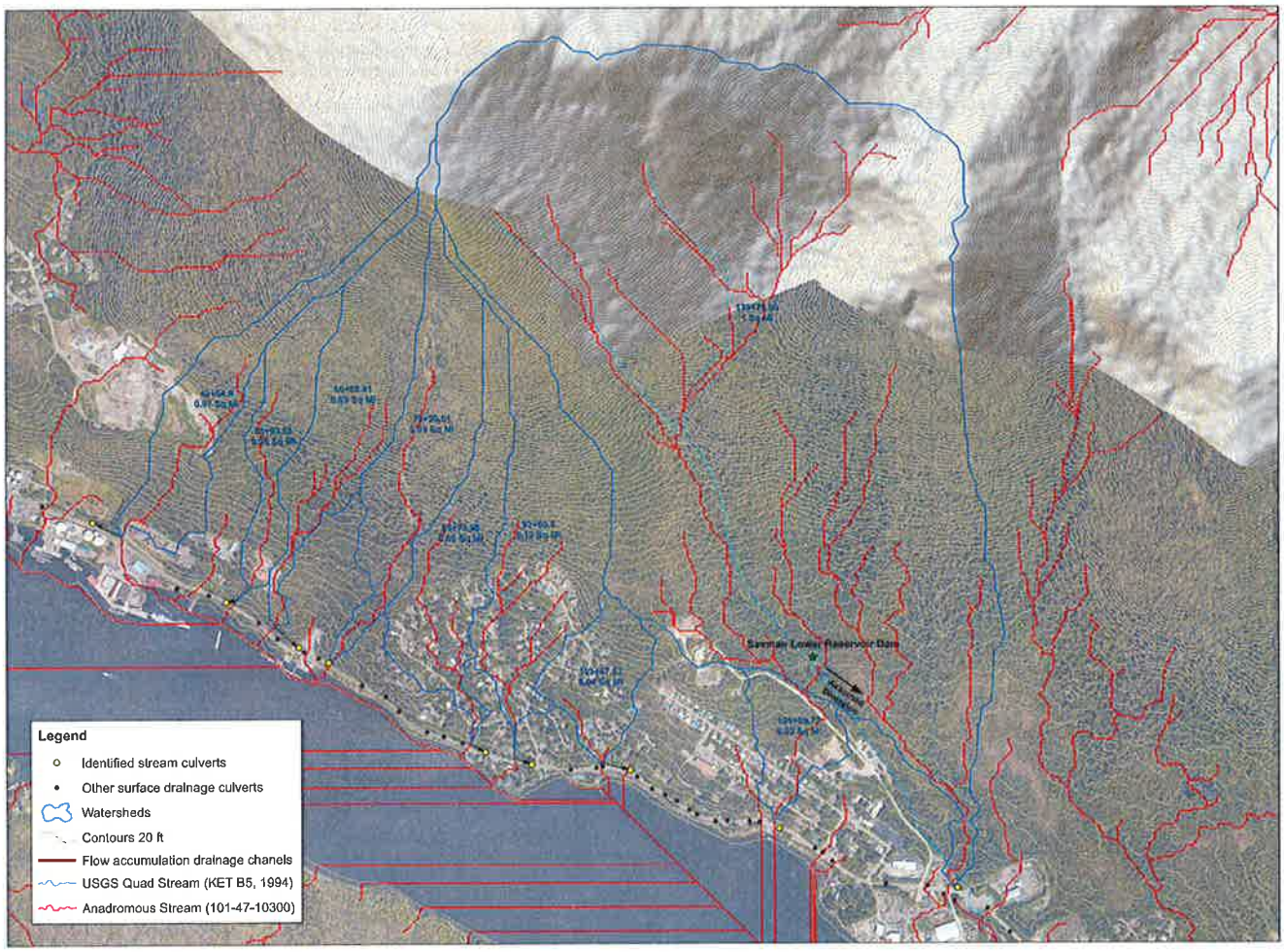
For the coastal floodplain, potential future sea level increases may raise the approximate coastal floodplain elevation of 22 feet MLLW. However, the potential fill associated with the non-motorized pathway will not impact the existing or future coastal flood elevations within the localized area. The steep terrain along most of the South Tongass Highway limits the footprint affected by coastal floodplain increases. If some of the culvert outlets are or become tidally influenced in the future, the additional capacity provided by the proposed culvert diameters yields additional benefits.

9 Riprap

At the current design stage, riprap is not proposed at any of the culvert sites within the South Tongass Highway Rehabilitation project.

Appendix A

Supplemental Documentation and Calculations


Legend
Identified stream culverts
Other surface drainage culverts
Watersheds
Contours 20 ft
Flow accumulation drainage chanels
USGS Quad Stream (KET B5, 1994)
Anadromous Stream (101-47-10300)
Sawmill Lower Reservoir Dam

NOAA Atlas 14, Volume 7, Version 2
Location name: Ketchikan, Alaska, USA*
Latitude: 55.3318°, Longitude: -131.6082°
Elevation: 604.59 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Douglas Kane, Sarah Dietz, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Svetlana Stuefer, Amy Tidwell, Carl Trypaluk, Dale Unruh, Michael Yekta, Erica Betts, Geoffrey Bonnin, Sarah Heim, Lillian Hiner, Elizabeth Lilly, Jayashree Narayanan, Fenglin Yan, Tan Zhao

NOAA, National Weather Service, Silver Spring, Maryland
and
University of Alaska Fairbanks, Water and Environmental Research Center

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.231 (0.183-0.306)	0.268 (0.210-0.360)	0.317 (0.243-0.434)	0.358 (0.270-0.498)	0.414 (0.304-0.588)	0.457 (0.330-0.660)	0.500 (0.355-0.734)	0.548 (0.382-0.817)	0.611 (0.417-0.930)	0.659 (0.442-1.02)
10-min	0.310 (0.246-0.411)	0.360 (0.282-0.483)	0.426 (0.326-0.583)	0.480 (0.361-0.668)	0.556 (0.409-0.790)	0.614 (0.444-0.887)	0.672 (0.477-0.986)	0.736 (0.514-1.10)	0.821 (0.560-1.25)	0.885 (0.594-1.37)
15-min	0.363 (0.288-0.481)	0.421 (0.330-0.565)	0.498 (0.382-0.682)	0.562 (0.423-0.782)	0.651 (0.479-0.925)	0.718 (0.519-1.04)	0.787 (0.559-1.16)	0.862 (0.602-1.28)	0.961 (0.656-1.46)	1.04 (0.696-1.60)
30-min	0.482 (0.383-0.639)	0.559 (0.438-0.750)	0.661 (0.506-0.905)	0.746 (0.562-1.04)	0.864 (0.635-1.23)	0.953 (0.689-1.38)	1.04 (0.741-1.53)	1.14 (0.798-1.71)	1.27 (0.870-1.94)	1.38 (0.923-2.13)
60-min	0.660 (0.524-0.875)	0.766 (0.600-1.03)	0.906 (0.694-1.24)	1.02 (0.769-1.42)	1.18 (0.870-1.68)	1.31 (0.944-1.89)	1.43 (1.02-2.10)	1.57 (1.09-2.34)	1.75 (1.19-2.66)	1.88 (1.26-2.91)
2-hr	1.09 (0.868-1.45)	1.27 (0.993-1.70)	1.50 (1.15-2.05)	1.70 (1.28-2.36)	1.96 (1.44-2.79)	2.17 (1.56-3.13)	2.37 (1.68-3.48)	2.60 (1.81-3.87)	2.90 (1.98-4.41)	3.12 (2.10-4.83)
3-hr	1.52 (1.21-2.02)	1.77 (1.38-2.37)	2.09 (1.60-2.86)	2.36 (1.78-3.28)	2.73 (2.01-3.88)	3.02 (2.18-4.35)	3.30 (2.34-4.84)	3.62 (2.52-5.39)	4.03 (2.75-6.14)	4.35 (2.92-6.72)
6-hr	2.58 (2.05-3.42)	2.99 (2.34-4.02)	3.54 (2.71-4.84)	4.00 (3.01-5.56)	4.62 (3.40-6.57)	5.10 (3.69-7.37)	5.59 (3.97-8.20)	6.12 (4.27-9.13)	6.83 (4.66-10.4)	7.36 (4.94-11.4)
12-hr	3.92 (3.11-5.19)	4.55 (3.56-6.11)	5.40 (4.14-7.39)	6.09 (4.58-8.46)	7.03 (5.17-9.98)	7.75 (5.60-11.2)	8.49 (6.03-12.5)	9.29 (6.49-13.9)	10.4 (7.07-15.8)	11.2 (7.49-17.2)
24-hr	5.64 (4.74-6.80)	6.55 (5.44-7.99)	7.79 (6.34-9.70)	8.76 (7.02-11.1)	10.1 (7.92-13.0)	11.2 (8.60-14.6)	12.2 (9.28-16.3)	13.4 (10.0-18.2)	14.9 (10.9-20.7)	16.1 (11.6-22.6)
2-day	7.62 (6.40-9.19)	8.77 (7.28-10.7)	10.4 (8.45-12.9)	11.7 (9.35-14.8)	13.5 (10.6-17.4)	15.0 (11.5-19.7)	16.5 (12.5-22.0)	18.3 (13.7-24.8)	20.7 (15.1-28.6)	22.5 (16.2-31.6)
3-day	8.99 (7.55-10.8)	10.3 (8.53-12.5)	12.1 (9.87-15.1)	13.6 (10.9-17.2)	15.8 (12.4-20.4)	17.6 (13.6-23.1)	19.5 (14.8-26.0)	21.8 (16.3-29.5)	24.8 (18.1-34.3)	27.1 (19.5-38.1)
4-day	10.1 (8.51-12.2)	11.5 (9.57-14.1)	13.6 (11.0-16.9)	15.2 (12.2-19.3)	17.7 (13.8-22.8)	19.7 (15.2-25.8)	21.8 (16.6-29.1)	24.4 (18.2-33.1)	27.9 (20.4-38.6)	30.5 (21.9-42.8)
7-day	13.1 (11.0-15.8)	14.8 (12.3-18.1)	17.3 (14.1-21.5)	19.3 (15.5-24.4)	22.3 (17.5-28.8)	24.7 (19.0-32.4)	27.3 (20.7-36.4)	30.3 (22.6-41.1)	34.4 (25.1-47.6)	37.4 (27.0-52.6)
10-day	15.5 (13.1-18.7)	17.5 (14.6-21.4)	20.4 (16.6-25.3)	22.7 (18.1-28.6)	25.9 (20.3-33.5)	28.6 (22.0-37.5)	31.4 (23.8-41.9)	34.7 (25.9-47.0)	39.0 (28.5-54.0)	42.3 (30.5-59.5)
20-day	23.5 (19.7-28.3)	26.4 (21.9-32.2)	30.4 (24.7-37.8)	33.5 (26.8-42.3)	37.7 (29.6-48.7)	41.1 (31.7-53.9)	44.5 (33.8-59.4)	48.3 (36.1-65.5)	53.3 (39.0-73.8)	57.1 (41.1-80.3)
30-day	31.1 (26.1-37.4)	34.9 (29.0-42.6)	39.9 (32.5-49.7)	43.8 (35.1-55.3)	48.9 (38.3-63.2)	52.8 (40.8-69.4)	56.8 (43.1-75.8)	61.0 (45.6-82.7)	66.6 (48.7-92.2)	70.8 (51.0-99.5)
45-day	41.3 (34.7-49.8)	46.4 (38.6-56.7)	52.9 (43.1-65.9)	57.7 (46.2-72.9)	63.8 (50.0-82.4)	68.3 (52.6-89.6)	72.7 (55.1-96.9)	77.0 (57.5-104)	82.8 (60.6-115)	87.2 (62.8-123)
60-day	49.8 (41.9-60.0)	56.1 (46.6-68.5)	63.7 (51.9-79.3)	69.0 (55.3-87.2)	75.4 (59.1-97.4)	79.8 (61.6-105)	83.9 (63.7-112)	87.6 (65.4-119)	92.5 (67.6-128)	96.1 (69.2-135)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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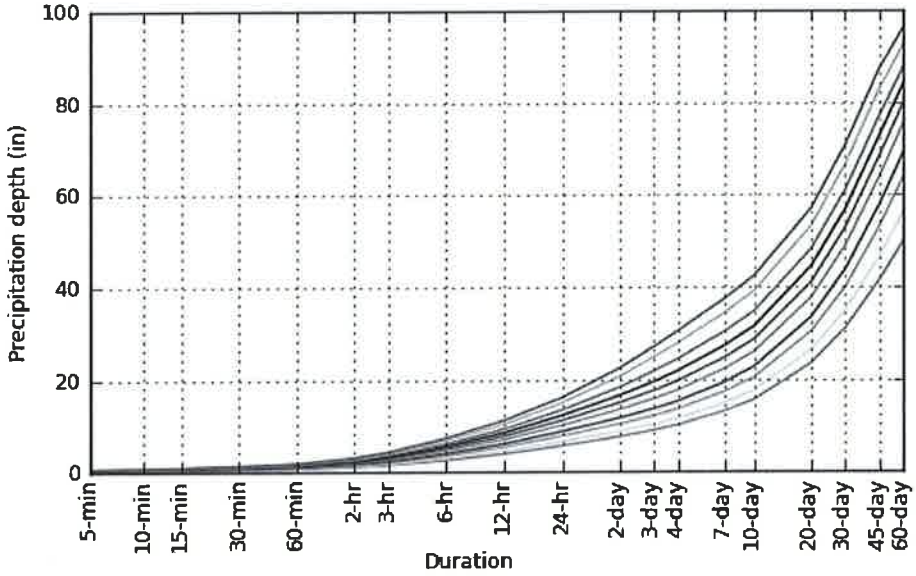
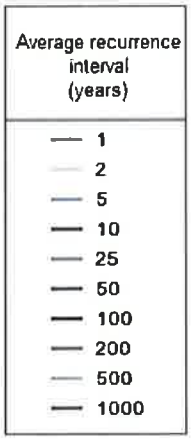
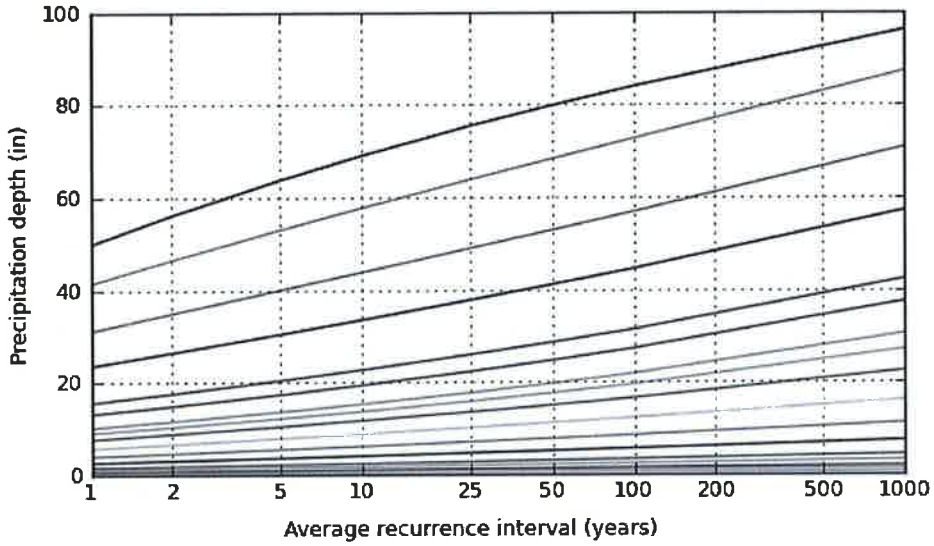
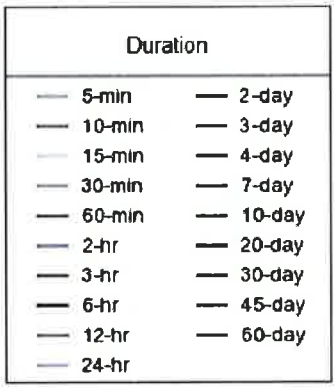
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 55.3318°, Longitude: -131.6082°









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Maps & aerials

Small scale terrain

NOAA Atlas 14, Volume 7, Version 2
Location name: Ketchikan, Alaska, USA*
Latitude: 55.3318°, Longitude: -131.6082°
Elevation: 604.59 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Douglas Kane, Sarah Dietz, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Svetlana Stuefer, Amy Tidwell, Carl Trypaluk, Dale Unruh, Michael Yekta, Erica Betts, Geoffrey Bonnin, Sarah Heim, Lillian Hiner, Elizabeth Lilly, Jayashree Narayanan, Fenglin Yan, Tan Zhao

NOAA, National Weather Service, Silver Spring, Maryland
and
University of Alaska Fairbanks, Water and Environmental Research Center

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	2.77 (2.20-3.67)	3.22 (2.52-4.32)	3.80 (2.92-5.21)	4.30 (3.24-5.98)	4.97 (3.65-7.06)	5.48 (3.96-7.92)	6.00 (4.26-8.81)	6.58 (4.58-9.80)	7.33 (5.00-11.2)	7.91 (5.30-12.2)
10-min	1.86 (1.48-2.47)	2.16 (1.69-2.90)	2.56 (1.96-3.50)	2.88 (2.17-4.01)	3.34 (2.45-4.74)	3.68 (2.66-5.32)	4.03 (2.86-5.92)	4.42 (3.08-6.59)	4.93 (3.36-7.50)	5.31 (3.56-8.21)
15-min	1.45 (1.15-1.92)	1.68 (1.32-2.26)	1.99 (1.53-2.73)	2.25 (1.69-3.13)	2.60 (1.92-3.70)	2.87 (2.08-4.15)	3.15 (2.24-4.62)	3.45 (2.41-5.14)	3.84 (2.62-5.85)	4.14 (2.78-6.41)
30-min	0.964 (0.766-1.28)	1.12 (0.876-1.50)	1.32 (1.01-1.81)	1.49 (1.12-2.07)	1.73 (1.27-2.46)	1.91 (1.38-2.75)	2.09 (1.48-3.06)	2.29 (1.60-3.41)	2.55 (1.74-3.88)	2.75 (1.85-4.25)
60-min	0.660 (0.524-0.875)	0.766 (0.600-1.03)	0.906 (0.694-1.24)	1.02 (0.769-1.42)	1.18 (0.870-1.68)	1.31 (0.944-1.89)	1.43 (1.02-2.10)	1.57 (1.09-2.34)	1.75 (1.19-2.66)	1.88 (1.26-2.91)
2-hr	0.547 (0.434-0.726)	0.634 (0.496-0.852)	0.750 (0.575-1.03)	0.848 (0.638-1.18)	0.980 (0.721-1.39)	1.08 (0.782-1.56)	1.19 (0.842-1.74)	1.30 (0.906-1.94)	1.45 (0.988-2.21)	1.56 (1.05-2.42)
3-hr	0.507 (0.402-0.672)	0.588 (0.461-0.790)	0.696 (0.533-0.952)	0.786 (0.591-1.09)	0.909 (0.669-1.29)	1.00 (0.725-1.45)	1.10 (0.780-1.61)	1.20 (0.840-1.80)	1.34 (0.917-2.04)	1.45 (0.972-2.24)
6-hr	0.431 (0.342-0.571)	0.500 (0.391-0.671)	0.591 (0.453-0.809)	0.667 (0.502-0.928)	0.772 (0.567-1.10)	0.852 (0.616-1.23)	0.933 (0.663-1.37)	1.02 (0.714-1.52)	1.14 (0.778-1.74)	1.23 (0.825-1.90)
12-hr	0.325 (0.258-0.431)	0.378 (0.296-0.507)	0.448 (0.343-0.614)	0.505 (0.380-0.703)	0.583 (0.429-0.829)	0.644 (0.465-0.930)	0.705 (0.500-1.03)	0.771 (0.538-1.15)	0.859 (0.586-1.31)	0.926 (0.622-1.43)
24-hr	0.235 (0.198-0.283)	0.273 (0.227-0.333)	0.325 (0.264-0.404)	0.365 (0.293-0.462)	0.421 (0.330-0.544)	0.465 (0.358-0.610)	0.509 (0.387-0.680)	0.558 (0.417-0.757)	0.622 (0.455-0.861)	0.671 (0.483-0.943)
2-day	0.159 (0.133-0.191)	0.183 (0.152-0.223)	0.216 (0.176-0.269)	0.243 (0.195-0.307)	0.281 (0.220-0.363)	0.312 (0.241-0.409)	0.344 (0.261-0.459)	0.381 (0.285-0.517)	0.431 (0.315-0.596)	0.468 (0.337-0.658)
3-day	0.125 (0.105-0.150)	0.143 (0.118-0.174)	0.168 (0.137-0.209)	0.189 (0.152-0.239)	0.219 (0.172-0.283)	0.244 (0.188-0.321)	0.271 (0.206-0.361)	0.303 (0.226-0.410)	0.344 (0.252-0.477)	0.376 (0.271-0.529)
4-day	0.105 (0.089-0.127)	0.120 (0.100-0.147)	0.141 (0.115-0.176)	0.159 (0.127-0.201)	0.184 (0.144-0.238)	0.205 (0.158-0.269)	0.227 (0.172-0.303)	0.254 (0.190-0.345)	0.290 (0.212-0.402)	0.317 (0.229-0.446)
7-day	0.078 (0.066-0.094)	0.088 (0.073-0.108)	0.103 (0.084-0.128)	0.115 (0.092-0.145)	0.133 (0.104-0.171)	0.147 (0.113-0.193)	0.162 (0.123-0.216)	0.180 (0.135-0.245)	0.205 (0.150-0.283)	0.223 (0.161-0.313)
10-day	0.065 (0.054-0.078)	0.073 (0.061-0.089)	0.085 (0.069-0.106)	0.094 (0.076-0.119)	0.108 (0.085-0.140)	0.119 (0.092-0.156)	0.131 (0.099-0.175)	0.144 (0.108-0.196)	0.163 (0.119-0.225)	0.176 (0.127-0.248)
20-day	0.049 (0.041-0.059)	0.055 (0.046-0.067)	0.063 (0.052-0.079)	0.070 (0.056-0.088)	0.079 (0.062-0.102)	0.086 (0.066-0.112)	0.093 (0.070-0.124)	0.101 (0.075-0.136)	0.111 (0.081-0.154)	0.119 (0.086-0.167)
30-day	0.043 (0.036-0.052)	0.048 (0.040-0.059)	0.055 (0.045-0.069)	0.061 (0.049-0.077)	0.068 (0.053-0.088)	0.073 (0.057-0.096)	0.079 (0.060-0.105)	0.085 (0.063-0.115)	0.092 (0.068-0.128)	0.098 (0.071-0.138)
45-day	0.038 (0.032-0.046)	0.043 (0.036-0.052)	0.049 (0.040-0.061)	0.053 (0.043-0.068)	0.059 (0.046-0.076)	0.063 (0.049-0.083)	0.067 (0.051-0.090)	0.071 (0.053-0.097)	0.077 (0.056-0.106)	0.081 (0.058-0.114)
60-day	0.035 (0.029-0.042)	0.039 (0.032-0.048)	0.044 (0.036-0.055)	0.048 (0.038-0.061)	0.052 (0.041-0.068)	0.055 (0.043-0.073)	0.058 (0.044-0.078)	0.061 (0.045-0.082)	0.064 (0.047-0.089)	0.067 (0.048-0.094)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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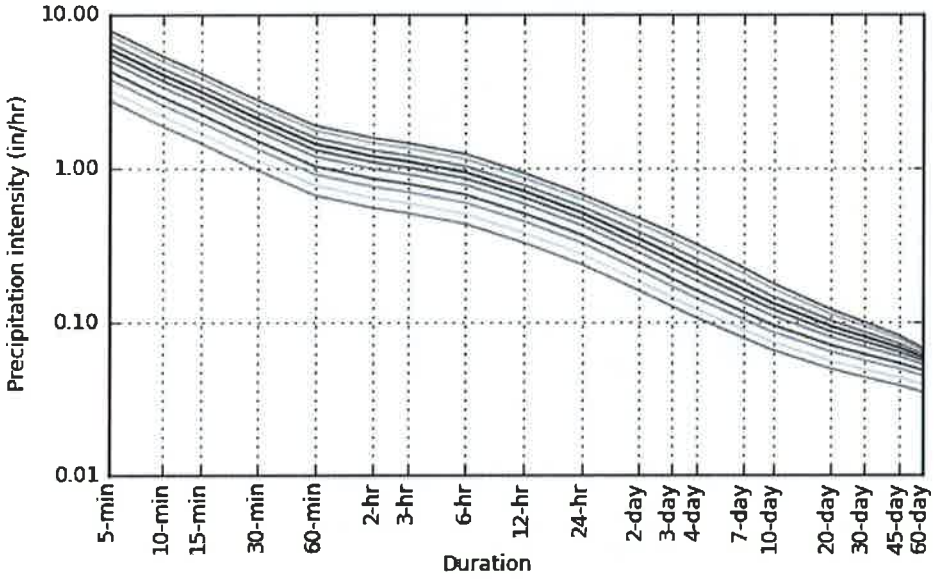
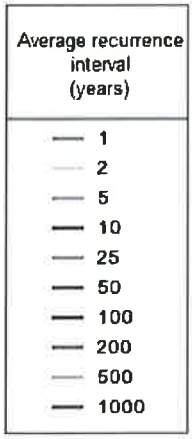
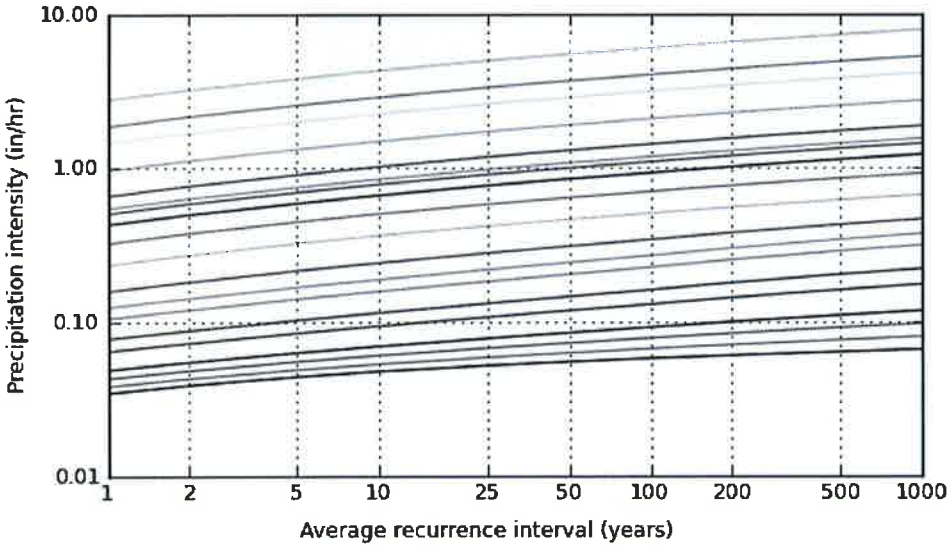
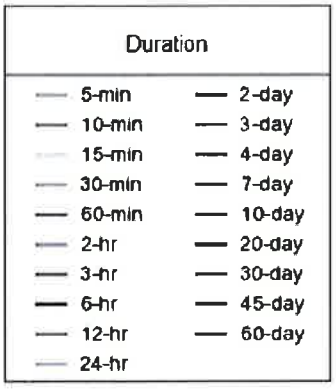
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 55.3318°, Longitude: -131.6082°









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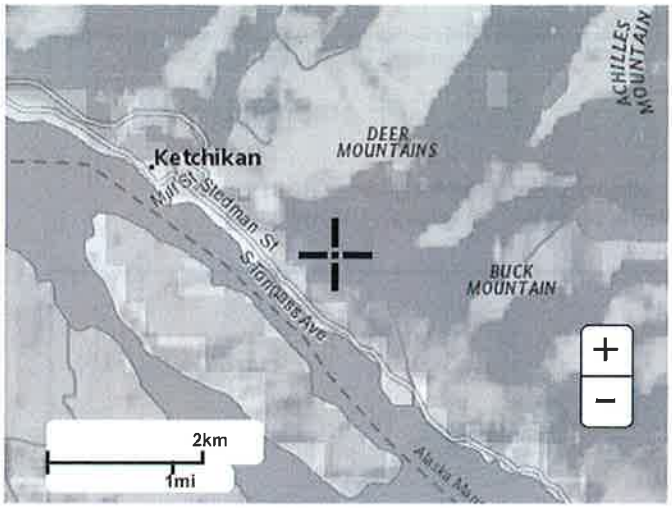
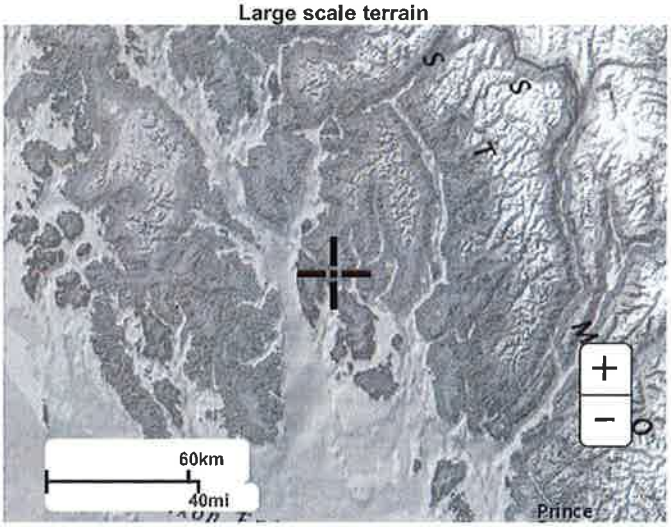
Maps & aerials

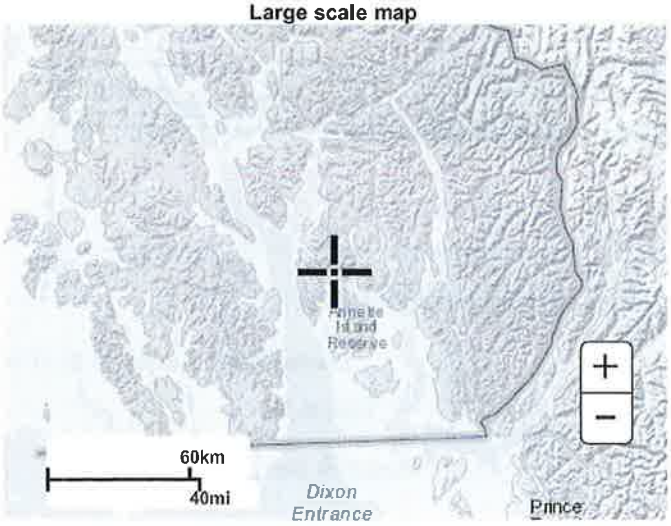
Small scale terrain



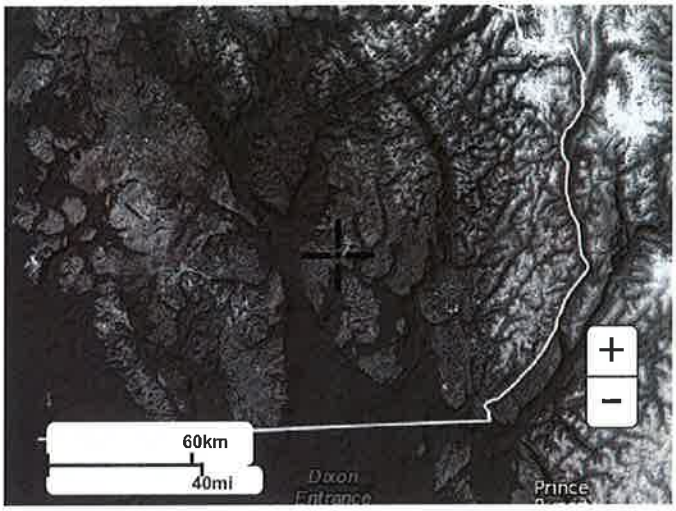
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Basin Specific

L=	Length of channel	kilometers (stream length)
S=	Sine of channel slope angle	unitless (sine of channel slope angle)
Ad=	Area of basin	square miles

Variables

cn=		**70**	(ARC II)	84.3 (ARC III)		unitless (curve number from chart)
Tw=		**16**				Hours (of excess rainfall)
i=	100yr	**0.509**	in/hr	0.020	mm/hr	mm/hr (effective rainfall intensity)
	50yr	**0.465**	in/hr	0.018	mm/hr	
n=		**0.05**				mannings n
W=	100yr	**12.2**	in			inches (total rainfall)
	50yr	**11.2**	in			

Calculated Values

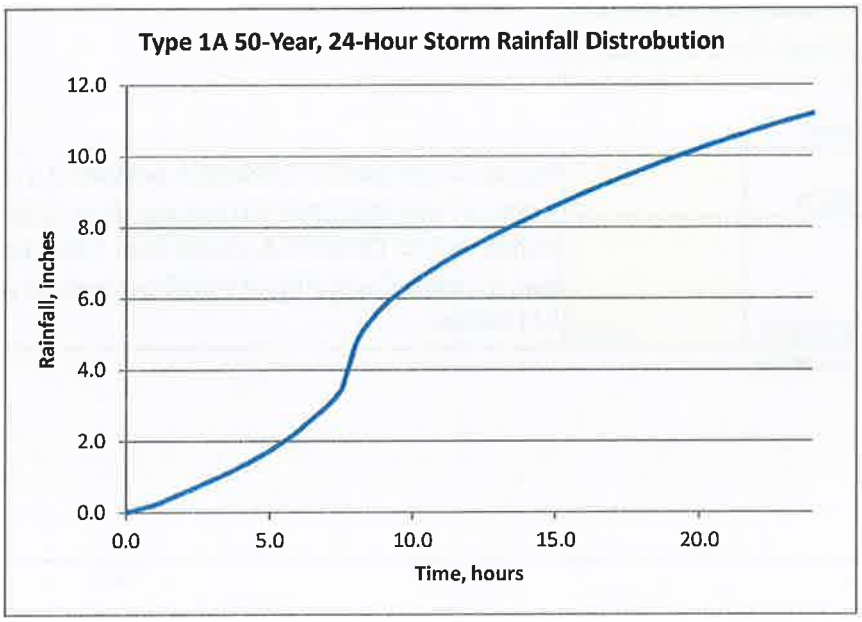
W(eff)=	**100yr**	**10.22**	(W-0.2V(max))^2/((W+0.8V(max))	inches (effective rainfall)
	50yr	**9.24**		
V(max)=		**1.86**	(1000/cn)-10	unitless (watershed storage capacity)
Tr=		0.5*Tw+0.6*Tc		hours (time of rise)
Tc=		2.15*(L^0.5 * n^0.52)/(S^0.31 * i^0.38)		Hours (Time of concentration)
Q(pk)=		(484*W(eff)*Ad)/(Tr)		cfs (peak flow)

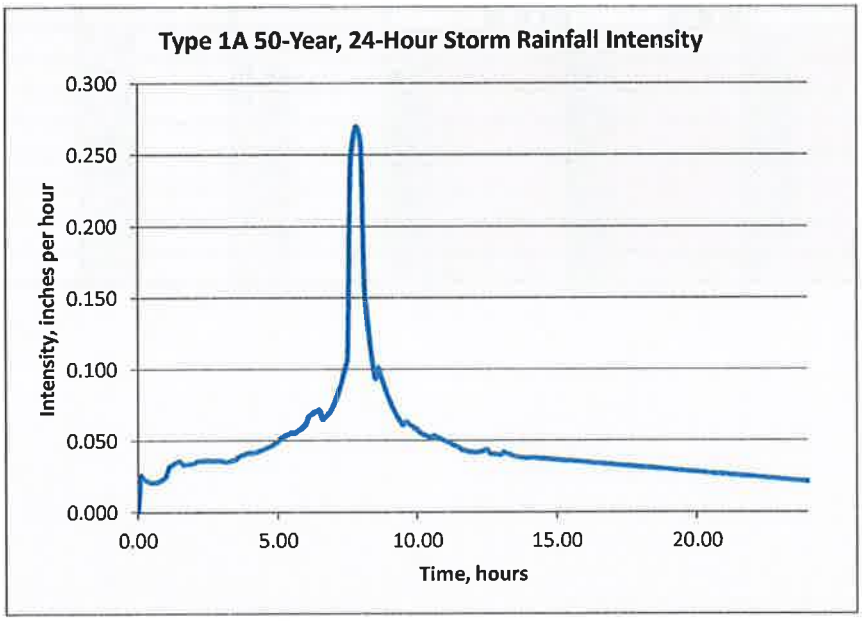
50-Year Calculations

Culvert Station	Q(pk)=	Ad=	Tr=	Tc=	L=	S=	Stream Slope
42+55	33	0.07	9.598	2.66	0.80	0.307	32.2%
58+04	23	0.05	9.667	2.78	0.74	0.239	24.6%
66+89	46	0.10	9.790	2.98	0.89	0.257	26.6%
70+21	41	0.09	9.921	3.20	1.12	0.296	30.9%
88+74	35	0.08	10.300	3.83	0.90	0.115	11.6%
93+61	53	0.12	10.053	3.42	0.86	0.154	15.6%
103+48	19	0.04	9.295	2.16	0.28	0.110	11.0%
120+10	14	0.03	9.930	3.22	0.61	0.109	11.0%
139+70	417	1.00	10.731	4.55	2.18	0.277	28.8%

100-Year Calculations

Culvert Station	Q(pk)=	Ad=	Tr=	Tc=	L=	S=
42+55	36	0.07	9.544	2.57	0.80	0.307
58+04	26	0.05	9.611	2.68	0.74	0.239
66+89	51	0.10	9.730	2.88	0.89	0.257
70+21	45	0.09	9.856	3.09	1.12	0.296
88+74	39	0.08	10.222	3.70	0.90	0.115
93+61	59	0.12	9.984	3.31	0.86	0.154
103+48	21	0.04	9.251	2.08	0.28	0.110
120+10	15	0.03	9.865	3.11	0.61	0.109
139+70	465	1.00	10.638	4.40	2.18	0.277


Type 1A 50-Year, 24-Hour Storm Rainfall Distrobution
Rainfall, inches
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
5.0
10.0
15.0
20.0
Time, hours


Type 1A 50-Year, 24-Hour Storm Rainfall Intensity
Intensity, inches per hour
0.300
0.250
0.200
0.150
0.100
0.050
0.000
0.00
5.00
10.00
15.00
20.00
Time, hours

Site-description name:

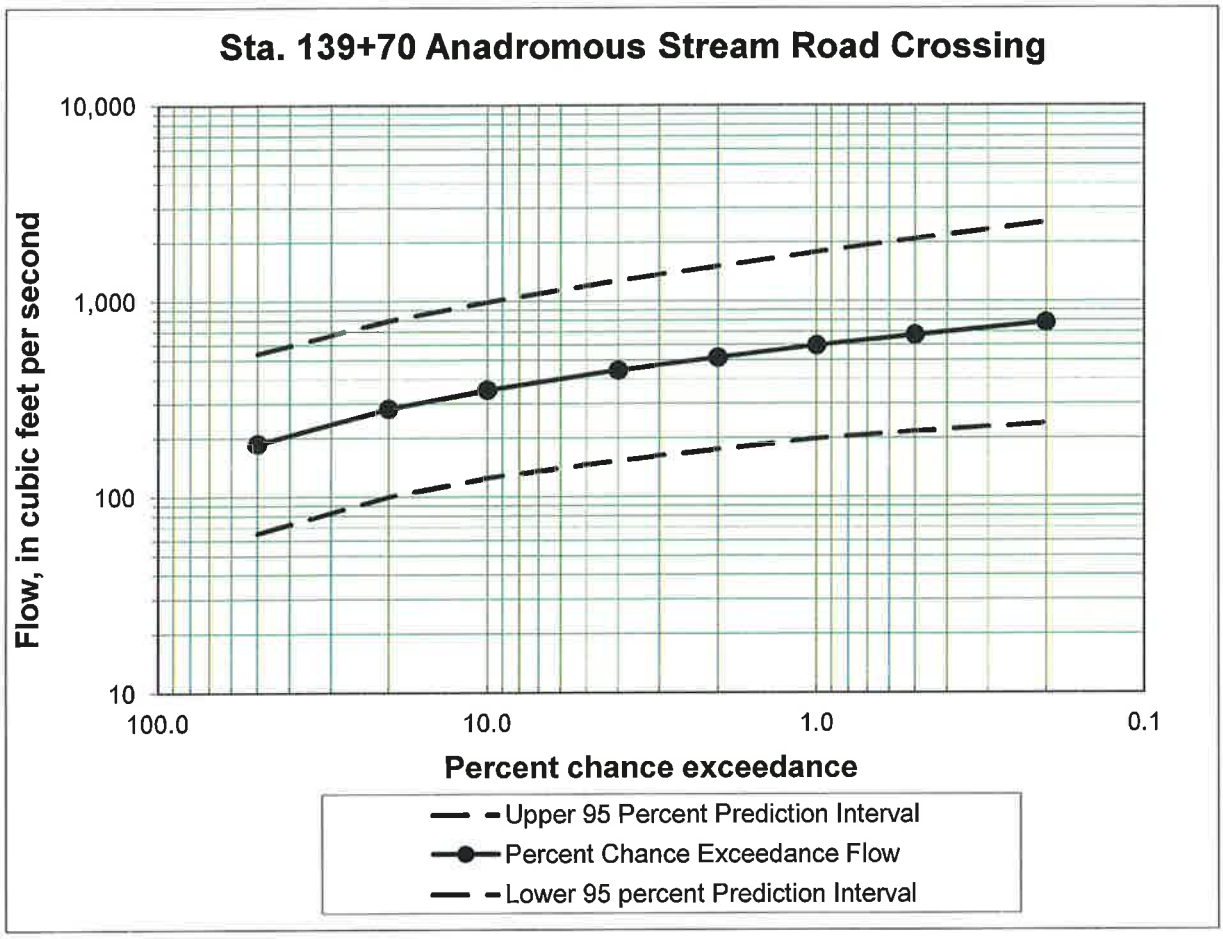
Sta. 139+70 Anadromous Stream Road Crossing

Enter the explanatory variables:

Drainage area, in square miles	DRNAREA	1	Equations are valid for DRNAREA between 0.4 and 1,000 mi^2 with PRECPRIS00 between 8 and 280 inches, and for DRNAREA greater than 1,000 and less than 31,100 mi^2 with PRECPRIS00 between 10 and 111 inches.
Mean annual precipitation from 1971-2000 PRISM data, in inches	PRECPRIS00	176.3	
Warnings regarding range of variables:			

Results:

Percent chance exceedance	Percent chance exceedance flow, in ft^3/s	Lower 95 percent prediction interval flow, in ft^3/s	Upper 95 percent prediction interval flow, in ft^3/s	$-SEP_{P,i}$ (percent)	$+SEP_{P,i}$ (percent)	Average $SEP_{P,i}$ (percent)
50	187	65.2	539	-47.3	89.7	71.2
20	282	100	794	-46.6	87.3	69.5
10	352	125	991	-46.6	87.4	69.5
4	444	154	1,280	-47.3	89.8	71.3
2	515	175	1,510	-48.0	92.2	73.0
1	593	198	1,780	-48.6	94.7	74.7
0.5	671	216	2,080	-49.7	98.6	77.6
0.2	779	238	2,540	-51.2	104.9	82.0


Sta. 139+70 Anadromous Stream Road Crossing
10,000
1,000
100
10
Flow, in cubic feet per second
100.0
10.0
1.0
0.1
Percent chance exceedance
Upper 95 Percent Prediction Interval
Percent Chance Exceedance Flow
Lower 95 percent Prediction Interval

Appendix B

Preliminary Hydraulic Analysis, Field Report

October 14 – 16, 2015

Field Report

Hydrologic and Hydraulic Design

Preliminary Hydraulic Analysis , version 2

Ketchikan, Alaska
October 14 to 16, 2015

South Tongass Highway: Deermount to Saxman and Saxman to Surf

Alaska Department of Transportation and Public Facilities

67685; 67571
January 2017

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Table of Contents

Acronyms and Abbreviations

ADF&G	Alaska Department of Fish and Game
cfs	Cubic Feet per Second
CMP	Corrugated Metal Pipe
CPP	Corrugated Plastic Pipe
DIP	Ductile Iron Pipe
DOT&PF	Alaska Department of Transportation and Public Facilities
HDPE	High-Density Polyethylene
HWM	High Water Mark
PE	Polyethylene
RCP	Reinforced Concrete Pipe
USCG	U.S. Coast Guard

Hydraulic and Hydraulic Design

B12.1 Preliminary Hydraulic Analysis – Task 7a.

HDR engineers traveled to the project site to analyze the condition and adequacy of the existing storm drain system between October 14 and 16, 2015. The field team inspected each accessible culvert along the project alignment between Deermount Street in Ketchikan and Surf Street in Saxman, Alaska. Data collected for each conveyance structure included:

- Location of culvert based on project planset stationing, as determined by visual inspection
- Photographs of inlet, contributing inflow areas, and outlet
- GPS coordinates of structure inlets
- General observations of condition and adequacy
- Crossing type determination, based on criteria outlined in the Statement of Services, Appendix B, for this work:
    - Level 1 – Non-Fish Streams with Culverts
      Perennial stream, defined channel, no anadromous or resident fish populations identified by the Alaska Department of Fish and Game (ADF&G).
    - Level 2 – Fish Streams with Culverts
      Perennial stream, defined channel, ADF&G has observed anadromous and/or resident fish populations.
    - Level 3 – Culverts in the Stormwater Sewer System at the North End of the Project
      Urban drainage system typified by stormwater inlets and manholes.
    - Level 4 – Surface Drainage Culverts Conveying Ditches
      Intermittent discharge from ditches and/or swales.

A meeting was held between the field team members and Mr. Loren Star, the Alaska Department of Transportation & Public Facilities (DOT&PF) lead for Ketchikan. Detailed meeting minutes are attached in a memo. General comments by Mr. Star included locations of frequent flooding areas (Station 153+30) and issues with culvert material, including the maintenance challenges with the slot drain located between Stations 16+90 and 17+45. Flooding occurs frequently near Milepost 3, where several driveways do not have underdrains and the cross drains across South Tongass Highway are undersized. Mr. Star also made the comment that he would prefer to see polyethylene (PE) pipe used rather than metal, due to the corrosion of existing steel and aluminum culverts. Smooth bore high-density polyethylene (HDPE) pipe is generally recommended for round culverts up to 60 inches in diameter; however, further design will be required for final material selection and gage thickness based on site features including burial depth and traffic loading.

The image below is a representation of the typical underdrain located at roadways and driveways joining to South Tongass Highway.

Typical cross drain at roadways and driveways

Notes and descriptions in this report refer to cardinal directions for reference. General direction designations are as follows:

- North is toward the beginning of project #67685 at Deermount Street in Ketchikan
- South is toward the end of project #67571 at Surf Street in Saxman

Culvert descriptions and photos from the pipe scoping effort by the DOT&PF include references to locations of pipe from the 1976 As-Built drawings; these references indicate pipes labeled P-X, with X being 1 through 11, and catch basin inlets labeled S-X, with X being 1 through 11 and corresponding to adjacent pipes of the same number.

The As-Built drawings are included as an appendix to this report.

Station 12+69 to 13+08, Level 3

Description: 18-inch corrugated plastic pipe (CPP). This culvert location was only indicated on the R&M Survey, with no information from the pipe scoping effort by DOT&PF. The culvert was not identified during the field reconnaissance visit by HDR.

Preliminary Recommendation: Replace with 18-inch HDPE culvert.

Station 13+10, Level 3

Description: 18-inch corrugated metal pipe (CMP). This culvert location was only indicated on the R&M Survey, with no information from the pipe scoping effort by DOT&PF. The culvert was not identified during the field reconnaissance visit by HDR.

Preliminary Recommendation: Replace with 18-inch HDPE culvert.

Station 13+14 to 13+47, Level 3

Description: 18-inch CMP. This culvert location was only indicated on the R&M Survey, with no information from the pipe scoping effort by DOT&PF. The culvert was not identified during the field reconnaissance visit by HDR.

Preliminary Recommendation: Replace with 18-inch HDPE culvert.

Station 13+90, Level 3

Description: 24-inch standard dimension, concrete pipe, more than 145 feet long, slope is unknown. Concrete cracked in places. Pipe is approximately 25 percent obstructed in places with rocks, debris, and sediment.

Preliminary Recommendation: Replace with 24-inch HDPE culvert.

Rocks and sediment inside pipe.

Cracks in concrete pipe.

24-inch diameter, 100 feet reinforced concrete pipe (RCP). From video field notes: "Has lots of big rocks and humps in it that the vactor truck can't pull out. Made it 15' in with camera no access to other side outfalls to beach." [sic]

Large obstruction in pipe.

Station 13+90 to 16+18, Level 3

Description: 8-inch CMP. This culvert location was only indicated on the R&M Survey, with no information from the pipe scoping effort by DOT&PF. The culvert was not identified during the field reconnaissance visit by HDR.

Preliminary Recommendation: No action recommended.

Station 16+14, Level 3

Description: P-1, 18-inch CMP, 52 feet long, from S-1 to S-2, as-built slope = 0.88%. Pipe is corroded in places and has buckled in one spot. The outlet is into a concrete vault at S-2. There is some sediment and trash at the outlet.

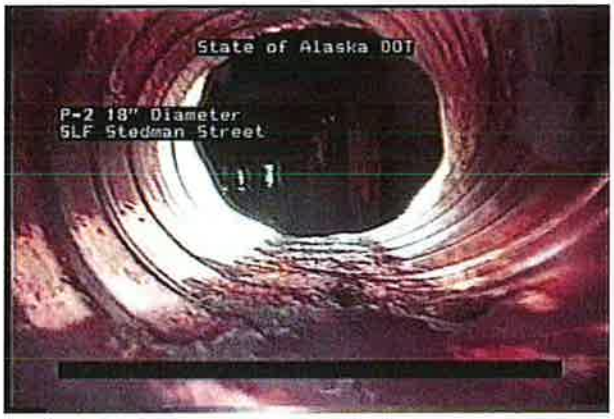
Preliminary Recommendation: Replace with 18-inch HDPE culvert.

Corrosion and buckling inside pipe.

Station 16+38, Level 3

Description: P-2, 18-inch CMP, 5 feet long, from S-2 to outfall, as-built slope = 4.00%. Pipe is corroded in places. Outfall is to the beach.

Preliminary Recommendation: Replace with 18-inch HDPE culvert.



Corrosion inside pipe near outfall.

Station 16+90 to 17+45, Level 3

Description: CMP slot drain at the entrance to a fuel station with length more than 50 feet. Culvert only indicated in interview with Loren Star of DOT&PF, with no information for pipe scoping by DOT&PF. Field visit by HDR was only surficial observation and did not access interior of drain system.

Preliminary Recommendation: Remove and replace with standard curb and gutter system with 18-inch HDPE culverts.

Station 17+61, Level 3

Description: 24-inch RCP, 48 feet long, slope is unknown. Pipe has large rocks, sediment, and debris. Video field notes say "joint 10' in broken made it 15' in due to big rocks piled up/hump in culvert. No access to other side outfalls to beach." [sic]

Preliminary Recommendation: Replace with 24-inch HDPE culvert.

Large rocks and sediment inside pipe.

Station 18+52, Level 3

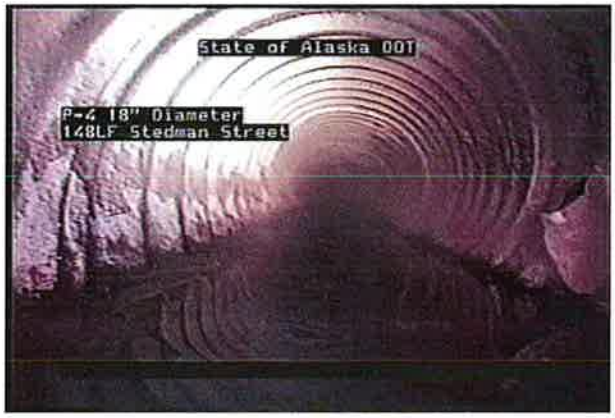
Description: 24-inch CMP, more than 100 feet long, according to survey. Culvert only indicated in R&M Survey, with no information for pipe scoping by DOT&PF or field visit by HDR.

Preliminary Recommendation: Replace with 24-inch HDPE culvert.

Station 23+83 to 25+43, Level 3

Description: P-4, 18-inch CMP, 148 feet long, from S-4 to S-5, as-built slope = 1.30%. Pipe has areas of corrosion and has a breach at one point. Rocks, sediment, and trash are evident.

Preliminary Recommendation: Replace with 18-inch HDPE culvert.



Rupture in side of P-4.

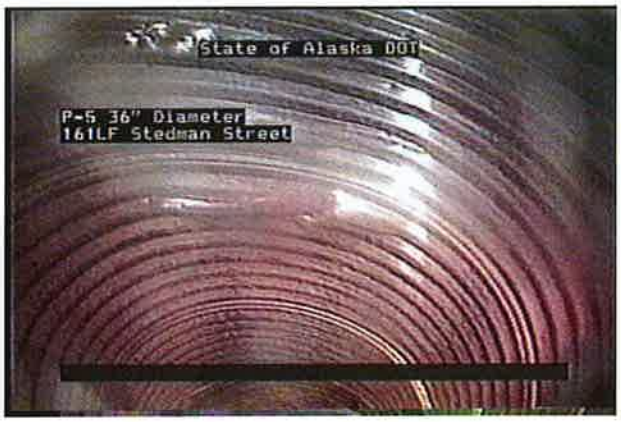
Trash and corrosion in P-4.

Station 26+80, Level 3

Description: P-5, 36-inch-diameter CMP, ~200–318 feet long, from S-5 to outfall. As-built slope = 2.00%. Pipe has areas of corrosion (including, according to the field notes, one section approximately 55 feet in where bottom of pipe is gone). An area of structural failure is evident and sediment buildup is apparent.

Inflow into this culvert comes from two 18-inch CMPs (one from the north and one from the south) and from a 24-inch CMP to the east. These influent culverts are described below.

Preliminary Recommendation: Replace primary culvert with 36-inch HDPE culvert and inflow culverts in-kind with HDPE of same size and length.



Structural failure in top of P-5.

Sediment in P-5

Station 26+82, Level 3

Description: 24-inch CMP, length and origin unknown. This culvert location was only indicated on the R&M Survey, with no information from the pipe scoping effort by DOT&PF. The culvert was not identified during the field reconnaissance visit by HDR.

Preliminary Recommendation: Component of larger drainage network surrounding 36-inch outfall at Station 26+82. Replace with 24-inch HDPE culvert as determined in field.

Station 26+82, Level 3

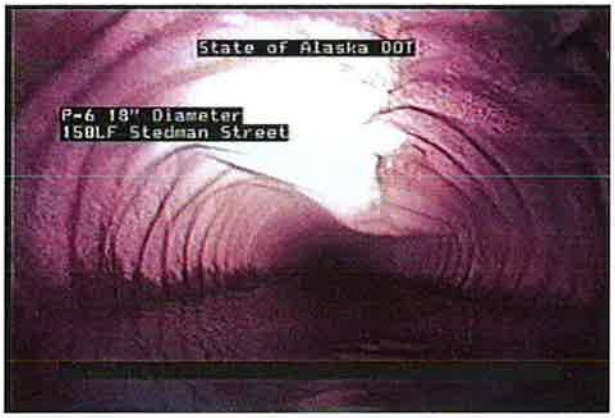
Description: 18-inch CMP, length and origin unknown. This culvert location was only indicated on the R&M Survey, with no information from the pipe scoping effort by DOT&PF. The culvert was not identified during the field reconnaissance visit by HDR.

Preliminary Recommendation: Component of larger drainage network surrounding 36-inch outfall at Station 26+82. Replace with 18-inch HDPE culvert as determined in field.

Station 26+82 to 28+32, Level 3

Description: P-6, 18-inch-diameter CMP, 150 feet long, from S-5 to S-6. As-built slope = 0.93%. Some areas of structural failure and sediment buildup are evident.

Preliminary Recommendation: Replace with 18-inch HDPE culvert.



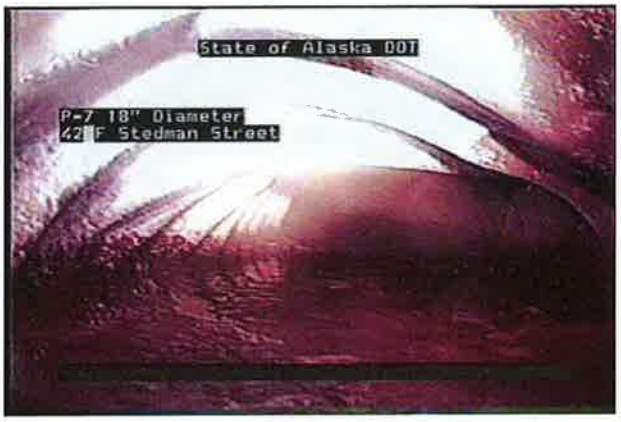
Pooling and structural failure in top of P-6.

Structural failure and sediment in P-6.

Station 28+46, Level 3

Description: P-7, 18-inch diameter CMP, 42 feet long, from S-7 to S-6. As-built slope = 1.10%. Some areas of structural failure and sediment buildup are evident.

Preliminary Recommendation: Replace with 18-inch HDPE culvert.



Sediment and structural failure in top of P-7.

Sediment near outfall of P-7.

Station 30+55, Level 3

Description: 24-inch RCP, 63 feet long. This culvert location was only indicated on the R&M Survey, with no information from the pipe scoping effort by DOT&PF. The culvert was not identified during the field reconnaissance visit by HDR.

Preliminary Recommendation: Replace with 24-inch HDPE culvert.

Station 31+33, Level 3

Description: P-8, 18-inch-diameter CMP, 19 feet long, from S-8 to outfall. As-built slope = 1.10%. Mostly dry. Some areas of corrosion and sediment buildup are evident.

Preliminary Recommendation: Replace with 18-inch HDPE culvert.

Corrosion and sediment in P-8.

Corrosion and sediment in P-8.

Station 34+34, Level 3

Description: 12-inch CMP. This culvert location was only indicated on the R&M Survey, with no information from the pipe scoping effort by DOT&PF. The culvert was not identified during the field reconnaissance visit by HDR.

Preliminary Recommendation: Unknown condition, no action proposed if condition adequate. Determine in field.

Station 34+35 to 37+00, Level 3

Description: P-9, 18-inch-diameter CMP, 267 feet long, from S-9 to S-10. As-built slope = 1.00%. Some areas of corrosion, trash and sediment buildup (mud) are evident.

Preliminary Recommendation: Replace with 18-inch HDPE culvert.

Corrosion, trash, and sediment in P-9.

Corrosion and sediment in P-9.

Station 38+05, Level 3

Description: P-11, 12-inch-diameter plastic pipe, 10 feet long, from S-11 to outfall. As-built slope = 1.00%. Recently replaced according to DOT&PF culvert field notes.

Preliminary Recommendation: Consider leaving in place, if not affected by road design modifications.

P-11.

Station 42+31, Level 3

Description: 18-inch CMP, 12 feet long. This culvert location was only indicated on the R&M Survey, with no information from the pipe scoping effort by DOT&PF. The culvert was not identified during the field reconnaissance visit by HDR.

Preliminary Recommendation: Replace with 18-inch HDPE culvert.

Station 42+54, Level 1

Double barrel concrete pipe, 3 feet in diameter and sediment-filled. Drains stream and local ditches. Stream flow at time of inspection ~1 to 1.5 cubic feet per second (cfs). Channel is 3 feet to 4 feet wide, well-graded cobble with thick brush and forest upstream of road. Natural stream channel upstream of road crossing, while downstream is a constructed ditch.

Inlet: All flow through north barrel. South barrel filled with sediment with no water entering.

Outlet: Concrete headwall. Flow directed along concrete barrier wall of fuel tank station.

Preliminary Recommendation: Replace with 48-inch arch pipe single-barrel culvert and raise culvert inverts.

Inlet: Flow directed toward north barrel (photo right) as south barrel is clogged.

Inlet: Thick brush upstream of inlet.

Outlet: South barrel clogged at outlet, north barrel (photo left).

Outlet: Stream flows along concrete barrier wall of fuel tank station.

Station 53+01, Level 4

Inlet: 18-inch CMP with deformation and corrosion. Bedrock near surface with gravel at inlet. Drains ditches locally and U.S. Coast Guard (USCG) base uphill. Access to base was not obtained during field investigation, so further determination of contributing area was not made.

Outlet: Tree growing over outlet. Deformed and corroded and only 2 feet above observed high tide line as indicated from debris.

Preliminary Recommendation: Suggest abandoning and moving to Station 54+30 to collect water seeping from hillside at the USCG buoy storage turnaround. Discharge would be to northwest side of jetty. Use 24-inch HDPE culvert.


Inlet.


Inlet: Draining local ditches.


Outlet: Trees growing over top of outlet.


Proposed new alignment at Station 54+30.

Station 56+32, Level 4

Inlet: Inlet destroyed. Water flowing in ditch ponding at intake with no discharge through culvert. Bedrock with grass-lined ditches. Possible drainage through road base.

Outlet: Outlet not observed. Steep grades and fence prevented observation.

Preliminary Recommendation: Replace with 24-inch HDPE culvert.

Inlet: Ditch south of culvert inlet. Blue marker indicates inlet location.

Inlet: Ditch north of culvert. Blue marker indicates inlet location.

Inlet: Crushed.

Station 58+04, Level 1

Inlet: 36-inch CMP stream crossing that also drains local ditches. Steep stream profile with waterfall directly upstream of culvert inlet; no natural fish passage past this point. Bedrock and cobble at inlet. A 4 inch defunct ductile iron pipe (DIP) runs through culvert with no clear connection at upstream or downstream end, previous use unknown. Invert corroded. No evidence of backwater or flooding.

Outlet: Low slope and filled with sediment to springline or mid rise of the culvert.

Preliminary Recommendation: Replace with 36-inch HDPE culvert and increase slope to move sediment through culvert.


Looking upstream from inlet.


Ditches to south of culvert.


Ditches to north of culvert.


Inlet, with DIP present.

Station 62+04, Level 4

Inlet: 32-inch CMP with damage to top of inlet. Corroded. Drains ditches locally, with high water mark (HWM) at 0.8 foot. Possibly oversized. No evidence of backwater or ponding.

Outlet: Invert deteriorating due to corrosion; subsurface visible through pipe. Outlet surrounded by trees and a 12-inch-diameter tree growing directly above outlet.

14% grade, 60 feet total length (50-foot original with 10-foot extension, likely for bike path).

Preliminary Recommendation: Culvert oversized. Replace and downsize to 24 inch HDPE culvert.

Ditches to north of inlet.

Ditches to south of inlet.

Inlet.

Outlet.

Station 64+50, Level 4

Inlet: 24-inch CMP with ponding at inlet. At time of inspection, 0.5 foot of standing water with 0.8 foot of soft sediment below invert. Bedrock was observed near surface with seep at rock face. Culvert is corroded. HWM visible at 0.8-foot depth.

Outlet: Outlet is collapsed and buried, likely from pedestrian path extension.

Preliminary Recommendation: Replace with 24-inch HDPE culvert.

Ditches and bedrock outcrop to north of inlet. Inlet at blue post.

Ditches and bedrock outcrop to south of inlet. Inlet at blue post.

Inlet.

Station 66+89, Level 1

Inlet: 48-inch CMP primarily conveys flow from stream with origins uphill from a cleared site. The 15-foot waterfall just upstream of the inlet prevents fish passage. The falls are on bedrock, with the inlet excavated into bedrock. A 1.5-inch water source pipeline runs through the culvert.

Outlet: Appears to be about 4 feet above the high tide line, though higher high tides may reach the outlet. Corrosion present, primarily focused at the invert. A HWM is visible at 1.5 feet above invert. Ten percent slope and between 60 feet and 80 feet in length. Structures, including water holding tanks, garage, and walkway, surround the outlet.

Preliminary Recommendation: Replace with 48-inch culvert and maintain existing inlet and outlet elevations. If outlet is raised, there is a chance of increases in flooding of adjacent house at high flows.

Inlet at falls, photo left. Drainage area includes forested area uphill of clearing.

Inlet, with falls reaching culvert that was placed by removing bedrock. Parking area to photo right appears to experience erosion at high flows.

Outlet with HWM visible.

Surrounding structures at outlet.

Station 67+21, Level 4

Inlet: Storm drain inlet with lid unable to be removed.

Outlet: 12-inch corrugated HDPE. Recent installation. Discharges under house.

Preliminary Recommendation: Abandon and direct water to south through ditch—possibly to culvert at Station 70+21 if culvert at Station 69+07 is abandoned.

Storm drain inlet.

Alignment of culvert; directed toward house, under garage.

Outlet discharges into ocean. Located under house.

Surrounding structure at outlet. Outlet under deck of house.

Station 69+07, Level 4

Inlet: 24-inch CMP culvert. Drainage from seep at rock slope and surrounding ditches. HWM visible at 0.5 foot above invert. Damage and corrosion to inlet. Perched inlet and ponding with low flow at inlet. Bedrock near surface with gravel-lined ditches at inlet.

Outlet: No flow present. Water entering inlet is infiltrating into subsurface along pipe invert, likely due to corrosion. A partial obstruction was observed in the culvert.

Preliminary Recommendation: Possibly abandon, and direct flow via ditch to south. Connect with culvert at Station 70+21.

Ditches to south of inlet. Possibly direct flow through this ditch to culvert at Station 70+21.

Ditches to north of inlet.

Inlet with corrosion and damage.

Outlet.

Station 70+21, Level 1

Inlet: 30-inch CMP. Conveys flow from stream and local ditches. 15-foot waterfall just upstream of inlet, on bedrock, with no natural fish passage possible. Large cobble and bedrock at inlet. Corrosion and damage. HWM at 1 foot above invert. A 4 inch plastic waterline passes through the culvert. The origin and end point of this plastic line is unknown.

Outlet: Outlet not reached due to steep slopes and fence. Photo of outlet taken from above.

Preliminary Recommendation: Replace with 36-inch HDPE culvert. Additional flow from abandoned culverts at Station 67+21 and 69+07 to increase culvert conveyance needs. Additional flow from ditches, no additional flow from streams.


Inlet, falls, and ditches looking south.


Inlet, falls, and ditches looking north.


Inlet.


Outlet as photographed from above.

Station 74+17, Level 4

Inlet: 18-inch CMP, severely corroded. Bedrock ditch. Drains local ditches.

Outlet: Steep bank, fence, and vegetation. Outlet not accessed.

Preliminary Recommendation: Replace with 24-inch HDPE culvert.

Inlet at blue marker, ditches to north.

Ditches to south of inlet.

Inlet.

Outlet viewed from above.

Station 75+88, Level 4

Inlet: Not found. Culvert indicated on planset but not found. Ponding indicates need for drainage or adjusting slope of ditches.

Outlet: Not found.

Preliminary Recommendation: Abandon. Renovate ditches and direct flow to culvert at Station 76+82.

Not found; ponding where culvert indicated to be located on drawings.

Station 76+82, Level 4

Inlet: 18-inch CMP. Severely corroded with sediment at inlet. Drains small seep at rock face and local ditches.

Outlet: Not found.

Preliminary Recommendation: Replace with 24-inch HDPE culvert. Drainage needed to convey water from seep. Direct additional flow from ponding associated at Station 75+88.

Inlet at blue marker, ditches to south. Seep at rock face.

Inlet, rock face, and ditches to north.

Inlet partially buried and corroded.

Station 78+88, Level 4

Inlet: 36-inch CMP located near seep. Damage and corrosion at inlet. Drains seep and local ditches. HWM visible at 0.2 inch above invert, possibly oversized.

Outlet: Not accessed. Steep slope and fence prevented access.

Preliminary Recommendation: Possibly oversized. Replace with 24-inch HDPE culvert.


Inlet at blue marker, ditches to south.


Inlet, ditches to north.


Inlet. Corroded invert.

Station 82+43, Level 4

Inlet: 18-inch CMP. Highly corroded and partially buried from sediment accumulation at inlet. Bedrock ditch with gravel substrate at inlet. Drains local ditches with seep located about 150 feet to 200 feet north.

Outlet: Not accessed. Steep slopes and fence prevented access.

Preliminary Recommendation: Abandon and move to Station 80+59, at location of seep. Use 24-inch HDPE culvert at Station 80+59.

Inlet and ponding visible at blue marker. Ditches to north.

Inlet at blue marker and ditches to south.

Ponding near inlet.

Inlet.

Station 84+18, Level 4

Inlet: 30-inch CMP. Highly corroded. Small, localized drainage. Inlet surrounded by vegetation. Seep.

Outlet: Not accessed due to steep slopes and fence.

Preliminary Recommendation: Replace, consider downsizing to 24-inch HDPE culvert.

Inlet, in vegetation near blue marker. Ditches to south.

Inlet, view of ditches to north.

Inlet.

Station 86+11, Level 4

Inlet: 18-inch CMP. Highly corroded, with damage to inlet. Ponding at inlet. Bedrock near surface, with seep at inlet. Drains seep and ditches.

Outlet: Not accessed due to steep slopes and fence.

Preliminary Recommendation: Replace with 24-inch HDPE culvert. Lower inlet invert to reduce ponding.

Inlet and ditches to north.

Inlet and ditches to south.

Inlet with ponding water.

Station 88+74, Level 1

Inlet: Two 48-inch culverts, 6 feet on center spacing. Inlets are corroded, with significant damage. Located on stream with 10-foot waterfall just upstream. Stream is bedrock channel. No fish passage. Conveyance of stream and ditches, possible contribution from small seep located near Station 91+30.

Outlet: Significant corrosion and damage at outlet. Located adjacent to building and walkway. Not accessed due to private property. Viewed from above.

Preliminary Recommendation: Replace with single barrel HDPE culvert, same capacity as existing.

Inlet at left with stream at right.

Falls upstream of inlet, on bedrock.

Double barrel inlet, corrosion and damage visible.

Outlet, structures surrounding with severe degradation of culvert visible. Outlet has steeper slope than inlet.

Station 93+61, Level 1

Inlet: 48-inch CMP. Significant corrosion. Heavy bank erosion along ditch to north. Conveyance for small stream and ditches to north. HWM at 1.3 feet above invert. Stream with channel 3 feet to 4 feet wide cut in bedrock. Cobble and gravel at inlet of culvert. Planset shows addition of ditches from south, with culvert under Forest Park Drive, but no contributing culvert was found.

Outlet: Highly corroded with invert missing. Invert appears to be frequently affected by tide.

Preliminary Recommendation: Initially, the site was identified by ADF&G (Site 10103145) as fish habitat for anadromous species, though no fish were observed during the inspection by ADF&G as stated in the inspection report. After HDR's field inspection, Mark Minnillo of ADF&G stated that this site was not an anadromous stream in a letter dated May 11, 2016. Replace with 48-inch HDPE culvert.

Ditches to north of inlet, stream joining at photo right, and erosion at photo left.

Inlet with rock wall to south.

Inlet with corrosion.

Outlet at high tide line, invert corroded away.

Station 94+42 to 94+81, Level 4

Description: 12-inch CMP, 38 feet long. Culvert only indicated in R&M Survey, with no information for pipe scoping by DOT&PF or field visit by HDR.

Preliminary Recommendation: Drainage conveyance needed at this location. Replace with 18-inch HDPE culvert.

Station 94+80, Level 4

Description: 12-inch CMP, more than 70 feet long, but survey indicates that outlet was not found. Culvert only indicated in R&M Survey, with no information for pipe scoping by DOT&PF or field visit by HDR.

Preliminary Recommendation: Drainage conveyance needed at this location. Replace with 18-inch HDPE culvert.

Station 94+81 to 95+13, Level 4

Description: 12-inch CMP, 32 feet long. Culvert only indicated in R&M Survey, with no information for pipe scoping by DOT&PF or field visit by HDR.

Preliminary Recommendation: Drainage conveyance needed at this location. Replace with 18-inch HDPE culvert.

Station 97+48, Level 4

Inlet: 18-inch CMP. Crushed and corroded. Located at seep in rock face. Drains seep and local ditches.

Outlet: Not found. Likely buried during construction of retaining wall.

Preliminary Recommendation: Move north ~30 feet to Station 97+18, use 24-inch HDPE culvert. Slope ditches to drain seep.

Inlet, rock face, and ditches to south.

Inlet and ditches to north.

Crushed and corroded inlet.

Rock retaining wall and fill have likely buried the outlet, as it was not found.

Station 100+17, Level 4

Inlet: 36-inch CMP with severe corrosion and some damage. Invert corroded through. Continuous runoff from property drain, likely seep or spring.

Outlet: Appears to have addition due to private driveway construction, which was misaligned with the rest of the culvert, causing a bend at the end. Discharge into deep incised ditch, overgrown with vegetation. HWM visible at 1.1 feet above invert.

Preliminary Recommendation: Replace with 36-inch HDPE culvert, eliminate bend at outlet so culvert is straight.

Inlet with driveway to south.

Inlet with driveway culvert, and contribution from property drain to north.

Inlet.

Outlet in incised ditch.

Station 100+81, Level 4

Inlet: 18-inch CMP with minor corrosion. Drains seep from property and local ditches. HWM visible at 0.5 foot above invert.

Outlet: Minor corrosion. Discharge into highly vegetated area. Geotextile fabric visible under invert. Highly incised channel downstream.

Preliminary Recommendation: Replace with 24-inch HDPE culvert.

Inlet and driveway to south.

Inlet and property seep draining from north.

Inlet.

Outlet with incised channel, likely from low invert elevation and erodible substrate.

Station 103+48, Level 1

Inlet: 48-inch CMP with corrosion at invert. Concrete headwall. Conveys flow from small stream. Bedrock waterfall 10 feet upstream from inlet. No fish passage. HWM 1.5 feet from invert.

Outlet: Heavy corrosion with invert missing. Partially buried in rocks at high tide line.

Preliminary Recommendation: Replace with 48-inch HDPE culvert.


Inlet with concrete headwall.


Outlet corroded and damaged.

Station 104+25, Level 4

Inlet: 18-inch CMP. Severely corroded. Concrete headwall. Drains ditches and seeps from surrounding, including drain from adjacent property. Located at MP 2.

Outlet: Not found. Water observed seeping from fill where outlet should be located, assumed to be crushed and buried.

Preliminary Recommendation: Replace with 24-inch HDPE culvert.

Inlet area is heavily vegetated.

Concrete headwall at inlet. Note invert missing from culvert.

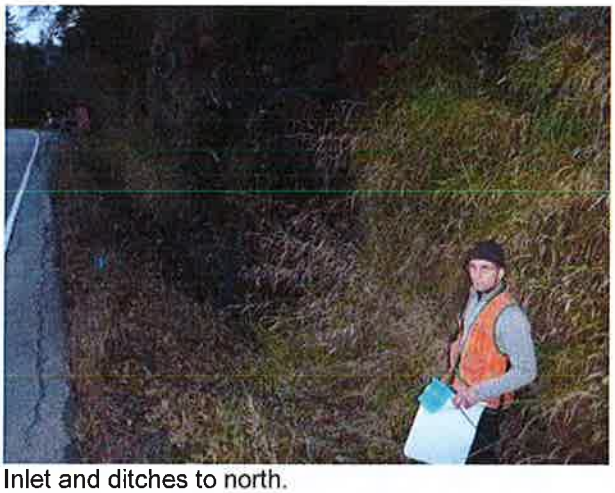
Location where water observed seeping from fill, likely location of outlet.

Station 106+19, Level 4

Inlet: 18-inch CMP. Severely corroded, with damage to inlet. Large seep at rock wall. Bedrock near surface.

Outlet: Not accessed. Steep gradient and fence.

Preliminary Recommendation: Replace with 24-inch HDPE culvert.



Inlet and ditches to north.

Inlet, rock face and seep, and ditches to south.

Damaged and corroded inlet.

View from top, over fence, of outlet.

Station 107+58, Level 4

Inlet: 18-inch CMP. Corroded and damaged. Drains seep from rock face and ditches locally. Standing water at inlet. Bedrock near surface.

Outlet: Did not locate due to fence and steep, inaccessible slope. Presumed buried.

Preliminary Recommendation: Replace with 24-inch HDPE culvert.

Inlet, rock face, and seep, and ditches to south.

Inlet and ditches to north.

Inlet with standing water. Could indicate culvert failure and water moving through road base.

Station 108+89, Level 4

Inlet: 18-inch CMP. Severely corroded and partially buried. Drains local ditches. Ponding water at inlet. No seeps.

Outlet: Did not locate due to fence and steep, inaccessible slope. Presumed buried.

Preliminary Recommendation: Consider abandoning and regrading ditches to south, culvert at Station 110+41.

Inlet and ditches to south.

Inlet and ditches to north.

Ponding water at inlet; could indicate failure of culvert and water moving through road base.

Station 110+41, Level 4

Inlet: 18-inch CMP. Concrete headwall. Corrosion and minor damage to inlet. Large seep located in rock face.

Outlet: Did not locate due to fence and steep, inaccessible slope.

Preliminary Recommendation: Replace with 24-inch HDPE culvert to accommodate additional flow from abandoned culvert at Station 108+89.


Inlet, seeps, and ditches to south.


Concrete headwall at inlet.


Inlet.

Station 111+37, Level 4

Inlet: 18-inch CMP. Concrete headwall with highly corroded culvert. Drains local ditches. No seep.

Outlet: Did not locate due to fence and steep, inaccessible slope.

Preliminary Recommendation: Abandon. Ditches will be adequate to convey flows to adjacent culvert. Direct to north, culvert at Station 110+41.

Rock face at inlet, no seep present.

Concrete headwall at inlet.

Station 113+37, Level 4

Inlet: 18-inch CMP. Severe corrosion. Drains seep at location and local ditches.

Outlet: Did not locate due to fence and steep, inaccessible slope. Presumed buried.

Preliminary Recommendation: Replace with 24-inch HDPE culvert.

Inlet in heavily vegetated area.

Close-up of inlet, severe corrosion visible.

Station 114+69, Level 4

Inlet: Inlet not found; possibly buried or submerged. Ponding water at location. Large seep at location with steady flow and likely an issue for icing during the winter.

Outlet: Not found, due to fence and steep, inaccessible slope. Presumed buried.

Preliminary Recommendation: Replace with a 24-inch HDPE culvert at minimum, consider larger.


Ditches north of inlet.


Ditches south of inlet.


Seep and ponding water at inlet.


Ponding water at inlet.

Station 116+91, Level 4

Inlet: 18-inch CMP. Inlet overgrown and corroded. Drains ditch to north and seep or possible foundation drain from property.

Outlet: Perched, located in rock wall, with 10-foot extension added. Corrosion at invert.

Preliminary Recommendation: Replace with 24-inch HDPE culvert.

Inlet and driveway to south. No contribution from south found.

Incised channel from seep or foundation drain on property leading to inlet.

Inlet overgrown and partially buried.

Outlet.

Station 117+95, Level 4

Inlet: 18-inch CMP. Severely corroded. Contribution from seep or property drain.

Outlet: Extension with 18-inch HDPE, likely for construction of private driveway.

Preliminary Recommendation: Replace entire section with 24-inch HDPE culvert.

Inlet with driveway to north.

Inlet with parking area to south, building to east.

Inlet.

HDPE outlet at private property.

Station 120+10, Level 1

Inlet: Not accessed. Located on stream, steep gradient and inlet located 15 feet below road surface. Ponding water at inlet, possible obstruction. Stream is 3 feet to 5 feet wide, with a 12-inch bankfull depth; 10 percent to 100 percent stream slopes. Bedrock stream channel. No fish passage.

Outlet: Imminent failure. Primary culvert determined to be 36-inch CMP, but section protruding is a 10-foot extension of 48-inch CMP. Invert failure and appears ready to collapse. Rock wall and structures surrounding outlet. Located at high tide line.

Preliminary Recommendation: Replace with 48-inch HDPE culvert.

Channel upstream of inlet.

Inlet located at bottom of falls, 15 feet below road surface.

Inlet located below vegetation, stream visible. View from road.

Outlet. Highly corroded with pilings and debris nearby.

Station 124+12, Level 4

Inlet: 24-inch corrugated HDPE. Drains ditches to north and south with addition from Totem Row Street drainage. Likely replaced when road last resurfaced. HWM visible at 0.3 foot above invert. Gravel and fines at ditch base and inlet.

Outlet: Drains into pool; no issues identified.

Preliminary Recommendation: No action needed.

Inlet and ditch to south toward Totem Row Street.

Inlet, ditches, and driveway underdrain to north.

Inlet.

Outlet.

Station 125+03 to 125+73, Level 4

Description: 12-inch HDPE, 70 feet long. Culvert only indicated in R&M Survey, with no information for pipe scoping by DOT&PF or field visit by HDR.

Preliminary Recommendation: This is part of a larger drainage culvert network. Replace with 18-inch HDPE culvert if required. Majority of culvert is not located in roadway project boundaries, so no action may be needed.

Station 125+73 to 126+33, Level 4

Description: 18-inch HDPE, 60 feet long. Culvert only indicated in R&M Survey, with no information for pipe scoping by DOT&PF or field visit by HDR.

Preliminary Recommendation: This is part of a larger drainage culvert network. Replace with 18-inch HDPE culvert if required. Majority of culvert is not located in roadway project boundaries, so no action may be needed.

Station 125+93 to 126+33, Level 4

Description: 18-inch HDPE, more than 70 feet long, but survey indicates the inlet was not found. Culvert only indicated in R&M Survey, with no information for pipe scoping by DOT&PF or field visit by HDR.

Preliminary Recommendation: This is part of a larger drainage culvert network. Replace with 18-inch HDPE culvert if required. Majority of culvert is not located in roadway project boundaries, so no action may be needed.

Station 126+33, Level 4

Inlet: Several curb storm drain inlets, with no gutter directing water to the inlets. Drains runoff from north and Totem Row Street and to east uphill behind the buildings. Ditch drain to south drains marsh area. All culverts appear newer, made of HDPE.

Inlet catches flow from the three HDPE culverts described above. These culverts convey storm flows from surrounding area.

Outlet: Highly corroded 24-inch CMP, older with clamshell top and bottom of culvert bolted together. An 8-inch corrugated pipe with 4-inch DIP sleeved through is adjacent to the outlet.

Preliminary Recommendation: Determine true routing of all conveyance structures in the area. Increase culvert under South Tongass Highway to 36-inch culvert to accommodate all flow.

One curb inlet, looking north toward Totem Row Street.

Another curb inlet, looking south.

Inlet to south draining marsh area.

Outlet.

Station 126+33 to 126+92, Level 4

Description: 18-inch CMP, 60 feet long. Culvert only indicated in R&M Survey, with no information for pipe scoping by DOT&PF or field visit by HDR.

Preliminary Recommendation: Component of larger drainage network surrounding Station 126+31. Replace with 18-inch HDPE culvert.

Station 128+68, Level 4

Inlet: Not found.

Outlet: Not found.

Preliminary Recommendation: Possible location for replacement using 24-inch culvert, if needed, when culvert at Station 132+51 is abandoned.

Station 132+51, Level 4

Inlet: 18-inch CMP. Corroded. Location at crest of hill. Ponding water at inlet. Drains ditch, but is a topographic high point of road.

Outlet: Drains into private residence with no clear ditch or channel found.

Preliminary Recommendation: Abandon. Grade ditches to drain appropriately. North to culvert at Station 128+68. South to culvert at Station 136+67.


Inlet and ditch to south.


Inlet and ditch to north.


Ponding water at inlet.


Outlet with no clear ditch or drainage path.

Station 136+67, Level 4

Inlet: 18-inch CMP. Severely corroded. Mainly draining ditches to north. Gravel substrate.

Outlet: From inlet, culvert crosses South Tongass Highway, then heads south.

Preliminary Recommendation: Abandon and eliminate all culverts. Improve drainage and driveway underdrains as needed. Direct runoff to stream at Station 139+70 via ditches.

Inlet and ditch to south.

Inlet, road underdrain, and ditch to north.

Outlet. Inlet near power pole on far side of road.

Ditch or culvert under driveway and eliminate existing inlet.

Station 139+70 Inlet and Upstream, Level 2

Inlet: Wooden structure. 8 feet high, 10 feet wide, and 56 feet long with a 6 percent slope. Constructed with pressure treated 4-inch by 6-inch timbers. Concrete toewall at inlet. High water velocity through structure; no baffles or energy dissipators in place. Moss line at 12 inches, assume HWM. Upstream of structure is bedrock channel with cobble. Large rootwad blocking stream and holding back streambed material about 200 feet upstream of structure.

Preliminary Recommendation: Replace structure with box culvert on sills. No invert. Remove rootwad following installation to reclaim streambed material. Site identified by ADF&G as a fish passage barrier (site 10103208).


View downstream toward inlet of structure.


View upstream from structure.


Typical cross section upstream of structure.


Rootwad holding back streambed material.

Station 139+70 Outlet and Downstream, Level 2

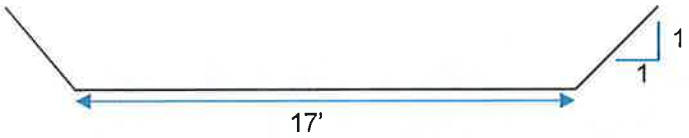
Outlet: Concrete toewall, with 3-foot drop between top of toewall and the downstream water surface. Fish passage barrier. At time of inspection, ~7CFS flowing through structure. Downstream slope is 5 percent.

Preliminary Recommendation: Replace structure, box culvert without invert on sills. Match stream grade though structure by creating pool drops; 20-foot-long pools with 1-foot drops.

Outlet is a fish passage barrier with 3 feet between the invert and water surface downstream.

Downstream reach slope is 5 percent. Step pools are composed of a 20-foot pool with 1-foot step between.

Downstream channel profile:



Station 143+06, Level 4

Inlet: 18-inch HDPE. Drains local ditches and catchment from spur road to east.

Outlet: Discharge to ditch. Sediment filled.

Preliminary Recommendation: Abandon existing culvert. Add culvert under road at intersection Station 143+70 to existing ditch located at north east side of highway conveying water to the culvert at Station 146+51. Existing outlet filled with sediment and conveys water through a ditch at the west side of the highway, only to connect to the flow path of the culvert located at Station 146+51. A ditch is needed to the north along the highway, as runoff is undermining the pavement.

Remove existing culvert, add culvert under spur road, and move water into existing ditch to south (background of photo).

Ditch and parking area to the north. Asphalt being undermined due to lack of drainage path along road.

Propose combining with existing ditch to convey water to culvert at Station 146+51.

Existing outlet filled with sediment; low slope ditch conveys water to south along highway.

Station 146+51, Level 4

Inlet: 18-inch CMP. Fair condition, with ponding at inlet. Undersized, with backwater and erosion present to north. Drains local ditches.

Outlet: Located at incised ditch, with road fill encroaching on the discharge point, causing erosion of road slope.

Preliminary Recommendation: Replace. Increase to 24-inch HDPE culvert, lengthen to accommodate road slope.

Inlet and ditches to south, ponding from water flow from north.

Inlet and ditches to north.

Inlet.

Outlet located on steep bank, incised channel, and causing erosion of road slope.

Station 148+45, Level 4

Inlet: 18-inch corrugated aluminum pipe, about 8 feet long. Connected to 18-inch CMP. New aluminum culvert section is a likely addition for placement of new mailbox by homeowner. Mailbox located at approximate site of original inlet. No inflow at time of inspection. No driveway underdrain present at driveway to south.

Outlet: Significant corrosion of 18-inch CMP. Discharge present; flow likely from failure at invert along culvert.

Preliminary Recommendation: Add HDPE underdrain below driveway. Abandon culvert. Grade ditches to direct flow south to culvert at Station 151+31.

Aluminum extension of inlet, mailbox, and ditches to south.

Ditches, driveway, and mailbox near inlet looking north.

Distance view of inlet near mailbox, two driveway crossings, and grading of ditch to direct water south.

Current outlet with discharge present.

Station 151+31, Level 4

Inlet: 36-inch CMP with damage and significant corrosion present at inlet. Side of culvert imploded at 10 feet from inlet, causing obstruction. Drainage for local ditches and adjacent property. 4-inch steel pipe sleeved through culvert.

Outlet: Highly corroded. Located adjacent to rock retaining wall for house foundation in construction. 4-inch steel pipe discharges at outlet. Inlet/source for 4--inch steel pipe is unknown.

Preliminary Recommendation: Replace with 36-inch HDPE culvert.

Inlet and ditches to south.

Inlet and ditches to north.

Inlet. Damage and corrosion present with 4-inch steel pipe running through culvert.

Outlet adjacent to retaining wall.

Station 153+30, Level 4

This culvert identified specifically by the DOT&PF as having persistent issues with flooding.

Inlet: 18-inch CMP. Damage and corrosion present. Driveway drain to north is not present or buried. Ponding water north of driveway indicates lack of conveyance.

Outlet: Not located. Appears to be buried in fill for driveway.

Preliminary Recommendation: Replace with 24-inch HDPE culvert. Align so discharge is between properties as indicated in photos below. Addition of driveway underdrain to north will aid in conveying stormwater flows from surrounding ditches.

Ponding water in ditch north of inlet; views looking south toward inlet marked by blue post.

Inlet and ditches to north.

Proposed alignment; culvert with outlet to ditch along vegetated area middle of photo.

View from outlet across road to inlet. Culvert to be aligned to left of both power poles located in photo.

Station 156+77, Level 4

Inlet: 18-inch corrugated HDPE. Recent replacement. Drains ditch to south and adjacent property foundation drain. No flow from north as no driveway underdrain exists.

Outlet: Discharges adjacent to house.

Preliminary Recommendation: Replace. Increase to 24-inch HDPE culvert. Grade ditches to south to convey additional flow when culvert at Station 158+96 is abandoned.

Inlet and ditch to south.

Inlet and driveway to north. Property to east (right) contributes to flow with foundation drain.

Outlet discharging adjacent to house foundation.

Outlet.

Station 158+96, Level 4

Inlet: 18-inch CMP. Damage to inlet. Drains local ditches. Ponding and erosion present at inlet.

Outlet: Not found, presumed buried under house.

Preliminary Recommendation: Abandon. Grade ditches to north to convey flows to culvert at Station 156+77.

Inlet, erosion, and ditches looking north.

Inlet and ditches to the south.

Inlet damaged.

Station 161+57, Level 4

Inlet: 18-inch CMP. Corrosion present. Drains local ditches and appears to be foundation drain from adjacent property. Ponding at inlet, gravel substrate. Minor erosion at inlet likely due from backwater.

Outlet: Crushed and buried in rock revetment for parking area.

Preliminary Recommendation: Replace with HDPE culvert. Increase to 24 inches. Move alignment of culvert to south by 10 feet to avoid damage to rock wall shown in images below. Will accumulate additional flow from abandoned culvert at Station 162+90.

Inlet with ponding at inlet, view north. Incised ditch from property foundation drain at right of photo.

Inlet and ditches to south. Erosion and evidence of backwater at inlet visible.

Alignment of culvert, moved south (left) by 10 feet to avoid rock retaining wall at photo right.

Culvert outlet crushed under fill.

Station 162+90, Level 4

Inlet: 18-inch CMP. Corroded. Drains ditches locally and includes foundation drain discharge from adjacent property. Culvert appears crushed at 15 feet from inlet. Evidence of ponding and backwater at inlet.

Outlet: Not found. Presumed buried.

Preliminary Recommendation: Abandon. Reverse ditch grading to convey flows to north at Station 161+57.

Inlet, driveway underdrain, and HDPE foundation drain discharge in view to north.

Inlet and ditches to south.

Inlet.

Station 163+99 to 164+86, Level 4

Description: 18-inch CPP, 88 feet long. Culvert only indicated in R&M Survey, with no information for pipe scoping by DOT&PF or field visit by HDR.

Preliminary Recommendation: Component of larger drainage network surrounding Station 164+86. Replace with 18-inch HDPE culvert as determined in field.

Station 164+86, Level 4

Inlet: 30-inch Beehive inlet with concrete manhole. 18" CMP culvert under South Tongass Highway. Drains ditches locally.

Outlet: Fair condition. Invert beginning to corrode.

Preliminary Recommendation: Consider replacing culvert with HDPE; increase to 24-inch to accommodate all inflow. Beehive inlet appears adequate.

Inlet and ditches to south.

Inlet and ditches to north.

Alignment of culvert under South Tongass Highway.

Outlet.

Station 164+86 to 165+81, Level 4

Description: 18-inch CPP, 100 feet long. Culvert only indicated in R&M Survey, with no information for pipe scoping by DOT&PF or field visit by HDR.

Preliminary Recommendation: Component of larger drainage network surrounding Station 164+86. Replace with 18-inch HDPE culvert as determined in field.

STATE	PROJECT	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0902(4)	1	28

STATE OF ALASKA
DEPARTMENT OF HIGHWAYS

PLAN AND PROFILE
PROPOSED HIGHWAY PROJECT
RS-0902(4)
DEERMOUNT ST. TO SOUTH CITY LIMITS
GRADING, DRAINAGE & PAVING

As Builts

Wayne Construction Co.

Project Engr, Larry Geise P.E.

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTION
3-4	ESTIMATE OF QUANTITIES & SUMMARY
	TABLES
5-11	PLAN & PROFILE PLANS
12	RETAINING WALL DETAILS
13-14	DRAINAGE DETAILS
15-19	WATER MAIN DETAILS
19A	SANITARY SEWER QUANTITY SHEET
SS1-SS5	SANITARY SEWER PLANS

The following standard drawings apply to this project: A-1, C-00.01, C-10.00, C-11.01, D-02.02,D-23.01,D-24.12, D-26.01, D-27.10,I-20.01,I-40.10, M-16.03,S-00.10, S-05.00,S-20.10,S-30.11,U-03.00.

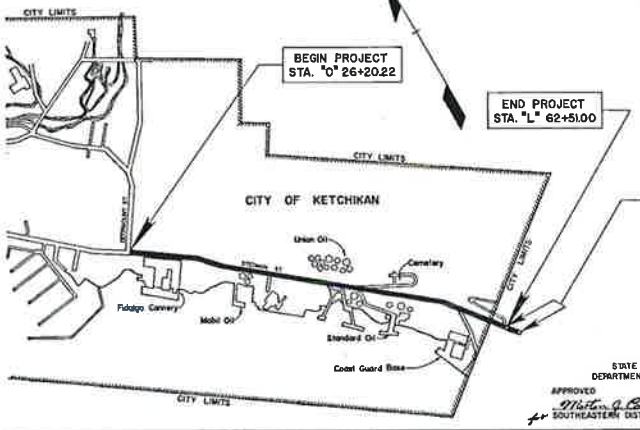
PROJECT SUMMARY

WIDTH of PAVEMENT = 24.5'
LENGTH of TEMPORARY CONNECTION = 100ft. = 0.0189mi.
LENGTH of PROJECT = 3,628.30 ft. = 0.6872 mi.

(No Change In Length)

Project Beginning 8-11-76

Project Completion 10-31-77



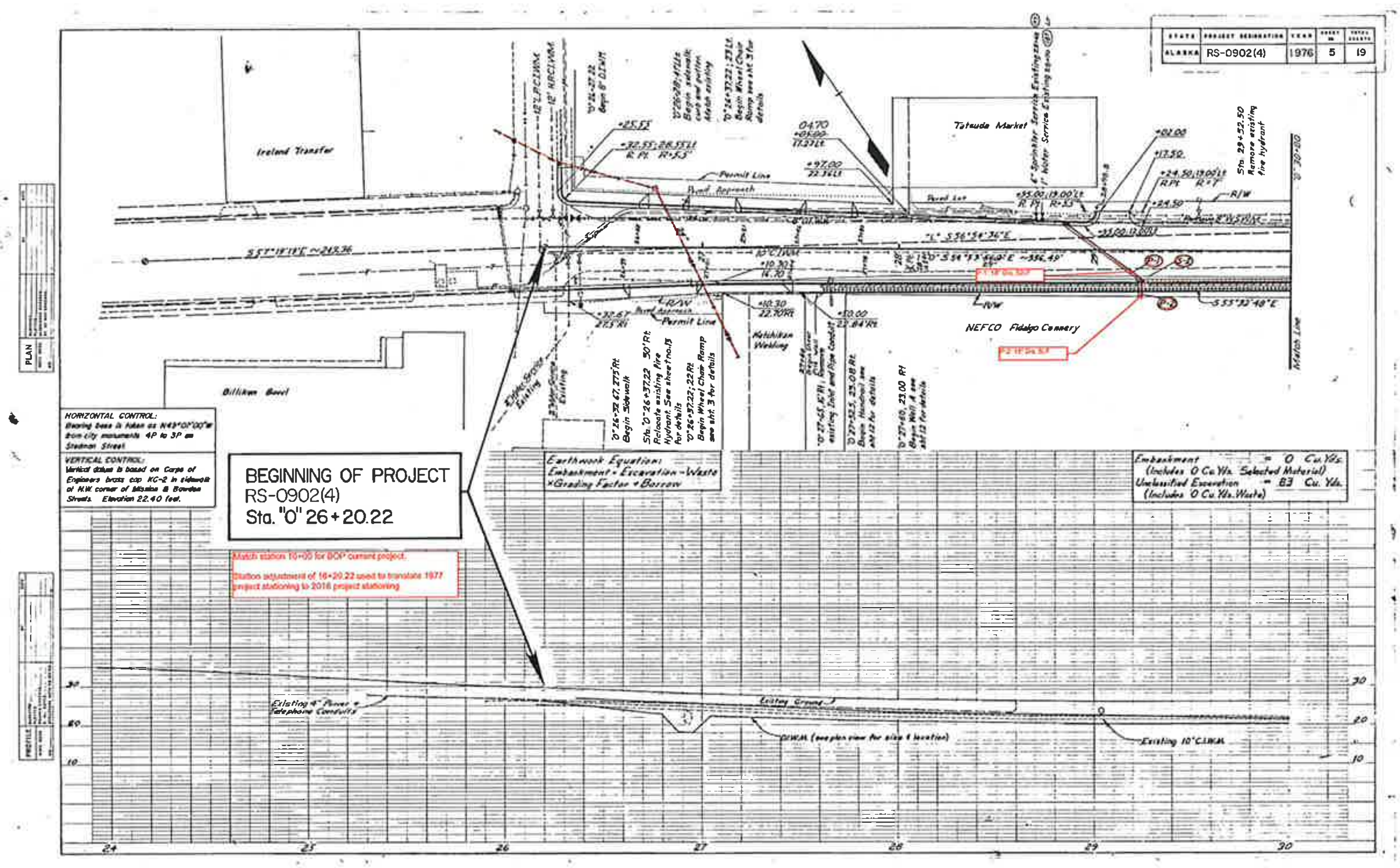
DESIGN DESIGNATION
RS-0902(4)

ADT (1974)	=	2600
ADT (1995)	=	6000
DHV (13%)	=	780
D	=	40-60
T	=	7%
V	=	35 mph

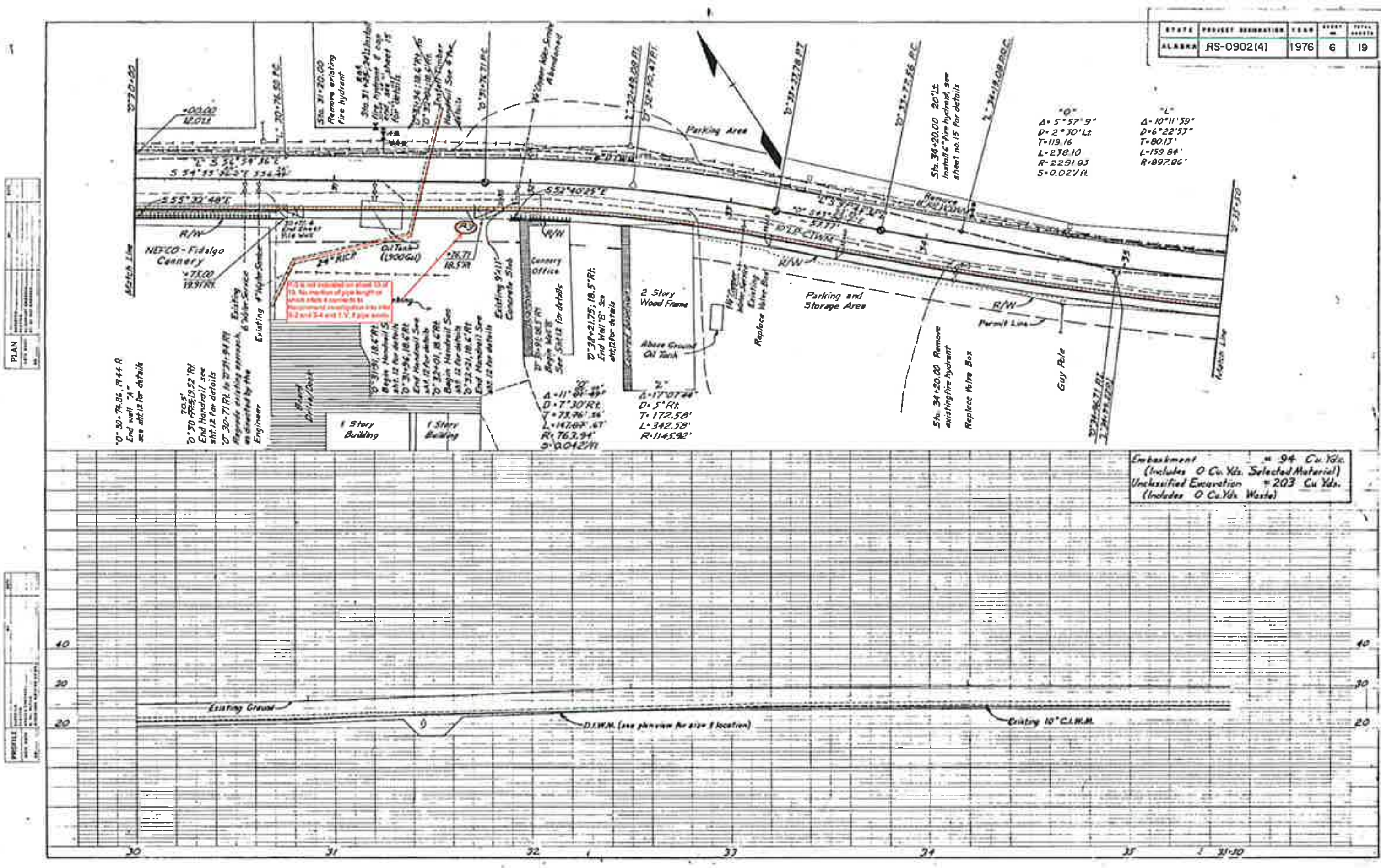
Note: See Plan & Profile Shts. for Minor Equations

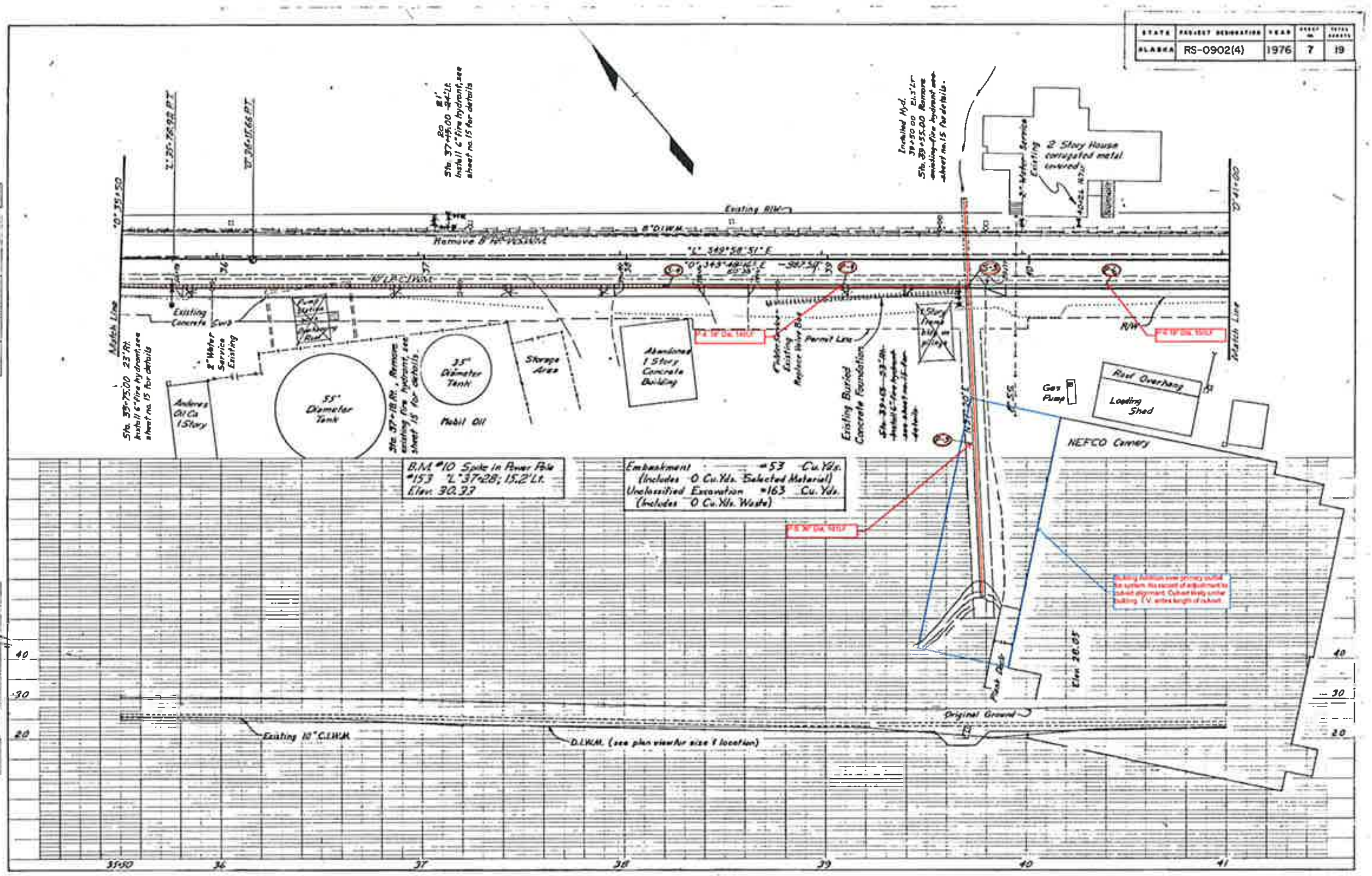
STATE OF ALASKA
DEPARTMENT OF HIGHWAYS
APPROVED
for SOUTHEASTERN DISTRICT ENGINEER
Date 12/20/76

STATE OF ALASKA
DEPARTMENT OF HIGHWAYS
APPROVED
Asst. COMMISSIONER OF HIGHWAYS
Date 4/20/76

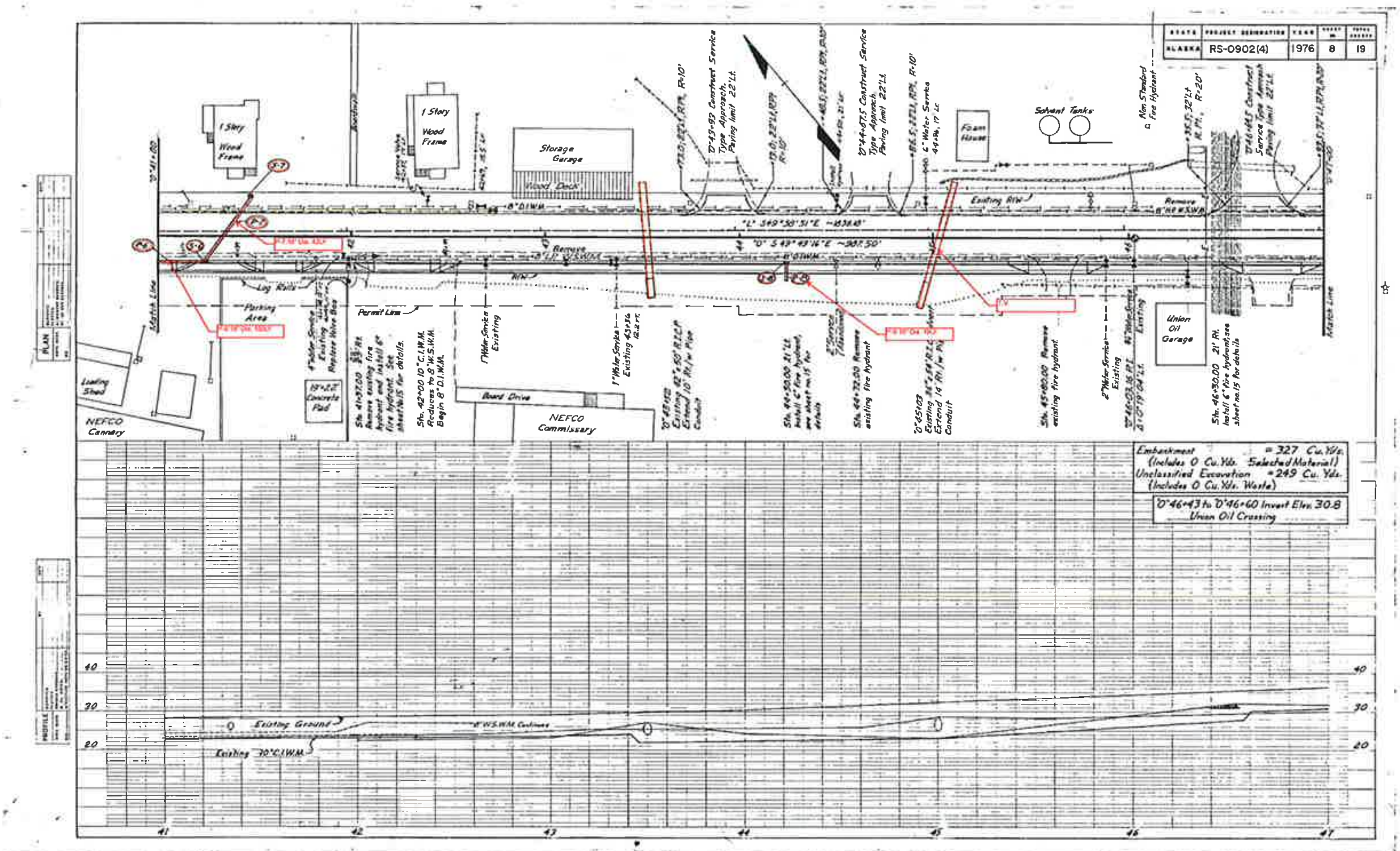


STATE | PROJECT DESIGNATION | YEAR | SHEET NO. | TOTAL SHEETS
ALASKA | RS-0902(4) | 1976 | 5 | 19
BEGINNING OF PROJECT
RS-0902(4)
Sta. "O" 26+20.22
Match station 10+00 for BOP current project.
Station adjustment of 16+20.22 used to translate 1977 project stationing to 2016 project stationing
HORIZONTAL CONTROL:
Bearing base is taken as N43°01'00"W from city monuments 4P to 3P on Stedman Street
VERTICAL CONTROL:
Vertical datum is based on Corps of Engineers brass cap KC-2 in sidewalk at N.W. corner of Mission & Bawden Streets. Elevation 22.40 feet.
Earthwork Equation:
Embankment = Excavation - Waste × Grading Factor + Borrow
Embankment = 0 Cu. Yds.
(Includes 0 Cu. Yds. Selected Material)
Unclassified Excavation = 83 Cu. Yds.
(Includes 0 Cu. Yds. Waste)
Ireland Transfer
Tatsuda Market
Billiken Bowl
Ketchikan Welding
NEFCO Fidalgo Cannery
Permit Line
Paved Approach
R/W
Match Line
Sta. 29+52.50 Remove existing fire hydrant
Existing 4" Power & Telephone Conduits
Existing Ground
Existing 10" C.I.W.M.
PLAN
PROFILE

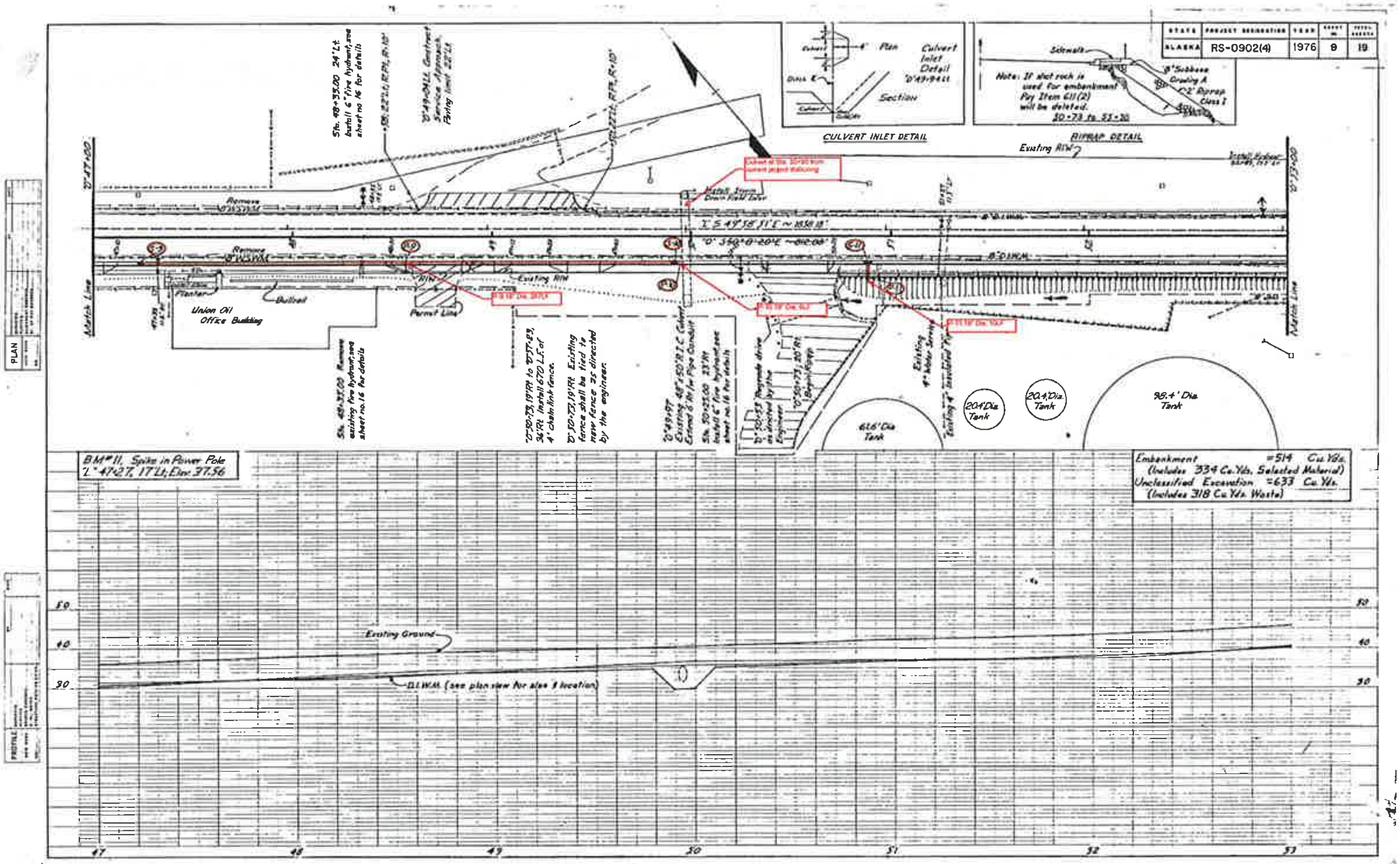

STATE | PROJECT DESIGNATION | YEAR | SHEET NO. | TOTAL SHEETS
ALASKA | RS-0902(4) | 1976 | 6 | 19
Parking Area
Parking and Storage Area
NEFCO - Fidalgo Cannery
Oil Tank (1,900 Gal)
Cannery Office
Existing 9'x11' Concrete Slab
2 Story Wood Frame
Above Ground Oil Tank
1 Story Building
Replace Valve Box
Guy Pole
Permit Line
Match Line
R/W
Sta. 34+20.00 Remove existing fire hydrant
Replace Valve Box
"O" Δ = 5°57'9" D = 2°30' Lt. T = 119.16 L = 238.10 R = 2291.83 S = 0.027 ft.
"L" Δ = 10°11'59" D = 6°22'57" T = 80.13' L = 159.84' R = 897.86'
Embankment = 94 Cu. Yds. (Includes 0 Cu. Yds. Selected Material)
Unclassified Excavation = 203 Cu. Yds. (Includes 0 Cu. Yds. Waste)
Existing Ground
D.I.W.M. (see planview for size & location)
Existing 10" C.I.W.M.
PLAN
PROFILE
40
30
20
30
31
32
33
34
35



STATE
PROJECT DESIGNATION
YEAR
SHEET NO.
TOTAL SHEETS
ALASKA
RS-0902(4)
1976
7
19
PLAN
PROFILE
Existing R/W
8" DIWM
Remove 8" W.Vcssvit
Existing Concrete Curb
2" Water Service Existing
Anderes Oil Co. 1 Story
55' Diameter Tank
35' Diameter Tank
Mobil Oil
Storage Area
Abandoned 1 Story Concrete Building
Permit Line
Existing Buried Concrete Foundation
2 Story House corrugated metal covered
Gas Pump
Roof Overhang
Loading Shed
NEFCO Cannery
Match Line
B.M. #10 Spike in Power Pole #153 "L" 37+28; 15.2' Lt. Elev. 30.37
Embankment =53 Cu.Yds. (Includes 0 Cu.Yds. Selected Material)
Unclassified Excavation =163 Cu.Yds. (Includes 0 Cu.Yds. Waste)
Existing 10" C.I.W.M.
D.I.W.M. (see plan view for size & location)
Original Ground
Elev. 28.05
40
30
20
35+50
36
37
38
39
40
41



STATE ALASKA
PROJECT DESIGNATION RS-0902(4)
YEAR 1976
SHEET 8
TOTAL SHEETS 19
PLAN
PROFILE
1 Story Wood Frame
1 Story Wood Frame
Storage Garage
Wood Deck
Foam House
Solvent Tanks
Union Oil Garage
Loading Shed
NEFCO Cannery
Parking Area
19'x22' Concrete Pad
Board Drive
NEFCO Commissary
Permit Line
Existing R/W
Match Line
Match Line
Embankment = 327 Cu. Yds.
(Includes 0 Cu. Yds. Selected Material)
Unclassified Excavation = 249 Cu. Yds.
(Includes 0 Cu. Yds. Waste)
O'46+43 to O'46+60 Invert Elev. 30.8
Union Oil Crossing
Existing Ground
Existing 10" C.I.W.M.



STATE | PROJECT DESIGNATION | YEAR | SHEET NO. | TOTAL SHEETS
ALASKA | RS-0902(4) | 1976 | 9 | 19
CULVERT INLET DETAIL
Plan
Section
Culvert Inlet Detail
RIPRAP DETAIL
Sidewalk
Note: If shot rock is used for embankment Pay Item 611(2) will be deleted.
50+73 to 53+30
Existing R/W
Match Line
Union Oil Office Building
Planter
Bullrail
Permit Line
Existing R/W
61.6' Dia. Tank
20.1' Dia. Tank
20.4' Dia. Tank
98.4' Dia. Tank
Sta. 48+33.00 24' Lt. Install 6" fire hydrant, see sheet no. 16 for details
Sta. 48+35.00 Remove existing fire hydrant, see sheet no. 16 for details
Existing fence shall be tied to new fence as directed by the engineer.
Existing 48" CSP R.C. Culvert Extend & fit for Pipe Conduit
Install 6" fire hydrant see sheet no. 16 for details
Embankment =514 Cu. Yds. (Includes 334 Cu. Yds. Selected Material)
Unclassified Excavation =633 Cu. Yds. (Includes 318 Cu. Yds. Waste)
BM#11, Spike in Power Pole "L" 47+27, 17' Lt; Elev. 37.56
Existing Ground
D.I.W.M. (see plan view for alex & location)
PLAN
PROFILE
50
40
30
47
48
49
50
51
52
53

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0902(4)	1976	13	19

DRAINAGE PROFILES

T.C. = Top of Curb   T.G. = Top of Grate

Note: Location of stations as shown are approximate. Offset distance is to the back of curb for type A inlets and to centerline of field inlets.

DRAINAGE STRUCTURE SUMMARY

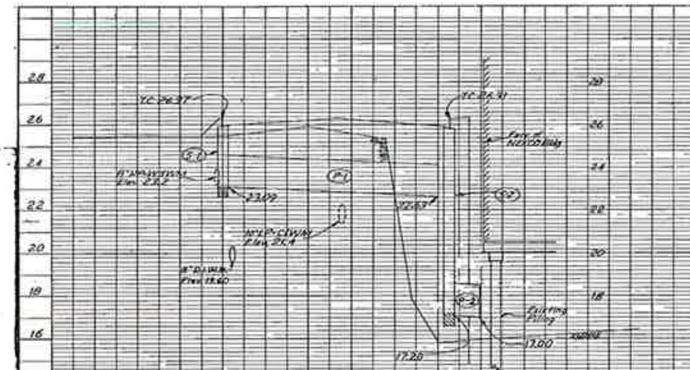
Inlet Number	Inlet Type	Location: Station	Location: Offset	Top of Curb Elev.	Invert Elev.
S-1	A	"O"28+65	16.49' Lt	26.37	23.09
S-2	A	"O"29+27	16.25' Rt.	26.31	17.20
S-4	A	"O"38+20	14.50' Rt.	28.64	25.26
S-5	A (Special)	"O"39+70	14.50' Rt	28.00	20.49
S-6	A	"O"41+23	14.50' Rt	28.77	24.80
S-7	Field Inlet	"O"41+53	28.00' Lt	27.90	23.40

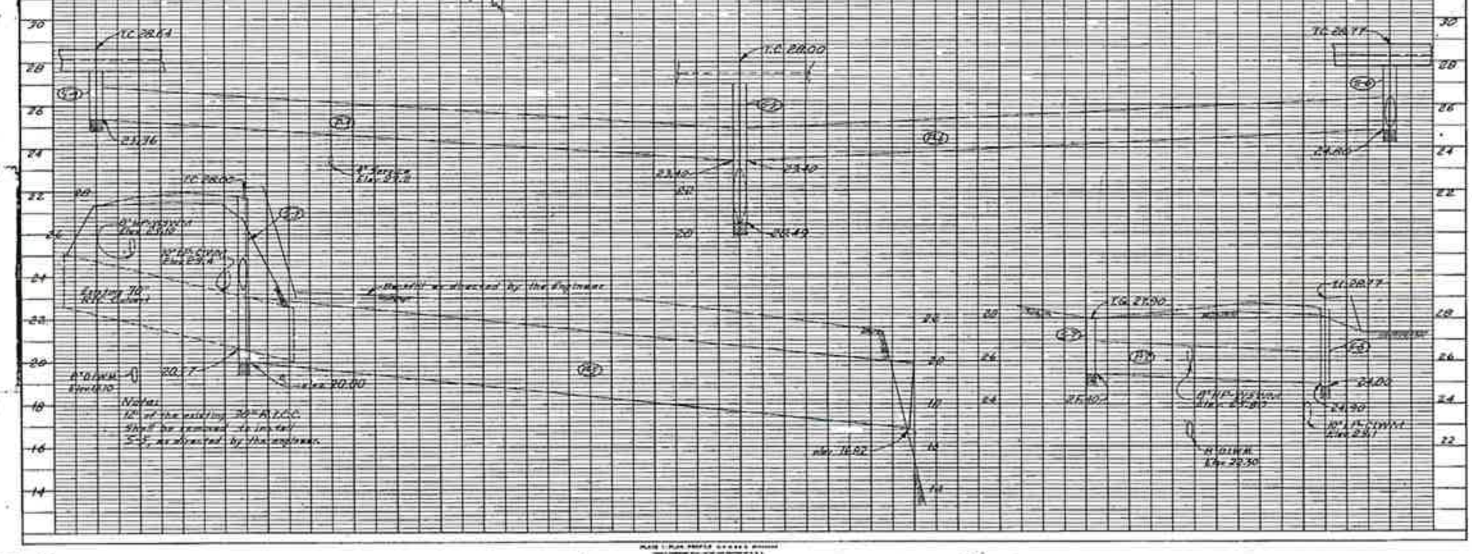
Top of curb elev's shown are approx., and shall be as staked by the Engineer.

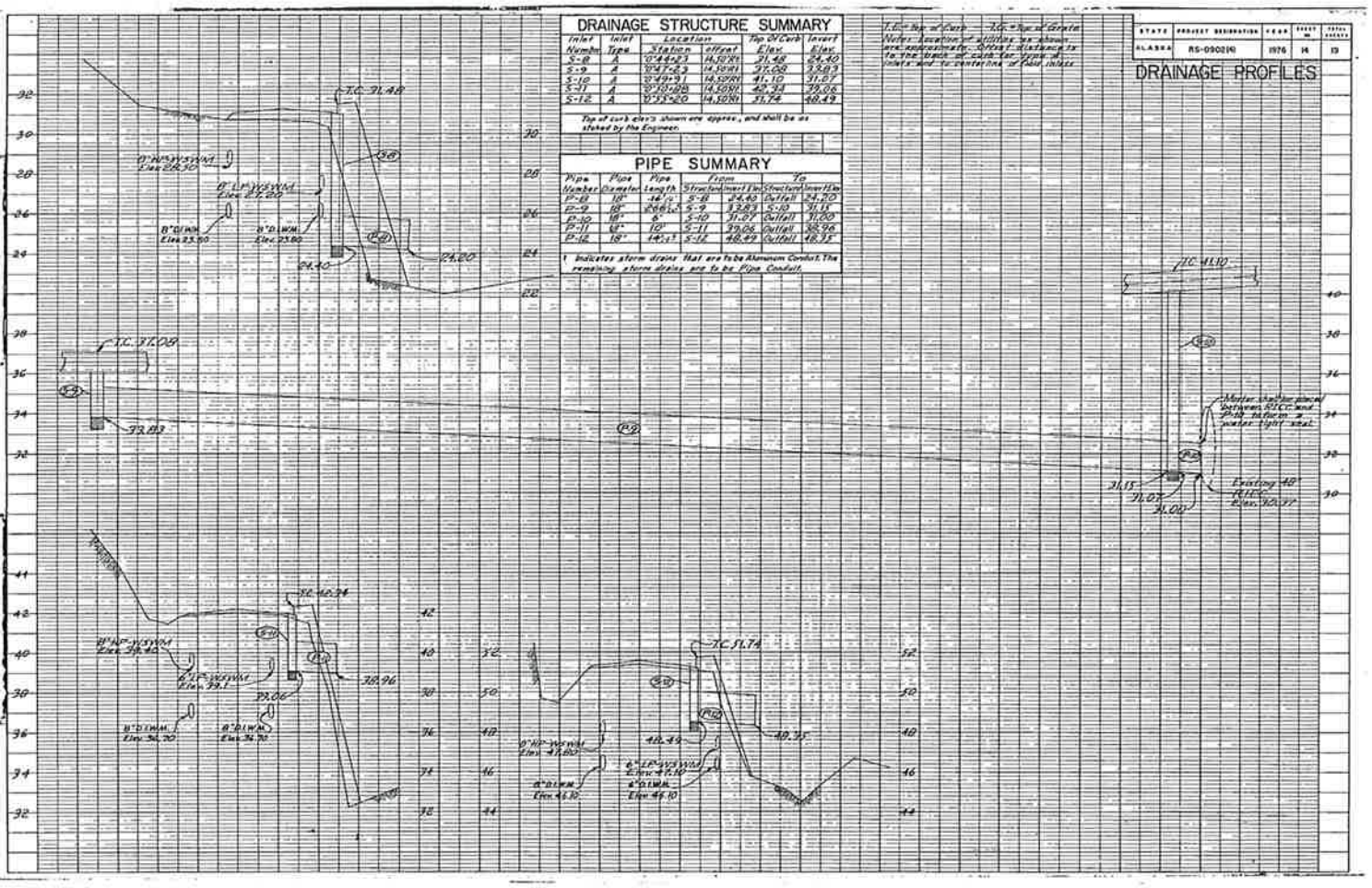
PIPE SUMMARY

Pipe Number	Pipe Diameter	Pipe Length	From: Structure	From: Invert Elev.	To: Structure	To: Invert Elev.
P-1	18"	32'	S-1	23.09	S-2	22.63
P-2 †	18"	8'5"	S-2	17.20	Outfall	17.00
P-4	18"	148'	S-4	25.26	S-5	23.40
P-5 †	36"	154'	S-5	20.00	Outfall	16.82
P-6	18"	150'	S-6	24.80	S-5	23.40
P-7	18"	48'	S-7	23.40	S-6	24.90

† Indicates storm drains that are to be Aluminum Conduit. The remaining storm drains are to be Pipe Conduit.







DRAINAGE STRUCTURE SUMMARY

Inlet Number	Inlet Type	Location Station	Location Offset	Top Of Curb Elev.	Invert Elev.
S-8	A	10+44+23	14.50 Rt.	31.48	24.40
S-9	A	10+47+23	14.50 Rt.	31.09	32.83
S-10	A	10+49+91	14.50 Rt.	41.10	31.07
S-11	A	10+50+08	14.50 Lt.	40.24	38.96
S-12	A	10+55+20	14.50 Lt.	31.74	40.49

Top of curb elev's shown are approx., and shall be as staked by the Engineer.

T.C. = Top of Curb T.C. = Top of Grate

Note: Location of utilities are shown are approximately. Offset distances is to the back of curb for type A inlets and to centerline of four inlets

PIPE SUMMARY

Pipe Number	Pipe Diameter	Pipe Length	From Structure	From Invert Elev.	To Structure	To Invert Elev.
P-8	18"	14'±	S-8	24.40	Outfall	24.20
P-9	18"	266'±	S-9	32.83	S-10	31.15
P-10	18"	6'	S-10	31.07	Outfall	31.00
P-11	18"	10'	S-11	38.96	Outfall	38.96
P-12	18"	14'±	S-12	40.49	Outfall	40.35

1 Indicates storm drains that are to be Aluminum Conduit. The remaining storm drains are to be Pipe Conduit.

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0902(4)	1976	14	13

DRAINAGE PROFILES

Related Public Involvement Documentation

STATUS: Active

AK Dept. of Transportation & Public Facilities Southcoast Region Notice of Open House & Intent to Conduct Eng. & Env. Studies: KTN S. Tongass Hwy Deermount-Saxman-Surf St. Pavement Rehabilitation Projects 67571 & 67685

****

The Alaska Department of Transportation and Public Facilities (DOT&PF), in coordination with the Federal Highway Administration (FHWA), proposes to rehabilitate approximately three miles of the South Tongass Highway and bike/pedestrian path from Deermount Street in Ketchikan to Surf Street. A new section of bike/pedestrian pathway is planned for the Saxman to Surf Street section.

DOT&PF seeks public comment on this project and invites you to an open house public meeting in two locations:

Saxman:
When: Tuesday, December 6, 6-8PM
Where: Saxman Community Center
2841 South Tongass Highway
(upper level entrance)

Ketchikan:
When: Wednesday, December 7, 4:30-6:30PM
Where: Ted Ferry Civic Center
888 Venetia Avenue

If you are not able to attend the open house at these times, you can visit our online open house between December 8 and December 31, 2016.
At the online open house, you can view meeting materials and provide comments at a time that is convenient to you. The online open house will be accessible via **www.southtongasshighway.com.**

Also, project documents are available on the project website at:
http://www.brooks-alaska.com/ketchikan/documents.htm

ABOUT THE PROJECT

The purpose of the project is to continue providing safe passage of pedestrians and vehicles within the downtown Ketchikan corridor on Front, Mill and Stedman streets in Ketchikan, Alaska. The need for the project stems from heavy pedestrian and vehicle usage in the area. The existing road needs upgrading due to deteriorated pavement condition and drainage deficiencies.

The Front, Mill and Stedman corridor provides access for east-west traffic through downtown Ketchikan. It also serves as a utility corridor, distributing water, electricity, and communication services and collecting sanitary sewage along the corridor and beyond, therefore, making utility coordination a critical element of the project.

The proposed Front, Mill and Stedman Streets reconstruction project would

- Rehabilitate and/or replace existing pavement with new asphalt on the street fill sections and a new wearing surface on the structures (viaducts/bridge) sections from Beginning of Project (BOP) to End of Project (EOP).
- Eliminate one eastbound through-lane along Mill Street from Mission Street to Bawden Street.
- Remove existing piles and pile caps beneath Mill Street to a depth of 4-feet below the finished grade.
- Repair and widen sidewalks.
- Reconstruct / improve the following intersections including pedestrian crossings and traffic calming measures:

* Front Street / Grant Street Intersection
* Front Street / Mission Street
* Mill Street / Bawden Street
* Mill Street / Mission Street / Stedman Street
* Front Street / Dock Street
* Mill Street / Main Street
* Stedman Street / Deermount Street

- Reconstruct / improve two pedestrian crossings on Stedman Street.
- Clean out storm drains within the DOT&PF right-of-way (ROW) along the length of the project.
- Relocate / replace 20 catch basins and 3 manholes in coordination with relocated curbs.
- Resurface / regrade all driveway and parking lot appraoches to match the final grade of the road from BOP to EOP.

No permanent acquisitions of private property would be required. However, temporary construction permits / easements or memorandums of understanding may be required for access on privately owned parcels during construction.

Potential construction impacts would include:

- Noise from excavation, hauling, sidewalk widening and ramp installation and new asphalt paving;
- Temporary traffic delays and detours;
- Temporary sidewalk closures and detours and associated impacts on businesses.

Temporary traffic patterns during construction would be provided to accommodate existing pedestrian and vehicular traffic and to maintain continuous business access.

Construction is anticipated to occur between spring 2016 and fall 2017.

This proposed project would follow the process required under the National Environmental Policy Act (NEPA). Based on project location and scope of work, the appropriate environmental document is a Categorical Exclusion. Evaluated resources include wetlands and waters of the U.S., federally-protected species, cultural sites, historic properties, socio-economic factors, right-of-way, etc. as directed by NEPA.

The project would comply with these Acts & Executive Orders

- National Historic Preservation Act - Sect.106
- U.S. Department of Transportation Act Section 4(f)
- Magnuson-Stevens Fishery Conservation & Mgt Act
- AK Statute Sec 16.20 (Conserve & Protect Fish & Game)
- Archaeological Resource Protection Act
- U.S. Fish & Wildlife Coordination Act
- Anadromous Fish Conservation Act
- Bald & Gold Eagle Protection Act
- Clean Air & Clean Water Acts
- Rivers & Harbors Act
- EO-13175 Consult & Coordinate w/Indian Tribal Gov.
- EO-11593 Protect & Enhance Cultural Env.
- EO-13007 Indian Sacred Sites
- EO-11988 Floodplain Mgt
- EO-11990 Protect Wetlands
- TEA-21 Wetlands Mitigation
- EO-12898 Env. Justice
- EO-13112 Invasive Species

Comments on the proposal from interested persons will assist us in completing the project's environmental documentation effort.

Please submit your written comments to:

David Pyeatt, P.E., Project Manager
DOT&PF, Southcoast Region
P.O. Box 112506
Juneau AK 99801-2506
E-mail: christopher.goins@alaska.gov
Phone: 907-465-4490
FAX: 907-465-4414

OR

Jim Scholl, Project Environmental Coordinator
DOT&PF, Southcoast Region E-mail: christopher.goins@alaska.gov
P.O. Box 112506 Phone: 907-465-4498
Juneau AK 99801-2506 FAX: 907-465-4414

If you or someone you represent requires special accommodations in order to respond to this public notice, please call or email the project coordinator listed above or call Alaska Relay at

(800) 770-8973 for TTY (800) 770-8255 for voice
(800) 770-3919 for ASCII (866) 355-6198 for STS

Ask the communications assistant to call the project coordinator listed above so arrangements can be made to assist you.

COMMENTS ARE REQUESTED BY January 9, 2017

Attachments, History, Details

Attachments
None

Revision History
Created 11/17/2016 4:19:53 PM by kldirks
Modified 11/17/2016 4:21:02 PM by kldirks [Details]
Modified 11/17/2016 4:27:08 PM by kldirks [Details]
Modified 11/17/2016 4:29:50 PM by kldirks [Details]
Modified 11/17/2016 4:33:48 PM by kldirks [Details]
Modified 11/17/2016 4:36:07 PM by kldirks [Details]
Modified 11/21/2016 2:53:23 PM by kldirks [Details]
Modified 11/21/2016 2:56:35 PM by kldirks [Details]
Modified 11/21/2016 2:57:53 PM by kldirks [Details]
Modified 11/21/2016 2:58:32 PM by kldirks [Details]
Modified 11/21/2016 3:00:35 PM by kldirks [Details]
Modified 11/21/2016 3:08:06 PM by kldirks [Details]

Details

Department:	Transportation and Public Facilities
Category:	Public Notices
Sub-Category:	
Location(s):	Ketchikan
Project/Regulation #:	
Publish Date:	11/21/2016
Archive Date:	12/31/2016

Events/Deadlines:

Goldstein, Melissa L (DOT)

From: Stevens, Mike A (DOT)
Sent: Tuesday, August 08, 2017 1:36 PM
To: Goldstein, Melissa L (DOT)
Cc: Barnett, John C (DOT); Scholl, James W (DOT); Pyeatt, David A (DOT); Goins, Christopher B (DOT)
Subject: RE: LHS for the South Tongass Highway Rehabilitation projects (67571/67685)

Melissa,

It was brought to my attention that the previously attached document did not consist of the entire Hydrology and Hydraulics report. If the full report was attached, this should be satisfactory for meeting Department requirements. Please let me know if you have any further questions.

Thanks,

MICHAEL A. STEVENS, PE
Southcoast Regional Hydraulics Engineer, DOT&PF
Tel: (907) 465-5338

From: Stevens, Mike A (DOT)
Sent: Tuesday, August 08, 2017 10:45 AM
To: Goldstein, Melissa L (DOT)
Cc: Barnett, John C (DOT); Scholl, James W (DOT)
Subject: RE: LHS for the South Tongass Highway Rehabilitation projects (67571/67685)

The attached document does not meet the Alaska Preconstruction Manual standards for Hydrology and Hydraulic Reports, and insufficient information is included to support their conclusions. Please refer to Section 1120.5.6 of the Preconstruction Manual for more information.

Thanks,

MICHAEL A. STEVENS, PE
Southcoast Regional Hydraulics Engineer, DOT&PF
Tel: (907) 465-5338

From: Goldstein, Melissa L (DOT)
Sent: Tuesday, August 08, 2017 9:17 AM
To: Stevens, Mike A (DOT)
Cc: Barnett, John C (DOT); Scholl, James W (DOT)
Subject: LHS for the South Tongass Highway Rehabilitation projects (67571/67685)

Hi Mike,

Could you please confirm that you have reviewed the LHS section of the consultant's H&H report (attached) and agree to the following statements for the S. Tongass Highway Rehabilitation projects (67571/67685):

- There will be no significant encroachment as defined by 23 CFR 650.105(q).
- The proposed action will not increase the base flood elevation one-foot or greater.
- The requirements of 23 CFR 650.111 have been satisfied.

In order to adhere to the interim 6004 program floodplain guidance (attached,) we need to have documentation of your review included with the environmental document.

Thank you!

Melissa

Melissa Goldstein
NEPA Program Manager
Statewide Environmental Office
Alaska Department of Transportation and Public Facilities
Phone: (907) 465-6961

From: Sherk, John [mailto:John.Sherk@hdrinc.com]
Sent: Monday, August 07, 2017 4:09 PM
To: Scholl, James W (DOT)
Cc: Pyeatt, David A (DOT); Stevens, Mike A (DOT); Croft, Christopher; Lowe, Cynthia
Subject: RE: SEO suggested edits: CE for the South Tongass Highway Rehabilitation projects (67571/67685)

Hi Jim,

We did not prepare a specific Location Hydraulic Report but Section 8 from the H&H Report is titled Location Hydraulic Studies. This section references the applicable CFRs in the document you sent as to the purpose of the section. I have attached an excerpt of Section 8 from the H&H Report for your use.

Please let me know if this is sufficient or some other documentation is required.

Regards,

John

John Sherk, PE, SE
VP – Senior Project Manager

ONEHDRED

HDR
2525 C Street – Suite 500
Anchorage, AK 99503

D 907.644.2086 **M** 907.360.0955
John.Sherk@hdrinc.com

Attachment H: Section 4(f)/6(f) Documentation

Section 4(f) *De Minimis* Impact Finding
for

Historic Sites

For 6004 Program Projects

Project Name: KTN: Deermont to Saxman Widening / Saxman to Surf Rehabilitation

Project Number (State and Federal): Z676850000 - Z675710000 / 0902039 - 0902031

AHRS Site Number and Site Name: KET-00060 Saxman Totem Park

De minimis impacts related to historic sites are limited to the determination of either "no adverse effect" or "no historic properties affected" in compliance with Section 106 of the National Historic Preservation Act. Use a separate form for each site.

I. Project Description:

The South Tongass Highway Rehabilitation project would widen the highway to current design standards, reconstruct the multi-use pathway, extend the pathway through Saxman, improve drainage (including new inlets, storm drains, ditches, and culverts), and relocate utilities between Deermount Street (MP 2.6) and Surf Street (MP 5.5). This project would include:

- Modification of horizontal and vertical alignment where warranted and cost effective to improve safety;
- Rock excavation to accommodate realignment and widening;
- Excavation and reconstruction of the existing embankment at select locations;
- Construction of mechanically stabilized earth walls or other wall structures as appropriate;
- Drainage improvements, including culvert replacement and ditching;
- Removal and replacement of guardrail as warranted;ATTACHMENT 1
- Replacement of handrails and chain link fence;
- Replacement of public and private staircases for access to adjacent properties;
- Resolution of right-of-way (ROW) encroachments (removal or permitting); and
- Relocation of overhead and underground utilities.

II. Section 4(f) Property Description:

Describe the historic site that is on or eligible for inclusion on the National Register of Historic Places (NRHP). Include type of historic property, the significance criterion & aspects of historic integrity that qualify the property to be eligible, and location of the historic site. Include a map depicting the boundaries and features of the Section 4(f) property in relation to the proposed project.

KET-00060, Saxman Totem Park, is a NRHP-listed property located partially in both the Direct and Indirect APE. The only portion of the site located in the Direct APE is the road at the park entrance. Three totems are located in the Indirect APE, as well as several additional features. The additional features consist of four grave markers, including two headstones and two grave monuments (see attachment 4).

Beginning in the 1934, the CCC began operating in Alaska through the USFS, and in 1938 the USFS began a program to collect deteriorating totems from abandoned or aging villages for their preservation. Totems were transported to communities, where they were restored or replicated using traditional methods by experienced Tlingit carvers. Poles present at Saxman Totem Park were taken from Old Tongass, Cat Island, Village Island, Pennock Island, and Cape Fox Villages (Biddle 1996:5, Kennedy 1977). Saxman Totem Park was nominated for the NRHP in 1977, and listed in the NRHP in 1979 (Kennedy 1977; updated 1988) as an outstanding example of traditional Tlingit totem art.

Within the Indirect APE, two totems are located on the west side of Totem Row, and one totem is located on east side of Totem Row, adjacent to Saxman City Hall. The grave markers mentioned are part of an interpretive display that surrounds one of the Tired Wolf Clan posts.

Totems observed within the Indirect APE include the Sun and Raven Totem (Feature 1), located at the western corner of the South Tongass Highway and Totem Row; The first Tired Wolf House post (Feature 2), located approximately 20 meters north of the Sun and Raven totem; and a second Tired Wolf House post (Feature 3), on the opposite side of the street behind the fence line of Saxman City Hall. The totems listed above have been previously documented and appear unaltered.

Feature 1, the Sun and Raven Totem, was brought to the Saxman Totem Park in 1939, and was the first totem placed in the park. According to the NRHP nomination form, the Sun and Raven Totem was carved in 1902 as a commemorative grave marker on Pennock Island. The totem was carved by a skilled Tlingit carver named Kahctan (also known as Nawiski) for a woman who had lost her sons (Kennedy 1977). After undergoing repairs, it was placed in its present location. The totem depicts Raven, atop the pole, the three children of the sun (directly beneath Raven), and Fog Woman (Kennedy 1977; Figure 5-7). Below Fog Woman is Frog.

Features 2 and 3 are the Tired Wolf House posts. According to Biddle (2006), these posts are replicas placed sometime after 1981. The replicas exhibit differences in workmanship compared to the originals, including differences in the position of the ears relative to the head; smaller noses; less-prominent teeth; use of an iron post in place of the wooden original; and visible use of carriage bolts. While some of these differences are stylistic, the last two are intended to increase the durability of the carvings (Biddle 2006:9).

The original carvings were constructed around 1827 on Village Island, before being transported between Kanagunut Island, Tongass Island, and then Pennock Island. Following repairs, the posts were brought to Saxman Totem Park in 1939 (Kennedy 1977). According to Biddle (2006:9). the pairing of these features on either side of the road is intended to mimic the experience of entering a clan house.

Feature 4 is the Grizzly Bear Monument, a marble statue constructed for use as a tombstone. Although the origin of the Grizzly Bear Monument is unkown, marble statues were often manufactured by marble cutters in Seattle or Victoria, Canada, based on miniaturized designs (Kennedy 1977). These statues began to be used following a general decline in woodcarving, but contain features characteristic of wood-carved monuments, and would have originally been mounted on a wood pole 6 to 8 feet high. The Grizzly Bear Monument was placed at Cape Fox as a grave memorial, and later transported to Saxman according to the wishes of the descendants of the deceased individual (Kennedy 1977). Biddle (2006:10) states the structure is not significantly altered since its original placement in 1939, and describes the only change as the replacement of an original stone pedestal with a concrete block.

Features 5, 6, and 7 are tombstones or grave monuments that have arrived in the current location subsequent to documentation of the site by in 2006 (Biddle 2006). Feature 5 is a tombstone. A star is visible near the top, and a painted beaver emblem is in the center. No name or date is visibly associated with the tombstone. Feature 6 is a grave monument bearing the inscription, "Mary Kininnook, DIED Dec. 27, 1908. Aged 16 yrs.". Feature 7 is a short marble tombstone bearing the inscription, "Sacred to the memory of ANNIE DENNEY. DIED Aug. 5, 1895.". A relief carving of a flower is present at the top of the tombstone.

III. Project Use of the Section 4(f) Property:
Describe all impacts the project will have on the historic site.

Project activities would not have an adverse visual impact to resources within the indirect APE and all architectural resources recommended eligible. Project activities planned within the viewshed of these sites consist primarily of road re-pavement and improvements upon existing facilities. As the sites are currently within the viewshed of a modern asphalt road, project activities would not significantly alter the characteristics that make these resources eligible for the NRHP. SHPO has concurred there would be No Adverse Affect (see attachment 1). Sixty permanent easements are being acquired for the project however only one, A-46, would be a permanent incorporation of land from a Section 4(f) resource, KET 00060 Saxman Totem Park, into a transportation facility. The use is permanent incorporation of land and SHPO has concurred project activities would not significantly alter the features or attributes of KET 00060.

IV. Impact Avoidance, Minimization, and Mitigation or Enhancement Measures to the Section 4(f) Property:
Identify any avoidance, minimization, and mitigation or enhancement measures that are included in the project to address the Section 4(f) use.

Slope grading grading is limited as shown on Attachment 3. The temporary property use would be minor in scope and there would be no permanent changes to KET-00060 (see attachment 3, acquistion area A-46 and temporary construction areas TCE-22 &23). The TCEs and permanent easements have no potential to directly or indirectly adversely affect KET-00060 or archaeological materials. The proposed access for the project is unlikely to affect potential historic values associated with the adjacent areas. No known association of contributing attributes of eligible structures would be compromised by the construction temporary access, permanent easements or slope grading associated with the project construction.

V. Consulting Party Involvement:
List all Section 106 consulting parties that were contacted and summarize their comments. Please include contacts that were made even if no response was received.
The following consulting parties were contacted,

- State Historic Preservation Officer. See attached SHPO finding of effect concurrence.
- Sealaska Corporation, no response.
- Sealaska Heritage Institute, no response.
- Ketchikan Historic Commission, no response.
- Ketchikan Indian Community, no response.
- Organized Village of Saxman, no response
- Cape Fox Corporation, no response.
- The Central Council of Tlingit and Haida Tribes of Alaska, no response.
- Ketchikan Gateway Borough, no response
- Historic Ketchikan, Inc., no response.

VI. Coordination:

The State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation (ACHP) (if participating), and the National Park Service (if the historic site is within a National Historic Landmark) has been informed in writing of DOT&PF's intent to make a *de minimis* impact finding based on written concurrence of the Section 106 determination. Attach documentation.

YES ☒ NO ☐

Notes: See attached findings letter, attachment 1

VII. Signatures:

A. I recommend that DOT&PF find the project's impacts on the Section 4(f) property to be *de minimis*.

[Signature] DOT&PF Regional Environmental Manager

Date: 5/5/17

JOHN BARNETT

[Print Name] DOT&PF Regional Environmental Manager

B. I have determined that:

1. The process required by Section 106 of the National Historic Preservation Act resulted in the determination of "no adverse effect" or "no historic properties affected" with the written concurrence of the SHPO, the NPS (for a landmark), and the ACHP (if participating);
2. The SHPO, ACHP (if participating in the Section 106 consultation), and NPS (if the historic site is within a National Historic Landmark) was informed of DOT&PF's intent to make a *de minimis* impact finding based on their written concurrence(s) in the Section 106 determination;
3. DOT&PF has considered the views of any consulting parties participating in the Section 106 consultation; and
4. The project will result in a *de minimis* impact on KET-00060 .

[Signature] DOT&PF Statewide NEPA Manager

Date: 05/08/17

Melissa Goldstein

[Print Name] DOT&PF Statewide NEPA Manager

Attachments:

- Copy of the finding letter that notified the SHPO of the intended *de minimis* impact finding and any concurrences received from the SHPO and ACHP (if participating)
- Copies of any consulting party correspondence
- Map showing the 4(f) resource in relation to the project area
- Other: Graphic showing contributing features of KET-00060

Attachment 1

1. Copy of the findings letter that notifies SHPO of a de minimis impact finding

2. SHPO Concurrence

THE STATE
of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and \
Public Facilities

SOUTHCOAST REGION

6860 Glacier Highway
PO Box 112506
Juneau, Alaska 99801-2506
Main: (907) 465-1799
Toll free: (800) 575-4540
Fax: (907) 465-2030
TTY-TDD: (800) 770-8973
dot.state.ak.us

In Reply Refer To:
Ketchikan: Saxman to Surf St. Rehabilitation – South Tongass, and
Ketchikan: South Tongass Highway, Deermount to Saxman Widening
Z-67571-0000, Z-67685-0000 / 0902(031), 0902(039)
Finding: No Adverse Effect
March 9, 2017

ATTENTION: This finding contains 17 DOEs

Ms. Judith Bittner
State Historic Preservation Officer
Alaska Office of History and Archaeology
550 W. 7th Avenue, Suite 1310
Anchorage, AK 99501-3565

Dear Ms. Bittner:

The Alaska Department of Transportation and Public Facilities (DOT&PF) has assumed the responsibilities of the Federal Highway Administration under 23 U.S.C. 326, and is proposing to reconstruct a combined project Ketchikan: South Tongass Rehabilitation, Deermount to Saxman and Saxman to Surf. The proposed project is in U.S. Geological Survey (USGS) quadrangle Ketchikan B-5; T75S, R91E, Sections 4, 29, 30, 32, and 33, Copper River **(Attachment 1, Figure 1-2).**

Consultation for this project is being conducted in accordance with the 2014 Programmatic Agreement… for the Federal-Aid Highway Program in Alaska. The DOT&PF, acting as a Federal agency, finds no adverse effect on historic properties by the proposed project pursuant to36 CFR 800.5(b), implementing regulations of Section 106 of the National Historic Preservation Act. This submission provides documentation in support of this finding, as required by 36 CFR 800.11(e).

Project Description

The project would rehabilitate the South Tongass Highway and conduct related non-motorized facility improvements near Ketchikan from Deermount Street to Surf Street. The South Tongass Highway is located on Revillagigedo Island and provides vehicular access to communities north and south of Ketchikan. The total project length is approximately 2.8 miles **(Attachment 1, Figures 1-2).**

From the beginning of the project (BOP) at Deermount Street to Cemetery Road (approximately 0.44 mile), the project would

- Widen the existing top width of pavement to meet current design standards.
- Rebuild existing concrete sidewalk on the downhill (southwest) side within this section
- Build new concrete sidewalk, curb, and gutter on the uphill (northeast) side.

From Cemetery Road to the United States Coast Guard (USCG) Ketchikan Base entrance (approximately 0.20 mile), the project would

- Widen the existing top width of pavement
- Rebuild existing concrete sidewalk on the downhill side only.

From the USCG Base entrance south to the end of the project (approximately 2.16 miles), the project would

- Widen the road embankment and pavement
- Reconstruct the existing separated multi-use path
- Extend the path to the terminus of the project at Surf Street

Additionally, the project would

- Lengthen some curves and shift the centerline to bring the curves up to current design standards.
- Modify horizontal and vertical alignment where warranted and cost effective to improve safety
- Excavate rock to accommodate realignment
- Widen and reconstruct the existing embankment at select locations
- Construct mechanically stabilized earth (MSE) walls or other wall structures as appropriate
- Improve drainage and ditching, replace culverts
- Remove and replace guardrail as warranted
- Replace handrails and chain link fence
- Replace public and private staircases for access to adjacent properties
- Remove or permit ROW encroachments
- Relocate overhead and underground utilities
- Obtain TCEs/TCPs for construction activities
- Purchase additional ROW along South Tongass Highway and Totem Way, from Totem Park (KET-0060) to address drainage and access concerns.

Also, before DOT&PF starts construction on the proposed project, the Alaska Native Tribal Health Consortium (ANTHC) plans to install a new wastewater system within the DOT&PF ROW. ANTHC's work would

- Abandon 3 existing wastewater ocean outfall facilities
- Replace with sewer lift stations next to existing facilities
- Excavate on edge of DOT&PF ROW to change alignment of existing force main **(as indicated on Figure 3 of Attachment 6)**

Area of Potential Effect (APE)

Evaluation of potential effects for this project includes a direct and an indirect APE. The direct APE consists primarily of the project footprint inside DOT& PF's Right of Way (ROW), where direct effects are limited to areas where roadway reconstruction would occur and areas subject to ancillary activities described in the project description, above. Additionally the work within the ROW would also take place within the road prism made up of previously disturbed soil.The indirect APE consists of the first tier of buildings, structures, and sites adjacent to, and within view of, the work area **(Attachment 1, Figures 3-7)**. The final project area and area of potential direct effects are generally linear, but are influenced by the nature of the proposed undertaking varying in width to include different kinds of potential impacts.

Identification Efforts

The Alaska Heritage Resources Survey (AHRS) was consulted for information on known sites in the APE. A literature search was completed that included research in the Tongass Museum archives in Ketchikan and the archived property records of the City of Ketchikan. The search revealed 5 previously recorded AHRS resources in the direct APE and 48 in the indirect APE **(Attachment 3, Table 2)**.

The identification process resulted in the addition of previously unknown cultural resources. The enclosed report[1] evaluates the additionally identified cultural resources and buildings for eligibility for listing in the National Register of Historic Places (NRHP) **(Attachment 3, Table 2)**. A total of 16 new AHRS resources were identified in the indirect APE and one new AHRS resource (KET-01395) was identified in the direct APE **(Table 1A below)**. No new archaeological resources were identified (HDR 2016).

DOT&PF identified 134 locations of TCE/TCP for construction easements inside the direct APE **(Attachment 5)**. A total of 36 cultural resources were recorded during the field investigation, including 19 previously recorded AHRS resources. The project survey included the listed South Tongass Highway (KET-01135) in the construction footprint. The South Tongass Highway (KET-01135) MP 3.4-15.5 is a Treat as Eligible (TE) road, as stipulated in the interim guidance for addressing Alaska Historic Roads (DOT&PF 2012). The roadway has been divided into four segments under the current historic evaluation. This project includes the first two Segments, 2.8 miles of the 15.5 mile of this study (Figure 8).

Determinations of Eligibility - Historic Resources

Summary
Five of the 48 previously recorded resources within the indirect APE are eligible for listing in the NRHP, one of which-- Chief Kashakes House (KET-00343) -- is listed in the NRHP.
Twenty-seven resources in the indirect APE have been determined not eligible for the NRHP, and 13 remain unevaluated (HDR 2016; **Attachment 4, Table 3)**

Previously Listed
One resource, the (KET-00112) Saxman Alaska Native Brotherhood Hall was removed from the NRHP following its destruction. The site no longer exists, and is therefore not eligible for the NRHP

[1] Cultrual Resources Investigation for the DOT&PF South Tongass Highway, Deermount to Saxman Widening and Pavement rehabilitation Project, Ketchikan Gateway Borough, HDR, September 2016

Five properties in the indirect APE—recommended eligible or listed on the NRHP are listed below. The enclosed report recommends no changes for the eligibility of these properties and provides more detailed information on each one.

- KET-00279 - Headquarters Building, 16th Lighthouse District , located at 1300 Stedman Street, was last recorded in 2000 and recommended eligible for inclusion in the NRHP (Figure 5-20). The site's exterior appears to be unchanged. No change to its eligibility status is recommended.

- KET-00343 - Chief Kashakes House in Saxman was built in 1895 and listed in the NRHP in 1993. The house is the last of its kind using this construction method in Saxman, and one of the last of its type in southeast Alaska. Given the significance of the property as the oldest in Saxman, its association with the founding of Saxman, and its association with the Tlingit settlement, no change to its eligibility status is recommended.

- KET-00542 - Buoy Shed at the USCG station, built in 1932 was determined eligible for NRHP listing in 1998. The resource was not visible from the DOT&PF ROW and therefore, no change to its eligibility status is recommended.

- KET-01349 - Fidalgo Island Packing Company's Cannery Warehouse is associated with KET 00294, the Fidalgo Island Packing Company complex. The warehouse was built in 1904 and was determined eligible in 2015 under Criterion A. No change to its eligibility status is recommended.

- KET-00060 - Saxman Totem Park is currently listed on the NRHP. Although features within the indirect APE have been subject to reconstruction and modification over time, the features maintain integrity of location, design, feeling, setting and association. No modification to the eligibility status of Saxman Totem Park is recommended.

Unevaluated

Not all of the unevaluated AHRS-listed historic resources in the project area had been evaluated for the NRHP. Twelve previously surveyed architectural resources in the APE have not been evaluated for eligibility **(Attachment 4, Table 3)**. Of these sites:

- Three sites associated with Fidalgo Island Packing Company –KET- 00294, KET-00490 and KET-00491--were not visible from the ROW. Therefore, these sites are recommended to maintain their unevaluated status.

- Five sites associated with the New England Fish Company (KET-00492 thru KET-00496) are only partially visible and are recommended to maintain their unevaluated status.

Recommended Ineligible

Three single-family dwellings: sites KET-01247, KET-01248 (in the indirect APE) and KET-01249 (in the direct APE), are recommended not eligible for the NRHP **(Attachment 4, Table 3)**

KET-00435, KET-01240, KET-01249, and KET-01395, (in the direct APE) have either been formally evaluated as ineligible or recommended as ineligible pending SHPO concurrence. Therefore, they do not qualify as historic properties and they would not be considered further for potential project effects.

Recommended Eligible

KET-01358 - Saxman Government School, previously listed unevaluated structure is recommended eligible. The Saxman Government School (KET-01358) retains a strong integrity of location, setting, and feeling, and is able to convey its historical significance to the public. It is one of the few extant buildings from Saxman's early history **(HDR, Pg 86, Attachment 4).**

KET-01391 - 929 Stedman Street, previously listed unevaluated structure is recommended eligible. The structure is a wood framed commercial structure built in 1920s. The building's integrity is largely intact, the building hasn't been moved, its original design is evident and the setting around the property has become more developed since 1920. However the site's associated canning-related structures are still located across the road, in the area of Ketchikan specifically associated with the canning industry **(HDR, Pg-58, Attachment 4).**

KET-00060 - Saxman Totem Park, previously listed and identified within the direct APE, is recommended eligible. The only feature of KET-00060 within the direct APE is the road that enters the park. Although features within the indirect APE have been subject to reconstruction and modification over time, they maintain integrity of location, design, feeling, setting, and association. No modification to the eligibility status of Saxman Totem Park can be attributed to the current construction.

KET-0546 & KET-0548, two eligible AHRS-listed properties in the original indirect APE were not visible from the DOT&PF ROW and therefore, no change to their eligibility status is recommended.

A total of 17 architectural resources in the APE (16 in the indirect APE, 1 in the direct APE) were newly recorded for this report (Table 1A). Of these, only one is recommended eligible for the listing in the NRHP: 929 Stedman Street (KET-01391). The other 16 resources were evaluated as ineligible for inclusion in the NRHP. The structure KET-01391 is located partially within the direct APE.

Table 1A Eligibility Recommendations for the 17 new AHRS listings.

AHRS #	Property	Description	APE	Eligibility	Finding
KET-01390	900 Stedman StreetSt.	Metal framed post-WWII utilitarian design building, (Pg. 57)	Indirect APE	Recommended Not Eligible	No Effect
KET-01391	929 Stedman St. Street	Wood framed post WWII utilitarian design building, (Pg. 58)	Direct / Indirect APE	Recommended Eligible	No Adverse Effect
KET-01392	Petro Marine Services Shed	Metal framed pre-fab storage shed, (Pg. 59)	Indirect APE	Recommended Not Eligible	No Effect
KET-01393KE	211 S.0 South Tongass HighwayHwy	1930s wood frame Minimal Traditional designed building, (Pg. 60)	Indirect APE	Recommended Not Eligible	No Effect
KET-01394	2182 S.South Tongass Hwy	1972 wood framed contemporary design building, (Pg. 61)	Indirect APE	Recommended Not Eligible	No Effect
KET-01395	2191 S. Tongass Hwy	1929 wood-framed Minimal Traditional design structure, (Pg. 62)	Direct APE	Recommended Not Eligible	No Effect
KET-01396	2266 S. Tongass Hwy	1960 wood framed modern ranch design building.(Pg. 63)	Indirect APE	Recommended Not Eligible	No Effect

AHRS #	Property	Description	APE	Eligibility	Finding
KET-01397	2278 Oyster Ave	1935 wood frame Bungalow design, (Pg. 64)	Indirect APE	Recommended Not Eligible	No Effect
KET-01398	2516 S. Tongass Hwy	1970 minimal traditional design, (Pg. 65)	Indirect APE	Recommended Not Eligible	No Effect
KET-01399	2573 S. Tongass Hwy	1920 wood framed Bungalow design, (Pg 66)	Indirect APE	Recommended Not Eligible	No Effect
KET-01400	2588 S. Tongass Hwy	1900 wood framed Bungalow design, (Pg. 67)	Indirect APE	Recommended Not Eligible	No Effect
KET-01401	2592 S. Tongass Hwy	1924 wood framed Bungalow design (Pg. 68)	Indirect APE	Recommended Not Eligible	No Effect
KET-01402	2587 S. Tongass Hwy	1920 wood framed Bungalow design (Pg. 69)	Indirect APE	Recommended Not Eligible	No Effect
KET-01403	2949 S. Tongass Hwy	1966 wood framed split level design (Pg. 70)	Indirect APE	Recommended Not Eligible	No Effect
KET-01404	3008 S. Tongass Hwy	1966 wood framed Modern Ranch design (Pg. 71)	Indirect APE	Recommended Not Eligible	No Effect
KET-01405	3016 S. Tongass Hwy	1970 wood framed Modern Ranch design (Pg. 72)	Indirect APE	Recommended Not Eligible	No Effect
KET-01406	24 Shoup St.	1965 wood framed Split Level design (Pg. 73)	Indirect APE	Recommended Not Eligible	No Effect

Determinations of Eligibility - Archeological Resources

Archaeological resources within the project area, include

- KET- 00060, Saxman Totem Park currently listed on the NRHP
- KET-00021, a previously recorded rock art site
- KET-00435, the dump site

KET-00021 is on the west side of Totem Row, near the entrance of the park. KET-00021 is composed of one previously recorded, and three newly recorded petroglyph panels. The site is located slightly outside of the indirect APE. Regardless, the site is described here in order to clearly demonstrate the juxtaposition and relationship of the KET-00021 to KET-00060, the Saxman Totem Park. Features of KET-00021 are part of an interpretive display within Saxman Totem Park, part of which is located in the indirect APE. Three totems and four grave markers associated with the site adjacent to the road are located in the indirect APE **(Attachment 1, Figure 9 & Attachment 2, Sheet 10)**. KET-00021 is eligible for the NRHP as a contributing element to Saxman Totem Park the petroglyphs of KET- 00021 would be eligible under Criterion C.

KET-00435, the dump site is recommended not eligible for inclusion in the NRHP. The dump is a by-product of expansion of Ketchikan in the 1930s, and has no notable association with events that have made a significant contribution to the broad patterns of history neither on national, state, or local level (Criterion A). The dump is not associated with an important person significant in our past (Criterion B). The site does not embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess artistic value (Criterion C). KET-00435 has not yielded, nor is likely to yield information important in history (Criterion D).

DOT&PF agrees with HDR's recommendations and determines that

- 1 historic resource: 929 Stedman Street, (KET 01391), wood framed post WWII utilitarian design building is eligible for listing in the NRHP.
- 16 remaining historic resources --listed in the table above--within the proposed project APE are not eligible for listing in the NRHP.
- 1 archeological resource, the dump site (KET-00435) is not eligible for listing in the NRHP.
- 1 archeological resource, Rock Art Site (KET-00021) is eligible for listing on the NRHP as a contributing element to Saxman Totem Park.
- 1 archeological resource, Saxman Totem Park retains its eligibility.

Finding of Effect

DOT&PF finds No Adverse Effect for the proposed project. The basis for the finding of "no adverse effect" is that the project would not have any adverse effect on the characteristics that qualify the above listed historic/cultural resources within the direct and indirect APE (Table 1B) for inclusion in the NRHP:

Table 1B Summary of Resources (highlighted in Discussion above, within or very near the APE).

AHRS #	Description	Eligibility	APE	Finding
KET-00021	Rock Art Site (Pg. 36)	Previously listed Eligible	Just outside Indirect APE	No Effect
KET-00060	Saxman Totem Park (Pg. 38-43)	Previously listed NRHP, Eligible	Indirect / Direct APE	No Effect
KET-00112	Auditorium/gym, frame, 1-1/2-stories, built ca. 1918. (Pg. 31)	Structure was demolished; Closed	Indirect APE	No Effect
KET-00279	1300 Stedman Street Headquarters Building, 16th Lighthouse District (Pg. 50)	Previously listed Eligible	Indirect APE	No Effect
KET-00343	Chief Kashakes House (Pg. 51)	Previously listed Eligible	Indirect APE	No Effect
KET-00435	Dump site (Pg. 44)	Previously listed Eligible	Direct APE	No Effect
KET-00542	Buoy Shed at the USCG station (Pg. 51)	Previously listed Eligible	Indirect APE	No Effect
KET-00546	North Pyrotechnic Bunker	Previously listed Eligible	Not visible in Indirect APE / ROW	No Effect
KET-00548	.30 Caliber Machine Gun Emplacement	Previously listed Eligible	Not visible in Indirect APE / ROW	No Effect
KET-01135	South Tongass Highway TE road (Pg. 47)	Portion Eligible for listing	Direct APE	No Effect
KET-01240	1715 S. Tongass Hwy Frame dwelling, 2 stories, built 1930.(Pg. 25)	Recommended Not Eligible	Direct APE	No Effect
KET-01247	2322 S. Tongass Hwy Dwelling, 2 stories, frame, built 1960. (Pg. 53)	Recommended Not Eligible	Indirect APE	No Effect

AHRS #	Description	Eligibility	APE	Finding
KET-01248	2332 S. Tongass Hwy 2 stories, frame, built 1945. (Pg. 54)	Recommended Not Eligible	Indirect APE	No Effect
KET-01249	2259 S. Tongass Hwy Wood frame 2 story dwelling, built 1950 (Pg. 55)	Recommended Not Eligible	Direct APE	No Effect
KET-01349	Fidalgo Island Packing Company's Cannery Warehouse (Pg. 52)	Previously listed Eligible	Indirect APE	No Effect
KET-01358	Saxman Government School (Pg. 56)	Previously listed Eligible	Indirect APE	No Effect
KET-01391	929 Stedman Street Wood framed post WWII utilitarian design building, (Pg. 58)	Recommended Eligible	Direct/Indirect APE	No Adverse Effect
KET-01395	2191 S. Tongass Hwy (Pg. 62)	Recommended Not Eligible	Direct APE	No Effect

Direct APE – Temporary& Permanent Construction Easements/Permits (TCEs/TCPs)
None of the eligible sites within the direct APE would be affected by the proposed access easements and permits **(Attachment 5, Table 4)**. The temporary construction easements (TCEs), temporary construction permits (TCPs) and permanent easements were identified and historic properties adjacent to the areas were evaluated for potential impact. The temporary property use would be minor in scope and there would be no permanent changes to any historic properties in the current project footprint.

The permanent incorporation of a portion of the Totem Park (KET-0060) into the ROW would not have a permanent adverse physical impact; nor would it cause interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis.

All slope grading is limited to areas where there are no historic properties. All properties (non-historic) impacted by any TCE's/TCP's would be returned to a condition which is at least as good as what existed prior to the proposed work. In all cases the proposed temporary access would not affect any characteristics that qualify the properties for listing in the NRHP.

The TCPs, TCEs and permanent easements including Totem Park have no potential to directly or indirectly adversely affect any historic properties or archaeological materials. The proposed access for the project is unlikely to affect potential historic values associated with the adjacent areas. No known association of contributing attributes of eligible structures would be compromised by the construction temporary access, permanent easements or slope grading associated with the project construction.

Direct APE – South Tongass and TE Road Status.
DOT&PF anticipates that paving and roadway improvements would have no adverse effect to the South Tongass Highway (KET-1135).

Before DOT&PF begins construction on the proposed project, the Alaska Native Tribal Health Consortium (ANTHC) plans to install a new wastewater system within the DOT&PF ROW. As a result, at least a portion of DOT&PFs work would take place within previously disturbed soil resulting from ANTHC's previous work. On June 7-2016, ANTHC received a SHPO concurrence with a finding of No Historic Properties Affected. **(Attachment 6)**

DOT&PF contacted your office on November 4, 2016 regarding South Tongass status as a TE Road. Draft TE consultation forms with attached graphics were discussed regarding the procedure of this evaluation. It was determined that only the last section of the South Tongass road from Herring Cove to end of the road was potentially eligible as a TE road.

DOT&PF retained Northern Land Use Research Alaska, LLC (NLURA) and Mead & Hunt, Inc. (Mead & Hunt) to prepare a Determination of Eligibility (DOE) report for the South Tongass Highway. Their research indicated four periods of construction of the South Tongass Highway. The eligibility of the highway was evaluated regarding these periods of construction.

Consequently, the road was divided into Segments 1 thru 4. Segments 1, 2, and 3 did not possess significance. Segment 4 of the South Tongass Highway was found to have significance at the local level under Criterion A. This segment of South Tongass has significance for its direct and important association with Transportation and for its supplemental area of significance of Industry with a period of significance that extends from 1951 to 1966. Segment 4 of the South Tongass Highway extends from Herring Cove (Mile Point (MP) 10.5 to Beaver Falls Creek MP 15.09. The current project footprint includes the two segments (1-2) and is not in an area of potential eligibility, therefore the impacts of the current construction are not relevant and were not evaluated for the current project construction.

Indirect APE

Project activities are likely to not have a visual adverse impact to eligible resources within the indirect APE: Saxman Petroglyphs (KET-0002), Saxman Totem Park (KET-00060), and all architectural resources. Project activities planned within the viewshed of these sites consist primarily of road re-pavement and improvements upon existing facilities. As the sites are currently within the viewshed of a modern asphalt road, project activities would not significantly alter the characteristics that make these resources eligible for the NRHP.

Section 4(f)

The DOT&PF has documented agreements with the official(s) with jurisdiction over the Section 4(f) resource regarding the project activities to improve the sidewalks and streets in the area of the Saxman Totem Park, (KET-00060). DOT&PF evaluated the permanent incorporation of a portion of the Totem Park (KET-0060) into the ROW and found that there would be no adverse effect on that property. It is DOT&PF's intent to make a Section 4(f) de minimis impact finding premised on your written concurrence that the project would not adversely affect the historic properties listed in **Attachment 5, Table 4.**

The remaining 4(f) eligible historic properties meet the conditions for the exception to 4(f) approval found in 23 CFR 774.13(a) – The restoration, rehabilitation, or maintenance of transportation facilities that are listed or eligible for listing in the NRHP.

In the event that previously unknown cultural resources are encountered in the process of construction the project manager shall halt activity and immediately notify the DOT&PF.

Consultation Efforts

The following consulting parties are being notified of this finding

- State Historic Preservation Officer
- Organized Village of Saxman
- Ketchikan Indian Community

- The Central Council of Tlingit and Haida Tribes of Alaska
- Cape Fox Corporation
- Sealaska Corporation
- Sealaska Heritage Institute
- Ketchikan Historic Commission
- Historic Ketchikan, Inc.
- Ketchikan Gateway Borough
- City of Ketchikan

In accordance with Section 106, Consultation-Initiation letters were mailed to the above-listed consulting parties on April 10, 2013. No responses to the consultation initiation letters were received.

Please direct your concurrence or comments to me at the address above or by telephone at 907-465-4715, or by e-mail at Michael.kell@alaska.gov.

Sincerely,

Michael Kell
Cultural Resource Specialist

Enclosures:
Attachment 1 Figure 1-9
Attachment 2 Sheets 1-12
Attachment 3 Table 2 Previously known cultural resources listed in the AHRS
Attachment 4 Table 3 Eligible properties within the APE, with recommended finding
Attachment 5 Table 4 Easements and 4(f) resources & 4(f) Activities Location Sheets1-17
Attachment 6 SSHPO concurrence with Finding of No Historic Properties Affected (June 6, 2016) on ANTHC's proposed wastewater line project

OHA Coversheet
Building Site forms
Office of History and Archaeology Coversheet: for the Cultural Resources Investigation for the DOT&PF South Tongass Highway, Deermount to Saxman Widening and Pavement rehabilitation Project, Ketchikan Gateway Borough.

Electronic cc w/ enclosures:
David Pyeatt, P.E., DOT&PF Southcoast Region, Project Manager
John Barnett, DOT &PF Southeast Regional Environmental Manager
Melissa Goldstein, DOT&PF, Statewide NEPA Manager
Kathy Price, DOT&PF, Cultural Resources Manager

THE STATE
of ALASKA
GOVERNOR BILL WALKER

Department of Natural Resources
DIVISION OF PARKS & OUTDOOR RECREATION
Office of History & Archaeology
550 West 7th Ave. Suite 1310
Anchorage Alaska 99501-3565
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http://dnr.alaska.gov/parks/oha/

APR 20 RECD

April 14, 2017

File No.: 3130-1R FHWA 2017-00310; 3330-6 KET 0021, KET 1358, KET 1391; 3330-6 N KET 0435, KET 1247-1249, KET 1390, KET 1392-1406

Subject: Ketchikan: Saxman to Surf St. Rehabilitation – South Tongass, and Ketchikan: South Tongass Highway, Deermount to Saxman Widening, Z-67571-0000, Z-67685-0000 / 0902(031), 0902(031), 0902(039)

Michael Kell
Department of Transportation & Public Facilities
6860 Glacier Highway
PO Box 112506

Dear Mr. Kell,

The Alaska State Historic Preservation Office (AK SHPO) received your supplemental letter (dated April 4, 2017) on April 7, 2017. Following our review of your letter and report, titled *Cultural Resources Investigation for the DOT&PF South Tongass Highway Deermount to Saxman Widening, and Saxman to Surf Street Pavement Rehabilitation Project, Ketchikan Gateway Borough, Alaska*, our office concurs with the following 23 determinations of eligibility (DOE) for listing on the National Register of Historic Places (Table 1).

Table 1. Determinations of Eligibility

No.	AHRS#	Description/Street Address	DOT&PF Determination	SHPO Comment
1	KET-0021	Saxman Petroglyph	Eligible, Criterion C; and eligible as a contributing element to the Saxman Totem Park (KET-0060)	Concur
2	KET-0435	Historic Town Dump	Not Eligible	Concur
3	KET-1247	2322 S. Tongass Hwy	Not Eligible	Concur
4	KET-1248	2332 S. Tongass Hwy	Not Eligible	Concur
5	KET-1249	2259 S. Tongass Hwy	Not Eligible	Concur
6	KET-1358	Saxman Government School/2322 S. Tongass Hwy	Eligible, Criterion A	Concur
7	KET-1390	900 Stedman St.	Not Eligible	Concur
8	KET-1391	929 Stedman St.	Eligible, Criterion A	Concur
9	KET-1392	Petro Marine Services Shed	Not Eligible	Concur
10	KET-1393	2101 S. Tongass Hwy	Not Eligible	Concur

No.	AHRS#	Site Address	DOT&PF Determination	SHPO Comment
11	KET-1394	2182 S. Tongass Hwy	Not Eligible	Concur
12	KET-1395	2191 S. Tongass Hwy	Not Eligible	Concur
13	KET-1396	2266 S. Tongass Hwy	Not Eligible	Concur
14	KET-1397	2278 Oyster Ave	Not Eligible	Concur
15	KET-1398	2516 S. Tongass Hwy	Not Eligible	Concur
16	KET-1399	2573 S. Tongass Hwy	Not Eligible	Concur
17	KET-1400	2588 S. Tongass Hwy	Not Eligible	Concur
18	KET-1401	2592 S. Tongass Hwy	Not Eligible	Concur
19	KET-1402	2587 S. Tongass Hwy	Not Eligible	Concur
20	KET-1403	2949 S. Tongass Hwy	Not Eligible	Concur
21	KET-1404	3008 S. Tongass Hwy	Not Eligible	Concur
22	KET-1405	3016 S. Tongass Hwy	Not Eligible	Concur
23	KET-1406	24 Shoup St.	Not Eligible	Concur

Please note that although Table 1 of your letter included a determination for the 1st and 2nd segment of the South Tongass Highway, it is still considered a treated as eligible (TE) road until the Historic Roads DOE Project is complete. As such, we reviewed the subject undertaking pursuant to Section 106 of the National Historic Preservation Act. Following our review, we concur with your finding of **no historic properties adversely affected** for the subject undertaking.

Please note that as stipulated in *36 CFR § 800.3*, other consulting parties such as the local government and Tribes are required to be notified of the undertaking. Additional information provided by the local government, Tribes or other consulting parties may cause our office to re-evaluate our comments and recommendations. Please note that our comment letter does not end the 30-day review period provided to other consulting parties. Should unidentified cultural resources be discovered in the course of the project, work must be interrupted until the resources have been evaluated in terms of the NRHP eligibility criteria (*36 CFR § 60.4*) in consultation with our office.

Thank you for providing the additional information we requested on March 24, 2017. We appreciate the opportunity to review and comment on the subject project. Please contact Mark Rollins at 269-8722 or mark.rollins@alaska.gov if you have any questions or if we can be of further assistance.

Sincerely,

For Judith E. Bittner
State Historic Preservation Officer

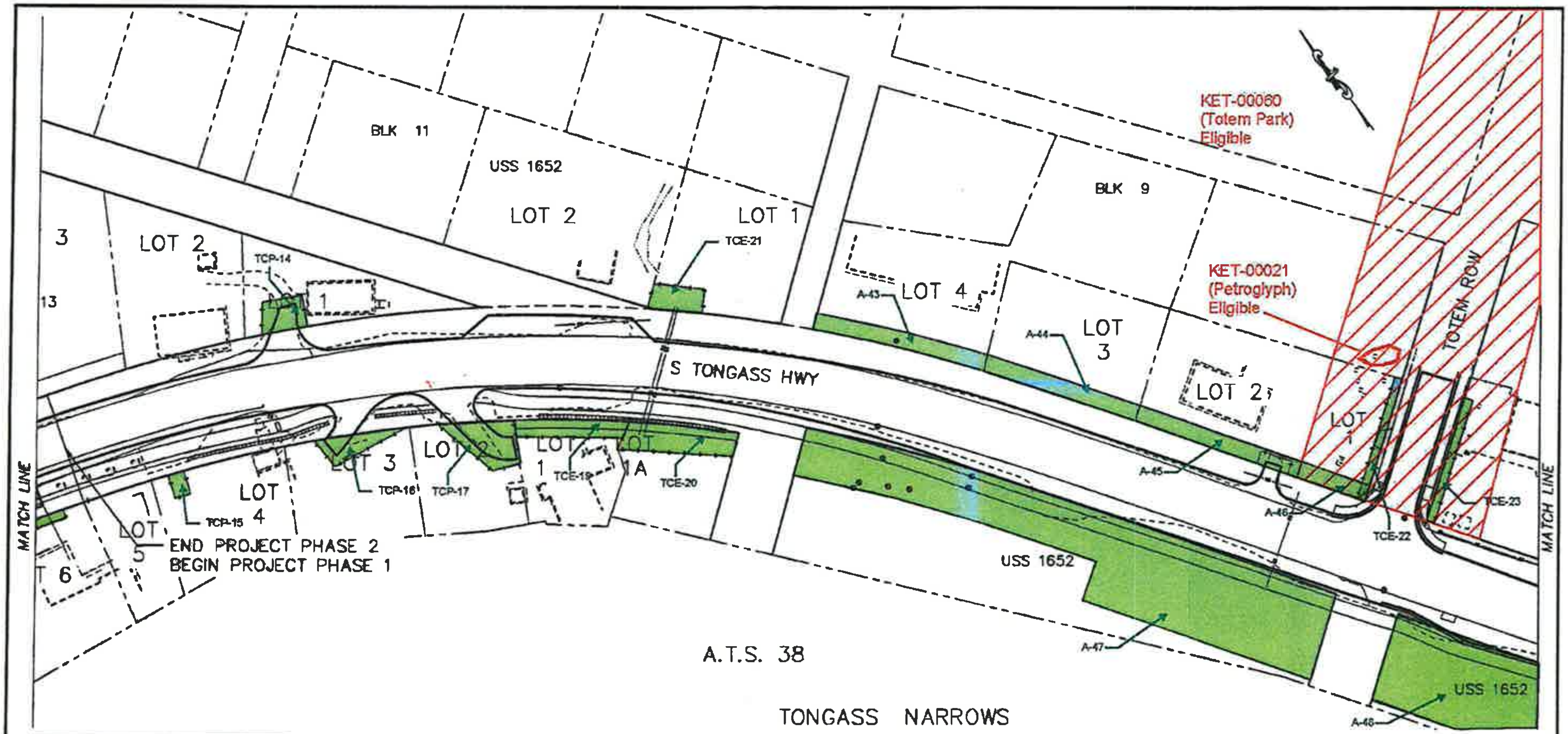
JEB:mwr

Attachment 2

No responses from consulting parties

Attachment 3

1. Map showing the 4(f) resource in relation to the project area



LOT	PARCEL	OWNER
Lot 7		Snodderly Jean Ann
Lot 6		Wagner Louie A & Cynthia L
Lot 5		Wagner Louie A & Cynthia L
Lot 4		Stewart Lawrence B
Lot 3		Stewart Lawrence B
Lot 2		Knutson Anthony M
Lot 1		Knutson Anthony M
Lot 1A		City of Saxman
USS 1652		City of Saxman
Lot 4		Shortsen Albert & Kelvin
Lot 3		Markle John & Mamie
Lot 2		McAllister John Raymond
Lot 1		McAllister John Raymond
Lot 2		Stanley Valerie F
Lot 1		Overton John & Kyan Paul
Lot 4		Pentecostal Church of God
Lot 3		Ward Daniel W & Debby K
Lot 2		Kushnick Matilda Heirs
Lot 1		City of Saxman

SOUTH TONGASS HIGHWAY

ADDITIONAL TEMPORARY OR PERMANENT ROW EASEMENTS
2/2017
SCALE 1"=30'
SHEET 12 OF 17

Attachment 4

1. Map showing contributing features within KET-00060

TE Road Location

SOUTH TONGASS HIGHWAY WIDENING PROJECTS
DEERMONT - SAXMAN (#67685)
SAXMAN - SURF (#67571)

Figure 9

Scholl, James W (DOT)

From: Goldstein, Melissa L (DOT)
Sent: Monday, May 22, 2017 8:50 AM
To: Scholl, James W (DOT)
Cc: Barnett, John C (DOT)
Subject: SEO Section 4(f) Exception RE: 67571 67685 4f consult worksheet - trail
Attachments: 67571 67685 4f consult worksheet - trail.docx; Path_Continuity (3).jpg

Hi Jim,

Based on the information provided in the attached documents, I agree that the **KTN: S. Tongass Improvements – Deermont to Saxman Widening/Saxman to Surf Rehabilitation (67571/67685)** projects will not affect the Joseph C. Williams, Sr. Coastal Trail, a Section 4(f) protected resource.

I have determined that work on the trail itself would meet the conditions for the exception to 4(f) approval stated in 23 CFR 774.13(f)(3) - Trails, paths, bikeways, and sidewalks that occupy a transportation facility right-of-way without limitation to any specific location within that right-of-way, so long as the continuity of the trail, path, bikeway, or sidewalk is maintained. As I understand it, the trail is located entirely within DOT&PF right-of-way and the project will create one continuous trail by connecting two discontinuous sections of existing trail.

"The proposed project will not use any Section 4(f) resources. DOT&PF has determined that Section 4(f) does not apply."

Please ensure a copy of this email is placed in the project file.

Thanks,
Melissa

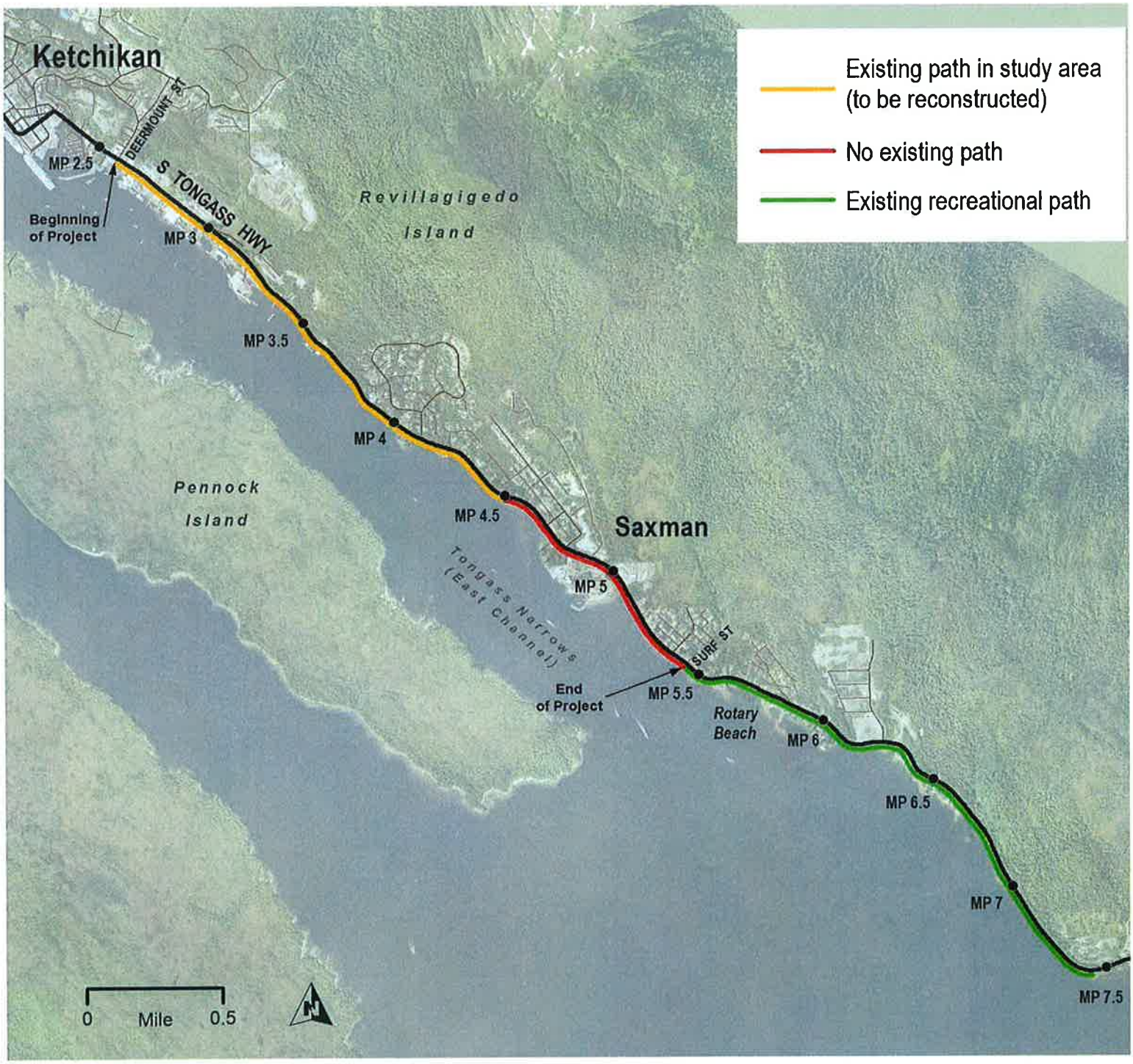
Melissa Goldstein
NEPA Program Manager
Statewide Environmental Office
Alaska Department of Transportation and Public Facilities
Phone: (907) 465-6961

From: Scholl, James W (DOT)
Sent: Friday, May 19, 2017 11:32 AM
To: Goldstein, Melissa L (DOT)
Subject: 67571 67685 4f consult worksheet - trail

Melissa, Attached is the revised trail Worksheet.

Jim Scholl
Environmental Analyst
ADOT&PF Southcoast Region
6860 Glacier Highway
POB 112506
Juneau Alaska 99811-2506

jim.scholl@alaska.gov


Ketchikan
DEERMOUNT ST
S TONGASS HWY
MP 2.5
Beginning of Project
MP 3
MP 3.5
MP 4
MP 4.5
MP 5
MP 5.5
End of Project
SURF ST
Revillagigedo Island
Pennock Island
Tongass Narrows (East Channel)
Saxman
Rotary Beach
MP 6
MP 6.5
MP 7
MP 7.5
Existing path in study area (to be reconstructed)
No existing path
Existing recreational path
0
Mile
0.5
N

From: Goldstein, Melissa L (DOT)
Sent: Friday, June 16, 2017 9:06 AM
To: Scholl, James W (DOT)
Cc: Barnett, John C (DOT)
Subject: SEO Section 4(f) Exception RE: SEO information request RE: 67571 67685 4f consult worksheet - historic properties

Jim,

Based on the information provided in the attached documents, I agree that, with the exception of the permanent incorporation involving KET-00060 Saxman Totem Park outlined in the *de minimis* finding approved on 05/08/17, the **KTN Saxman to Surf St Pavement Rehabilitation/KTN S. Tongass Hwy Deermount to Saxman Widening (67571/67685)** projects will not affect the historic properties in the project area that are listed on or eligible for listing on the National Register of Historic Places (NRHP) and therefore Section 4(f) protected resources.

I agree that the project activities to improve the South Tongass Highway, a Treat as Eligible Road, and associated sidewalks meet the conditions for the exception to 4(f) approval found in 23 CFR 774.13(a) – The restoration, rehabilitation, or maintenance of transportation facilities that are on or eligible for the National Register. This work will not adversely affect the historic qualities of the road, and the Section 106 consultation resulted in a finding of "no adverse effect," with which SHPO concurred on 04/14/17. The exception to 4(f) approval found in 23 CFR 774.13(a) exception also applies to work being conducted on the road and sidewalks within Saxman Totem Park.

In addition, I agree that the project activities occurring within TCEs and TCPs that are located immediately adjacent to structures that are listed on or eligible for listing on the NRHP meet the conditions for the exception to 4(f) approval found in 23 CFR 774.13(d) – Temporary occupancies of land that are so minimal as to not constitute a use within the meaning of Section 4(f). On 04/14/17, the official with jurisdiction (SHPO) agreed that the conditions to the exception would be satisfied. It is my understanding that the stairs being removed from in front of KET-1391 are not historically significant and will not be replaced as they are no longer a permitted ROW encroachment.

"The proposed project will not use the Section 4(f) properties described above. DOT&PF has determined that Section 4(f) does not apply."

Please ensure a copy of this email is placed in the project file.

Thank you,
Melissa

Melissa Goldstein
NEPA Program Manager
Statewide Environmental Office
Alaska Department of Transportation and Public Facilities
Phone: (907) 465-6961

From: Scholl, James W (DOT)
Sent: Thursday, June 15, 2017 2:11 PM
To: Goldstein, Melissa L (DOT)
Subject: RE: SEO information request RE: 67571 67685 4f consult worksheet - historic properties

Melissa, Attached is the revised document with attachments.

Jim Scholl
Environmental Analyst
ADOT&PF Southcoast Region
6860 Glacier Highway
POB 112506
Juneau Alaska 99811-2506

jim.scholl@alaska.gov

(907) 465 4498
(907) 465 2016 FAX

From: Ayers, Jean M (DNR)
Sent: Thursday, July 21, 2016 1:34 PM
To: Scholl, James W (DOT)
Subject: RE: 67571 67685 KTN: S. Tongass Highway Rehabilitation - Deermount to Surf / 6f

Good Afternoon Jim,

We have had 8 LWCF grants invested into parks and outdoor rec facilities in Ketchikan over the past few decades. However, none are close enough to be affected by the project you have described. The closest appears to be Harbor View Park, which is by the city floats along Tongass Avenue NW of the tunnel.

Based on the information provided, there are no 6(f) concerns on this project. If the project changes significantly, please contact me again for a re-determination. Thanks for checking!

Jean Ayers
Grants Administrator, State of Alaska: DNR
Division of Parks and Outdoor Recreation
(907) 269-8694

The Division is updating the Statewide Comprehensive Outdoor Recreation Plan (SCORP) and wants your input. To review and comment on the draft SCORP go to http://dnr.alaska.gov/parks/scorp .

From: Scholl, James W (DOT)
Sent: Friday, July 15, 2016 3:45 PM
To: Ayers, Jean M (DNR) <jean.ayers@alaska.gov>
Subject: 67571 67685 KTN: S. Tongass Highway Rehabilitation - Deermount to Surf / 6f

Jean, Are there any 6F properties we would be affecting with this project? Attached is a graphic I used for cultural resource investigation so the large area in yellow is for visual impacts. The actual project foot print is much smaller. Basically, it is a rehabilitation of the existing highway. I do not think there are any 6f properties close; the nearest one would be Rotary Park which is much farther south of the project. Let me know if there are any properties close. Thanks!

Jim Scholl
Environmental Analyst
ADOT&PF Southcoast Region
6860 Glacier Highway
POB 112506
Juneau Alaska 99811-2506

jim.scholl@alaska.gov

(907) 465 4498

Attachment I: Public and Agency Involvement

Scoping Documents

Public Involvement including Comments and Coordination

Memo

Date: Wednesday, August 17, 2016

Project: South Tongass Highway Rehabilitation

To: David Pyeatt, Project Manager, DOT&PF

From: Chris Croft, Project Manager, HDR

Subject: Scoping Summary Report

Public Involvement Activities Narrative

Public involvement and project scoping for the South Tongass Highway Rehabilitation Project consisted of the activities summarized below. All documentation is included as an attachment to this memo.

- May 8, 2016 – Scoping letters sent to stakeholders via mail and email.
- May 18, 2016 – Project website launched.
- May 24, 2016 – Project website updated to include open house meeting information.
- May 24, 2016 – Open house meeting information sent to Roxann Byron at the City of Saxman to be included in the Saxman community newsletter.
- June 7, 2016 – Legal notice of open house meetings published in the Ketchikan Daily News.
- June 8, 2016 – Email sent from Allison Biastock, Public Involvement Lead, to identified stakeholders to inform them of the upcoming open house meetings and encourage them to sign up for the project email distribution list.
- June 11 and 18, 2016 – Graphic ad promoting the open house meetings and online open house published in the Ketchikan Daily News.
- June 14 through June 22, 2016 – Online ad promoting the open house meetings published on the Ketchikan Daily News website.
- June 20, 2016 – E-Newsletter sent to email distribution list advertising open house meetings.
- June 21, 2016 – Stakeholder meetings with the City of Saxman and Organized Village of Saxman.
- June 21, 2016 – Saxman Open House held at the Saxman Community Center.
- June 22, 2016 – Stakeholder meetings with the Ketchikan Gateway Borough, City of Ketchikan, and Ketchikan Indian Community.
- June 22, 2016 – Ketchikan Open House held at the Ted Ferry Civic Center.
- June 23 through July 7, 2016 – Online ad promoting the online open house published on the Ketchikan Daily News website.
- June 23 through July 14, 2016 – Online open house accessible to public.
- July 8, 2016 – E-Newsletter sent to email distribution list advertising ongoing online open house.
- July 14, 2016 – Email sent from Allison Biastock to identified stakeholders to inform them of an extension of the online open house (through July 31, 2016) and to solicit comments and encourage joining the project email distribution list.
- July 14, 2016 – E-Newsletter sent to email distribution list advertising online open house extension through the end of July, 2016.

Summary of Comments Received

Overall, stakeholders and the public expressed support for this project and see it as needed improvement to an important transportation corridor. Common comments received at the meetings noted above and through correspondence are summarized below, sorted by topic.

Pathway along South Tongass

- There was strong support expressed for the pathway.
- Many comments requested improvements and further connections/extensions of the pathway along South Tongass.
- Provide guardrail/barrier between highway and pathway for the entire project length.
- More parking is needed for users of the pathway.
- Utility poles in the center of the pathway should be removed.

Safety

- The speed limit along the entire South Tongass Highway should be lowered from 45 mph to 35 or 30 mph, and lowered from 30 mph to 25 or 20 mph through Saxman.
- The crosswalk at the Deermount intersection needs pedestrian safety improvements (better lighting, pushbutton crosswalk).
- Consider adding crosswalks at the USGS base and at Totem Row.
- Drainage from Forest Park and Oyster Avenue creates dangerous conditions, especially in the winter when it causes icy patches on South Tongass.

Traffic/Transit

- Increased traffic during summer tourist season may be impacted by construction.
- More parking is needed throughout the area.
- South Tongass needs turn lanes at several intersections (Deermount, Totem Row).
- Requests for expanded bus service (additional stops in the Saxman area) and more bus shelters.
- Bus stops should be pullouts rather than having them stop on the highway, and pullouts should not impact the pathway.

Private Property

- Property owners along project area are concerned about potential impacts to private property and changes to driveway access.
- Objections to plans to remove the Stedman Street access to the Tatsuda's Supermarket parking lot.

Environmental

- There are two eagle nests along South Tongass.
- Inadequate culverts block fish passage, can they be replaced as a part of this project?

Public Involvement Documentation

Table of Contents

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and Public Facilities

SOUTHCOAST REGION

6860 Glacier Highway
PO Box 112506
Juneau, Alaska 99801-2506
Main: (907) 465-1799
Toll free: (800) 575-4540
Fax: (907) 465-2030
TTY-TDD: (800) 770-8973
dot.state.ak.us

May 4, 2016

Re: Ketchikan: South Tongass Highway Rehabilitation
State #67571/67685; Federal # 0902031/0902039

The Honorable Lew Williams III
Mayor, City of Ketchikan
334 Front Street
Ketchikan, AK 99901

Dear Mayor Williams,

Re: Request for scoping comments

The Alaska Department of Transportation and Public Facilities (DOT&PF) has assumed the responsibilities of the Federal Highway Administration under 23 U.S.C. 326 to document the potential environmental impacts of a roadway project in the Ketchikan Gateway Borough (KGB). DOT&PF is proposing to rehabilitate approximately 3 miles of the South Tongass Highway and related non-motorized facilities from Deermount Street in Ketchikan to Surf Street in Saxman. HDR on behalf of DOT&PF requests comments on the project from resource and regulatory agencies and the interested public to assist us in preparing the project's environmental documentation.

Project Location

The proposed project is located on Revillagigedo Island in the KGB, within Sections 29,30,32,33, T75S, R91E, and Section 4, T76S, R91E on the USGS Quadrangle Map Ketchikan B-5, Copper River Meridian.

The South Tongass Highway runs adjacent to the southwest coast of Revillagigedo Island, beginning at the Ferry Terminal Access Road and North Tongass Highway junction in

Ketchikan's north end and continuing 15 miles south, through the community of Saxman, to Beaver Falls.

The South Tongass Highway rehabilitation project starts at the Deermount Street intersection (MP 2.6) and ends at approximately Surf Street (MP 5.5).

Project Purpose

The purpose of the project is to improve operations along South Tongass Highway between Deermount Street and Surf Street. The DOT&PF has identified the need to resurface, restore, and rehabilitate this portion of South Tongass Highway and related non-motorized facilities to improve the safe movement of vehicle, bicycle, and pedestrian traffic.

The project will flatten horizontal curves and cut back slopes in some locations to improve sight distances, which may reduce the number of accidents at those locations. Restoring a smooth and uniform roadway surface for the travelling public would reduce maintenance cost by facilitating efficient snow removal, reduce snow and ice entrapment in the wheel ruts, allow proper drainage and efficient snow removal. Rock slopes along the highway are over-steep and show signs of raveling. Similar conditions have contributed to recent rock slides on other sections of South Tongass Highway. The project may include refreshing rock slopes by cutting deeper into the hillside, which will reduce the risk of rock slides.

The pedestrian/bicycle pathway will be rehabilitated in existing areas and a new one will be constructed to provide the missing link between Surf Street and Saxman. In some sections, the embankments and retaining walls along the existing pathway show varying degrees of distress and failure. These need to be restored for improved structural integrity and safety for path users.

Project Description

South Tongass Highway serves the Cities of Ketchikan and Saxman as well as the entire KGB. The South Tongass Highway is a minor arterial and the only highway on Revillagigedo Island that provides travel connections between the City of Ketchikan and communities to the south. The highway is an undivided, two-lane roadway with many private driveways, limited shoulders, and an adjacent multi-use pathway along most sections.

In the 1990s, an Environmental Assessment evaluated improvements along the entire South Tongass corridor including the construction of a separate pedestrian and bicycle path on the water side of the highway.

The South Tongass Highway Rehabilitation project would widen the highway to current design standards, reconstruct the multi-use pathway, extend the pathway through Saxman, improve drainage (including new inlets, storm drains, ditches, and culverts), and relocate utilities. Rock

cuts may be needed to widen the road in some locations. Bus stop turnouts and shelters may be constructed at locations to be determined in coordination with the KGB Transit Manager and the City of Saxman.

This project has two planned construction phases: the first being the southern portion from Saxman (MP 4.5) to Surf Street (MP 5.5), the second being the segment between Deermount Street (MP 2.6) and Saxman (MP 4.5) (see attached figure). Construction on the first phase, Saxman to Surf Street, is anticipated to begin in 2017. Construction on the Deermount Street to Saxman section is slated to start in 2018. Construction dates are contingent on the availability of funding and other factors.

Proposed Action

This project would include the following components, as necessary:

- modification of horizontal and vertical alignment where warranted and cost effective to improve safety;
- rock excavation to accommodate realignment and widening;
- excavation and reconstruction of the existing embankment at select locations;
- construction of mechanically stabilized earth walls or other wall structures as appropriate;
- drainage improvements including culvert replacement and ditching;
- removal and replacement of guardrail as warranted;
- replacement of handrails and chain link fence;
- replacement of public and private staircases for access to adjacent properties;
- resolution of right-of-way (ROW) encroachments (removal or permitting); and
- relocation of overhead and underground utilities.

Impacts associated with these actions may include:

- ROW acquisitions;
- potential disturbance to bald eagles; eagle nests have been observed along the highway corridor;
- potential disturbance of invasive plants; an invasive plant survey will be performed, and if invasive plants would be disturbed by construction, the plants would be required to be controlled and disposed in an appropriate manner;
- potential disturbance to fish habitat;
- fill or excavation in wetlands; and
- construction related impacts such as traffic delays and noise.

Request for Comments

The proposed project is not expected to involve any significant environmental impacts, and a Categorical Exclusion document will be prepared (23 CFR 771.117). We request your comments on the proposed action, particularly in regard to potential impacts to resources under your jurisdiction. DOT&PF must also determine to what extent this project would impact **cultural or historic properties**. If you have information that would assist in these

determinations, please provide it. To comply with certain interagency agreements, we request the views of applicable agencies on potential effects on bald eagles, and threatened and endangered species. Please submit your comments via email at info@southtongasshighway.com. Your comments will be considered and included in the project's environmental document. Public scoping meetings are planned for June in Ketchikan and Saxman, we will contact you with meeting details.

If you have any questions or comments on the environmental review process, please contact Carol Snead, Consultant Environmental Lead at HDR (907) 644-2000. Questions concerning the engineering aspects of the proposed project can be directed to Chad Howard, P.E., DOT&PF Project Manager, at (907) 465-4456.

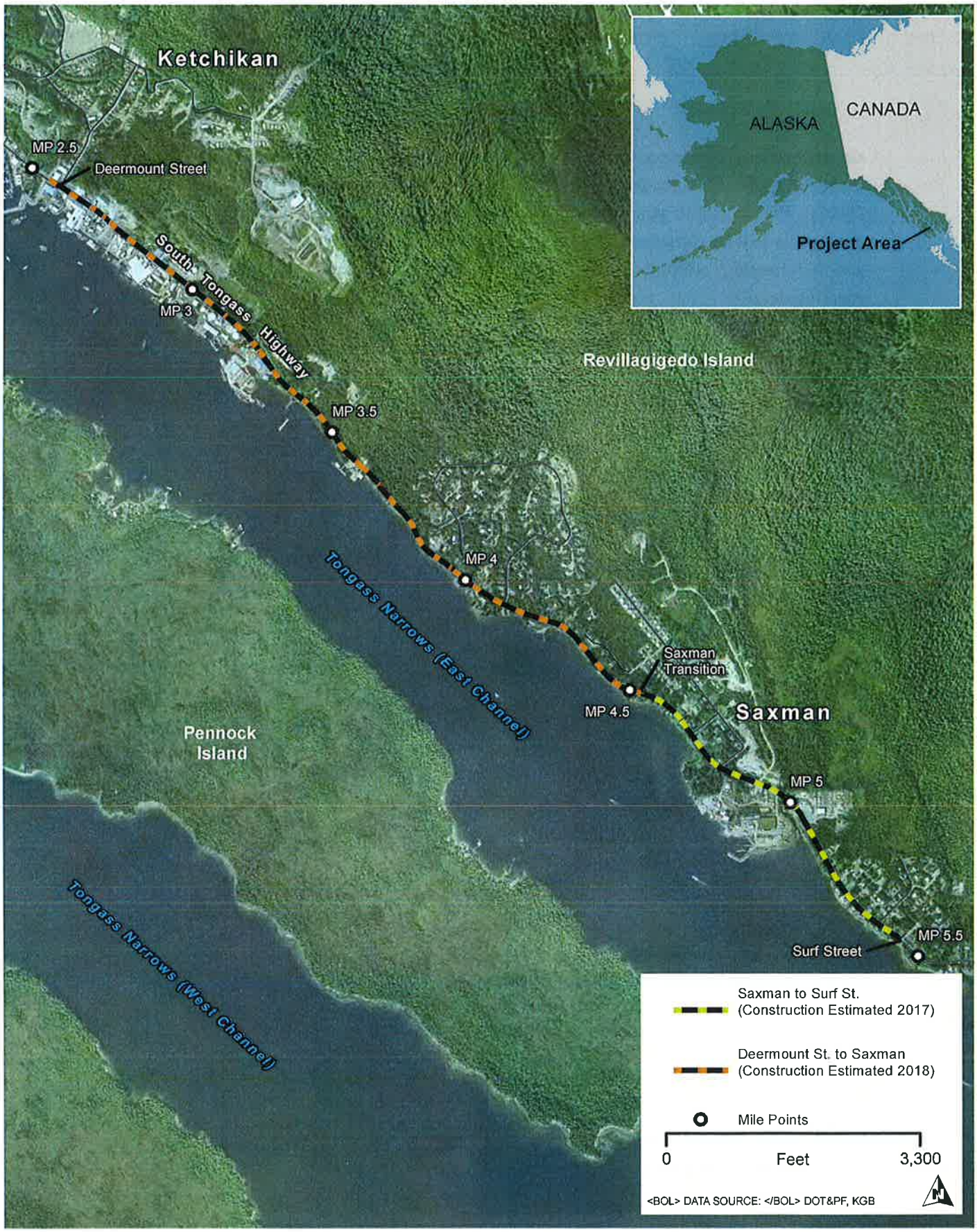
Sincerely,

Carol Snead
On behalf of Jim Scholl,
DOT&PF Project Environmental Coordinator

Enclosures:
Figure 1: Project Area

Distribution list:
William Ashton, Manager, Division of Water, DEC
Jeff DeFreest, District Ranger, Tongass National Forest
Dianne Soderlund, EPA Region 10
Mary Goode, NOAA Fisheries
Socheata Lor, USFWS
David Landis, Mayor, Ketchikan Gateway Borough
Mark Minnillo, Area Biologist, ADF&G
Richard Shields, Sr., City of Saxman
Terry Wanzer, Chair, Ketchikan Historical Commission
Lee Wallace, Organized Village of Saxman
Irene Dundas, President, Ketchikan Indian Corporation
Gregg Poppen, Chairman, Ketchikan Gateway Borough Planning Commission
Lew Williams, Mayor, City of Ketchikan

Cc: Hilary Lindh, Southcoast Region Environmental Manager, DOT&PF
Melisssa Goldstein, Statewide NEPA Manager, DOT&PF
Keith Karpstein, P.E., Design Group Chief, DOT&PF
Chad Howard, P.E., Design Manager, DOT&PF



SOUTH TONGASS HIGHWAY REHABILITATION

PROJECT AREA

FIGURE 1

PATH: \\ANC-SRV04\PROJECT_SAN\07072 DOT&PF\267931 S. TONGASS DEERMONT NTP 2\MAP_DOCS\PI\FIG1_PROJECTAREAMAP.MXD - USER: TLILLY - DATE: 05/02/2016

S. Tongass Highway Rehabilitation Scoping Letter Recipients

Name	Title	Organization	Address	Phone
Lew Williams III	Mayor	City of Ketchikan	City of Ketchikan 334 Front Street Ketchikan, AK 99901	907.225.3111
Richard Shields, Sr.	Mayor	City of Saxman	City of Saxman Route 2, Box 1 Ketchikan, AK 99901	907.225.4166
Lee Wallace	President	Organized Village of Saxman	Organized Village of Saxman Route 2, Box 2 - Saxman Ketchikan, AK 99901	907.247.2502
David Landis	Mayor	Ketchikan Gateway Borough	Ketchikan Gateway Borough 1900 First Avenue Ketchikan, AK 99901	907.228-6604
Gregg Poppen	Chairman	Ketchikan Gateway Borough Planning Commission	Ketchikan Gateway Borough 1900 First Ave. Suite 126 Ketchikan, AK 99901	907.228.6610
Terry Wanzer	President	Ketchikan Historical Commission	Historic Ketchikan, Inc. P. O. Box 23364 Ketchikan, Alaska 99901	907.225.5515
Irene Dundas	President	Ketchikan Indian Corporation	Ketchikan Indian Corporation 2960 Tongass Avenue Ketchikan, AK 99901	907.225.5158
Jeff DeFreest	District Ranger	Tongass National Forest	Ketchikan Misty Fiords Ranger District 3031 Tongass Avenue Ketchikan, AK 99901-5743	907-225-2148 Voice; 907-225-0414 TTY Fax: 907-225-8738
Mary B Goode	Admin Assistant	NOAA Fisheries	P.O. Box 21668 709 West 9th Street Juneau, AK 99802	907.586.7636
William Ashton	Storm Water and Wetlands Engineer	DEC-Division of Water	Alaska Department of Environmental Conservation 555 Cordova Street Anchorage, AK 99501	907.269.6283
Socheata Lor	Field Supervisor	UFWS	4700 BLM Road Anchorage, Alaska 99507	907.271.2888
Dianne Soderlund	Director, Alaska Operations Office	EPA, Region 10	222 West 7th Ave. #19 Anchorage, AK 99513-7588	907.271.5083
Mark Minnillo	Area Management Biologist Craig	ADF&G	Alaska Department of Fish and Game Westwind Plaza, Suite 302 P.O. Box 668 Craig, AK 99921-0668	907.826.2560
Cc. Hilary Lindh	Southcoast Regional Environmental Manager	DOT&PF	DOT&PF, Southcoast Region P.O. Box 112506 Juneau AK 99811-2506	907.465.6564
Cc. Melissa Goldstein	Statewide NEPA Program Manager	DOT&PF	3132 Channel Dr., P.O. Box 112500 Juneau, AK 99811-2500	907.465.6961
Cc. Keith Karpstein	Southcoast Region Design Group Chief	DOT&PF	6860 Glacier Highway Juneau, AK 99801	907.465.1796
Cc. Chad Howard	Design Manager	DOT&PF	6861 Glacier Highway Juneau, AK 99801	

Responses in "comment and responses log" in "Public Involvement" section

Public Involvement including Comments and Coordination

AFFIDAVIT OF PUBLICATION

Legal No. 15506

STATE OF ALASKA,)
) SS:
Gateway Borough)

Kathy Williams, being duly sworn says: That she is a representative of the Ketchikan Daily News, a daily newspaper published at Ketchikan, in said Borough and State, and that the publication of which the annexed is a printed and true copy, was published in said newspaper at least once per week for one week, commencing on the 7th day of June 2016 and ending on the 7th day of June 2016.

Kathy Williams

Subscribed and sworn to before me this

7th, day of

June, 2016

Tena Williams

Notary Public for Alaska
My Commission Expires 1·12·19

Official Seal
Tena Williams
Notary Public - State of Alaska
My Comm. Expires
January 12, 2019

South Tongass Highway
Rehabilitation Project
Public Open House Meetings
Saxman: Tuesday, June 21, 5-7PM
Saxman Community Center
2706 South Tongass Highway
Ketchikan: Wednesday, June 22, 4:30-6:30PM
Ted Ferry Civic Center
888 Venetia Avenue

The Alaska Department of Transportation and Public Facilities (DOT&PF), in coordination with the Federal Highway Administration (FHWA), is proposing to rehabilitate approximately 3 miles of the South Tongass Highway and bike/pedestrian path from Deermount Street in Ketchikan to Surf Street in Saxman. A new bike/pedestrian pathway is planned for the Saxman to Surf Street section. You are invited to attend a Public Open House on June 21 or June 22 to learn more about the project and how it may affect you, and give us your feedback. For more information visit: www.southtongasshighway.com or contact us at info@southtongasshighway.com.

State #67571/67685; Federal # 0902031/0902039.

If you have any questions or require additional information, please contact Keith Karpstein, P.E., Project Manager, at 907-465-1796 or Jim Scholl, Project Environmental Coordinator, at 907-465-4498.

If you or someone you represent requires special accommodations in order to respond to this public notice or participate in the public meeting, please call or email (info@southtongasshighway.com) the project's Project Environmental Coordinator listed above or call Alaska Relay at (800) 770-8973 for TTY, (800) 770-8255 for voice, (800) 770-3919 for ASCII, (866) 355-6198 for STS and ask the communications assistant to call the Project Environmental Coordinator listed above so arrangement can be made to assist you.

Publish: June 7, 2016
No. 15506

AFFIDAVIT OF PUBLICATION

STATE OF ALASKA,)
) SS:
Gateway Borough)

NANCY KASTE, being duly sworn says:

That she is representative of the Ketchikan Daily News, a daily newspaper published at Ketchikan, in said Borough and State, and that the publication of which the annexed is a printed and true copy, was published in said newspaper at least once a day and every day for one consecutive day commencing on the 11th day of June, 2016 and ending on the 11th day of June, 2016.

Subscribed and sworn to before me this 11th day of June. 2016.

Tena Williams
Notary Public for Alaska

My Commission Expires 1-12-19

Official Seal
Tena Williams
Notary Public - State of Alaska
My Comm. Expires
January 12, 2019

Meyer, R-Anchorage, has said
nate's passage of oil tax credit
e question is whether that's
ens with the permanent fund

Republicans, dissatisfied with
tax credit system, have been
ings. House Minority Leader
at his caucus doesn't want to
r by itself. Some conservative
nn Gattis of Wasilla, believe
zens to chip in.
the annual dividends most
$1,000 the next three years, a
2,072 last year. It also would
half.
e tax.
o get to a compromise when

didn't send you down to com-
at they're saying. We continue
rd."
esolution, Rep. Andy Joseph-
d that if his vote was needed,
ect he deeply opposes, "they
ian and I'm not going to cast

have played out so far.
been a missed opportunity for
income tax with a Permanent
tax credit. The idea got little

d that lawmakers are dealing
to think long term since they
stituents want and often their

OROUGH
CHITECTURAL DESIGN

D

ed citizens to serve on the
tural Design Review Board.
istrict Zone property owners
e term of office is two years.
weekdays at the White Cliff

Platting/Zoning Clerk, 1900
anning Department email:

Department until filled. The
s on an ongoing basis at its
n, please call 228-6610.

Committee	12:00 p.m.	
Planning Commission	June 14, 2016 6:00 p.m.	Assembly Chambers
Animal Protection Citizen Advisory Committee	June 15, 2016 12:00 p.m.	Assembly Chambers
Borough Assembly	June 20, 2016 5:30 p.m.	Assembly Chambers
North Tongass Fire & EMS Service Area Board	June 22, 2016 5:30 p.m.	Fire Station 8 13110 N. Tongass Hwy
School Board	June 22, 2016 6:00 p.m.	Assembly Chambers

Unless otherwise noted, Borough public meetings are held at the White Cliff Building, 1900 First Ave. An agenda packet for each meeting is available at the Borough Clerk's Office and on the Borough website. Meetings of the Assembly, Planning Commission, and Assembly Committees are televised on GCI and KPU local channels. Live and archived video is available on the Borough website at http://www.kgbak.us

South Tongass Highway Rehabilitation
Deermount to Surf

Do you drive, run, walk, or bike on the South Tongass Highway from Deermount to Surf Street?

You may wish to attend upcoming Public Open House Meetings

Saxman: Tuesday, June 21, 5-7PM
Saxman Community Center
2706 South Tongass Highway

Ketchikan: Wednesday, June 22, 4:30-6:30PM
Ted Ferry Civic Center
888 Venetia Avenue

The Alaska Department of Transportation and Public Facilities (DOT&PF), in coordination with the Federal Highway Administration (FHWA), is proposing to rehabilitate approximately 3 miles of the South Tongass Highway and bike/pedestrian path from Deermount Street in Ketchikan to Surf Street. A new bike/pedestrian pathway is planned for the Saxman to Surf Street section.

You are invited to attend a Public Open House on June 21 or June 22 to learn more about the project and how it may affect you, and give us your feedback. The open house events in Saxman and Ketchikan will have identical materials, and project team members will be available to answer questions and provide project details. Light refreshments will be provided. For more information visit: www.southtongasshighway.com. Or contact us at info@southtongasshighway.com.

Online Open House – June 23 - July 14 Can't make the meeting? Visit our Online Open House from June 23 - July 14, 2016, to view meeting materials and provide comments. The online open house will be accessible via www.southtongasshighway.com

State #Z575116T635; Federal # 0002(0)10202039. If you have any questions or require additional information, please contact Keith Karpstein, P.E., Project Manager, at 907-465-1786 or Jim Scholl, Project Environmental Coordinator, at 907-465-4495.

If you or someone you represent requires special accommodations in order to respond to this public notice or participate in the public meeting, please call or email (info@southtongasshighway.com) the project's Environmental Coordinator listed above or call Alaska Relay at (800) 770-8973 for TTY, (800) 770-8255 for voice, (800) 770-3919 for ASCII, (866) 355-6198 for STS and ask the communications assistant to call the project Environmental Coordinator listed above so arrangement can be made to assist you.

AFFIDAVIT OF PUBLICATION

STATE OF ALASKA,)
) SS:
Gateway Borough)

NANCY KASTE, being duly sworn says:

That she is representative of the Ketchikan Daily News, a daily newspaper published at Ketchikan, in said Borough and State, and that the publication of which the annexed is a printed and true copy, was published in said newspaper at least once a day and every day for one consecutive day commencing on the 18th day of June, 2016 and ending on the 18th day of June, 2016.

Subscribed and sworn to before me this 18th day of June. 2016.

Tena Williams
Notary Public for Alaska

My Commission Expires 1-12-19

Official Seal
Tena Williams
Notary Public - State of Alaska
My Comm. Expires
January 12, 2019

to lead the beleaguered department. She had appointed Fairow after Chief Sean Whent suddenly resigned June 9.

Schaat said she will not immediately appoint an acting or interim chief. Instead, the command staff will report to City Administrator Sabrina Landreth, who will be responsible for personnel and disciplinary decisions.

Continued from page A-1

ment."

For those concerned about climate change, wood heat and oil heat are both carbon-based fuels, but the Forest Service staffer noted some key differences.

"A lot of biomass systems in Southeast, like this one, are using a waste product," Deering said. "Larry is using sawdust in his mill that otherwise would be landfilled."

The carbon in wood pellets is part of the "natural cycle between the atmosphere and carbon that's absorbed into plants," he said. "As soon as you start adding new fossil carbon, you're increasing the amount of carbon that's in the cycle."

nbowman@ketchikandailynews.com

Public access to the Swan Lake Hydroelectric Project, located approximately 22 miles NE of Ketchikan at the head of Carroll Inlet on Revillagigedo Island, is closed until October 31, 2016 for construction zone safety requirements. We appreciate your patience during these construction activities for SEAPA's Swan Lake Reservoir Expansion Project. For more information on the project, please visit SEAPA's website at www.seapahydro.org/Swan-Lake-project.php or call 907.228.2281. *SEAPA is leading the region's effort to advance new power generation opportunities to serve future load growth.*

South Tongass Highway Rehabilitation
Deermount to Surf

Do you drive, run, walk, or bike on the South Tongass Highway from Deermount to Surf Street?

You may wish to attend upcoming Public Open House Meetings

Saxman: Tuesday, June 21, 5-7PM
Saxman Community Center
2706 South Tongass Highway

Ketchikan: Wednesday, June 22, 4:30-6:30PM
Ted Ferry Civic Center
888 Venetia Avenue

The Alaska Department of Transportation and Public Facilities (DOT&PF), in coordination with the Federal Highway Administration (FHWA), is proposing to rehabilitate approximately 3 miles of the South Tongass Highway and bike/pedestrian path from Deermount Street in Ketchikan to Surf Street. A new bike/pedestrian pathway is planned for the Saxman to Surf Street section.

You are invited to attend a Public Open House on June 21 or June 22 to learn more about the project and how it may affect you, and give us your feedback. The open house events in Saxman and Ketchikan will have identical materials, and project team members will be available to answer questions and provide project details. Light refreshments will be provided. For more information visit www.southtongasshighway.com. Or contact us at info@southtongasshighway.com.

Online Open House – June 23 - July 14 Can't make the meeting? Visit our Online Open House from June 23 - July 14, 2016, to view meeting materials and provide comments. The online open house will be accessible via www.southtongasshighway.com

State #67571/67685; Federal # 0012031/0902039. If you have any questions or require additional information, please contact Keith Karpstein, P.E., Project Manager, at 907-465-1796 or Jim Scholl, Project Environmental Coordinator, at 907-465-4495.

If you or someone you represent requires special accommodations in order to respond to this public notice or participate in the public meeting, please call or email (info@southtongasshighway.com) the project's Environmental Coordinator listed above or call Alaska Relay at (800) 770-8973 for TTY, (800) 770-8255 for voice, (800) 770-3919 for ASCII, (866) 355-6180 for STS and ask the communications assistant to call the project Environmental Coordinator listed above so arrangement can be made to assist you.

Legal # 11555 Publication Dates: Saturday, June 11 & 18, 2016

Advertisement for Public Meetings in Saxman and Ketchikan
Posted on Ketchikan Daily News website from June 14 to 22, 2016

South Tongass Highway Rehabilitation
Deermount to Surf

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2706 South Tongass Highway

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Ted Ferry Civic Center
888 Venetia Avenue

for more information visit us online at
www.southtongasshighway.com

Postcard Mailed to Advertise Public Meetings in Saxman and Ketchikan Mailed to Area Property Owners and Residents on June 6, 2016

South Tongass Highway Rehabilitation
Deermount to Surf

Do you drive, run, walk, or bike on the South Tongass Highway from Deermount to Surf Street?

You may wish to attend Public Open House Meetings!

The Alaska Department of Transportation and Public Facilities (DOT&PF), in coordination with the Federal Highway Administration (FHWA), is proposing to rehabilitate approximately 3 miles of the South Tongass Highway and bike/pedestrian path from Deermount Street in Ketchikan to Surf Street in Saxman. A new bike/pedestrian pathway is planned for the Saxman to Surf Street section.

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For more information visit 🌐: **www.southtongasshighway.com** or email us at ✉: **info@southtongasshighway.com.**

State #67571/67665, Federal # 0902031/0902039. If you have any questions or require additional information, please contact Keith Karpstein, P.E., Project Manager, at 907-465-1796 or Jon Scholl, Project Environmental Coordinator, at 907-465-4498.

If you or someone you represent requires special accommodations in order to respond to this public notice or participate in the public meeting, please call or email (info@southtongasshighway.com) the Project Environmental Coordinator listed above or call Alaska Relay at (800) 770-8973 for TTY, (800) 770-8255 for voice, (800) 770-3013 for ASCII, (866) 355-6100 for STS and ask the communications assistant to call the Project Environmental Coordinator listed above to arrangement can be made to assist you.

Public Open Houses

Saxman
Tuesday, June 21, 5-7PM
Saxman Community Center
2706 South Tongass Highway

Ketchikan
Wednesday, June 22, 4:30-6:30PM
Ted Ferry Civic Center
888 Venetia Avenue

Online Open House

Can't make the meeting? Visit our Online Open House from June 23-July 14, 2016, to view meeting materials and provide comments. The online open house will be accessible via ⤵

www.southtongasshighway.com

South Tongass Highway Rehabilitation
Deermount to Surf

South Tongass Highway Rehabilitation Project
Deermount to Surf Street
C/O HDR
2525 C Street, Suite 500
Anchorage, AK 99503

Public Open Houses

Saxman
Tuesday, June 21, 5-7PM
Saxman Community Center
2706 South Tongass Highway

Ketchikan
Wednesday, June 22, 4:30-6:30PM
Ted Ferry Civic Center
888 Venetia Avenue

Sign up to receive email updates on our website at www.southtongasshighway.com

Biastock, Allison

From: Biastock, Allison
Sent: Wednesday, June 08, 2016 4:54 PM
To: Biastock, Allison
Subject: South Tongass Highway Rehabilitation Project - Upcoming Meetings, Join our Mailing List
Attachments: SOUTH_TONGASS_PUBLIC_MEETINGS_COLOR.pdf

The Alaska Department of Transportation and Public Facilities (DOT&PF), in coordination with the Federal Highway Administration (FHWA), is proposing to rehabilitate approximately 3 miles of the South Tongass Highway and bike/pedestrian path from Deermount Street in Ketchikan to Surf Street in Saxman. A new bike/pedestrian pathway is planned for the Saxman to Surf Street section. This project, currently in the environmental review and preliminary design phase, proposes to improve operations along South Tongass Highway; construction is anticipated to begin in 2018.

Sign up for the email list and visit our website:

The project team has launched a project website: www.southtongasshighway.com, and will add information and materials to the site as the project progresses. On the website you can access the link to **sign up for the project e-mail list,** and receive project updates in your inbox. Sign up now - **click here** to join our mailing list.

We want to hear from you:

Stakeholder feedback will help the project team design a project that best meets the needs of the community. Later this month, DOT&PF will host two **public open house meetings** to share information about the project's purpose, scope, schedule and environmental process and to solicit public comments. We hope you can join us! We will also be hosting an **online open house** from June 23-July15 for those that are unable to join us at our public meetings. You can send a comment to the project team anytime by emailing info@southtongasshighway.com. Attached is a flyer with meeting information.

South Tongass Highway Public Open House Meetings:

Saxman	*Ketchikan*
Tuesday, June 21, 5-7PM	Wednesday, June 22, 4:30-6:30PM
Saxman Community Center	Ted Ferry Civic Center
2706 South Tongass Highway	888 Venetia Avenue

Online Open House:

Visit our Online Open House from June 23-July 14, 2016, to view meeting materials and provide comments for the project team. The online open house will be accessible via www.southtongasshighway.com starting June 23.

Please feel free to contact us with any questions about the project. We hope to see you at our public meetings later this month.

Best,

Allison Biastock
Public Involvement
South Tongass Highway Rehabilitation Project

Allison Biastock
Strategic Communications

HDR

2525 C Street, Suite 500
Anchorage, Alaska 99503
D 907-644-2167
allison.biastock@hdrinc.com
hdrinc.com/follow-us

Community Flyer

South Tongass Highway Rehabilitation
Deermount to Surf

Do you drive, run, walk, or bike on the South Tongass Highway from Deermount to Surf Street?

You may wish to attend Public Open House Meetings!

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www.southtongasshighway.com

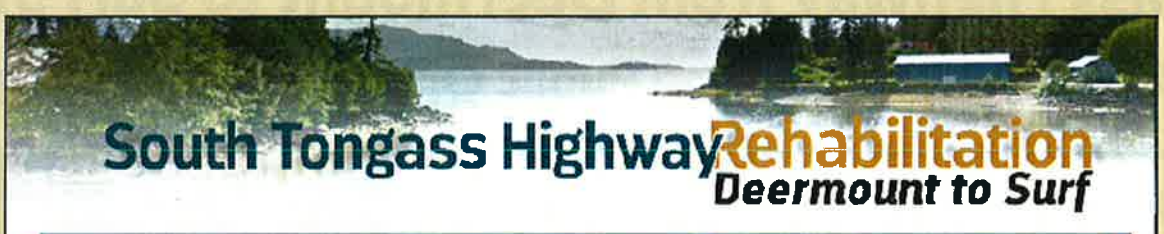
For more information visit 🌐: **www.southtongasshighway.com** or email us at ✉: **info@southtongasshighway.com.**

State #67571/67685; Federal # 0902031/0902039. If you have any questions or require additional information, please contact Keith Karpstein, P.E., Project Manager, at 907-465-1796 or Jim Scholl, Project Environmental Coordinator, at 907-465-4498.

If you or someone you represent requires special accommodations in order to respond to this public notice or participate in the public meeting, please call or email (info@southtongasshighway.com) the Project Environmental Coordinator listed above or call Alaska Relay at (800) 770-8973 for TTY, (800) 770-8255 for voice, (800) 770-3919 for ASCII. (866) 355-6198 for STS and ask the communications assistant to call the Project Environmental Coordinator listed above so arrangement can be made to assist you.

Biastock, Allison

From: South Tongass Highway Rehabilitation <info@southtongasshighway.com>
Sent: Monday, June 20, 2016 12:15 PM
To: Biastock, Allison
Subject: Public Meetings This Week



This Week - Public Open House Meetings

Come learn more about the project and share your comments with the project team.

Details

The Alaska Department of Transportation and Public Facilities (DOT&PF), in coordination with the Federal Highway Administration (FHWA), is proposing to rehabilitate approximately 3 miles of the South Tongass Highway and bike/pedestrian path from Deermount Street in Ketchikan to Surf Street. A new bike/pedestrian pathway is planned for the Saxman to Surf Street section.

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Ted Ferry Civic Center
888 Venetia Avenue

Be sure to visit our *Online Open House*

Can't make the meeting? Visit our Online Open House from June 23-July 14, 2016, to view meeting materials and provide comments. The online open house will be accessible via the project website at www.southtongasshighway.com.

For more information, visit: www.southtongasshighway.com or email us at info@southtongasshighway.com

State #67571/67685; Federal # 0902031/0902039. If you have any questions or require additional information, please contact Keith Karpstein, P.E., Project Manager, at 907-465-1796 or Jim Scholl, Project Environmental Coordinator, at 907-465-4498.

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Public Open House Summary

Meeting Date: Tuesday, June 21, 2016
Project: South Tongass Highway Rehabilitation
To: Chad Howard, DOT&PF
From: Allison Biastock, HDR

Subject: **Summary: June 21 Public Open House in Saxman, Alaska**

Project Staff/Agency Attendees:
Chad Howard (DOT&PF)
Jim Scholl (DOT&PF)
Chris Croft (HDR)
Allison Biastock (HDR)
Carol Snead (HDR)

Stakeholder Attendees:
Area residents and landowners
Lee Wallace, President, Organized Village of Saxman
Sylvia Banie, Vice. President, Organized Village of Saxman
Dan Ortiz, Alaska State House Representative
Leona Haffner, City Clerk, City of Saxman
David Doyon Sr., Misty Fjords Tours
Tony Gallegos, Cultural Resources Director, Ketchikan Indian Community

Public Open House Summary:
On Tuesday, June 21, 2016, the South Tongass Highway Rehabilitation project hosted a public open house from 5:00PM to 7:00PM at the Saxman Community Center in Saxman, Alaska. The purpose of this event was to share information about the project's preliminary design, scope, and schedule, and to solicit public feedback.

Advertising
The meeting and online open house were advertised in the following ways:

- Meeting information posted on the project website: http://southtongasshighway.com/
- Publication on the State of Alaska Online Public Notice SystemPostcard mailed to approximately 950 area parcel owners and identified stakeholders on June 11, 2016
- Legal, print, and on-line ads run in the Ketchikan Daily News
- E-mail save-the-date notification sent to elected officials and stakeholders on June 8, 2016
- E-newsletters sent to existing project contact list on June 20, 2016 and follow up reminder for online open house on June 24, 2016
- Community fliers distributed in Saxman and Ketchikan

Attendance
Twenty-six people signed in to the event (sign-in sheets attached). Approximately 5 additional people attended but did not sign in.

Meeting Materials

- Handouts (project fact sheet, comment sheets)
- Graphic posters feturing project information
- Project strip map on a central table upon which attendees could write comments

Media Coverage

Matt Armstrong from the Ketchikan Daily News attended the event, and interviewed DOT&PF's Keith Karpstein. At the time of this summary, no story had run in the Ketchikan Daily News.

Comments

Comments Summary: Generally, the open house attendees were very supportive of the project. The primary themes involved safety improvements, including requests for guard rails, better signage, safer parking, and potential for wildlife/vehicle conflicts. Some attendees expresses concerns about the project's impacts to private property and likely right-of-way acquisitions.

Four formal written comment forms were received (attached).

In addition, the following informal comments were noted by staff while engaging with open house attendees.

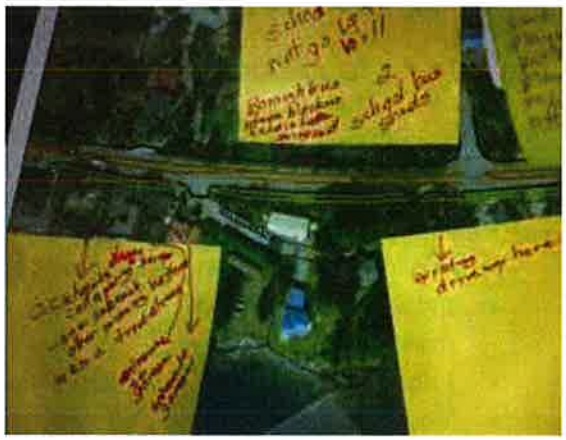
Informal comments received by staff:

- We love this bike path, there needs to be more of them in Ketchikan!
- In the winter, we could possibly ski on the pathway if there was enough snow and it was maintained.
- I ride my bike to work on this pathway at least 50x per year.
- You should mail postcards to everyone on South Tongass next time you hold a public meeting.
- The pavement is in poor condition.
- Sylvia Banie shared quite a lot about project impacts to her property. She also discussed special property rights conferred to her property and stated on the property deed. She was especially concerned about existing access in the ROW, e.g. her stairs. (Jim Scholl explained that we must resolve all encroachments and the reasons why we might remove encroachments e.g. obstacles in the recoverable slope, sight distance and visibility, etc.) Ms. Banie said she would send Jim a copy of her property deed.
- Concerning posted speed through Saxman: why is the posted speed 30 MPH but the posted speed in the Mountain Point area is 20 MPH?
- Several requests for lowering the posted speed through Saxman to 25 MPH. Concerns were mostly arising from the high volume of residents and tourists crossing South Tongass.
- Requests for expanded bus areas on South Tongass.
- A few attendees commented on bald eagle trees.
- A lot of attendees commented that "we need this project."
- Some expressed concern about the busses turning at the Bear Clan Street intersection. Since the curve radius was so sharp the busses get way to close to personal property.

- "Thank you's" were shared for the plan to fix and improve the bike/ped path.
- The Saxman Seaport is home to a new ATV tour operation that take tourists on 4 wheelers from the Seaport over the highway to Totem Park, then back down Totem Row, along the highway back to the seaport. Very popular tour.

Comments written on the tabletop strip map

- Are you going to deal with water and sewer issues before you pave?
- When you put fencing along the path, deer get caught between the uplands and the beach resulting in traffic problems.
- Culverts all need to be replaced.
- "Dead Man's Curve" - label added to highway just south of Dogwood Place (off Forest Park Drive).
- Re: Forest Park Drive:
    - School bus will not go up this hill
    - 2 school bus shelters
    - Borough bus stop blocks traffic in lane going south
- Re: sea-side properties at MP 4 (see photo to right):
    - 2 culverts collapsed, one on beach and one missing the bottom
    - Was a trout stream
    - Labeled entrances to their garages
    - Labeled existing driveway



- If you purchased 2191 South Tongass you could put in turn lanes, a playground, bike path parking, and move the bus stop off the highway.
- Are you going to move the power lines?
- Don't forget drainage, when the path first went in, waterfalls came down our yard.
- The property lines are incorrect.
- Near mile 4.75 (by mile markers): I walk the path almost daily and its so bad right here. My dog and I would appreciate new, new new.
- Just north of mile 5 on map: Existing bike path stops here.
- Re: parcel one north of Surf/South Tongass intersection: 3 drains come into ditch from property.

Photos

Follow Up

- HDR will post the meeting posters on the project website's library page following the Online Open House.
- New email addresses captured on the project sign-in sheets have been added to the project email list.
- Formal comments have been captured in the comment matrix.

Please Sign In.

South Tongass Highway Rehabilitation Project
Saxman - Public Open House
Tuesday, June 21, 2016 / 5-7PM

South Tongass Highway Rehabilitation Deermount to Surf

Name (Please print)	Email	Join the mailing list! Y or N	Street Address	City	State	ZIP Code	Gender* (M/F)	Race* (W, AN, N, B, A, P, O)
Ann & Skip Thompson	dhornc@gmail.com	think we are on it!	2096 South Tongass PO Box 8342	Ketchikan	AK	99901	M/F	
Judy Gerald Needham			3115 Tide Ave	Ketchikan	AK	99901	M/F	
Debby Spence	michaelcspence@hotmail.com	on it	3736 Justice Court Box 7981	Ketchikan	AK	99901	F	
Jim Van Horn	JVANHORN@KPUNET.NET		2259 C OYSTER AVE	KTN	AK	99901	M	
Sylvia Banie	tlingitdaughter@yahoo.com		2332 S. Tongass Hwy	(Saxman) KTN	AK	99901	F	
Lee Wallace	icagovt@kpunet.net		2539 Killer Whale Ave	SAXMAN	AK	99901	M	
Dave Jensen	dbjensen60@yahoo.com	✓	2191 S Tongass	Ketchikan	AK	99901	M	AN
David Dorgan	david@mistyfjordsoin.com	Y	1716 S Tongass	Ketchikan	AK	99901	M	W
Astrid Crocker	acrock@kpunet.net	N	3683 So. Tongass	Ketchikan	AK	99901	F	W
Sherry Potter	ectun@msn.com	Y	2632 Killer Whale	Saxman	AK	9901	F	W
Neil Bonnan	nbonnan@ketchikandailynews.com	Y	501 Deck Ct.	Ketchikan	"	"		
Ardis Benson	ardis5aaa@gmail.com		3141 South Tongass Hiwy	Ketchikan	AK	99901	F	W
John Clifton	clifton@kpunet.net	Y	8400 S Tongass Hwy 2266 S Tongass Hwy	KTN		99901	M	W

*This information is **voluntary.** Its purpose is to ensure fair and equal representation by the public in all projects and programs administered by the Alaska Department of Transportation and Public Facilities.
Race Categories: White (W), Alaska Native (AN), Native American (N), Black (B), Hispanic (H), Asian (A), Pacific Islander (P), and Other (O).

Please Sign In.

South Tongass Highway Rehabilitation Project
Saxman - Public Open House
Tuesday, June 21, 2016 / 5-7PM

South Tongass Highway Rehabilitation Deermount to Surf

Name (Please print)	Email	Join the mailing list! Y or N	Street Address	City	State	ZIP Code	Gender* (M/F)	Race* (W, AN, N, B, A, P, O)
Lloyd Lundin	butchlundin@yahoo.com	Y	218 Wood Ave SW	Bainbridge Is	WA	98110	M	W
ELIZABETH EINSET	eeinset@gmail.com	DONE	2976 S. TONGASS	KTN	AK	99901		
Bill Urquhart	WLURQUHARTII@akstra.edu	Y	122 Dogwood Pl	Ketchikan	AK	99901	M	
Dan Ortiz	ortiz4AKhouse@gmail.com	Y	3304 So. Tongass	Ketchikan	AK	99901	M	
Tony Gallegos	tgallegos@kictribe.org	Y	429 Deermount St.	Ketchikan	AK	"	M	
Floyd Crocker	OOSITE@KPUNET.NET	Y	3683 STH	KTN	AK	99901	M	
MARKEL WALLACE	markel.m.wallace@hotmail.com	Y	2539 KILLERWHALE AVENUE	SAXMAN	AK	99901	F	AN.
M.J Cadle	mjcadle@gmail.com	Y	2191 S. Tongass	Ktn	Ak	99901	F	
David Doyon Jr	dave@mistyfjords.com	Y	1716 S Tongass Hwy	KTN	KA	99901	M	W
Frankie Seludo	fseludo@gmail.com	Y	2586 Eagle Ave	KTN	AK	99901	M	
Leona Heffner	lmhuffner@hotmail.com	Y	213 Garden Lane	Ketchikan	AK	99901	F	AN

*This information is voluntary. Its purpose is to ensure fair and equal representation by the public in all projects and programs administered by the Alaska Department of Transportation and Public Facilities.
Race Categories: White (W), Alaska Native (AN), Native American (N), Black (B), Hispanic (H), Asian (A), Pacific Islander (P), and Other (O).

South Tongass Highway Rehabilitation
Deermount to Surf

www.southtongasshighway.com

Please share your comments.

Comments can also be e-mailed to info@southtongasshighway.com

Provide guardrail between road and path or other physical barrier for safety for the entire project length.

Lower the speed limit to 35 the entire way along Tongass.

caution
Signs for path users at driveways and intersections. caution

fines for littering and lack of pet clean up

INSTALLATION OF NOISE MITIGATING ENGINEERING WHERE THE PATH RUNS RIGHT ALONG GRANDFATHERED PROPERTIES.

No parking on the path

Encourge the use of the term "multi Use pathway" Locals are known to yell at cyclists on the road

Name: Mike Spence

Email:

Address: Already in System

City: _____ **State:** _____ **Zip:** _____

Please add me to the project e-mail list. ☐

cont

going 15-20 mph to "get on the bike path" This is not a designated bike path - meaning for bikes only.

Please fold here and tape at bottom for mailing

APPLY POSTAGE HERE

South Tongass Highway Rehabilitation Project
c/o HDR Alaska, Inc.
2525 C Street, Suite 500
Anchorage, AK 99503

South Tongass Highway Rehabilitation
Deermount to Surf

www.southtongasshighway.com

Please share your comments.

Comments can also be e-mailed to info@southtongasshighway.com

- PLEASE PROVIDE OFF-PATH PARKING. CURRENTLY PEOPLE PARK ON PATH. MAYBE JUST SOUTH OF SAXMAN? MOUNTAIN POINT – PAVE'S LINE - NEEDS TO BE PROTECTED FROM TOUR BUS USE
- PLEASE CONSIDER ~~SOME~~ UNDERGROUND POWER LINES, FOR VIEW ENHANCEMENT, POWER POLE REMOVAL – FROM PATH FOR SAFETY ISSUES
- WE SUPPORT THIS MULTI-USE PATH CONNECTION.
- NEED INCREASE PARKING AT ROTARY BEACH AS IT CANNOT HOLD LOAD
- SIGNAGE ON PATH – NO PARKING
- SIGNAGE ON ROAD – SHARE THE ROAD
- SIGNAGE ON PATH / ALSO PAINT AT DRIVEWAYS AND CROSS ROADS ALERTING DRIVERS TO PEDESTRIAN CROSSING
- MIDLINE WITH WALKER/WHEEL DESIGNATIONS
- SIGNAGE INSTRUCTING SAFE PATH USE AND PET CLEAN UP
- BUS STOPS IN PARKING LOTS, NOT ON SHOULDERS & PATH
- Trash cans along the way -

Name: Elizabeth Finset & Debby Spence

Email: _____

Address: already signed up & live on Tongass

City: _____ **State:** _____ **Zip:** _____

Please add me to the project e-mail list. ☐

South Tongass Highway Rehabilitation
Deermount to Surf

www.southtongasshighway.com

Please share your comments.

Comments can also be e-mailed to info@southtongasshighway.com

WOULD LIKE TO RECEIVE A BLOW UP DIAGRAM FOR OYSTER AVENUE - 2.0 MI SOUTH TONGASS. 2259 OYSTER. THERE IS A GARAGE THERE THAT MAY HAVE TO BE DEMOLISHED DUE TO THE ROAD WIDENING.

Name: JAMES L. VAN HORN

Email: JVANHORN@KPUNET.NET

Address: 2259 C OYSTER AVE.

City: KETCHIKAN **State:** AK **Zip:** 99901

Please add me to the project e-mail list. [X]

South Tongass Highway Rehabilitation
Deermount to Surf

www.southtongasshighway.com

Please share your comments.

Comments can also be e-mailed to info@southtongasshighway.com

This has been needed for a long time. Kudos.

Keep in mind the wild life crossing the road as this could cause a serious accident with the tour busses espically.

We have needed emergency pull overs for far too long.

Name: Gerald Needham

Email:

Address: 3115 Tide Ave

City: Ketchikan **State:** Alaska **Zip:** 99901

Please add me to the project e-mail list. [X]

Public Open House Summary

Meeting Date: Wednesday, June 22, 2016
Project: South Tongass Highway Rehabilitation
To: Chad Howard, DOT&PF
From: Allison Biastock, HDR

Subject: **Summary: June 22 Public Open House in Ketchikan, Alaska**

Project Staff/Agency Attendees:

Keith Karpstein (DOT&PF)
Jim Scholl (DOT&PF)
Chris Croft (HDR)
Allison Biastock (HDR)
Carol Snead (HDR)

Stakeholder Attendees:

Area residents and landowners
Mark Minillo, ADF&G
Katherine Tatsuda, Tatsuda's Grocery
Dan Ortiz, Alaska State House Representative
City of Ketchikan Vice Mayor Bob Sivertsen
Haley Chambers, Curator, Ketchikan Museums

Public Open House Summary:

On Wednesday, June 22, 2016, the South Tongass Highway Rehabilitation project hosted a public open house from 4:30PM to 6:30PM at the Ted Ferry Civic Center, in Ketchikan, Alaska. The purpose of this event was to share information about the project's preliminary design, scope, and schedule, and to solicit public feedback.

Advertising

The meeting and online open house were advertised in the following ways:

- Meeting information posted on the project website: http://southtongasshighway.com
- Publication on the DOT&PF public involvement calendar
- Postcard mailed to approximately 950 area parcel owners and identified stakeholders on June 11, 2016
- Legal, print, and on-line ads in the Ketchikan Daily News
- E-mail save-the-date notification sent to elected officials and stakeholders on June 8, 2016
- E-newsletter sent to project email list on June 20, 2016
- Community fliers distributed in Saxman and Ketchikan

Attendance

Thirty one people signed in to the event . Approximately 5 additional people attended but did not sign in.

Meeting Materials

- Handouts (project fact sheet, comment sheets)
- Graphic posters with project information
- Project map on a central table upon which attendees could write comments

Media Coverage

No member of the press was identified at the meeting. To date, there has been no media coverage of the event.

Comments

Summary: Generally, the open house attendees were supportive of the project. The primary themes involved safety improvements, including requests for safer parking, pathway and roadway pedestrian facilities, roadway icing and drainage, and traffic calming. Some property owners in the project area attended and were curious about potential acquisitions, and expressed concerns about road widening and the addition of a pathway in an already constrained corridor. Those owners on the water side of the highway south of Totem Row were particulalry concerned. Several area property owners also asked about DOT&PF's encroachment policy.

Four formal written comment forms were received (attached).

In addition, the following informal comments were noted by staff while engaging with open house attendees.

Informal comments received by staff:

- There should be restroom facilities along the trail, similar to the Centennial Trail in the Seattle area.
- The pathway needs garbage cans. Folks hang garbage bags along the pathway on the fences to help keep litter off the ground.
- The harbor parking lot near Deermount is not an option for pathway parking, there is already a battle for the existing spaces there.
- DOT&PF's ROW keeps changing. Every time it's on the map it is different. It's frustrating.
- Pedestrians are in danger at the Deermount intersection; we need a pushbutton crosswalk there.
- At Oyster Avenue, water runs down that street leading to dangerous icing in the winter.
- I just want to make sure no one is taking the path away!
- Per separating the pathway from the road, can we use something not as ugly as a fence and still provide a safe barrier?
- Support for a fish pass structure in the cataloged stream south of Saxman from ADF&G habitat biologist Mark Minello.
- Users prefer a separated pathway and not a widened paved shoulder. A widened paved shoulder does not give users perception of safety.
- Request for additional parking locations along the pathway. Rotary Beach during the summer time is full with vehicles making it difficult to find parking to access the trail.
- No comments about purpose and need.

Comments written on the tabletop strip map

- Public parking, possible link to trail (pointing at Harbor area parking near Deemount).
    - (On same note, another person wrote: parking only for harbor)
- Add a pushbutton crosswalk signal for pedestrians – Deermount intersection
- Re: traffic on Deermount:
    - Deermount allows locals to bypass downtown
    - There is a school up Deermount, and the associated traffic
    - Deermount is one of the only streets to access Bear Valley (area behind downtown)
    - There are lots of left turns from Deermount onto South Tongass
- At Deermount and South Tongass intersection: "turning radius for trucks."
- Near the short gravel peninsula just south of the USCG station, the highway adjacent to that was identified as a common wildlife crossing. "They get caught here."
- Drainage off Forest Park creates dangerous conditions, especially in the winter, same for Oyster Avenue.
- Proposed passing lane just south of the Saxman Seaport.
- There is a buried culvert near the first home on the ocean side of the highway south of the Saxman Seaport.

Photos

Follow Up

- HDR will post the meeting posters on the project website's library page following the Online Open House.
- New email addresses captured on the project sign-in sheets have been added to the project email list.
- Haley Chambers with Ketchikan Museums asked for a copy of the final Cultural Resources report.

Please Sign In.

South Tongass Highway Rehabilitation Project
Ketchikan - Public Open House
Wednesday, June 22, 2016 / 4:30-6:30PM

South Tongass Highway Rehabilitation
Deermount to Surf

Name (Please print)	Email	Join the mailing list! Y or N	Street Address	City	State	ZIP Code	Gender* (M/F)	Race* (W, AN, N, B, A, P, O)
RON REDMAN	REVILLARED2@YAHOO.COM	Y	2587 S. TONGASS HWY	SAXMAN	AK	99901		
J. OHMER	TURTLE@KPUNET.NET		2997 S " "	KTN	"	"		
Barry Hogarty	barry.hogarty@gmail.com							
Stephanie Petersen	stepanmesteve@gmail.com	Y	3603 S Tongass Hwy	KTN	AK	99901		
Barbara Hollywood	akmouse@kpunet.net	Y	3059 Crest	KTN	AK	"		
William Hollywood	" "	Y	"	"	"			
KATY POSEY	pennackposey@gmail.	Y	P.O. Box 23289	KTN	AK	99901	F	W
OLNEY WEBB	WEBB@KPUNET.NET	Y	1642 EAST CHANNEL	PENNOCK IS	AK	99901	M	W
Dan & Teri Hoyt	MSTeri17@Hotmail.com	Y	3045 South Tongass Hwy (Box 8998)	KTN	AK	99901		
Nina Kotlarov	kotlarov@kpunet.net	Y	507 Cedar St.	KTN	AK	99901	F	
Mark Minnillo	mark.minnillo@alaska.gov	Y	POD 667 Craig	Craig	AK	99921	M	
Bob Swertsen	rwswertsen@gmail.com	Y	3817 ALASKA AVE	Ketchikan	AK	99901	M	alaska native
Rose Marie Bergeron	romb@kpunet.net							
Katherine Tetsuda	tetsudaiga@gmail.com	Y	2618 2ND Ave	Ketchikan	AK	99901	F	

*This information is voluntary. Its purpose is to ensure fair and equal representation by the public in all projects and programs administered by the Alaska Department of Transportation and Public Facilities.
Race Categories: White (W), Alaska Native (AN), Native American (N), Black (B), Hispanic (H), Asian (A), Pacific Islander (P), and Other (O).

Please Sign In.

South Tongass Highway Rehabilitation Project
Ketchikan - Public Open House
Wednesday, June 22, 2016 / 4:30-6:30PM

South Tongass Highway Rehabilitation *Deermount to Surf*

Name (Please print)	Email	Join the mailing list! Y or N	Street Address	City	State	ZIP Code	Gender* (M/F)	Race* (W, AN, N, B, A, P, O)
Anthony Knutson	ketchikancharters@yahoo.com	Yes	2587 South Tongass Hwy.	Saxman	Ak	99901	M	White Man
Terry & Carolyn Thompson	terrycarolyn@kpunet.net	Yes	2986 S. Tongass Mail (PO Box 8015)	KTN	AK	99901	F	White
Robert Pelkey	bpelkey@tridentseafoods.com	Yes	610 Nickey Way Ketchikan AK 99901	KTN	AK	99901	M	White/Aleut
LEN LAURANCE	L.LAURANCE@ATT.NET	YES	5716 S. TONGASS				M	
Hayley Chambers	hayleyc@ktn-ak.us	Yes	629 Dock Street	Ktn	AK	99901	F	
Jason Reh	Wr							
Matthias Volkmann	matzev66@hotmail.com	Y	3051 Crest Ave	Ktn	Ak	99901	M	W
Brett Seraw	brett@tongassengineering.com	Y	1019 Dunton St Ktn				M	W
KENT COLBY	kent@abcstations.com	Y	526 Stedman	KTN		99901	M	Yes
STEPHEN REEVE	smreeve@mac.com	y	POB 23154	KTN	AK	99901	M	
Jennifer [illegible] Chaudhary	chaudhary@kpunet.net	Y	862 Forest Park Dr.	Ktn	AK		F	
John Clifton	clifton@kpunet.net	SAME AS YESTERDAY →						
EVON ZERBETZ	~~evune~~ evozer@gmail.com	X	340 Gold	KTN	AK	99901	F	

*This information is **voluntary**. Its purpose is to ensure fair and equal representation by the public in all projects and programs administered by the Alaska Department of Transportation and Public Facilities. Race Categories: White (W), Alaska Native (AN), Native American (N), Black (B), Hispanic (H), Asian (A), Pacific Islander (P), and Other (O).

South Tongass Highway Rehabilitation
Deermount to Surf

www.southtongasshighway.com

Please share your comments.

Comments can also be e-mailed to
info@southtongasshighway.com

- restroom facilities along trail like Centennial trail in Seattle. ~~Lady~~ @ Thomas Basin / further @ model toilets
- Need garbage cans, folks hang garbage bags on fence
- harbor parking lot near Deermount not a solution for trail parking. There is a battle for existing parking as-is.
- DOT ROW keeps changing
- pedestrians are in danger @ Deermount intersection need a ~~ped~~ push button cross walk signal.
- Oyster Ave - water runs down in winter, icing, dangerous
- ~~We w~~ I just want to make sure you aren't taking the path away.

Name:

Email:

Address:

City: State: Zip:

Please add me to the project e-mail list. ☐

South Tongass Highway Rehabilitation
Deermount to Surf

www.southtongasshighway.com

Please share your comments.

Comments can also be e-mailed to info@southtongasshighway.com

Need a light @ deermount crosswalk
Need side walk fixed just South
of Dry Cleaners — Also —
should Think of PARKING —
How & where do families
access Path — East Street!

One Mid Way — Buggies to
FAR

Name: _____

Email: _____

Address: _____

City: _____ **State:** _____ **Zip:** _____

Please add me to the project e-mail list. ☐

South Tongass Highway Rehabilitation
Deermount to Surf

www.southtongasshighway.com

Please share your comments.

Comments can also be e-mailed to info@southtongasshighway.com

1. Replace Large 6'-8' Culvert near MP4. Top is failing
2. Consider Slowing traffic. Surf St to Princess Rest Area turnoff. until project completed - Rough roadway.
3. Check w/ FEMA for new mapping.
4. Slow traffic in Saxman - S Tongass to Forest Park.

Name: John Clifton

Email: clifton@kpunet.net

Address: 2266 S Tongass Hwy

City: Ktn **State:** AK **Zip:** 99901

Please add me to the project e-mail list. ☐

South Tongass Highway Rehabilitation
Deermount to Surf

www.southtongasshighway.com

Please share your comments.

Comments can also be e-mailed to info@southtongasshighway.com

Poles in the walking path cause hazards – particularly to bicyclists. I have witnessed two (2) young bikers hit poles. –

I have had issues when riding with my dog (on a leash) – she goes to one side – me on the other –

Name: Kurt Colby

Email: kurt@abcstations.com or klcolby@[illegible].com

Address: 94 Franklin St & 526 Stedman

City: Ktn **State:** Ak **Zip:** 99901

Please add me to the project e-mail list. ☑

South Tongass Highway Rehabilitation
Deermount to Surf
Project Fact Sheet

The Alaska Department of Transportation & Public Facilities (DOT&PF), is proposing to rehabilitate three miles of South Tongass Highway and related non-motorized facilities from Deermount Street to Surf Street. The South Tongass Highway Rehabilitation project would improve operations and provide for safe movement of vehicle, bicycle, and pedestrian traffic.

Project Background:

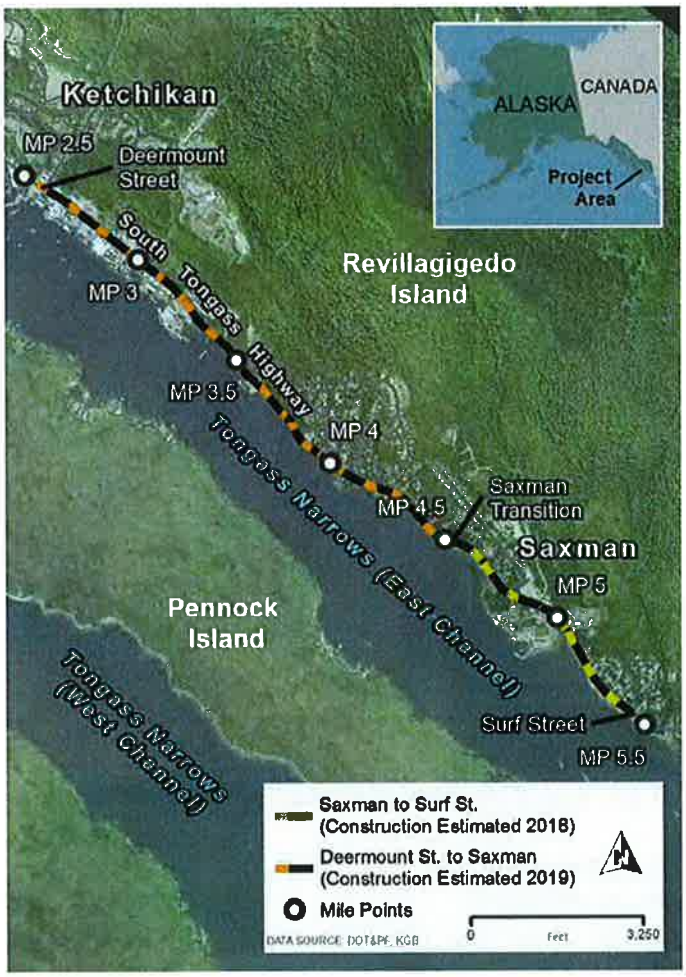
South Tongass Highway serves the Cities of Ketchikan and Saxman as well as the entire Ketchikan Gateway Borough. The roadway is a minor arterial and provides travel connections between the City of Ketchikan and communities to the south. The highway is an undivided, two-lane roadway with many private driveways, limited shoulders, and an adjacent multi-use pathway along most sections.

Project Overview

This project would improve operations on South Tongass Highway, rehabilitate the roadway, reconstruct the existing multi-use pathway and extend it through Saxman, improve drainage, and relocate utilities. In some places, project engineers will examine the need for minor realignments of the roadway to improve sight distances. Replacement guardrails, handrails, and chain link fencing may also be a part of the project. The project team is currently examining potential environmental impacts and preparing the project's required environmental documentation; no significant environmental impacts are anticipated.

Project Features Being Considered

- Highway widening at some locations, with rock cuts as needed
- Removal or permitting of right of way encroachments
- Reconstruction of the bike/pedestrian pathway
- Extension of the pathway through Saxman
- New sidewalks between Deermount Street and the north entrance to the USCG Base
- Drainage improvements (including new inlets, storm drains, ditches, and culverts)
- Utility relocations
- Bus stop turnouts and shelters at locations determined in coordination with the Ketchikan Gateway Borough Transit Manager and the City of Saxman

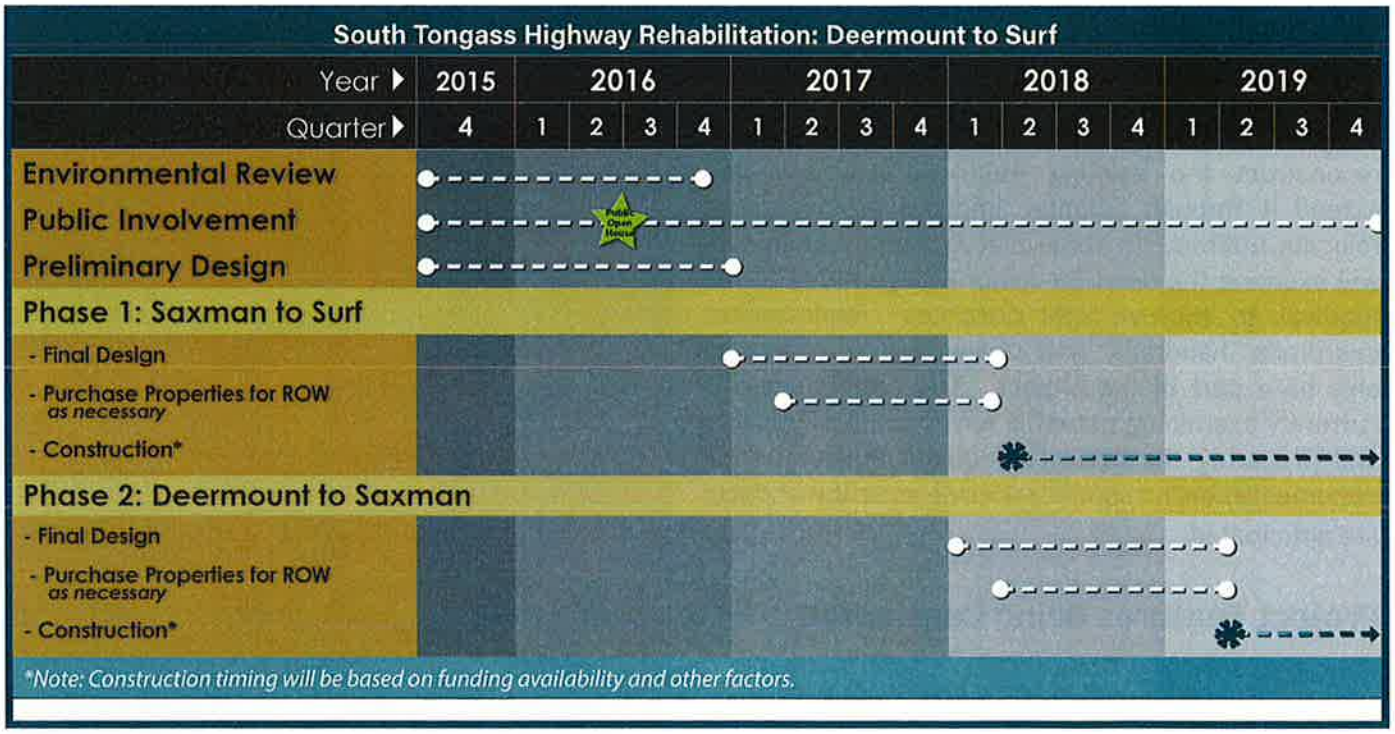


Schedule

This project has two planned construction phases: the first being the southern portion from Saxman to Surf Street, the second being the segment between Deermount Street and Saxman. Construction on the first phase, Saxman to Surf Street, is anticipated to begin in 2017. Construction on the Deermount Street to Saxman section is slated to start in 2018. Construction dates are contingent on the availability of funding and other factors.

Get Involved

DOT&PF wants to hear from you as we develop the project design and environmental review, and prepare for construction. We will keep the public informed of project progress via newsletters, meetings, and the website. To learn more about the project, to sign up for the project e-mail list, or to find out how to leave a comment, visit **wwww.southtongasshighway.com**.



Contact

If you would like to request additional information or share your ideas, please contact:

Keith Karpstein, P.E.
Project Manager
Design Group Chief, DOT&PF
Email: info@southtongasshighway.com
Phone: 907-465-1796

Jim Scholl
Project Environmental Coordinator
DOT&PF
Email: info@southtongasshighway.com
Phone: 907-465-4498

Allison Biastock
Public Involvement Lead
HDR Public Involvement
Email: info@southtongasshighway.com
Phone: 907-644-2000

Welcome

South Tongass Highway Rehabilitation Project Public Open House

Meeting Purpose

The purpose of tonight's Open House is to share information about the project's:

- Purpose
- Schedule
- Preliminary design
- Multi-use pathway and sidewalk improvements
- Next steps

Most importantly, this meeting provides you with an opportunity to speak with project team members. We welcome your questions and comments.

The Project

Purpose:

The Alaska Department of Transportation and Public Facilities (DOT&PF) has identified the need to resurface, restore, and rehabilitate a portion of the South Tongass Highway and related non-motorized facilities in order to improve operations and provide for the safe movement of vehicle, bicycle, and pedestrian traffic.

Description:

The South Tongass Highway Rehabilitation Project starts at the Deermount Street intersection and extends approximately 3 miles south to Surf Street.

This project would rehabilitate, and in some places widen, the roadway; remove or permit right-of-way encroachments; construct sidewalk improvements; reconstruct the bike and pedestrian pathway; extend the pathway through Saxman; and improve drainage.

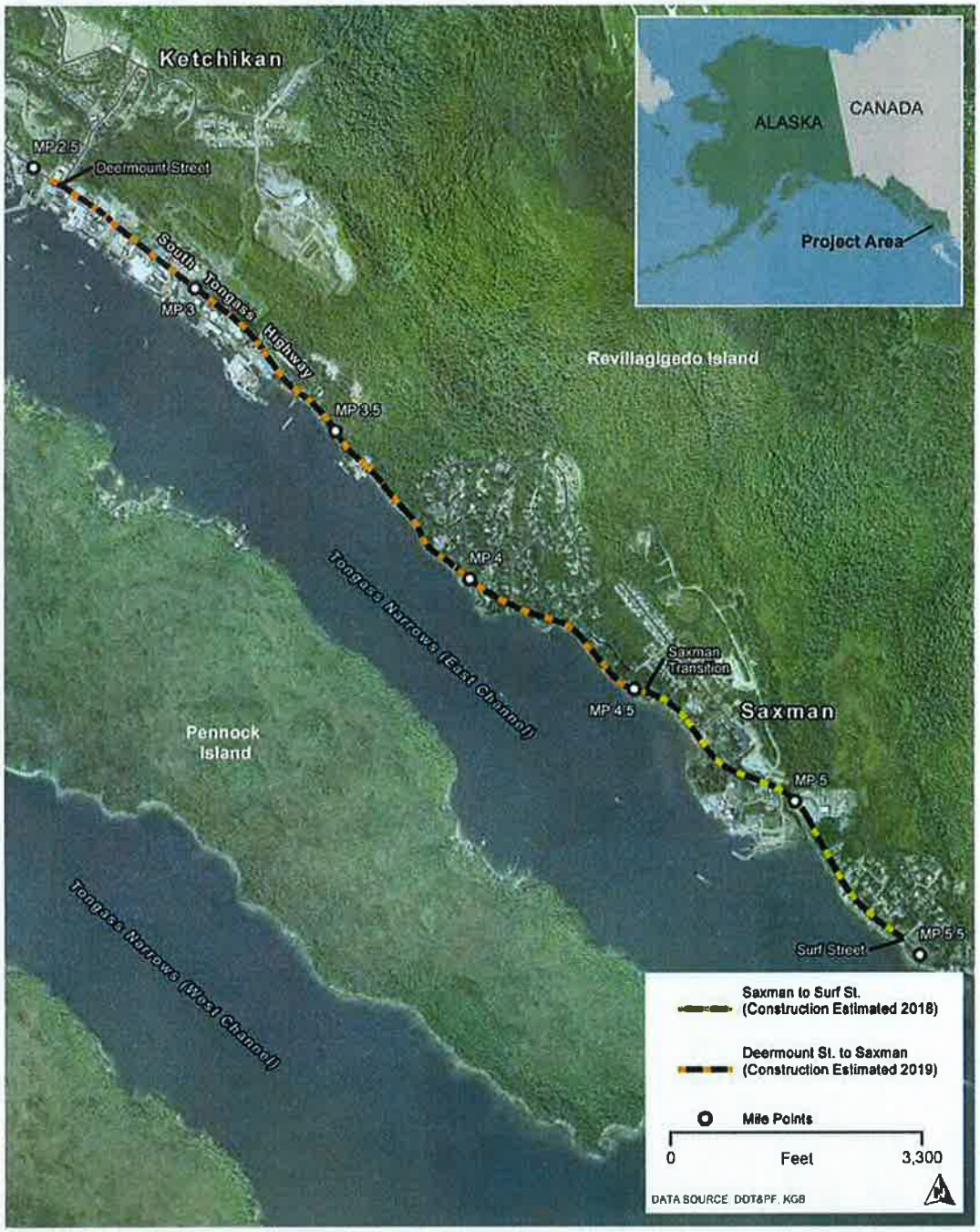
South Tongass Highway Rehabilitation
Deermount to Surf

Environmental Review Process and Permitting

The project team is currently studying the human and natural environment in the project corridor. Surveys of fish and wildlife, plants, cultural and historic resources, and wetlands are being conducted. Potential impacts of the rehabilitation project on these resources and the local communities will be identified in an environmental document slated for completion this summer.

DOT&PF will obtain permits for changes to fish habitat, wetland fill, and bald eagle disturbance prior to construction.

Project Area Map



SOUTH TONGASS HIGHWAY REHABILITATION
PROJECT AREA

FIGURE 1
SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

South Tongass Highway Rehabilitation
Deermount to Surf

Key Design Elements



Design Element	Benefit
- Re-alignment or straightening of the roadway - Cutting back adjacent rock slopes - Construction of earth walls or other wall structures as appropriate to accommodate area topography	- Improved sight distances (can reduce the number of vehicular accidents) - Address over-steep rock slopes adjacent to the roadway (such conditions have contributed to recent rock slides on other sections of South Tongass Highway)
- Resurfacing and widening (in some locations) the roadway - Rock excavation to accommodate realignment and/or widening where necessary, and to improve the condition of rock slopes	- Extend design life of road - Reduce water and ice entrapment in wheel ruts - Reduce maintenance costs by facilitating snow removal and reducing the potential for rock fall into ditches or onto the roadway
- Recondition ditches currently overgrown with vegetation - Replace aging culverts under intersecting roadways and driveways - Drainage improvements including culvert replacement and ditching	- Allow for proper drainage - Reduce roadway icing - In some locations, box culverts will be replaced with culverts designed to better accommodate fish passage
- Bus stops and shelters may be constructed at locations to be determined in coordination with the KGB Transit Manager and the City of Saxman - The existing bike/pedestrian pathway will be brought to current standards, and the pathway will be extended through Saxman	- Improve transit and non-motorized connectivity

Pathway

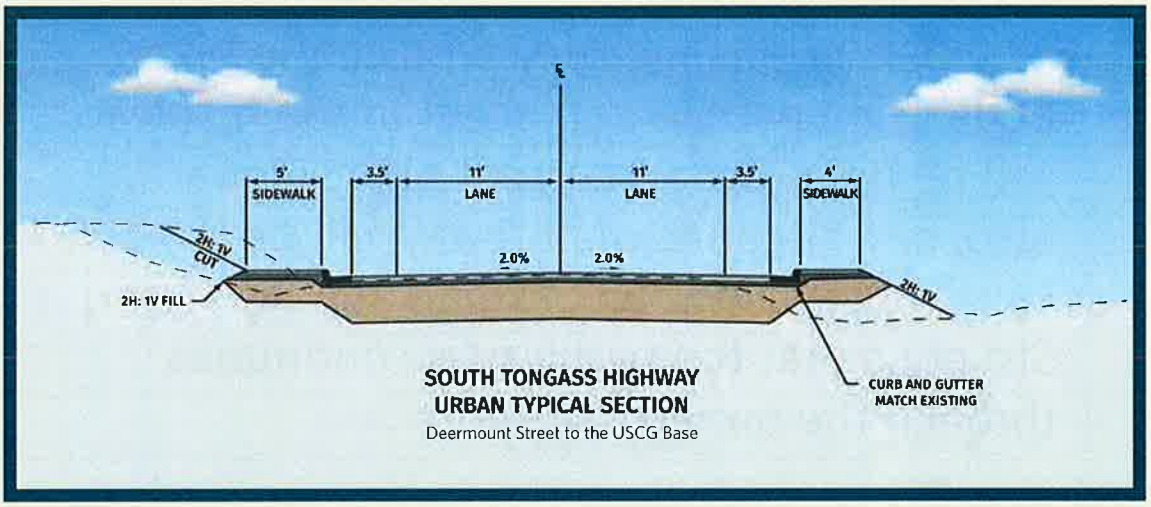
Bike/Pedestrian Pathway and Sidewalk

As a part of this highway project, the bike/pedestrian pathway adjacent to the highway will be upgraded to current ADA[1] standards. Also, new sections of pathway will be constructed between Saxman and Surf Street so that the pathway is continuous through the project corridor.

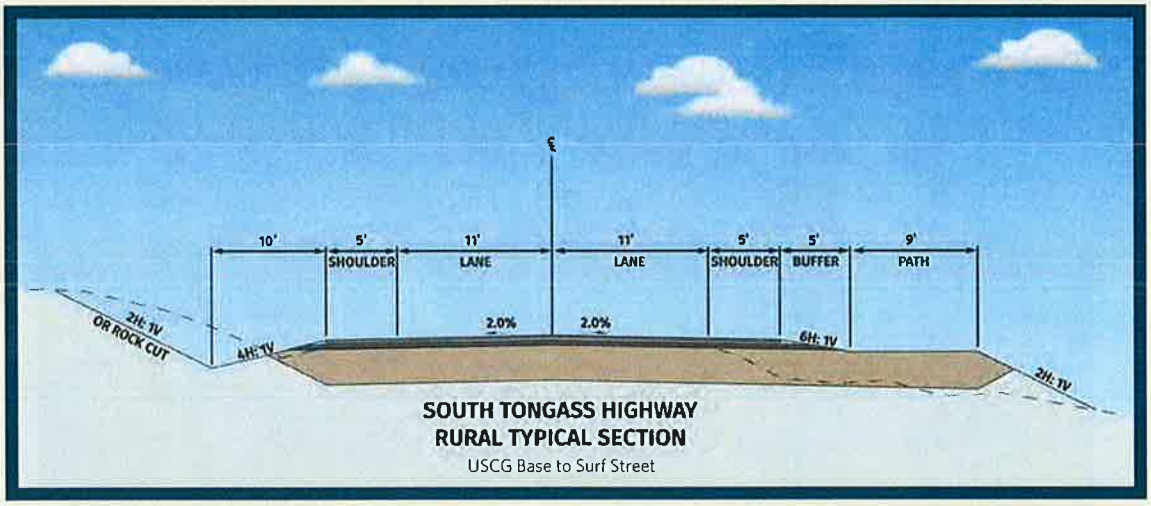
An additional new sidewalk east (land side) of the highway is proposed from Deermount Street to the north entrance of the USCG base.

[1] ADA - Americans with Disabilities Act - http://www.ada.gov

Typical Cross Sections

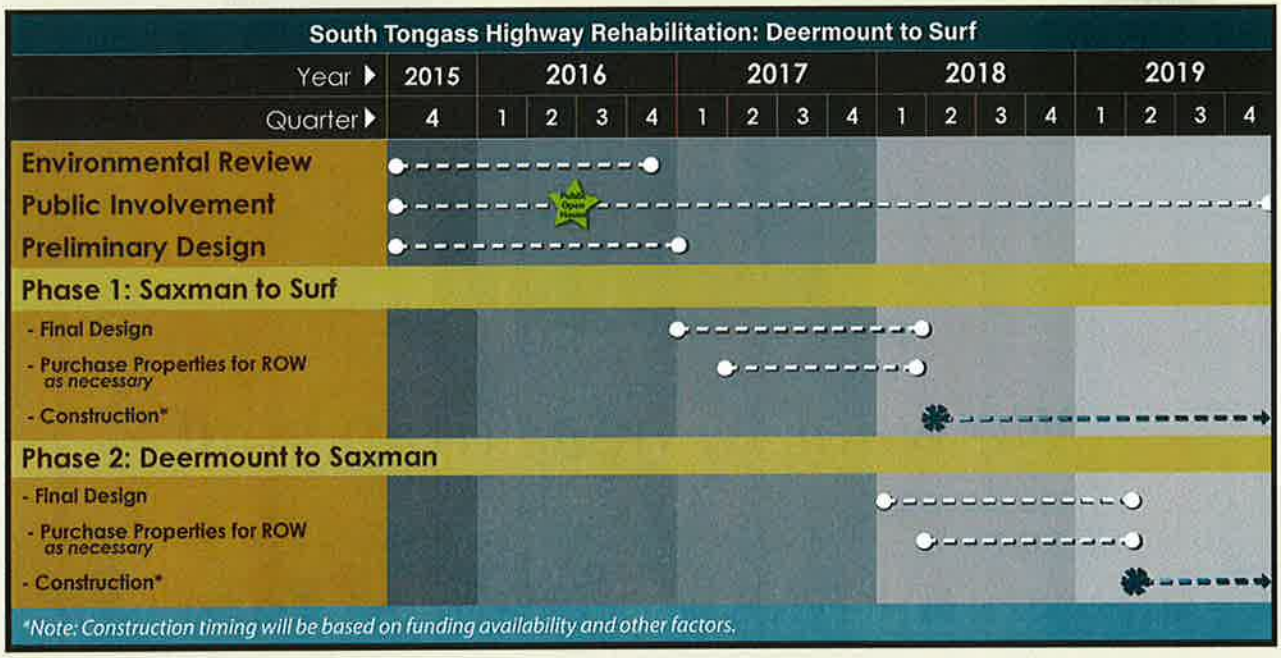


SOUTH TONGASS HIGHWAY
URBAN TYPICAL SECTION
Deermount Street to the USCG Base



SOUTH TONGASS HIGHWAY
RURAL TYPICAL SECTION
USCG Base to Surf Street

Schedule and Next Steps



Next Steps:

- DOT&PF will consider your input as it completes the project's environmental review process and advances the project design.

- Once the design is 75% complete, DOT&PF will determine its needs for property acquisition and coordinate with affected land owners for right-of-way.

Comments

We want to hear from you!

Please fill out a comment form, or send comments via email to

info@southtongasshighway.com

Need more project information? Visit the project website!

www.southtongasshighway.com

Meeting Summary

Date:	Tuesday, June 21, 2016 10:30AM
Project:	South Tongass Highway Rehabilitation: Deermount to Surf
Subject:	Stakeholder meeting with the **Organized Village of Saxman** (OVS)
Attendees:	Lee Wallace, President, OVS Sylvia Banie, Vice President, OVS Keith Karpstein, Project Manager, DOT&PF Jim Scholl, Project Environmental Coordinator, DOT&PF Chris Croft, Project Manager, HDR Carol Snead, HDR, Environmental Lead Allison Biastock, Public Involvement, HDR

The meeting began with introductions, during which Keith Karpstein noted that he is the interim PM, and that a new DOT&PF PM will soon be appointed.

Jim Scholl relayed that the purpose of the meeting was to get information and feedback from OVS, and for the project team to relay where we stand in the design process.

President Lee Wallace handed out a list of issues that OVS has identified in regards to the project (attached).

Bus Traffic and Pedestrian Safety

Safety, President Wallace said, is the most important issue. There is a Ketchikan Gateway Borough (KGB) bus stop across street from the OVS offices (Totem Row and South Tongass), and he can observe highway traffic and pedestrians from his window. He has seen a pedestrian struck by a car (the pedestrian survived). Pres. Wallace also noted cars travel at high speeds in this area and suggested using automatic speed reading monitors or flashing beacons to improve safety for pedestrians. Pres. Wallace noted that up to 7,000 riders come to Totem Row on the KGB transit bus in the summer during tourist season. Many pedestrians are kids walking to/from school bus stops and the community center.

Tour busses turning north onto S. Tongass from Totem Row encroach into southbound lane to make the tight turn radius. He asked that DOT&PF consider a turn lane at Totem Row, or increase the turn radius at that intersection. He noted that visibility at both Totem Row and Bear Clan Street intersections need to be improved.

Pres. Wallace pointed out that there are conflicts between KGB busses and tour busses near the Totem Row intersection and suggested a bigger bus turnout adjacent at that location. Some tour busses, he explained, avoid fees at Totem Park by parking in the bus turnout: passengers will get off, cross the highway, and walk up to the park while the busses/vans wait on the roadside. Pedestrian safety in this circumstance is a concern.

Bus Shelters

OVS has been in discussions with KGB regarding the proposed bus shelters. Pres. Wallace thinks a shelter at the Totem Row intersection bus stop (southbound route stop) would not be utilized as no one is

waiting there for southbound travel. The northbound bus route picks folks up on Totem Row a block off the highway. Sometimes in the winter if the road is icy the KGB busses use S. Tongass instead of Totem Row on their northbound route and then would pick up at OVS offices.

Pres. Wallace stated that OVS desires a bus shelter at Killer Whale Ave. (the current shelter there is too small). Sylvia Banie noted that kids waiting for the bus at Killer Whale Ave. need to stay in the car with their parents because the existing shelter is too small.

Pres. Wallace showed the project team photos of a shelter (2 years old) at the top of Eagle Ave. near the new senior housing facility. The shelter features hand adzed cedar and etched glass. An artist from Metlakatla did the etching. This is the style, Pres. Wallace said, that OVS would like to see for any shelters in the boundaries of Saxman. Carol Snead asked what the cost of the shelter was. Pres. Wallace said an Anchorage architect designed it, and that he could come up with the cost. (He followed up via email with a cost estimate – attached.) Pres. Wallace said that DOT&PF could use the same shelters that KGB is using and add the adzed cedar and etchings on the glass for consistency.

Environmental

In the Saxman Seaport area, Pres. Wallace shared, there is a hanging culvert that does not provide fish passage. Pres. Wallace commented that you can see the fish in the pool at the bottom of the culvert. An improvement for fish passage should be considered in the design.

Another issue of note, said Pres. Wallace, is eagle nests. Jim commented that DOT&PF plans to apply for an eagle disturbance permit. There is a nesting tree, Pres. Wallace said, right across from the Tribal offices. Jim said that DOT&PF will be looking closely at how to mitigate impacts. Note: Jim contacted President Wallace after the meeting to express concern for deep excavation during the sewer project close to the noted eagle tree.

Project Discussion

Sylvia asked where DOT&PF anticipates the rock cuts will be located. Chris Croft said that we are investigating geo-tech right now to determine where blasting may need to occur. Sylvia asked if there will there be blasting in Saxman? If so, how close? Chris said that there may be some impacts, but it is too early in the project to say. Pres. Wallace commented that much of the area rock may be hammered out (instead of blasted) given that it is shale-type rock. Sylvia added that there is a rock wall near Oyster Ave. and Forest Park that has been a repeated crash site.

Pres. Wallace described year-round pedestrian use of the pathway along South Tongass, and the addition of the bike path will be very desirable for safety. Saxman residents walk to town along South Tongass. Pres. Wallace stated he has observed individuals walk on the shoulder instead of the pathway in years with significant snowpack. He has thought about asking DOT&PF about OVS entering a contract to maintain the pathway/fenced areas, to maintain weeds in the summer and snow in the winter. Keith suggested Pres. Wallace contact Scott Gray in DOT&PF Maintenance.

Crossing the highway at Oyster Ave. is a challenge, Sylvia said, because it is a blind corner. She added that around the Forest Park intersection is a popular place to cross the highway as the guardrail separating the pathway from the road has a "break" there. Sylvia suggested more access points (guardrail breaks) to the pathway to benefit pedestrians.

OVS would like lower speed limits in the project area to enhance pedestrian safety (25 MPH rather than 30 MPH).

There was a discussion about Totem Row being a Scenic Byway, having received grant dollars for that purpose a few years ago, but a follow up email from Pres. Wallace clarified that Totem Row is not a Scenic Byway.

The City of Saxman, Pres. Wallace shared, is looking at developing a boat harbor near Totem Row.

Pres. Wallace asked how OVS comments would be addressed and Keith responded that the project would investigate measures to improve pedestrian safety. Numbers of pedestrians crossing South Tongass Highway at Totem Row are needed to support the addition of a crosswalk. Pres. Wallace suggested looking at data that accounts for cruise ship tourists, noting that there are days when 40+ tourists get off a bus and cross the highway. Pres. Wallace asked that we consider accident data, as well as the recommendations of previous Roadway Safety Assessment. Jim said that the project will examine culverts and address fish passage concerns.

The project, Keith and Chris shared, will improve the road surface, drainage, and visibility while working within the topographical constraints and narrow ROW of the corridor. Some curves will be straightened, and wider shoulders (5 feet) will allow more room for drivers to adjust without going into the ditch.

Pres. Wallace asked about project funding and Keith replied that FHWA dollars for the project are identified in the STIP for Phase I. Sylvia asked about Phase II funding and Jim responded that this project has been identified as necessary, so it may get delayed, but it won't go away.

Sylvia commented on the City of Saxman sewer project, suggesting that DOT&PF coordinate with the City. Keith noted that DOT&PF has been in touch with the City of Saxman about that project. Pres. Wallace confirmed that the plan is to construct the sewer project before this highway project. Keith concurred, noting that DOT&PF requires that disturbed pavement be "patched" even if a road will be eventually be resurfaced. There have been no public meetings that OVS is aware of regarding the sewer project.

Sylvia and Pres. Wallace commented on the project area's aging culverts, some are getting crushed, and many are the original culverts. During heavy rainfall there is standing water in ditches and it can come across the roadway in some areas, leading to freeze/thaw/icing in the winter.

Cultural Resources and Subsistence

Jim noted that DOT&PF will be sending out consultation initiation letters for cultural resource in the coming weeks, and OVS input would be appreciated, recognizing that all cultural resource information is confidential. Jim asked if there were any special places for OVS in the project area, President Wallace and Sylvia did not identify one.

Jim asked about subsistence resources. Sylvia noted shellfish gathering on the beach in previous years, but this is no longer done. There were also crabapple trees along the highway, she said, but many were cut down for the pathway. A few trees remain near the beach by Oyster Ave. Some folks, Sylvia continued, harvest tidal foods (sea cucumbers, limpets, etc.). OVS subsistence activities usually occur, Pres. Wallace and Sylvia said, in other areas (such as Cape Fox). There are Indian paintbrush plants along highway that folks use to make traditional paints. Sylvia stated that she can't really think of any subsistence resource on the highway that is not already gone.

The stream with the hanging culvert is a concern, Pres. Wallace noted: Dolly Vardens don't use the stream likely because there is no fish passage. Jim said that the project will be investigating the current condition and possible improvements.

Chief Kashakes House, Pres. Wallace noted, may be affected, it is a restricted property. Such structures are left in place to decay naturally, in accordance with standard cultural practice.

Pres. Wallace noted that the cultural resource document from ANTHC (for the sewer project) has old data. The ANB Hall is no longer here, and the petroglyphs were moved to a new location.

The meeting concluded.

Pres. Wallace followed up with the project team via email, expressing his appreciation for the meetings. He provided a complete list of OVS executive officers, the cost of the bus shelters mentioned above, and confirmed that Totem Row is not on the Scenic Byway list – though the City of Saxman did receive a National Scenic Byways grant in 2010.

from Lee Wallace, President OVS

South Tongass Rehab

Cross Walk at 2706 S. Tongass – noted in 2013 RSA recommendation to have painted cross walk flashing lights, warning lights. pedestrian hit by car 2015

Larger turning radius at Totem Row/S. Tongass Hwy

Larger turning radius at Bear Clan/S. Tongass Hwy.

Bus stop shelters in Saxman to have timbers adzed and glass etched.

Issue with culvert south of South Tongass Service – Last year I noticed salmon unable to travel up through the culvert because of low water.

How does DOT &PF work around eagle nests.

Meeting Summary

Date:	Tuesday, June 21, 2016 1:30PM
Project:	South Tongass Highway Rehabilitation: Deermount to Surf
Subject:	Stakeholder meeting with the **City of Saxman**
Attendees:	Woodrow Watson, City Council Joseph Thomas, City Council Max Mercer, Contracting Grant Writer/Consultant Trudi Swink, Council Member Leona Haffner, City Clerk and Administrator (joined at 2:20PM) Keith Karpstein, Project Manager, DOT&PF Jim Scholl, Project Environmental Coordinator, DOT&PF Chris Croft, Project Manager, HDR Carol Snead, Environmental Lead, HDR Allison Biastock, Public Involvement, HDR

Following introductions, Chris Croft covered the scope and schedule of the project.

When asked about certainty of the project, Keith Karpstein relayed that the project's first phase (Saxman to Surf) is funded in 2017, with construction planned for 2018. Phase II construction is slated for 2019, but it may get pushed back depending on how far along Phase I gets in that first year.

Keith relayed that a big component of the project is to provide a continuous pathway along South Tongass.

Saxman Sewer Project

Leona Haffner relayed that the City of Saxman received $3M for the sewer project along South Tongass. Saxman will be tying into KGB's sewer line at Forest Park through to the other existing connection at Shoup Street. Keith confirmed that DOT&PF has been in touch with the Saxman sewer project lead at ANTHC, and that coordination re: construction and other factors is occurring. Ideally, Keith stated, the sewer project will be constructed in 2017 and will be complete by the time construction on the first phase of the South Tongass Highway project begins in 2018.

Tour and Transit Bus Traffic

Max Mercer relayed that Saxman has over 120,000 visitors annually. There is significant bus traffic turning onto Bear Clan Street (coming from both north and south) and turning onto South Tongass from Totem Row. The City would like to see improvements that better accommodate busses. Approximately 7,000 bus riders cross the highway near Totem Row. Busses turning right onto northbound South Tongass from Totem Row move into the southbound lane because of the small turning radius at that intersection. Chris noted that the preliminary design is considering improvements to that intersection.

Council members noted that large busses use Bear Clan Street to get to Totem Park and Killer Whale Avenue, and then return to the highway from Totem Row. Smaller busses for seniors and schools still turn onto Totem Row. New bus drivers are sometimes challenged as they don't understand that Totem Row is not a one way street, so they aren't watching traffic accordingly.

Joseph Thomas commented that some busses cut the corner of Bear Clan Street and scrape the bottom of their bus on the road given the slope on the road. Keith said improvements to that intersection will be considered in preliminary design.

Max noted that Totem Park was recently paved, and that busses could use Dog Salmon Avenue to access Totem Park (given the new pavement behind the community center), but that Dog Salmon Avenue would need to be paved.

Chris shared that the preliminary design study identified a few intersections as potentially needing turn lanes: Forest Park, Totem Row, and Deermount. Keith noted that focus may shift from Totem Row to Bear Clan Street, given that is the intersection with most southbound turning bus traffic.

Saxman City representatives noted that many folks leaving the Saxman Community Center use Bear Clan Street, and that sight distances along that section of South Tongass in this area are poor. The City has discussed a stoplight and lighting at the intersection of South Tongass and Bear Clan Street. The intersection is dark and on a curve of the highway. Vehicles on South Tongass are often moving at high speeds.

Trudi Swink shared that many kids and transit bus riders cross the highway on foot after getting off the southbound KGB bus at the South Tongass Services building; they cross to access the community center for activities, etc.

Eagles

Woodrow Watson mentioned that there are two eagle nests close to the road, one by Bear Clan Street. Jim Scholl relayed that DOT&PF did a helicopter survey of eagle nests in the area this spring via helicopter. DOT&PF will seek a permit from USFWS if bald eagles will be disturbed. City of Saxman officials relayed that the identified eagle nests have been occupied every year. The nest on Front Street is a tourist attraction - the busses parks along the highway and folks get out to look for 5-10 minutes. The nests are in the cottonwood trees.

Pathway

The pathway is used by tourists and residents of Saxman. Tourists often walk to Totem Park, then take the KGB transit bus back to town. Saxman area residents use the pathway to access Tatsuda's, work, school, or other services.

Other Points:

- The City of Saxman has plans for a Harbor adjacent to their SeaPort facility, but there is currently no funding for it. Max pledged to get a copy of the design/CAD to DOT&PF so they can look and see how it matches up against the preliminary design work for the South Tongass project.

- Jim asked the group about the Totem Row designation as a Scenic Byway. Max noted that the city got a Scenic Byway grant about 5 years ago. Jim commented that those first grants are typically for a planning type document.
- Woodrow stated that the City wants lighting on Totem Row.
- Jim asked if Saxman supports having a terminal for the Metlakatla Ferry. The City responded that they offered to lease the land to the State, but the State wanted to outright buy. Oceans Alaska currently has a 16 year lease of the property.
- Jim relayed that section 106 letters re: cultural resources will be coming in a few weeks. He explained the 106 process, and stated that DOT&PF would also like to know about any subsistence resources that we may affect with this project.
- Trudi shared that there is an event at the Saxman Community Center called the *Monthly Grind* – a community event that fills Tribal House with 300 or so attendees at once. That event generates lots of traffic at the Community Center and parking spills into the surrounding side streets, but not onto the highway. Max added that the Community Center also hosts potlatches and memorial services, both of which generate large crowds.
- Saxman participants shared that the boundaries for the City of Saxman are from Oyster Avenue (north) to the bus barn (south).
- The City of Saxman is considering extending Killer Whale Avenue through to Forest Park Drive. Woodrow explained that the City wants a secondary emergency road, as we have been cut off for several hours when South Tongass is closed due to an accident.
- Leona asked if there are plans to widen the roadway in the area between Tatsuda's and Saxman. She shared that there are a couple float houses there that have been there since the pre-borough days, that that there is a special agreement in place with the owners. Tony Knudson is an owner, and he has access to his float house. Leona pledged to send a copy of the agreement to the project team, using the info@southtongasshighway.com address.
- When Allison Biastock asked about good methods for reaching the community, for future project outreach, she was told that good locations for informational fliers are the Senior Centers (new and old), Post Office boxes on Killer Whale Avenue, at the South Tongass Services building, at area bus stops, and at the Cape Fox Corporation building. Another existing mechanism for information dispersal is via the City of Saxman Newsletter.

The DOT&PF and HDR project team encouraged City of Saxman participants to keep in touch and to reach out with any comments, questions or concerns. Copies of the project fact sheet, which includes project team member contact information, were handed out to all participants.

Meeting Summary

Date:	Wednesday, June 22, 2016 8:30 AM
Project:	South Tongass Highway Rehabilitation: Deermount to Surf
Subject:	Stakeholder meeting with the **Ketchikan Gateway Borough (KGB)**
Attendees:	Dan Bockhorst, Borough Manager Deanna Garrison, Assistant Borough Manager Alex Peura, Public Works Director Morgan Barry, Deputy Director of Public Works Kyan Reeve, Transit Manager Chris French, Planning Lead Sarah Fouse, Public Works Assistant Richard Harney, Principal Planner Keith Karpstein, Project Manager, DOT&PF Jim Scholl, Project Environmental Coordinator, DOT&PF Chris Croft, Project Manager, HDR Carol Snead, Environmental Lead, HDR Allison Biastock, Public Involvement, HDR

Following introductions, Chris Croft introduced the project, covering its background and key features.

Project Background

Key features of the project include wider shoulders (5 feet from the USCG base to Surf Street). For the portion of the project area that does not yet have a pathway, DOT&PF would like to add one, with some sort of buffer, similar to the pathway south of Surf Street. The buffer, Keith Karpstein mentioned, may be reduced or eliminated in some places given the constraints in that part of the project area.

KGB/City of Saxman Sewer Project

Alex Peura relayed that the KGB has a concurrent project, to extend the sewer line/wastewater infrastructure from Shoup Street through Forest Park. This project is a partnership between the City of Saxman and KGB, funded by the Alaska Department of Environmental Conservation and Saxman. Per a Memorandum of Understanding, relayed Morgan Berry, KGB will operate and maintain the system following construction.

ANTHC is doing the design and construction for the Saxman portion (Shoup Street to Wolf Street in Forest Park) of the sewer project. Leigh Hubbard is the project manager. ANTHC is aware of the DOT&PF timelines and is trying to have the project completed before DOT&PF begins construction. Construction for the sewer project is anticipated to start in 2017 and will take approximately three months.

Construction of the South Tongass Highway Rehabilitation project will start after the sewer project is complete. Keith noted that ANTHC has been in contact with ADOT&PF, and that ANTHC is very aware of DOT&PF timelines associated with this project.

Saxman has its own system from Wolf Street to Saxman and a holding tank that provides preliminary treatment. The plan is to eliminate the Saxman treatment plant and pump sewage into the Mountain Point sewer system (the two lift stations in Saxman would also be eliminated).

Morgan shared that for the KGB portion of the project, KGB has $2.8M in funding from the Alaska Clean Water (EPA), plus $3M from the state capital budget in matching funds. A Categorical Exclusion (NEPA) was sent to Alaska Department of Environmental Conservation to secure funding. SHPO had issued a finding of no adverse effect. KGB will provide DOT&PF with a copy of the CE and SHPO correspondence.

DOT&PF did a helicopter survey of eagle nests this spring, Jim Scholl commented, and has a draft Cultural Resources report, which can be shared with Saxman and KGB. (Jim noted: The Section 106/Cultural Resources report includes protected information and cannot be shared with the general public).

Path

Kyan Reeve asked about the role of the Tool Group. Chris responded that they are a nationally recognized group that has supported national bike planning documents, and they are providing design services for the pathway. They will provide a design memo to DOT&PF with proposed solutions. Kyan expressed his hope that DOT&PF would gather comments about proposed changes using multiple outreach methods.

Dan Bockhorst commented that a continuous pathway in this section of the highway would improve safety. The pathway is a destination, he said, but there is no place to park.

Parking/Access/Speed Limits

Consideration should be given, said KGB Planner Richard Harney, to adding parking along the portion of the highway near the Surf section. The existing parking for the residential lots in that area is less than adequate for all the residents near Saxman (where it turns 45mph). A full acquisition of the lot across from Shoup for parking won't be enough. Richard suggested DOT&PF consider reduced speed with more on-street parking. This section of the road is of high concern for the Planning Department. Another issue in the Shoup Street area is a newly constructed home, which has a pullout with a wide apron.

Richard said. parking at Rotary Beach, a KGB park, is a concern, especially on nice days when cars park everywhere. Non-transit users also use the pullout at Totem Park to stop/let folks out to see the park. They do this to avoid paying parking fees at the center.

In 2009, Richard shared, KGB had property owners express concerns about "moving property lines" (ROW lines). Richard noted that DOT&PF has said in past that driveway permits would not be issued if the only exit was to back out onto the highway. Richard cautioned that property owners may to come forward with concerns about changes to driveway access associated with this project.

Alex confirmed that the north side of the Deemount intersection is within the scope of the project. Chris noted that DOT&PF will be studying improvements to traffic flow at Deermount and South Tongass.

Transit

Kyan explained that more than 450,000 people ride KGB's transit system annually, with high use during the summer. Saxman gets high traffic for residents and the Totem Park, and there is a stop at the Seaport. Saxman also has plans for a harbor, and that destination would increase transit ridership. Kyan noted that there are fewer planned bus stops in Saxman than KGB would like to see, particularly pullout bus stops for their 35-foot-long busses. KGB identified the need for a stop at Saxman as far back as 2008.

The Lions Club owns a couple of the bus shelters in Saxman. KGB has a shelter at the bottom of Forest Park, but that is not used for its intended use (school busses). The narrowness of the road is a safety concern.

KGB may need to take a closer look at a stop by Doyon. There is an existing bus pullout by the cemetery, which works well with the proposed new sidewalk. A new pullout at the terminus of that sidewalk would be a good place for a bus stop on the land side of South Tongass. A good place for a stop on the water side would be the start of the pathway. These stops would be used by the cannery workers.

KGB could reduce some of the flag stop locations. Kyan explained that KGB has flag stop guidelines and flashers but would prefer evenly spaced stops/pullouts. There are provisions for shelters at the pullouts. Eliminating one of the stops in the industrial area has been discussed, and would be supplemented by stops at the USCG base and "Community Connections", where there are paratransit service needs.

DOT&PF is willing to work with KGB to provide space for shelters where feasible. Kyan noted that in the past, DOT&PF funded shelters and then turned them over to KGB for future maintenance. Keith said he'd look into whether shelters can be funded with FHWA funds.

Kyan asked if part of the bike path could be used as a small pullout at Doyon's landing, Keith responded that DOT&PF prefers to keep the bike paths and transit pullouts separated.

Carol Snead requested KGB's information about user data at Transit stops; KBG will provide a hand count.

Pedestrian Facilities

Morgan commented that the sidewalk from Deermount to USCG base is very narrow, and the railing outdated—kids have fallen through the gaps, which is a liability for DOT&PF. Keith responded that DOT&PF is aware, and the new sidewalk should meet ADA standards and a new guard rail should mitigate those issues. The challenge is the narrow corridor and ROW.

Kyan suggested crosswalks be added at Totem Row, the "Community Connections" facility (Deermount and S. Tongass), and at the USCG base. Consider "switching" the side of the road for the sidewalk and using an at-grade (not raised) crosswalk at the USCG base security gate location. Kyan requested that DOT&PF explore other options such as traffic calming measures and speed limit changes in the Totem Row vicinity. Crosswalks can provide a false sense of security and drivers tend to speed up in that area. He volunteered to provide DOT&PF with numbers of pedestrians crossing the road in that location. Kyan also noted that hourly southbound buses are often full by the downtown stops.

ROW

Jim shared that DOT&PF will be sending out encroachment letters in the next month or so. Property owners will have the ability to apply for a permit or remove encroachments. Permanent structures in the ROW will likely be permitted, but will be considered on a case-by-case basis. Keith noted that DOT&PF will have to acquire some ROW for this project, but those properties have not yet been identified.

Richard will be DOT&PF's primary contact for platting. DOT&PF will work with KGB early in the process to address any challenges in the planning process and ROW acquisitions. Keith noted that DOT&PF has started including platting funds in project budgets, and he is aware that that process has in the past not been funded.

Design

KGB cautioned DOT&PF that the elevation drop at the Forest Park intersection may be problematic, especially for stopping distances. Chris commented that the design does not yet include approaches, so this is helpful feedback that will be considered during design.

When asked, Keith relayed that lighting is not a part of the project at this time.

Richard asked about relocating power poles. Chris commented that we are looking at that, and a select number are likely to be moved, but that DOT&PF prefers not to relocate all the poles or underground the existing lines.

KGB requested DOT&PF explore the possibility of dividers and other buffering methods for the pathway adjacent to the highway. DOT&PF currently has a subcontractor (Tool Group), Chris noted, that is looking at different ways to provide a buffer in ways other than just asphalt. Ideally, the buffer will be maximized to 5 feet, and landscaped where ROW allows. Other sections may require a reduced buffer, but curbs or other noticeable design solutions may be added. Ultimately, however, DOT&PF does not want to include something such as grass or vegetation that has to be maintained after construction.

Schedule

When asked by Alex about the project's construction schedule, Keith responded that the project is included in the STIP for 2018, and DOT&PF is pretty confident of funding. There is a need for this project given condition of the road and safety considerations. While funds can be moved within the STIP on a year-to-year basis, projects must be completed once begun. DOT&PF needs to confirm that funding has been identified in the STIP for 2019 and beyond. The Categorical Exclusion must be completed before funds can be obligated.

Jim shared that the Categorical Exclusion is scheduled for completion this year, but DOT&PF needs more design info before impacts can be fully assessed. DOT&PF would like to resolve encroachments now, but the Categorical Exclusion is needed prior to acquisitions.

Richard asked how DOT&PF would like comments, and Keith said that DOT&PF is requesting comments in writing at this point, preferably via info@southtongasshighway.com. Once the project goes into the final design phase, DOT&PF will pursue local concurrence. KGB requested the selected construction company contact KGB with construction plans, staging, etc., which helps with zoning challenges for things such as mobile offices – the earlier we can work out those issues the better, said Richard.

Meeting Summary

Date:	Wednesday, June 22, 2016 10:15AM
Project:	South Tongass Highway Rehabilitation: Deermount to Surf
Subject:	Stakeholder meeting with the **Ketchikan Indian Community (KIC)**
Attendees:	Bonnie Newman, Housing Director, Tribal Transportation Program Joel Azure, Development Director Tony Gallegos, Cultural Resources Director (also environmental, subsistence) Keith Karpstein, Project Manager, DOT&PF Jim Scholl, Project Environmental Coordinator, DOT&PF Chris Croft, Project Manager, HDR Carol Snead, Environmental Lead, HDR Allison Biastock, Public Involvement, HDR

Following introductions, Bonnie Newman asked about the construction starting date. Keith Karpstein relayed the project schedule, noting that Phase II construction is likely to take two seasons.

Keith described project features including shoulder widening, new sidewalk, and the new section of pathway along South Tongass planned for the Saxman area, as well as other key elements of the project including potential rock cuts and resurfacing.

Chris Croft asked if there are any KIC services that use the corridor. Bonnie responded that there are not really any services that would be impacted. KIC does run a "meals on wheels" type program with home deliveries.

Joel Azure asked about ROW. Jim Scholl relayed that this project will have ROW impacts, but we will not know what they are until the design is further advanced. At this time, DOT&PF is awaiting results of a soon-to-be-completed geo-tech report before further advancing the design.

Intersection of Deermount and S. Tongass

Joel commented that the Deermount and South Tongass intersection is dangerous with all of the traffic/pedestrians accessing the university (UAS), bus stop, Tatsuda's, and the KIC offices. Joel provided a hand sketch of some recommended access closures as well as a proposed raised island on South Tongass at this intersection (attached). Joel also recommended a better type of crosswalk at this location, noting there was once a flashing crosswalk there that has since been removed. (He said there was a similar flashing crosswalk at the tunnel on Water Street at one point as well.)

Joel provided a copy of a 2013 Road Safety Assessment for Ketchikan that FHWA conducted for KIC. The report identified inconsistent crosswalk signage in Ketchikan. Many things in the report, Joel continued, relate to pedestrian safety. The scope of the report is from the Ketchikan side airport ferry terminal to Tatsuda's.

Keith commented that we are in the preliminary phase of the design. The project team commented that this type of feedback from KIC is helpful and timely.

Stormwater

Tony Gallegos asked about stormwater management during construction to avoid contaminants to the marine environment. There is no rain catchment in the stormwater system in Ketchikan, and local planners are not familiar with stormwater treatment. Tony suggested that a low-impact aesthetic approach to stormwater treatment would be best, and that stormwater treatment for the South Tongass project could be a good "demo project" to showcase for the community how treatments work (some sort of interpretive display with information on oily waste, bio-filtration, etc.). Tony stated that he understands stormwater treatment may nay not be required.

Jim said he spoke recently with a hydraulic engineer, and most communities aren't set up to deal with oily waste. For "first flush" issues, Jim continued, DOT&PF have had some good luck treating with bioswales. They need to be comprised of the right plants. Jim indicated that bioswales can be integrated down slope of parking areas where practicable within the ROW in the project area.

Public Land Access

Tony asked about public beach access along the project corridor that is currently limited by damaged stairs or unavailable due to inadequate pathways. Tony and KIC would like to see access to these public lands, particularly for tribal members, to access fishing areas. Parking is also an issue along the highway. Adding parking spots along the route would be beneficial, even for just a few cars (particularly in areas south of the USCG base where there is undeveloped land on the water side). Such pullouts would also be good viewpoints for tourists. Tony said that area signage needs to be better, and KIC would propose interpretive signs at the local access points.

Section 106

Jim relayed that the project team will be looking at cultural resources sites, and asked the KIC group about any special places or subsistence resources that the project might affect. Tony responded that, aside from regaining traditional access to fishing areas, he is not aware of any. He has made inquiries internally in KIC, and not identified any resources to date. Bonnie concurred.

Jim noted consultation will be initiated in the coming weeks and that DOT&PF keeps Section 106 information confidential. Tony asked to see a copy of the Cultural Resources report once complete.

Jim asked for a list of KIC Council members. Allison Biastock offered to sign KIC Council members and other interested staff up for the email contact list; Bonnie pledged to get her the email contacts. The project team thanked KIC for their time and feedback. Allison noted that DOT&PF will continue to seek stakeholder feedback on the project, and that the more comments we receive from those impacted by the project the better project outcomes will reflect community priorities.

Meeting Summary

Date:	Wednesday, June 22, 2016 1:00PM
Project:	South Tongass Highway Rehabilitation: Deermount to Surf
Subject:	Stakeholder meeting with the **City of Ketchikan**
Attendees:	Mark Hilson, Director, Public Works Seth Brakke, Asst. Director, Public Works Keith Karpstein, Project Manager, DOT&PF Jim Scholl, Project Environmental Coordinator, DOT&PF Chris Croft, Project Manager, HDR Carol Snead, Environmental Lead, HDR Allison Biastock, Public Involvement, HDR

Following introductions, Chris Croft introduced the project and its key design elements.

Mark Hilson asked if DOT&PF was looking at a cross walk at the USCG facility. Chris Croft responded that a goal of this project is to improve pedestrian access and a cross-walk at USCG is being considered. Mark noted that a lot of tourists walk down that way, locals too. Chris confirmed that the City of Ketchikan limit is just after the USCG base.

Mark and Seth Brakke offered that the City of Ketchikan has water, sewer, telephone, sanitary, and storm drain systems along the DOT&PF ROW in the project area. Pedestrian access to the cemetery and city animal shelter needs improvement. Pedestrians dart across the road from the bus stops and existing sidewalk on the sea side of the highway.

Keith Karpstein described the highway widening associated with the project, mainly in the rural sections. Chris added that this project will be impacting the "edge of ROW to edge of ROW," and DOT&PF will work with encroachments and try to avoid physical impacts to buildings as much as possible. ROW acquisitions are anticipated as a part of the project.

Driveways/Access

Mark asked if the project will require the modification of driveways. Chris said that the project will examine access for driveways and commercial operations. The Deermount and South Tongass intersection is being examined. Mark noted that modifying driveways can be controversial, especially with canneries, and suggested that DOT&PF check with the canneries as they have a busy season (April-June, then the fall). Mark asked how DOT&PF plans to notify folks about the removal of driveways. Keith explained that the preliminary design effort has identified potential access closures (e.g., an egress at Tatsuda's, across the street) and that the project team may hold another public meeting or notify impacted owners individually with design details. There is also the engagement that occurs via the ROW staff.

Carol Snead asked if there were any concerns from industrial area tenants on the north end of the project about the pedestrian traffic. Seth and Mark said no, but that they wouldn't necessarily hear such concerns, and said that cannery workers are a part of the foot traffic.

Utilities

Mark asked if utility relocations were required. Keith stated that we are looking at that, and planning a report. Some of the utility poles will be moved; DOT&PF will work with utilities (e.g., KPU) as the design is advanced and specific utility relocation requirements are determined.

Seth asked if lighting will be a part of the project. Keith said it is not at this time. Seth commented that if DOT&PF does it, he'd recommend the Totem Row intersection for lighting. Chris stated that he believed there was some existing lighting on the utility poles.

Traffic

Mark asked if the project team was aware of the tour traffic. Keith said that we have discussed it with various stakeholders. Keith shared that there is talk of a bus pullout at Totem Row, and that we are looking at turn lanes on South Tongass. Mark commented that this is a school bus route, too, and asked if we have been in contact with the school district. Keith said we had not, and Allison Biastock noted that the district is on our mailing/invite list, but said we have not reached out to them directly.

Culverts, Drains, Water Systems

Mark asked what is in the project's rehabilitation scope. Keith said that DOT&PF will be getting into the base of the roadway, addressing storm drains, replacing culverts as needed, and resurfacing.

Seth followed up that culvert replacement is needed. DOT&PF will be replacing most if not all of the culverts in the project area.

Seth commented that the City will coordinate sewer man-holes cover and stack replacements with road rehabilitation. Keith reviewed the construction schedule, explaining the project's two phases (two projects in STIP).

Seth and Mark noted that the USCG has a pumped discharge, and that the existing infrastructure becomes the City of Ketchikan's on the land side of the USCG Base. Seth said that everything goes by gravity down to a pump station (#1) in the downtown area, and that the City gravity system flows to the north. Seth furthered that DOT&PF may want to look at the force main for USCG. Keith noted that if any issues come up, there are a few years before construction.

Seth relayed that the City also has water valve boxes to address when the paving occurs. Keith asked if the City will be wanting new lids, sharing that in the past, if the local folks supply them, DOT&PF has had our contractor install them. If DOT&PF supply them, federal requirements (e.g., Buy American) must be met.

Mark commented that per curb stops, the City wants to do away with valve boxes. Seth stated that the City is looking to reduce from 80 to 60 valves.

Environmental

Jim asked about the history of the cemetery and if the City has historic drawings. Seth replied that it has been the municipal cemetery. There are no clan burials there.

Jim asked if the City has oil/water separators for stormwater treatment. The City responded that there is only primary treatment and no treatment of oily waste. Seth noted that it is prohibited by ordinance to put oily water into the City treatment system. Jim noted that oily waste in stormwater came up at another project scoping meeting and DOT&PF may consider incorporating bioswales, although they are not a design requirement. Mark said the City only has one oil/water separator and they use "diapers" to clean the up the oil.

Traffic and Parking

Jim inquired about local traffic. Mark noted that the biggest consideration is the seasonal increase.

Forest Park, Seth noted, has only one point of access, something DOT&PF should note for the bidding package (emergency vehicles, etc.).

Keith brought up parking for users of the pathway along South Tongass. Mark said that south of the project area there is an overflow lot for the Mountain Point Boat Launch that pathway users use. Mark continued that there is another overflow lot for the boat launch further north of the launch (yet south of Buggies Beach) that pathway traffic also uses.

Carol suggested some sort of parking node at the beginning of the project, but Mark said that the need for formalized parking is really south of the project area. The pathway is very popular.

Other

Seth added that north of Forest Park, the highway curve is dangerous and there is standing water on the roadway when there is heavy rain. Seth also shared that as a user, the existing pathway on South Tongass is in very poor condition, that there are tripping hazards, its not ADA compliant, etc.

Seth and Mark asked about another DOT&PF project, "tunnel to Tatsuda's." Keith said that was planned for construction in 2017, and may take two years.

Seth and Mark commented that they are excited about the project, and asked the DOT&PF project team to let them know if they could help. The meeting concluded, and DOT&PF left a copy of the plotter print of the preliminary design map with the City.

Advertisement for Online Open House
Posted on Ketchikan Daily News website from June 23 to July 7, 2016

South Tongass Highway Rehabilitation
Deermount to Surf

If you drive, run, walk, or bike on the South Tongass Highway from Deermount to Surf Street you're invited to visit our

Online Open House

JUNE 23 - JULY 14

To view meeting materials and provide comments.

The online open house will be accessible via

www.southtongasshighway.com

For more information visit: www.southtongasshighway.com.
Or contact us at info@southtongasshighway.com

Biastock, Allison

From: Biastock, Allison
Sent: Thursday, July 14, 2016 1:06 PM
To: Biastock, Allison
Subject: South Tongass Highway Rehabilitation Project - Online Open House Extended, Now Open Through July 31

Re: The South Tongass Rehabilitation Project

The Alaska Department of Transportation and Public Facilities (DOT&PF), in coordination with the Federal Highway Administration (FHWA), is proposing to rehabilitate approximately 3 miles of the South Tongass Highway and bike/pedestrian path from Deermount Street in Ketchikan to Surf Street. A new bike/pedestrian path between Saxman and Surf Street and an additional sidewalk between Deermount Street and the north entrance of the USCG base are also planned.

The project team was in Ketchikan and Saxman last month holding public meetings and engaging with stakeholders to get feedback on the project's scope, environmental process, and preliminary design.

Online Open House Extended:
We are still seeking comments on the project, and have extended our Online Open House through July 31. The Online Open House features graphics and materials from the public meetings and can be accessed by visiting our project website **www.southtongasshighway.com**. After reviewing the materials, please be sure to send your comments to the project team by emailing info@southtongasshighway.com.

Sign up for the email list and visit our website:
Receive project updates in your inbox! Visit www.southtongasshighway.com to access the link to sign up for the **project e-mail list**. Please feel free to pass email list sign up information to any other area residents or stakeholders that you know may have an interest in the project.

Thank you,

Allison

Allison Biastock
South Tongass Highway Rehabilitation Project
On Behalf of ADOT&PF

Allison Biastock
Strategic Communications

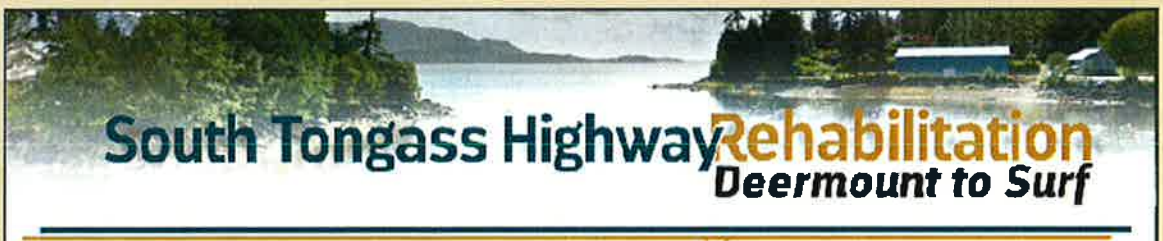
HDR

2525 C Street, Suite 500
Anchorage, Alaska 99503
D 907-644-2167
allison.biastock@hdrinc.com

hdrinc.com/follow-us

Biastock, Allison

From: South Tongass Highway Rehabilitation <info@southtongasshighway.com>
Sent: Friday, July 08, 2016 12:03 PM
To: info@southtongasshighway.com
Subject: Online Open House: Available Through July 14



Visit our Online Open House

If you missed our Public Open House meetings in Saxman and Ketchikan last month, you can still view meeting materials and provide comments to the project team by visiting the project's **Online Open House** - available through **July 14, 2016**. You can access it by visiting our website:

www.southtongasshighway.com

Comments Welcome

We are in the preliminary design phase of this project, and we want to hear from you. Please review the materials and send us a comment using the online comment form or by emailing info@southtongasshighway.com.

About the project:

The Alaska Department of Transportation and Public Facilities (DOT&PF), in coordination with the Federal Highway Administration (FHWA), is proposing to rehabilitate approximately 3 miles of the South Tongass Highway and bike/pedestrian path from Deermount Street in Ketchikan to Surf Street. A new bike/pedestrian path between Saxman and Surf Street and an additional sidewalk between Deermount Street and the north entrance of the USCG base are also planned.

For more information, visit: www.southtongasshighway.com or email us at info@southtongasshighway.com

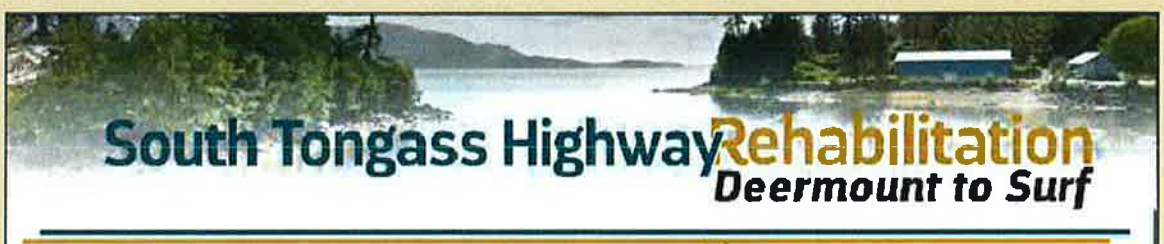
State #67571/67685; Federal # 0902031/0902039. If you have any questions or require additional information, please contact

Keith Karpstein, P.E., Project Manager, at 907-465-1796 or Jim Scholl, Project Environmental Coordinator, at 907-465-4498.

If you or someone you represent requires special accommodations in order to respond to this public notice or participate in the public meeting, please call or email (info@southtongasshighway.com) the Project Environmental Coordinator listed above or call Alaska Relay at (800) 770-8973 for TTY, (800) 770-8255 for voice, (800) 770-3919 for ASCII. (866) 355-6198 for STS and ask the communications assistant to call the Project Environmental Coordinator listed above so arrangement can be made to assist you.

South Tongass

From: South Tongass Highway Rehabilitation <info@southtongasshighway.com>
Sent: Thursday, July 14, 2016 1:05 PM
To: info@southtongasshighway.com
Subject: Online Open House: Now Available Through July 31



Online Open House

Extended through July 31

The South Tongass Highway Rehabilitation Project **Online Open House** will now be accessible through **July 31, 2016**. This online tool will walk you through the project's scope, schedule and key features, and seek your feedback. You can access it by visiting our website:

www.southtongasshighway.com

We are Seeking Your Comments

We are in the preliminary design phase of this project, and we want to hear from you. Please review the materials in the Online Open House and send us a comment by emailing **info@southtongasshighway.com**.

About the project:

The Alaska Department of Transportation and Public Facilities (DOT&PF), in coordination with the Federal Highway Administration (FHWA), is proposing to rehabilitate approximately 3 miles of the South Tongass Highway and bike/pedestrian path from Deermount Street in Ketchikan to Surf Street. A new bike/pedestrian path between Saxman and Surf Street and an additional sidewalk between Deermount Street and the north entrance of the USCG base are also planned.

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State #67571/67685; Federal # 0902031/0902039. If you have any questions or require additional information, please contact Keith Karpstein, P.E., Project Manager, at 907-465-1796 or Jim Scholl, Project Environmental Coordinator, at 907-465-4498.

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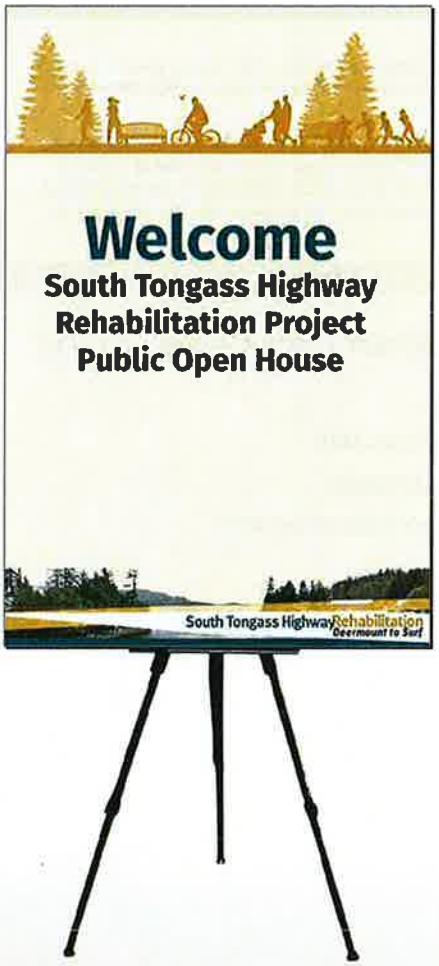


Welcome!

Welcome to the South Tongass Highway Rehabilitation Project Online Open House. This open house features posters and handouts from the June 21, and 22 Open House meetings in Ketchikan and Saxman. If you are visually impaired **click here** to view a text version of this website.

Meeting Purpose

This online meeting is designed to share information with members of the public with an interest in the project. Please continue through this online open house to learn a bit more about the project's schedule, design and scope.

Your feedback is important!

We encourage you to submit your comments at the end of your session. Please let us know your thoughts!

Reference Documents and Meeting Handouts

Throughout this Online Open House, we reference certain documents that can be found on the project website at **www.southtongasshighway.com**. For your convenience, we will link the documents per each poster under the title "Reference Documents or Meeting Handouts".

Meeting Handouts

- *Project Fact Sheet*

Background Image provided by Google Earth.

Meeting Purpose

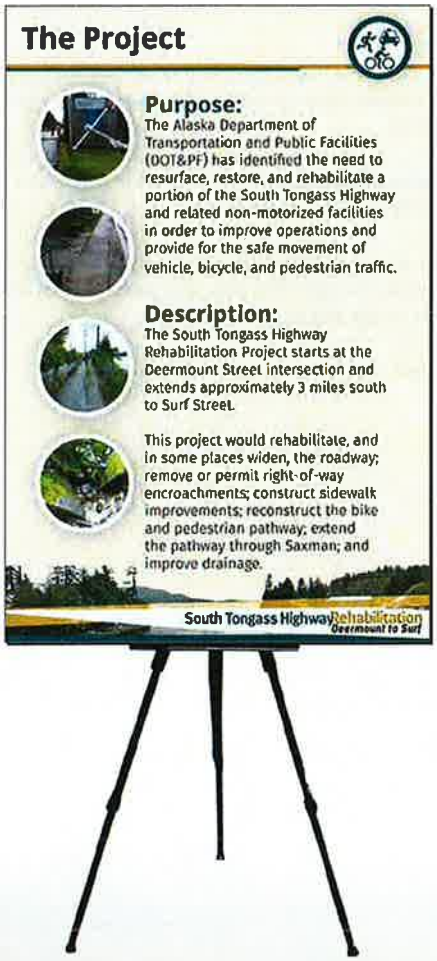
The Alaska Department of Transportation & Public Facilities (DOT&PF), is proposing to rehabilitate three miles of South Tongass Highway and related non-motorized facilities from Deermount Street to Surf Street.

The South Tongass Highway Rehabilitation project would improve operations and provide for safe movement of vehicle, bicycle, and pedestrian traffic.

This online meeting is designed to share information with members of the public with an interest in the project. Please continue through this online open house to learn a bit more about the project's schedule, design and scope.

Don't forget to leave a comment with your feedback for the project team!

Background image provided by Google Earth.



The Project

The South Tongass Highway is the only highway on Revillagigedo Island that provides travel connections between the City of Ketchikan and communities to the south.

The purpose of the project is to improve operations along South Tongass Highway between Deermount Street and Surf Street. As a part of this project, approximately three miles of the highway and the associated pedestrian facilities will be rehabilitated.

Background Image provided by Google Earth.

Environmental & Permitting

The National Environmental Policy Act (NEPA) process is necessary when a project requires either federal funding or a federal approval action or permit for completion. Expected environmental impacts associated with the South Tongass Highway Rehabilitation project mean that the project may be categorically excluded from a more extensive environmental process.

Background image provided by Google Earth.

Click to enlarge

Project Area Map

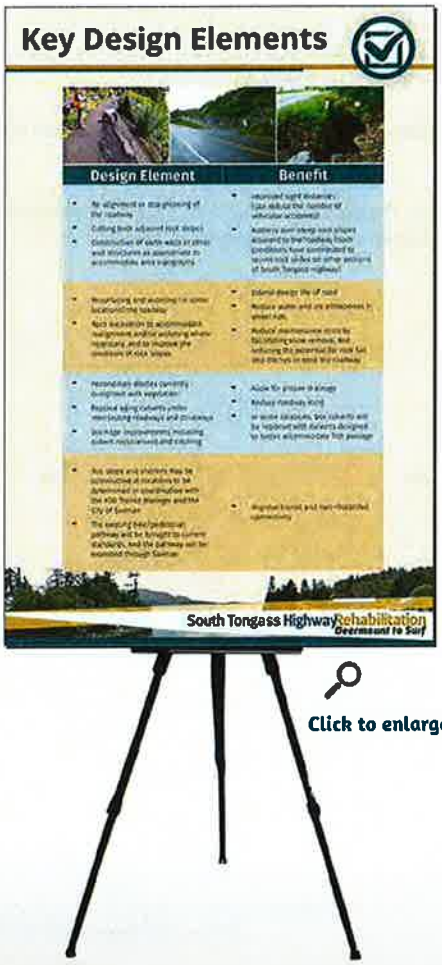
The project area begins at milepost 2.5 and Deermount Street and extends three miles to milepost 5.5 at Surf Street.

This map shows the project area as well as the proposed construction timeframes for the two sections.

Reference Document

- *Project Area Map*

Background Image provided by Google Earth.



Click to enlarge

Key Design Elements

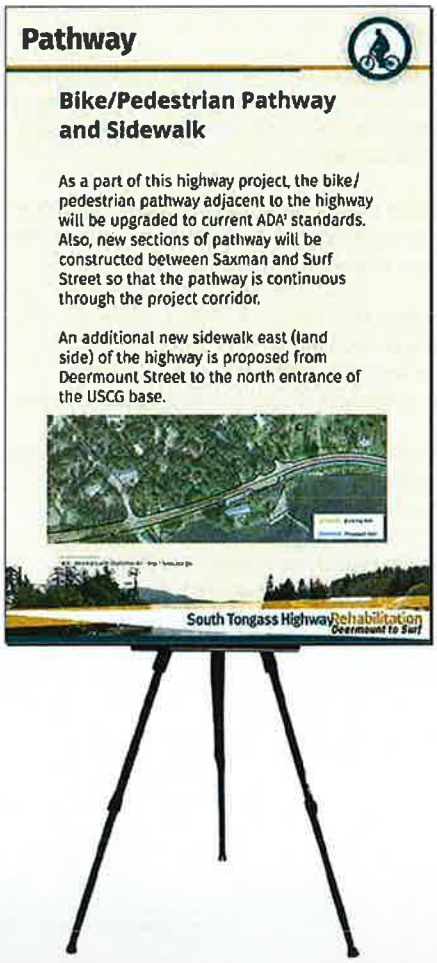
These are some of the proposed elements of the South Tongass Highway Rehabilitation Project design, and their associated benefits. Some benefits include improving sight distances, extending the design life of the road, reducing maintenance costs, and improving transit and non-motorized connectivity.

We are currently in the early phase of this project, and your comments will help the project team as they work to refine and finalize the design. Please use the comment form at the end of this online open house to share your feedback.

Elements of the Proposed Design Include:

- Re-alignment or straightening of the roadway
- Resurfacing and widening (in some locations) the roadway
- Construction of earth walls or other wall structures as appropriate to accommodate area topography
- Rock excavation to accommodate realignment and/or widening where necessary, and to improve the condition of rock slopes
- Reconditioning ditches currently overgrown with vegetation
- Replacing aging culverts under intersecting roadways and driveways
- Drainage improvements including culvert replacement and ditching
- Bus stops and shelters may be constructed at locations to be determined in coordination with the KGB Transit Manager and the City of Saxman
- The existing bike/pedestrian pathway will be brought to current standards, and the pathway will be extended through Saxman

Background image provided by Google Earth.



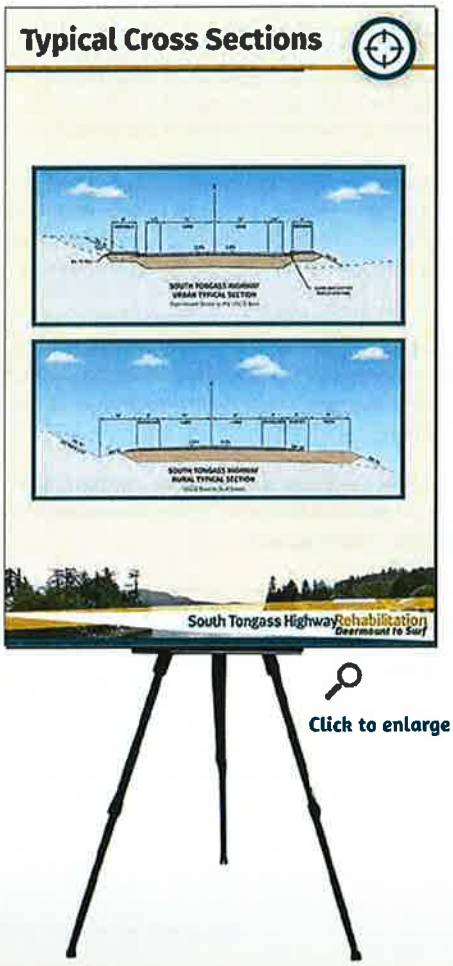
Pathway

Do you use the pathway along South Tongass Highway?

As a part of this project, existing pathways and sidewalks will be upgraded, and new pathway sections added.

Following completion of this project, the pathway along South Tongass Highway will be continuous between downtown Ketchikan and the vicinity of Mountain Point.

Background image provided by Google Earth.



Typical Cross Sections

The two typical cross sections depicted here help to visually illustrate the improvements to the roadway and to the pathway/sidewalk. As you can see in these cross sections, each lane of the highway will be 11 feet wide, and the shoulder width will vary from 3.5 to 5 feet.

On some sections of the highway, rock slopes may be excavated to accommodate roadway widening.

Reference Documents

- *Urban Typical Section*
- *Rural Typical Section*

Background Image provided by Google Earth.

Click to enlarge

Schedule and Next Steps

The project team is gathering and considering feedback related to the current project design from the public, agencies and other stakeholders. This feedback will help inform revisions to the design as it progresses.

We are currently conducting the environmental review which is scheduled to be complete in late 2016. Project construction is slated to begin in 2018 for Phase 1 (Saxman to Surf), and in 2019 for Phase 2 (Deermount to Saxman). All construction dates are contingent on funding availability and other factors.

Once the design for each section is 70% complete, DOT&PF will begin the process of acquiring necessary parcels of property for the project. DOT&PF will proactively contact affected property owners and agencies during the right-of-way acquisition phase.

Public involvement will continue as the project advances. You can remain up-to-date by joining the project email list and by clicking the link below or by visiting **www.southtongasshighway.com.**

Reference Document

- *Project Schedule*
- *Join our project e-mail list*

Background image provided by Google Earth.

We want to hear from you!

Thank you for visiting our Online Open House, and learning more about the South Tongass Highway Rehabilitation Project.

Please send us your comments or questions; the project team will consider your comments and feedback as they advance the project design.

You can submit public comments at any time in the following ways:

- Fill out the comment form included with this Online Open House
- Send an email to **info@southtongasshighway.com**
- Download, print and complete, and fax a **comment form** to 907-644-2022
- Download, print and mail a **comment form** to:
  South Tongass Highway Rehabilitation Project
  c/o HDR
  2525 C Street, Suite 500
  Anchorage, AK 99503

Need more project information? Visit the project website at **www.southtongasshighway.com!**

Salutation
FirstName *
LastName *
Suffix
OrganizationName
Title
AddressLine1 ☐ Do not send me mail
AddressLine2
City
State
USA - United States
PostalCode
EmailAddress *
☐ Do not send me email
☐ Add me to the project mailing list
Gender
Ethnicity
CommentTopic
Comment *
Submit

Background image provided by Google Earth.

Reference Documents & Helpful Links

- *Comment Form*
- *Join our Mailing List*
- *Email the project team*

South Tongass Rehabilitation Project – Comment Log

ID #	Date Received	Contact	Comment	Response
1.	5.9.16	Lee Wallace, Org. Village of Saxman Email: iragovt@kpunet.net	Thank you for the letter dated May 6, 2016. While your letter is asking comments on environmental. Would I send engineering and safety comments to Marie Heildeman? Recently I sent an email to Marie Heildeman with comments more along the lines on engineering and safety issues On South Tongass Highway. In previous documents from ADOT &PF I did see some language on the two eagle nests in Saxman along the S. Tongass Highway. My understanding that construction period would happen when it would least affect the eagles' nesting is that correct? Currently I have observed an issue with a large fish culvert located just south of the South Tongass Service. A humpy stream exists there; the current culvert bottom elevation is too high on the lower level when the stream is running low. The fish are prohibited from going further upstream. I have observed a school of fish swimming in a pool unable to travel further up the stream. Perhaps further observations should occur this summer when the fish a going upstream to spawn.	Thank you for this response, Lee. Please direct any engineering or design comments to Keith Karpstein at DOT&PF: keith.karpstein@alaska.gov. DOT&PF will be conducting an aerial survey of bald eagle nests in the project area. This information will be used to assess potential impacts of the project on eagle use areas and avoid impacts to the extent practicable. If disturbance to bald eagles is unavoidable, DOT&PF will obtain an eagle disturbance permit with U.S. Fish and Wildlife Service. We appreciate the information you provided on the fish culvert. HDR's fisheries biologist will be investigating fish streams in the project area this summer to determine how the proposed project could affect fish. Please let us know if you have other questions or concerns.
2.	5.10.16	Jeanne Hanson, NOAA Email: jeanne.hanson@noaa.gov	Thank you for providing us with the opportunity to provide scoping comments on the Ketchikan South Tongass Highway project. Mrs. Cindy Hartmann Moore will be your contact on this project. Please note that Mary Goode is our Administrative Assistant for the Habitat Conservation Division. Please direct correspondence to our Regional Administrator, Dr. James Balsiger, or if directed at a Habitat Conservation Issue to me, Jeanne Hanson. I refer you to our Regional website - https://alaskafisheries.noaa.gov/ where you can find information about NOAA Fisheries, Alaska and our mission. In particular the link to the Habitat Conservation Division https://alaskafisheries.noaa.gov/habitat.	Thank you for providing this information, Ms. Hanson. We will direct our correspondence according to your direction.

South Tongass Rehabilitation Project – Comment Log

ID #	Date Received	Contact	Comment	Response
3.	5.10.16	Mary L. Stephenson Email: mlstephenson@iserv.net Phone: 907-254-2121	I was made aware of the proposed State roadway project and all I have to say is...Thank you! Whatever is done on this 3 mile stretch of Tongass will be a great improvement. I also approve of the State taking responsibility of repairing the road system BEFORE taking on new projects such as old logging roads. FYI – In the year 2017, the State of Alaska will be celebrating the 150th Anniversary of the Russian-America purchase and transfer. Cities throughout the state will be having year-long, if not summer season, celebration. What the Cities of Ketchikan-Saxman have planned is uncertain, however, the cruise ship industry will be promoting the Southeast Region's heritage and legacy to the fullest; and no doubt patronage for the Ketchikan will be 'up'. As a tour guide and drive of a tour bus, this stretch of Tongass Highway will be used to get to/from Herring Cove and Shelter Cove Road (POA-2014-0060 George Inlet) transporting visitors to their destination of Alaska Wildlife Sanctuary, Crab Tour and Lunch, as well as Herring Cove for wildlife experience. Cruise ship industry sells tickets aboard the ship and/or independent tour operators at the dockside. Please be aware of the heavy vehicle traffic along stretch of the highway when preparing the trenches, culverts, and surfaces and not delay 'movement' around section of construction any more than necessary. Please work with the tour operators who use this roadway so they can work with logistics. ========== After the DOT is done with this project, please do not forget the proposed State CPV Funded Herring Cove Pedestrian Bridge and Walkways project. The design, engineering, and construction of a pedestrian bridge and walkways for visitors to the Herring Cove area and would also provide needed transportation infrastructure to cruise ship passengers visiting the area. The bridge walkway and connecting walkway should have a	Ms. Stephenson, Thanks for your comment, support, and for sharing the information about the upcoming Anniversary and the Herring Cove project. We appreciate your suggestion to connect with tour operators. I apologize for the delay in getting back with you. While we received and considered your response, we have been working to assess the project's impacts to the natural and human environment, including any impacts to area wildlife and fish. Such work is still ongoing and will result in the project's required environmental document. We will be in the area again in December holding public meetings and engaging with stakeholders. I have attached a flyer with the meeting information, and you can learn more by visiting our website: www.southtongasshighway.com.

South Tongass Rehabilitation Project – Comment Log

ID #	Date Received	Contact	Comment	Response
			minimum width of 12 feet. This project will facilitate the recreational sightseeing use at Herring Cove by providing safer pedestrian movement and a safe location to view wildlife and scenery. Projected budget $2,150,000. Extensive surveys were done in the summer of 2015 and Chris French, KGB Director of Planning and Community Development (907) 228-6638 should have those results available (number of vehicles and estimates of visitors to the area). After the sawmill closed in the 1970s and the pollution settled in, Herring Cove reclaimed itself with the spawning salmon. Where there are salmon, there are eagles, bears, sea lions and tourists! Due to the various mobility issues with participants, the tides and time restraints of tour itself, the choice of viewing 'from the bridge' or walking down dirt surface/pot holes Powerhouse Road is determined with each guide and visit. If the state bridge is used, the pedestrian must stay within the white lines or fog lines when traversing the bridge – heavily used by construction trucks, hatchery equipment and increased ridership on motor coaches now that Shelter Cove Road/Georgia Inlet (POA-2014-0060 George Inlet) was completed. The liabilities increase with every summer season without a safe pedestrian bridge and walkway. Every Fiscal Year the Funding Requestor Herring Cove Bridge is listed, however, delayed for reasons unknown to the public. Thank you for 'listening' and due diligence in completing the next two projects as soon as possible.	
4.	5.12.16	Carol Snead to Tony Gallegos Email: tgallegos@kictribe.org		Hi Tony – Nice talking with you this afternoon. Thank you for your interest in the project and for letting us know of your role as Cultural Resources Director for Ketchikan Indian Community. We will add you to our stakeholder mailing list. You should be hearing about our upcoming Open House Meeting soon.

South Tongass Rehabilitation Project – Comment Log

ID #	Date Received	Contact	Comment	Response
				Please direct your request for the 1990s EA on the project to Jim Scholl at DOT&PF: Jim.scholl@alaska.gov. Also - thanks for letting us know the schedule for tribal council meetings (third Monday of every month). We will be sure to plan our meetings in Ketchikan with that in mind. Please feel free to call if you have any questions or comments.
5.	5.16.16	Jim Scholl and Tony Gallegos Email: tgallegos@kictribe.org	I was told by Carol that HDR also made a request for the earlier EA on Tongass Hwy Improvements mentioned in the project announcement I received last week. If you could have a copy sent to the address below for my review and to archive in my files I would appreciate it. I look forward the much needed roadway Improvements to our main transportation artery.Any other background documentation you believe would be relevant for Ketchikan Indian Community (KIC) to review before the Public Meetings next month would be helpful. I have not heard about final public meeting dates yet. And am I to assume you don't have copies of past EA on Tongass Hwy? 6.17.16 - The address listed is our main address and should find its way to me but it hasn't as of this email. My Actual physical address: 429 Deermount Street Ketchikan , AK 99901 And I do get mail directly there. If meant for me and not Admin. or Tribal Council in general you could use this address.Note: I have a USFS Regional Advisory Committee meeting during that time period on the 22nd but will plan on attending the Saxman meeting on 21st	Thanks Mr. Gallegos. I will send you a copy of the EA if I can find one and any other background documentation. Thanks Mr. Gallegos, I have looked in all the places a South Tongass EA might be archived and I have had no luck. My apologies. The Public meetings will be held in Saxman on June 21st at 5-7 PM and Ketchikan Wednesday June 22nd from 4:30 to 6:30. I just checked and you are on the mailing list so you should of received a post card with the dates. Is your mailing address Tony Gallegos Ketchikan Indian Community 2960 Tongass Avenue Ketchikan AK 99901 If this is incorrect let me know. Attached is a flyer announcing the upcoming meetings. Let me know if you have any other questions. 6.17.16 - Thanks Mr. Gallegos. We will update your address. Another question – shortly we will initiate consultation concerning impacts to cultural resources/historic properties. Are you the correct person representing the Ketchikan Indian Community to receive our consultation letters?

South Tongass Rehabilitation Project – Comment Log

ID #	Date Received	Contact	Comment	Response
			6.17.16- You can include me in correspondence in addition to, Tribal Administration - not in lieu of and Joel Azure, Development Manager same address as myself deals with tribal transportation.	
6.	5.12.16	Mark Minillo via Jim Scholl DOT&PF	The Division of Habitat, on May 9, 2016, received from ADOT&PF an agency request for comments for the proposed South Tongass Highway Rehabilitation project in Ketchikan. The purpose of the project is to resurface, restore, and rehabilitate the portion of South Tongass Highway from Deermount Street (Milepost [MP] 2.6) to Surf Street (MP 5.5). As mentioned in the scoping document work would include improvements to drainage including culvert replacement and ditching. Although a map was included in the scoping document, specific locations where culvert replacement and/or ditching would occur are not shown. We request a map or project plans showing the specific locations of culvert replacements and ditching. There are 4 catalogued anadromous water bodies located along the project (see attached map). Fish habitat permits may be required should any work take place below the ordinary high water of any of these water bodies.	Thank you for the comments, Mark. We are refining the scope of work and will submit the requested information later this summer.
7.	05.13.16	Lacey Simpson, Director Email: LaceyS@City.Ketchikan.Ak.Us Address: Ketchikan Museum 629 Dock Street Ketchikan, AK 99901	Chris French from the Ketchikan Gateway Borough Planning office forwarded to me your inquiry letter regarding State Project #67571/67685, South Tongass Highway Rehabilitation. It looks like this letter was sent to the Ketchikan Historic Commission, of which I am the only staff, but it was addressed to Terry Wanzer, Chair. Terry is the Chair of Historic Ketchikan, a non-profit organization dedicated to economic development through historic preservation. I know, it's confusing!	Thank you for your comments Mr. Simpson. The subject project will be evaluated in accord with Section 106 of the National Historic Preservation Act. The Ketchikan Museums/City of Ketchikan will be considered as a consulting party and this summer we will contact Ms. Chambers to initiate consultation regarding historic properties. I appreciate your concern and helpful comment. Good luck in new

ID #	Date Received	Contact	Comment	Response
			Unfortunately, today is my last day with Ketchikan Museums/City of Ketchikan and the Ketchikan Historic Commission. I would appreciate if you would address further inquiry letters and project information to the Ketchikan Historic Commission, care of Hayley Chambers, Sr. Curator of Collections for Ketchikan Museums. She will be serving on the Commission in the absence of a Director and has been Cc'd in this email. She can also be reached at 907-228-5708. Without examining the project in too much detail, it's very likely that the scope may impact several historic properties along South Tongass Highway, namely the Chief Kashakes House, which is on the National Register (http://focus.nps.gov/pdfhost/docs/NRHP/Text/93000338.pdf), and perhaps several cannery sites. Please keep the Ketchikan Historic Commission and Ketchikan Museums informed of plans as this project develops. Also, though it's not my area of expertise, directly across the highway from the Chief Kashakes House on the waterside is a large Cottonwood tree that annually serves as a nesting site for American Bald Eagles. I would guess that someone from USFWS or Alaska Department of Fish and Game will bring this to your attention, though the tree most likely exists outside the project perimeter. Thank you for your consideration of my comments. We look forward to receiving more information on the project as it develops.	endeavors!
8.	6.12.16	Michael Spence Email: michaelcspence@hotmail.com	Thank you for your kind solicitation of comments from Ketchikan residents. My wife Deborah and I have resided on the South Tongass Highway for thirty-plus years. We raised two children here, and have used the road for transportation and recreation	Thank you for your interest in the project Mr. & Mrs. Spence. Your comments will be considered as we develop the project.

ID #	Date Received	Contact	Comment	Response
			throughout this time. The South Tongass Highway is more than just a transportation corridor. It provides access for residents and visitors to some of Ketchikan's special places like Rotary Beach, Saxman, Fawn Mountain School, Herring Cove, The SSRAA hatchery, George Inlet Lodge,and trailheads to Whitman and Sylvis Lakes. It provides limited access for pedestrians and cyclists and safe recreational opportunities for children that live along the corridor. Unfortunately the South Tongass HIghway has been largely ignored for routine maintenance and improvements for pedestrian and non-motorized traffic such as has recently been provided on the North Tongass Highway. The current deplorable state of this highway is rutted with potholes and patches on top of patches.. It lacks any shoulder at all for most of its length for vehicles that might become disabled, or for a safe passing lane for pedestrians or cyclists. The one and a half mile "bike trail" from the Coast Guard base to Saxman is also in a deplorable state of disrepair. Cyclists and pedestrians are at risk due to the complete lack of bike lanes or walkways and ever-increasing bus and car traffic. We welcome the intervention of the DOT and PF to correct this situation, if only from a road safety standpoint.. If the DOT and PF is to look at the bigger picture, there is no better way to stimulate the economy of a community than to provide safe roads and recreation opportunities in its infrastructure. Modern families are aware of the advantages of things like bike trails and walking paths for raising children in a community and for their health and wellbeing. Thank you for your attention.	
9.	6.15.16	Carol Lagodich	Since the South Tongass Highway Saxman to Surf Street construction is not scheduled until 2018, please continue the Saxman 30 mph speed limit on Ketchikan AK-7 Alaska Route 7	Thank you for your interest in the project, Ms. Lagodich. Your comment will be considered in design development.

South Tongass Rehabilitation Project – Comment Log

ID #	Date Received	Contact	Comment	Response
		Email: clagodich@gmail.com Address: 2971 Forss Avenue, Ketchikan, AK 99901	between Saxman and the Rotary Beach pedestrian/bike trail. 45 MPH is too fast when pedestrians and bicyclists also use the highway. In this section: • There are places with no shoulder (ditch or barrier) • The northbound lane has pot holes and large puddles • Large vehicles (buses, trucks pulling large boats, rock trucks) are frequently traveling in both directions. • Pedestrians from the Shoup neighborhood need to walk on the highway to get to/from the bus stop and beach. The narrow or non existent shoulder (ditch/barrier) is dangerous in the daylight but even more so in winter. This area needs to be 30 mph as much or more as the Saxman area. I walk, bicycle, and drive south of Ketchikan so am very familiar with the route.	
10.	6.21.16	Mike Spence	Provide guardrail between road and path or other physical barrier for safety for the entire project length. Provide guardrail between road and path or other physical barrier for safety for the entire project length. • Lower the speed limit to 35 the entire way along Tongass. • Caution signs for path users at driveways and intersections. • Fines for littering and lack of pet clean up • Installation of Noise Mitigating Engineering where the path runs right along grandfathered properties. • No parking on the path.	Thank you for your interest in the project Mr. & Mrs. Spence. Your comments will be considered as we develop the project.

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			Encourage the use of the term "multi use pathway" Locals are known to yell at cyclists on the road going 15 to 20 mph to "get on the bike path" this is not a designated bike path – meaning for bikes only.	
11.	6.21.16	Elizabeth Einset & Debby Spence	Please provide off-path parking. Currently people park on path. Maybe just south of Saxman? Mountain Point paved line needs to be protected from tour bus use. • Please consider underground power lines for view enhancement and power pole removal from path for safety issues. • We support this multi-use path connection. • Need increase parking at rotary beach as it cannot hold load. • Signage on path – no parking • Signage on path/also paint at driveways and crossroads alerting drivers to pedestrian crossing. • Midline with walker/wheel designations. • Signage instructing safe path use and pet clean up • Bus Stops in parking lots, not on shoulders or path • Trash cans along the way.	(engaged at meeting, did not leave email contact info)
12.	6.21.16	James L Van Horn Email: jvanhorn@kpunet.net	Would like to receive a blow up diagram for oyster avenue- 2.0 mile south tongass, 2259 Oyster. There is a garage there that may have to be demolished due to the road widening.	Here is an aerial image of 2259 Oyster. Per the need to acquire property for this project, as we are currently in the preliminary design phase, specific Right-of-Way (ROW) impacts are not yet final. DOT&PF will reach out to impacted property owners once ROW needs are solidified. In addition, as a part of this project, some property owners will be contacted about encroachments in the existing state-owned ROW. An encroachment is an unauthorized use of a ROW by improvements, objects, items, or obstructions. Encroachments are resolved by removal or can be permitted. The decision to permit an encroachment will be made on a is determined on a case by case basis by the DOT&PF

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				We will be in the area again in December holding public meetings and engaging with stakeholders. I have attached a flyer with the meeting information, and you can learn more by visiting our website: www.southtongasshighway.com.
13.	6.21.16	Gerald Needham	This has been needed for a long time. Kudos. Keep in mind the wildlife crossing the road as this could cause a serious accident with the tour busses especially. We have needed emergency pull overs for far too long.	(No contact information provided)
14.	6.21.16	Gretchen Blanchard Email: bloomers@ak.net	No sign of anyone at the red Community Center in Saxman or the old City Hall building at 2706 S Tongass as advertised. Hopefully the meeting is still on for tomorrow at the Civic Center. Perhaps there was a weather issue with flying into Ketchikan.	I'm so sorry that we missed you this evening. We held our meeting at the Saxman Community Center (red building) from 5-7PM. The entrance to our meeting was on the coastline side of the center - I am wondering if you perhaps tried to enter through the back side of the building? We apologize for any confusion - and for the error in the advertised address of the Saxman open house - I hope you saw the sign posted at 2706 S. Tongass directing folks to the proper address of the Community Center (2841 S. Tongass). We will be holding our public open house in Ketchikan on Wed. the 22nd from 4:30-6:30PM at the Ted Ferry Civic Center. We hope you can attend. We will be hosting an online open house, accessible via our project website at www.southtongasshighway.com, starting June 23. You can make comments for the project team via the online open house, or with the online comment form on our website. You are also welcome to email us at this address. We hope to see you tomorrow.
15.	6.22.16		Need a light at Deermount crosswalk. Need sidewalk fixed just south of Dry Cleaners. Also should think of parking. How & where do families access path – east street! One mid way- buggies too far.	(Anonymous Commenter)

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16.	6.22.16	John Cliffon Email: cliffon@kpunet.net	1. Replace large 6 to 8 foot culvert near MP 4. Top is failing. 2. Consider slowing traffic. Surf Street to Princess Bus Barn turnoff. Until project completed – rough roadway. 3. Check on FEMA for new pu 4. Slow traffic in Saxman – S. Tongass to Forest Park.	Thank you for your comment. As a part of this project, all of the culverts in the project area were evaluated and many of them are recommended for replacement, including all culverts over 48 inches. Per lowering the speed limit in the area near Surf Street, whether speed limits changes are necessary once the project is constructed is something that is being evaluated by the project team. There are no plans at this time to change current speed limits prior to project construction. Lastly, as a part of the project's development, the most recent FEMA maps will be analyzed. We will be in the area again in December holding public meetings and engaging with stakeholders. I have attached a flyer with our meeting information, and you can learn more by visiting our website: www.southtongasshighway.com.
17.	6.22.16	Kent Colby	Poles in the walk path cause hazards – particularly to bicycles. I have witnessed two young bikers hit poles. I have had issues when riding with me dog (on a leash) – she goes to one side – me on the other.	(No contact information left)
18.	6.22.16	Greg Lynch Email: Boomchain7@gmail.com	Great! the road has got so bad, that it is not safe. in fact the speed limit should be lowered till you can get the job done. Thank you for this much needed repair.	Thank you for your support, Mr. Lynch
19.	6.23.16	William Tatsuda Email: wbtatsuda@kpunet.net Phone: 907-617-3016	I have been told that the South Tongass Highway project plan is to remove the Stedman St. Exit from our parking lot. This is unacceptable to us. The exit has been there for 42 years and has not resulted in any accidents that we are aware of. Removing the exit will cause more congestion at that intersection, because all of our customers will have to exit by left hand turn onto Deermount first and then make left or right	Thank you for your comment Mr. Tatsuda. We are discussing your concerns and will keep in contact with you. DO&PF project team met with Mr. Tatsuda on site to discuss his concerns in December 2016.

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		Tatsuda's Supermarket, Inc. PO Box 8820633 Stedman Ketchikan, AK 99901	turns from Deermount onto Stedman St. It is much more difficult to make a left turn from Deermount than from our parking lot because there is better visibility from our property than from Deermount. Deermount and our parking lot will back up with cars trying to make left turns onto Deermount from our lot and then make left turns onto Stedman Removing the exit from our lot onto Stedman street will be a major inconvenience for our customers and will significantly affect our business. It will not improve traffic flow, but will cause more congestion and double the amount of left turns cars will have to make to get out of our lot and onto Stedman St., not to mention altering the traffic flow and parking patterns inside our lot, which is potentially more hazardous I predict that there would be more accidents at the intersection of Stedman and Deermount due to poor visibility from Deermount St. onto Stedman and significant increase in traffic on Deermount from our store. To date over the last 42 years there have not been any accidents involving cars exiting our lot onto Stedman that we know of. The removal of our Stedman St. exit is unnecessary and has the potential to cause more accidents and congestion than the status quo. Therefore we vigorously protest the plan to remove our Stedman Street Exit.	
20.	6.23.16	Bob Pelkey Email: bpelkey@TridentSeafoods.com	Hi, I attended the June 22nd informational gathering in Ketchikan at the Ted Ferry Civic Center and spoke of my concerns and listened to others comments and concerns as well, thanks for the opportunity. The following concerns, some of which have been on my mind well before this opportunity came along are as follows:	Thank you for your comments. They will be addressed as we proceed with the project.

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			This 1st concern is the most important to me and generally others in and around the North NW most portion of the South Tongass Deermount Street to Surf Street Rehab Project: 1st. Could serious consideration be made regarding the **unbalanced "Speed Zone(s)"** from just before Deermount St. (near roadway to Thomas Basin parking lot/UAS back parking lot) to the 30 mph zone sign at the property line between Anderes Oil (Crowley Oil) & Trident Seafoods Corp property lines, that passes across the intersection of Deermount and Stedman Streets respectfully. As one drives and heads south along Stedman street the inner Ketchikan city speed limit is 20 mph, just before Deermount it changes to 30 mph, and opposite of this sign it is reduced to 20 mph as you pass Deermount street intersection heading northwest into the city zone limit. This situation of having the Speed Zone change after passing the intersection of Deermount heading NW creates an unbalanced speed by motorist approaching and departing the intersection, it is dangerous in general, causes many close calls regarding vehicle and pedestrian traffic, as well as actual accidents to human life and property damage as directly related to fender benders of sort. My submitted and expressed idea to help lesson this undesirable hazard is move (or add a) the 20 mph sign near NE side (land side) of Stedman street to the area just across from the aforementioned Crowley/Trident property line, this would reduce the incoming traffic to the same inner city speed zone of 20 mph well before entering the intersection of Deermount/Stedman streets. Thus it would be advisable to change the 30 mph sign outbound to 20 mph creating and extending the 20 mph zone of inner city limit, this in turn would put vehicle traffic at the same rate of speed (equal rate) as they enter an ever increasing area of pedestrian and vehicle traffic at	

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			and near the intersection of Deermount/Stedman streets and the sidewalk crossing. It is only a matter of time before a death or very serious life treating accident and injuries occur in this area of unbalanced speed, we have UAS SE, the K.I.C. Training Center, Tatsudas Grocery, the Laundry Mat, Trident Seafoods freezer & cannery, Community Connections, Crowley Oil that would be benefitted as well of this submitted change in the speed zone, of which is very short in distance. PLEASE IF AT ALL POSSIBLE COULD SERIOUS CONSIDERATION BE MADE NOW AND NOT WAIT ANY FURTHER IN THE DETERMINATION THAT THIS WOULD REDUCE THE LIKELIHOOD OF CONTINUED CLOSE CALL ACCIDENTS IN THIS EXPRESSED AREA OF SPEED ZONE IN-BALANCE. More and more local pedestrians including visiting tourists are walking through this somewhat congested zone as well, the reduced speed zone to 20 mph could be a benefit to them as well when standing and waiting for vehicle traffic to stop for them to cross a crosswalk that currently has vehicles approaching at two different speeds to either side of the crosswalk. **2nd. Add one to two overhead Street Lights** in the area immediately next to Tatsudas Grocery to the front parking lot south area of the Laundry Mat property, across from Trident Seafoods large cannery structure, either side of Stedman being objectionable as to the exact location(s). The City of Ketchikan states it is the States issue or concern, while the State claims it's the City of Ketchikan's area of responsibility, regardless of responsibility or liability of the lack of proper lighting in this particular short section of Stedman Street, something or	

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			someone needs to address this concern of low to very limited overhead Lighting. This is a matter of improved visibility and therefore improved safety in this area of concern, and once again I would hope serious consideration can be made to address this well before the S. Tongass rehab project occurs, sooner writher than later being the desirable result. **3rd. Change (or modify ?) the** preventive fall and **hand Railing** that's passes along the narrow sidewalk and open gap next to Trident Seafoods large Cannery structure of which there is a rocky original beach front approximately 10 to 12 feet below. The 42", 21" with no Toe Board pipe railing has too much exposure for a pedestrian to fall between the piping to the rocky beach (seawater at high tide) below. It is a very difficult area to retrieve and/or escape from this narrow deep area once someone (animals as well) has falling into it. With continually increasing pedestrian traffic I hope once a again that a solution could be considered sooner writher than later to address this oversight with a long-term hazard. Making it an ADA hand railing is the right thing to do. **4th. Eliminate or close off** the nearest to Deermount/Stedman intersection & crosswalk **"Tatsudas left & right turn Exit onto Stedman Street",** make the sidewalk opening closes to the liquor store an enter/exit or entrance ONLY?, with a slight change to elevation to the exit/entrance that exists on Deermount street, and an increase in the width of Deermount section as well. **5th**. With the submitted 1st and 2nd concerns mentioned above I would hope the **last thing we may need would be a cross walk light at the Crosswalk at Stedman/Deermount,** improving the unbalanced speed zone and the adding of overhead street lighting I believe could alleviate the Issue or concern for now.	

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			Putting in a cross walk light would more than likely involve an intersection Stop light consisting of green yellow and red overhead lighting to be installed, which with overall improvements directly related to the overall project could be deemed as not needed for now. **6th. Consider purchasing whole or in part via ROA the open Rock Pit for Public Parking** to accommodate the general public who use or will use the improved sidewalks and adjoining highway pedestrian/bicycle path to City of Saxman, Rotary Beach, and Mountain Point Recreational Area. With this idea the proposed crosswalk closer to Coast Guard base entrance could be the preferred crossing. **7th.** In conjunction with the 6th submission above perhaps **the slight curve on Stedman Street** directly in front of Community Connections, the Coffee Shop and Trident Seafoods seasonal Apartment housing **could be moved further south or eliminated all together by gradually taking the curve out over a length of roadway distance.** As it stands now the structure along with a 30mph speed zone creates a hazard by means of a blind spot just to the north and south of the Tridents grandfathered structure which was cut in half decades ago for Stedman Street expansion south. **8th. Lower the Stedman Street roadway surface** slightly as it approaches the area in front of Petro Marine property, just past the entrance to the Cemetery lane and as it approaches the Coast Guard Base Ketchikan's driveway entrance to the north. With the above submitted ideas for improvement as related to the project , I would hope we could avoid a Stop Light at the inner section of Deermount and Stedman street for now, or at least for the immediate long term.	

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21.	6.30.16	Barry Hogarty Email: barry.hogarty@gmail.com Phone: 907-617-4561 PO Box 6193603 Deermount Street Ketchikan, AK 99901	Thanks for the project meetings in Ketchikan/Saxman. They were very informative. I came away from the meeting with some comments I want to make on some of the project design elements. 1) I am concerned about plans to limit the access/egress from Tatsuda's grocery store. Apparently plans are to eliminate the egress from the north end of Tatsuda's parking lot and rely exclusively on access/egress via Deermount Street and the south end of Tatsuda's parking lot. This will undoubtedly increase traffic using Deermount street at a busy intersection. It is extremely difficult to see southbound traffic when exiting onto Tongass from Deermount. Deermount street has just one sidewalk and many Tourists walk down the actual street rather than use the sidewalk on the one side. 2) I regularly bike South Tongass and am very much in support of connecting the two current bike paths in the Shoup Street area. 3) Regarding bike path design, please do not place any bollards to prevent motorized vehicle entry onto the bike path as these are deadly to bikers who fail to see them in time to avoid them. Removal of utility poles that are currently centered in the bike path between Deermount and Saxman is a great plan. 4) A buffer between the bike path and the highway, where possible is of utmost importance. Either a guard rail between or a grass buffer is acceptable.	Thanks for your comments Mr. Hogarty. They will be considered as the project progresses. Right now, we are in the preliminary phases of design and have made no final decisions about the Tatsuda parking lot access. There will be another opportunity to comment as the design progresses. Thank you for support and comments concerning bike path design.
22.	7.1.16	Teri Hoyt Email: Msteri7@hotmail.com	Thank you for the recent opportunity to discuss the South Tongass Hwy project with your design group team. My husband and I are extremely concerned about the potential impact to our property at 3045 South Tongass Hwy. Lot 1A Block 2 U.S. Survey	**7.1.16:** Thank you for your comments, Ms. Hoyt. They will be considered in the current design development.

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		Phone: 907-617-9924 P.O. Box 8998 Ketchikan, AK 99901	1080. Our home is very close to the road. Please be aware that a Quitclaim was granted 5-17-1988 adding 25 sq. ft. to our property. (Book 0168 page 042). It appears now that the new hwy rehabilitation plan being developed is radically different than the previous design which indicated minimal impact to our property, my home since 1989. We suffered extensive damage and disruption during the Ketchikan Borough water and sewer project done by South Coast Incorporated in 2001. Our retaining wall and a large section of the foundation had to be replaced in addition to other repairs • I have copies of letters and E-mails between the State of Alaska, Mr. Vic Winters, and others during the 2003 hwy widening project about our property. We later learned this project was 'delayed' 7-23-2003. • Please note my name is now Teri Hoyt and John Goucher is no longer associated with this property. Hopefully these letters are still in the state files somewhere! • The first contact with Vic Winters, Engineering Manager was in January 2003, immediately after the open house held about project 71670, the STH widening project. • On 1-13-03 Vic Winters wrote that my comments were "sufficient at this point to establish the fact, (for the record), that we need to pay careful attention to your property.....". • In August we received letters from the state and Jane Gendon in regards to the historic property status survey of our neighborhood for project 68571. • On 8-15-2006 Charles Tripp, Engineering Manager, wrote our property "issue was looked at	**11.29.16:** Thank you for your comments regarding the South Tongass Highway Project. We have taken your previous correspondence into consideration and have made adjustments to our design alignment. The proposed edge of roadway will closely match the existing edge of roadway near your property and would avoid direct impacts to the retaining wall and your property. We invite you to attend our upcoming public meetings; at the Saxman Community Center on Dec. 6th from 6:00 to 8:00 PM or at the Ted Ferry Center from 4:30 to 6:30 PM on Dec. 7th. If you are concerned about vibration damage we could conduct a structure survey prior to and following construction. If damage were to occur, it would be documented and the construction contractor would be liable for the repairs. We would be interested in meeting with you, on-site, while in Ketchikan. Please contact Jim Scholl, DOT& PF, at the number below until Friday December 2nd. While in Ketchikan from Monday Dec. 5th to 7th you may contact me at (907) 957-1951.

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			pretty closely and it was found the road could be contruructed without disturbing the retaining wall..." • "Thus impacts to your home would be minimal. Concerning the second stage of preliminary design, we don't anticipate changes with respects to impacts to your property." • Additionally, we have a letter from SouthEast Engineering dated 4-6-2003. It states: " If DOT decided to widen the road at your property, careful consideration should be given to your property." "However. it is doubtful the exisiting block masonry wall could sustain .2- .4 in./sec PPV vibrations. and " I'm sure DOT will consider all factors before their final design." • We, as homeowners, can't emphasize enough our concern for this future project! On 6-22-2016 we learned the design plan has completely changed, showing direct impact to our property! • Why change the design? The original plan which was completed. paid for, and seemed agreeable to most land owners of this "pinch point' neighborhood has vanished! • Previous letters from the state assured us there would be no impact to our property! • Construction vibration alone is likely to cause some damage. Destructive impacts to the retaining wall, foundation, tree barrier, and garden areas will definitely be detrimental to our property value as well! We believe a plan can be made to formulate a solution to this challenge!	

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23.	7.8.16	Judith McQuerry Email: jlmha@kpunet.net	The project concerns me as I live on the highway and current bike path and use both daily. I love the idea of the path golng all the way through Saxman to Mt Pt. I worry about home owners loosing property to the project.	Thank you for your comment, Ms. McQuerry. We agree the pedestrian/bicycle trail is an important part of the project. Currently we are in the first stages of design. As the design develops DOT&PF will make every attempt to avoid and/or minimize impacts to adjacent property owners. You may keep informed about the project at the project website http://southtongasshighway.com/ . The website will also announce any opportunities for review and comment on project documents. The project website has contact information including the project email at info@southtongasshighway.com . The project email is a very good way to contact the project team.
24.	7.11.16	Quentin Smith Email: here_in_reality@hotmail.com	As a resident who lives along the route and makes full use of all the existing transportation facilities, I am very excited about this project. As a bicycle commuter, the bike/pedestrian connection is very appealing. I'm supportive of everything I've seen to date. I would like to suggest that the existing posted speed from Lundin to the outskirts of Saxman seem unusually slow. I'm not sure if you have any speed data yet, but I'm guessing you'll find that the speeds on the existing road which is in much poorer condition and narrower than what is proposed are still well above the posted speed limit. I'd like to see this project's design and posted speeds match the existing highway south of Surf Street. I wish you complete success in this NEPA, design, and eventually construction project.	Thank you for your support, Mr. Smith. We will consider your comments concerning posted and design speed as the project develops.
25.	7.13.16	Bill Urquhart II Email: wlurquhartii@alaska.edu	At the Saxman Open House, I was encouraged to share some of my thoughts and concerns about the South Tongass Highway Rehabilitation: Deermount to Surf via e-mail. Overall, this project looks great, and appears to have minimal impact on property owners along the route. I live on a house in the Forest Park Subdivision at 122 Dogwood Place that is on the south end of the long Chaudhary property between Doyon's Landing and	Mr. Urquhart, Thank you for your comments which will be considered as we move forward with road design. Geotechnical work is on-going and DOT&PF expects the work will be finished in Fall 2016. This site will be specifically addressed during the geotechnical work. Based on the geotechnical recommendations designers can determine how best to establish highway slopes. After we have a preliminary design, adjacent

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			Forest Park Drive, and both my house lot and the adjacent lot that I own border a portion of the road that is scheduled for widening. Although the plan presented at the Open House does not show that the widening is planned to extend onto either of my properties, there was note made of clearing rock/fill along the highway, and improving ditches, alongside the areas scheduled for widening. My home is located up a very steep slope from the highway, and if the rock along the highway at the base of my property, or along the south end of the Chaudhary property, were to be removed, reduced, or otherwise compromised, it could have a severe effect on the stability of my home, my home foundation, and the rock fill upon which my home foundation is built; and depending on how it is done, could create a risk of landslide from my property onto the highway (possibly including fill from directly under my home!). As you might imagine, I am anxious about the prospect of any rock work near my home. I wish to avoid any problems that could happen as a result of the highway work, especially as I recall a recent landslide on North Tongass Highway following highway work between Ward Cove and the city limits, in which the landslide compromised an adjacent home's lot and foundation, making that house uninhabitable. In light of the above, I urge your planning engineers to thoroughly study the impact of rock, fill, and other ground work near my properties on South Tongass Highway. Please carefully assess the risk of ground movement, rock/landslides, and impact upon lot building pads, and make accommodations to physically support, reinforce, or rebuild rock and fill in areas adjacent to my lots to prevent any adverse impact resulting from the highway work.	property owners, including you, will be contacted and given the opportunity to review and comment on the proposed roadway.

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			Thank you for your time, and I appreciate the transparency of your planning process.	
26.	7.12.16	Thomas Bellanich Email: tombell78ferry@yahoo.com	I would not like to have a parking lot between houses at all. Being a property owner. You have never contacted me about this project. I believe that I have been bushwacked in every means. Just today, the 12th of July, I have been shown the first diagrams of this project. Please without haste, call me @907-220-9215	It was good to chat with you today and I appreciate your call. First of all, I want to apologize for the way you were informed of this "idea" of a parking lot on your vacant property on the waterside of South Tongass Highway near Shoup Street. This concept was thought of as a way to provide parking for community access to the trail, as well as a way to alleviate project impacts to homes in the Shoup Street area that already have strained parking accommodations. At our public open house last month, this concept was not shared with the community as we did not have any intention of pursuing it this early in project development. Our goal for the public open house was to hear from the community regarding project concerns, issues and ideas that could improve the project. As I mentioned during our phone conversation, there were several comments from community members that requested additional parking along South Tongass Highway to be included in the project. The consultant design manager and I were able to drive the route while we were in Ketchikan to explore opportunities for community parking along the highway. We did identify several areas, excluding your property, that would be suitable areas for parking. The concept of a parking lot on your parcel is not preferred as it would involve the purchase of an entire parcel. In addition, it would only be suitable if you were willing to sell. From our discussion, this was determined not to be the case. I want to assure you that we will not be pursuing this concept any further as a result of our discussion. Again, sorry to have created a stressful situation for you. In the future, please feel free to contact me immediately with any concerns or comments you have regarding this project. We will be planning a follow-up design meeting in Ketchikan once we have the design to a point where we can have detailed discussions with affected property owners. I encourage you
27.	7.13.16	LaRae Starr Email: Larae_starr@hotmail.com	Sir: I have viewed your proposal, to put in a parking lot on my brother's property at the bottom of Shoup Street. • It is family property! • We need to know how to reconsider the proposal. • Thank you for your time. • Lot 4 U.S. Survey 1080, According to the plat of the ocean view subdivision, AS plat number 76-23 Ketchikan Recording District	
28.	7.13.16	Dallas Poutt-Bellanich Email: Dallasbell2004@yahoo.com	regarding lot. 4 survey 1080 oceanview subdivision...So this property belonged to my grandparents and now belongs to my father Tom Bellanich and is going to be mine or my childrens' someday. Taking this property to build a parking lot would take away from the generations it is going to help later. For a parking lot now!! Then Tom Bellanich's children and grandchildren could suffer generations of not having our family property still in our family.	

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				to sign-up for the e-mail notification group through the project website to keep informed of the project activities. Have a great day! (Larae_starr@hotmail.com; Dallasbell2004@yahoo.com we copied on the response)
29.	7.14.16	Bob Sivertsen Email:ellycat@kpunet.net	I am concerned about the pavement mix and the application of the paving. In Ketchikan it always seem that we are paving in the fall. I think the state should use a rubber tired buffalo roller to get a better compaction and mixing on site. The use of a pneumatic roller (or rubber tire roller) is vital in the compaction process of asphalt paving, in that, it is able to conform to the surface being paved. Steel drum rollers do a great job in the initial phase of rolling, but they also bridge some areas of the asphalt mat being laid, whereas, the pneumatic roller kneads the hot mix asphalt, working each of the 9 oscillating tires into the asphalt mat. Not only does this achieve denser compaction, but it also drives the bigger aggregate in the mix down, and brings the fine aggregate to the top, actually sealing the asphalt better to eliminate voids and preventing water intrusion. The above information stating why one should use a pneumatic roller fits the conditions in southeast Alaska. Let's use the tools to ensure the best longevity possible. I believe that the use of this equipment should be included in the bid package.	Thank you for your comment and reference to information from the web. It has generated some discussion amongst project team members! For most applications, DOT&PF no longer uses a pneumatic tire roller. The dynamic loading applied by a vibrating drum roller works the aggregate together and provides a smooth surface. For top coats, a more segregated mix is less desirable. If all the fines are at the top, that means more voids, or base material, are in the bottom, which may leave the pavement more susceptible to bottom-up cracking. However, we appreciate your local expertise and will certainly keep your comment in mind as we proceed with the project design. At this time DOT&PF is developing project paving recommendations and a hot mix asphalt design suitable for regional conditions, so your input is timely. We will be in the area again in December holding public meetings and engaging with stakeholders. I have attached a flyer with our meeting information, and you can learn more by visiting our website: www.southtongasshighway.com.
30.	7.14.16	Thomas Bellanich Email: Tombell78ferry@yahoo.com	I lived on South Tongass almost my entire life from 1964 tell present and I've seen it grow with homes popping up on both sides of the Tongass. I believe the speed should be reduced from Saxman to Fawn Mountain to 35mph, rather than 45mph. This will make it a lot safer for vehicles moving on and off the	Thank you for your comment dated 7-14-2016. We will keep your thoughts concerning proposed speed limits in mind in design development.

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			shoulders and for the children that are roaming the neighborhoods to play.	
31.	7.14.16	Thomas Bergeron Email: tomb@kpunet.net	I think pedestrian and bicycle access is very important to any highway rehabilitation project. The long and short term benefits are more than worth the added expense. Short term being access for tourist and visitors and the long term economic benefits that include healthier residents. Thank you	Thank you for your comment, Mr. Bergeron. We agree the pedestrian/bicycle trail is an important part of the project.
32.	7.31.16	Stephen Reeve Executive Director Historic Ketchikan, Inc. Email:smreeve@mac.com	Please find attached project comments from Historic Ketchikan, Inc. As noted in our letter, we have been involved in a variety of planning and design projects with direct relevance to the South Tongass project, including the 1.3 mile waterfront boardwalk/promenade from Berth 4 to the Thomas Basin breakwater near Deermount Street and an urban design study for the Deermount and Stedman Street "gateway" to Ketchikan. We ask you to give special emphasis to maintaining the bicycle/pedestrian path on the water side of South Tongass rather than the upland side. We also want to work with you to establish a good connection between our waterfront boardwalk/promenade and the South Tongass bicycle path. We hope you will see us as a working partner on this project and we will happily share our work to date with you. For more information about our organization, please visit our website at www.historicketchikan.org.	Thank you for your comments, Mr. Reeve. DOT&PF looks forward to working with Historic Ketchikan, Inc. as we develop the project.

MEMORANDUM

State of Alaska
DEPARTMENT OF FISH AND GAME

TO: JIM SCHOLL
Project Environmental Coordinator
Dept. of Transportation and Public Facilities
Juneau

DATE: **May 11, 2016**

FROM: Mark Minnillo
Area Habitat Biologist
Division of Habitat
Craig

SUBJECT: ADOT #67571/67685
Fed. # 0902031/0902039
S. Tongass Hwy. Rehabilitation

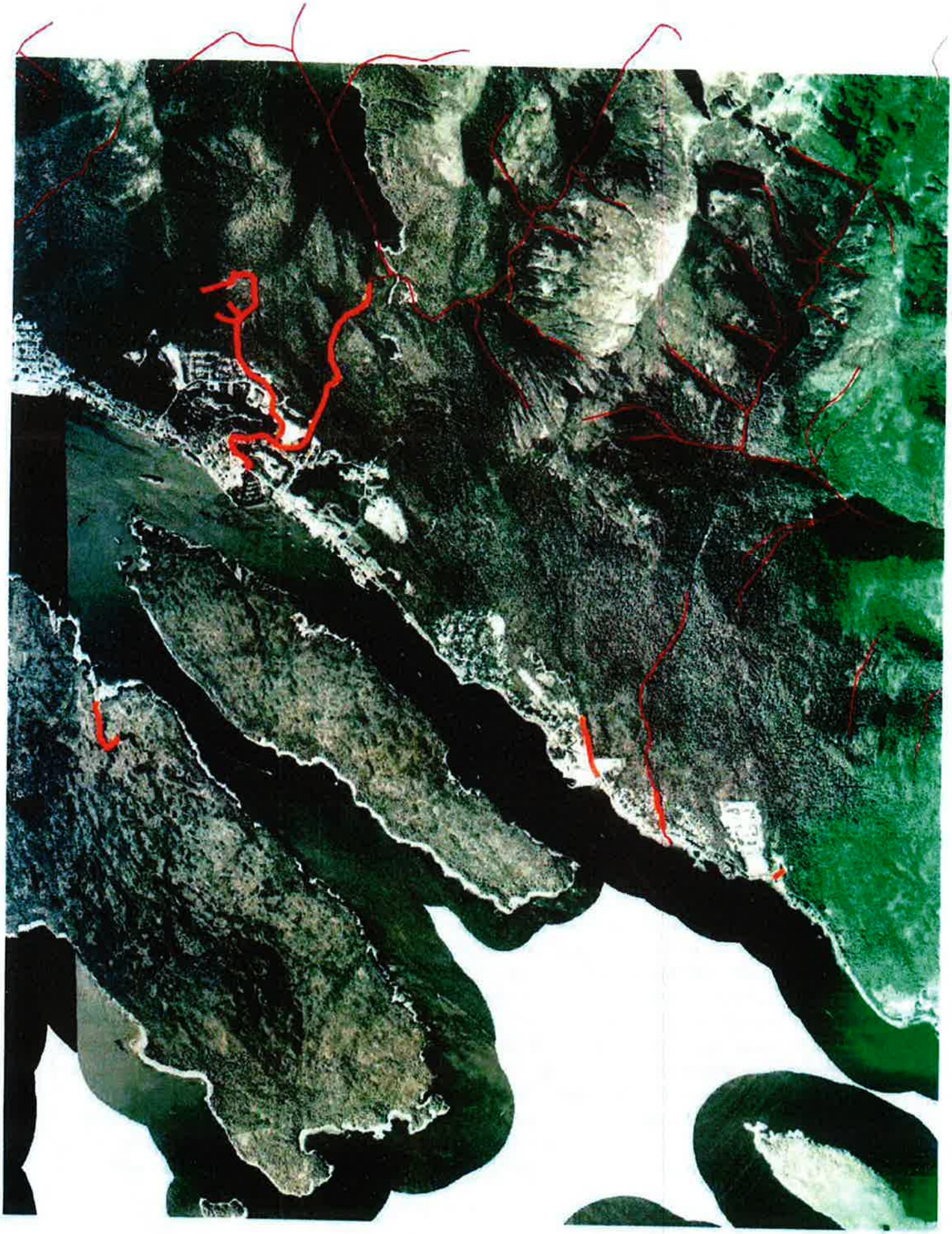
The Division of Habitat, on May 9, 2016, received from ADOT&PF an agency request for comments for the proposed South Tongass Highway Rehabilitation project in Ketchikan.

The purpose of the project is to resurface, restore, and rehabilitate the portion of South Tongass Highway from Deermount Street (Milepost [MP] 2.6) to Surf Street (MP 5.5).

As mentioned in the scoping document work would include improvements to drainage including culvert replacement and ditching. Although a map was included with the scoping document, specific locations where culvert replacement and/or ditching would occur are not shown. We request a map or project plans showing the specific locations of culvert replacements and ditching.

There are 4 cataloged anadromous water bodies located along the project (see attached map). Fish Habitat permits may be required should any work take place below the ordinary high water of any of these water bodies.

CC: Al Ott, ADF&G/Habitat, Fairbanks
Kelly Piazza, ADF&G/SF, Ketchikan
Boyd Porter, ADF&G/DWC, Ketchikan
Scott Walker, ADF&G/CF, Ketchikan



From: Scholl, James W (DOT) <jim.scholl@alaska.gov>
Sent: Thursday, June 23, 2016 2:04 PM
To: Bob Pelkey; info@southtongasshighway.com
Subject: RE: S. Tongass Highway Rehab Project

Thank you for your comments. They will be addressed as we proceed with the project.

Jim Scholl
Environmental Analyst
ADOT&PF Southcoast Region
6860 Glacier Highway
POB 112506
Juneau Alaska 99811-2506

jim.scholl@alaska.gov

(907) 465 4498
(907) 465 2016 FAX

From: Bob Pelkey [mailto:bpelkey@TridentSeafoods.com]
Sent: Thursday, June 23, 2016 1:42 PM
To: info@southtongasshighway.com
Subject: S. Tongass Highway Rehab Project

Hi,
I attended the June 22nd informational gathering in Ketchikan at the Ted Ferry Civic Center and spoke of my concerns and listened to others comments and concerns as well, thanks for the opportunity.

The following concerns, some of which have been on my mind well before this opportunity came along are as follows:

This 1st concern is the most important to me and generally others in and around the North NW most portion of the South Tongass Deermount Street to Surf Street Rehab Project:

1st. Could serious consideration be made regarding the **unbalanced "Speed Zone(s)**" from just before Deermount St. (near roadway to Thomas Basin parking lot/UAS back parking lot) to the 30 mph zone sign at the property line between Anderes Oil (Crowley Oil) & Trident Seafoods Corp property lines, that passes across the intersection of Deermount and Stedman Streets respectfully. As one drives and heads south along Stedman street the inner Ketchikan city speed limit is 20 mph, just before Deermount it changes to 30 mph, and opposite of this sign it is reduced to 20 mph as you pass Deermount street intersection heading northwest into the city zone limit. This situation of having the Speed Zone change after passing the intersection of Deermount heading NW creates an unbalanced speed by motorist approaching and departing the intersection, it is dangerous in general, causes many close calls regarding vehicle and pedestrian traffic, as well as actual accidents to human life and property damage as directly related to fender benders of sort. My submitted and expressed idea to help lesson this undesirable hazard is move (or add a) the 20 mph sign near NE side (land side) of Stedman street to the area just across from

the aforementioned Crowley/Trident property line, this would reduce the incoming traffic to the same inner city speed zone of 20 mph well before entering the intersection of Deermount/Stedman streets. Thus it would be advisable to change the 30 mph sign outbound to 20 mph creating and extending the 20 mph zone of inner city limit, this in turn would put vehicle traffic at the same rate of speed (equal rate) as they enter an ever increasing area of pedestrian and vehicle traffic at and near the intersection of Deermount/Stedman streets and the sidewalk crossing. It is only a matter of time before a death or very serious life treating accident and injuries occur in this area of unbalanced speed, we have UAS SE, the K.I.C. Training Center, Tatsudas Grocery, the Laundry Mat, Trident Seafoods freezer & cannery, Community Connections, Crowley Oil that would be benefitted as well of this submitted change in the speed zone, of which is very short in distance. PLEASE IF AT ALL POSSIBLE COULD SERIOUS CONSIDERATION BE MADE NOW AND NOT WAIT ANY FURTHER IN THE DETERMINATION THAT THIS WOULD REDUCE THE LIKELIHOOD OF CONTINUED CLOSE CALL ACCIDENTS IN THIS EXPRESSED AREA OF SPEED ZONE IN-BALANCE. More and more local pedestrians including visiting tourists are walking through this somewhat congested zone as well, the reduced speed zone to 20 mph could be a benefit to them as well when standing and waiting for vehicle traffic to stop for them to cross a crosswalk that currently has vehicles approaching at two different speeds to either side of the crosswalk.

2nd. Add one to two overhead Street Lights in the area immediately next to Tatsudas Grocery to the front parking lot south area of the Laundry Mat property, across from Trident Seafoods large cannery structure, either side of Stedman being objectionable as to the exact location(s). The City of Ketchikan states it is the States issue or concern, while the State claims it's the City of Ketchikan's area of responsibility, regardless of responsibility or liability of the lack of proper lighting in this particular short section of Stedman Street, something or someone needs to address this concern of low to very limited overhead Lighting. This is a matter of improved visibility and therefore improved safety in this area of concern, and once again I would hope serious consideration can be made to address this well before the S. Tongass rehab project occurs, sooner writher than later being the desirable result.

3rd. Change (or modify ?) the preventive fall and **hand Railing** that's passes along the narrow sidewalk and open gap next to Trident Seafoods large Cannery structure of which there is a rocky original beach front approximately 10 to 12 feet below. The 42", 21" with no Toe Board pipe railing has too much exposure for a pedestrian to fall between the piping to the rocky beach (seawater at high tide) below. It is a very difficult area to retrieve and/or escape from this narrow deep area once someone (animals as well) has falling into it. With continually increasing pedestrian traffic I hope once a again that a solution could be considered sooner writher than later to address this oversight with a long-term hazard. Making it an ADA hand railing is the right thing to do.

4th. Eliminate or close off the nearest to Deermount/Stedman intersection & crosswalk **"Tatsudas left & right turn Exit onto Stedman Street",** make the sidewalk opening closes to the liquor store an enter/exit or entrance ONLY?, with a slight change to elevation to the exit/entrance that exists on Deermount street, and an increase in the width of Deermount section as well.

5th. With the submitted 1st and 2nd concerns mentioned above I would hope the **last thing we may need would be a cross walk light at the Crosswalk at Stedman/Deermount**, improving the unbalanced speed zone and the adding of overhead street lighting I believe could alleviate the issue or concern for now. Putting in a cross walk light would more than likely involve an intersection Stop light consisting of green yellow and red overhead lighting to be installed, which with overall improvements directly related to the overall project could be deemed as not needed for now.

6th. Consider purchasing whole or in part via ROA the open Rock Pit for Public Parking to accommodate the general public who use or will use the improved sidewalks and adjoining highway pedestrian/bicycle path to City of Saxman, Rotary Beach, and Mountain Point Recreational Area. With this idea the proposed crosswalk closer to Coast Guard base entrance could be the preferred crossing.

7th. In conjunction with the 6th submission above perhaps **the slight curve on Stedman Street** directly in front of Community Connections, the Coffee Shop and Trident Seafoods seasonal Apartment housing **could be moved further south or eliminated all together by gradually taking the curve out over a length of roadway distance.** As it stands now the structure along with a 30mph speed zone creates a hazard by means of a blind spot just to the north and south of the Tridents grandfathered structure which was cut in half decades ago for Stedman Street expansion south.

8th. Lower the Stedman Street roadway surface slightly as it approaches the area in front of Petro Marine property, just past the entrance to the Cemetery lane and as it approaches the Coast Guard Base Ketchikan's driveway entrance to the north.

With the above submitted ideas for improvement as related to the project , I would hope we could avoid a Stop Light at the inner section of Deermount and Stedman street for now, or at least for the immediate long term.

Sincere regards & thanks for your time,

Bob Pelkey

A Ketchikan resident since July 8th 1983 and a 42 year resident of Alaska who resides at 610 Nickey Way just up and over the hill from Deermount & Stedman Streets.
And I'm also the guy who suggested back in the early nineties that Speed Zone changes occurred from Heckman and Martin Streets in the area of the Family Village Mall (A&P Grocery), the Shipyard and large Storage Warehouse for very similar reasoning of an in-balance as related to the speed limit in the area after Carlanna Creek bridge heading into town.

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From: Scholl, James W (DOT) <jim.scholl@alaska.gov>
Sent: Friday, July 01, 2016 10:41 AM
To: Teri Hoyt; info@southtongasshighway.com
Subject: RE: Comments on STH rehabilitation Project

Thank you for your comments, Ms. Hoyt. They will be considered in the current design development.

Jim Scholl
Environmental Analyst
ADOT&PF Southcoast Region
6860 Glacier Highway
POB 112506
Juneau Alaska 99811-2506

jim.scholl@alaska.gov

(907) 465 4498
(907) 465 2016 FAX

From: Teri Hoyt [mailto:msteri7@hotmail.com]
Sent: Friday, July 01, 2016 9:37 AM
To: info@southtongasshighway.com
Subject: Comments on STH rehabilitation Project

Keith Karpstein,

Thank you for the recent opportunity to discuss the South Tongass Hwy project with your design group team.

My husband and I are extremely concerned about the potential impact to our property at 3045 South Tongass Hwy. Lot 1A Block 2 U.S. Survey 1080.

Our home is very close to the road. Please be aware that a Quitclaim was granted 5-17-1988 adding 25 sq. ft. to our property. (Book 0168 page 042).

It appears now that the new hwy rehabilitation plan being developed is radically different than the previous design which indicated minimal impact to our property, my home since 1989.

We suffered extensive damage and disruption during the Ketchikan Borough water and sewer project done by South Coast Incorporated in 2001. Our retaining wall and a large section of the foundation had to be replaced in addition to other repairs.

I have copies of letters and E-mails between the State of Alaska, Mr. Vic Winters, and others during the 2003 hwy widening project about our property. We later learned this project was 'delayed' 7-23-2003.

Please note my name is now Teri Hoyt and John Goucher is no longer associated with this property. Hopefully these letters are still in the state files somewhere!

The first contact with Vic Winters, Engineering Manager was in January 2003, immediately after the open house held about project 71670, the STH widening project.

On 1-13-03 Vic Winters wrote that my comments were "sufficient at this point to establish the fact, (for the record), that we need to pay careful attention to your property…..".

In August we received letters from the state and Jane Gendon in regards to the historic property status survey of our neighborhood for project 68571.

On 8-15-2006 Charles Tripp, Engineering Manager, wrote our property "issue was looked at pretty closely and it was found the road could be contruructed without disturbing the retaining wall…"
"Thus impacts to your home would be minimal. Concerning the second stage of preliminary design, we don't anticipate changes with respects to impacts to your property."
Additionally, we have a letter from SouthEast Engineering dated 4-6-2003. It states: " If DOT decided to widen the road at your property, careful consideration should be given to your property." "However. it is doubtful the exisiting block masonry wall could sustain .2- .4 in./sec PPV vibrations. and " I'm sure DOT will consider all factors before their final design."

We, as homeowners, can't emphasize enough our concern for this future project! On 6-22-2016 we learned the design plan has completely changed, showing direct impact to our property!
Why change the design? The original plan which was completed. paid for, and seemed agreeable to most land owners of this "pinch point' neighborhood has vanished!

Previous letters from the state assured us there would be no impact to our property!
Construction vibration alone is likely to cause some damage. Destructive impacts to the retaining wall, foundation, tree barrier, and garden areas will definitely be detrimental to our property value as well!

We believe a plan can be made to formulate a solution to this challenge!

Please feel free to contact us anytime.

Most sincerely,

Dan and Teri Hoyt
P.O. Box 8998 Ketchikan, AK 99901
(907) 617-9924

Sent from Windows Mail

HISTORIC KETCHIKAN
POST OFFICE BOX 23364
KETCHIKAN, ALASKA 99901
907 225 5515
info@historicketchikan.org

July 22, 2016

Carol Snead, HDR Environmental Lead
c/o Jim Scholl, Project Environmental Coordinator
Department of Transportation & Public Facilities
6860 Glacier Highway
PO Box 112506
Juneau, Alaska 99801-2506

RE: South Tongass Highway Rehabilitation

The purpose of this letter is to provide scoping comments on the above referenced project.

We are pleased that this project can move ahead and, from your project description, it is apparent that the many issues along this approximately three miles of South Tongass Highway will be addressed. We understand that you will be making improvements to the pedestrian and bicycle path. We wish to emphasize that this path should be on the waterside rather than upland side of South Tongass. This is a very important component of the project and we hope your work will include safety and aesthetic improvements to the pedestrian/bike path along the length of the rehabilitation work.

We ask that you give special emphasis to the section of pathway that connects the Deermount Street intersection to a point near the Coast Guard base. This section is not well-demarcated and is not presently a safe nor attractive section of the pathway. Well-designed improvements to this pathway section will help our community implement a long-held vision for a continuous pedestrian/bike path along our waterfront. Historic Ketchikan has recently completed a master plan for a 1.3 mile section of waterfront boardwalk from the Deermount Street area north to Berth 4 and your project would provide critical continuity between our downtown waterfront area and the length of the Joseph C. Williams Coastal Trail. We would also like to share with you our urban design studies for the City "gateway" at Deermount and Stedman.

Thank you for the opportunity to comment.

Sincerely,

Terral Wanzer, President

Stephen Reeve, Executive Director

Scoping Summary Report Addendum

Memo

Date: Tuesday, May 02, 2017

Project: South Tongass Highway Rehabilitation

To: David Pyeatt, Project Manager (DOT&PF); Jim Scholl, Project Environmental Coordinator (DOT&PF)

From: Chris Croft, Project Manager (HDR)

Subject: Addendum to Scoping Summary Report

This memorandum is an Addendum to the Scoping Summary Report provided to Alaska Department of Transportation and Public Facilities on August 17, 2016. The Scoping Summary Report provided information on public involvement activities and comments received through July 31, 2016.

Public Involvement Activities (August 1, 2016 – January 31, 2017)

Public involvement and project scoping for the South Tongass Highway Rehabilitation Project consisted of the activities summarized below. All documentation is included as an attachment to this memo.

- November 22, 2016 - Legal notice of open house meetings published in the Ketchikan Daily News.
- November 22, 2016 – State of Alaska Online Public Notice of December 2016 meetings.
- November 22, 2016 – E-Newsletter sent to email distribution list advertising open house meetings.
- November 27, 2016 - Graphic ad promoting the open house meetings and online open house published in the Ketchikan Daily News.
- November 29 through December 22, 2016 - Online ad promoting the open house meetings published on the Ketchikan Daily News website.
- December 4, 2016 - Graphic ad promoting the open house meetings and online open house published in the Ketchikan Daily News.
- December 5, 2016 – Stakeholder meetings with Tatsuda's Grocery
- December 6, 2016 – Stakeholder meetings with the U.S. Coast Guard, Ketchikan Indian Community, Hoyt Residence, and Neighborhood Meeting (waterside Surf Street Residents).
- December 7, 2016 - Saxman Open House held at the Saxman Community Center.
- December 7, 2016 – Stakeholder meetings with City of Saxman, the Organized Village of Saxman, KGB transit, ANTCH (Saxman Sewer project), Ketchikan Gateway Borough, the City of Ketchikan Public Works, and site visit to Connor's Residence
- December 7, 2016 - Ketchikan Open House held at the Ted Ferry Civic Center.
- December 8 through December 30, 2016 - Online open house accessible to public.

Summary of Comments Received (August 1, 2016 – May 2, 2017)

Sixteen comments have been received since the Scoping Summary Report. Overall, stakeholders and the public expressed continued support for this project and see it as needed improvement to an important transportation corridor. The attached comment log outlines each comment received through May 2, 2017.

Public Involvement Documentation (August 1, 2016 – May 2, 2017)

Table of Contents (attached in the following order)

Activity

STATUS: Active

AK Dept. of Transportation & Public Facilities Southcoast Region Notice of Open House & Intent to Conduct Eng. & Env. Studies: KTN S. Tongass Hwy Deermount-Saxman-Surf St. Pavement Rehabilitation Projects 67571 & 67685

****

The Alaska Department of Transportation and Public Facilities (DOT&PF), in coordination with the Federal Highway Administration (FHWA), proposes to rehabilitate approximately three miles of the South Tongass Highway and bike/pedestrian path from Deermount Street in Ketchikan to Surf Street. A new section of bike/pedestrian pathway is planned for the Saxman to Surf Street section.

DOT&PF seeks public comment on this project and invites you to an open house public meeting in two locations:

Saxman:
When: Tuesday, December 6, 6-8PM
Where: Saxman Community Center
2841 South Tongass Highway
(upper level entrance)

Ketchikan:
When: Wednesday, December 7, 4:30-6:30PM
Where: Ted Ferry Civic Center
888 Venetia Avenue

If you are not able to attend the open house at these times, you can visit our online open house between December 8 and December 31, 2016.
At the online open house, you can view meeting materials and provide comments at a time that is convenient to you. The online open house will be accessible via **www.southtongasshighway.com.**

Also, project documents are available on the project website at:
http://www.brooks-alaska.com/ketchikan/documents.htm

ABOUT THE PROJECT

The purpose of the project is to continue providing safe passage of pedestrians and vehicles within the downtown Ketchikan corridor on Front, Mill and Stedman streets in Ketchikan, Alaska. The need for the project stems from heavy pedestrian and vehicle usage in the area. The existing road needs upgrading due to deteriorated pavement condition and drainage deficiencies.

The Front, Mill and Stedman corridor provides access for east-west traffic through downtown Ketchikan. It also serves as a utility corridor, distributing water, electricity, and communication services and collecting sanitary sewage along the corridor and beyond, therefore, making utility coordination a critical element of the project.

The proposed Front, Mill and Stedman Streets reconstruction project would

- Rehabilitate and/or replace existing pavement with new asphalt on the street fill sections and a new wearing surface on the structures (viaducts/bridge) sections from Beginning of Project (BOP) to End of Project (EOP).
- Eliminate one eastbound through-lane along Mill Street from Mission Street to Bawden Street.
- Remove existing piles and pile caps beneath Mill Street to a depth of 4-feet below the finished grade.
- Repair and widen sidewalks.
- Reconstruct / improve the following intersections including pedestrian crossings and traffic calming measures:

* Front Street / Grant Street Intersection
* Front Street / Mission Street
* Mill Street / Bawden Street
* Mill Street / Mission Street / Stedman Street
* Front Street / Dock Street
* Mill Street / Main Street
* Stedman Street / Deermount Street

- Reconstruct / improve two pedestrian crossings on Stedman Street.
- Clean out storm drains within the DOT&PF right-of-way (ROW) along the length of the project.
- Relocate / replace 20 catch basins and 3 manholes in coordination with relocated curbs.
- Resurface / regrade all driveway and parking lot appraoches to match the final grade of the road from BOP to EOP.

No permanent acquisitions of private property would be required. However, temporary construction permits / easements or memorandums of understanding may be required for access on privately owned parcels during construction.

Potential construction impacts would include:

- Noise from excavation, hauling, sidewalk widening and ramp installation and new asphalt paving;
- Temporary traffic delays and detours;
- Temporary sidewalk closures and detours and associated impacts on businesses.

Temporary traffic patterns during construction would be provided to accommodate existing pedestrian and vehicular traffic and to maintain continuous business access.

Construction is anticipated to occur between spring 2016 and fall 2017.

This proposed project would follow the process required under the National Environmental Policy Act (NEPA). Based on project location and scope of work, the appropriate environmental document is a Categorical Exclusion. Evaluated resources include wetlands and waters of the U.S., federally-protected species, cultural sites, historic properties, socio-economic factors, right-of-way, etc. as directed by NEPA.

The project would comply with these Acts & Executive Orders

- National Historic Preservation Act - Sect.106
- U.S. Department of Transportation Act Section 4(f)
- Magnuson-Stevens Fishery Conservation & Mgt Act
- AK Statute Sec 16.20 (Conserve & Protect Fish & Game)
- Archaeological Resource Protection Act
- U.S. Fish & Wildlife Coordination Act
- Anadromous Fish Conservation Act
- Bald & Gold Eagle Protection Act
- Clean Air & Clean Water Acts
- Rivers & Harbors Act
- EO-13175 Consult & Coordinate w/Indian Tribal Gov.
- EO-11593 Protect & Enhance Cultural Env.
- EO-13007 Indian Sacred Sites
- EO-11988 Floodplain Mgt
- EO-11990 Protect Wetlands
- TEA-21 Wetlands Mitigation
- EO-12898 Env. Justice
- EO-13112 Invasive Species

Comments on the proposal from interested persons will assist us in completing the project's environmental documentation effort.

Please submit your written comments to:

David Pyeatt, P.E., Project Manager
DOT&PF, Southcoast Region
P.O. Box 112506
Juneau AK 99801-2506
E-mail: christopher.goins@alaska.gov
Phone: 907-465-4490
FAX: 907-465-4414

OR

Jim Scholl, Project Environmental Coordinator
DOT&PF, Southcoast Region E-mail: christopher.goins@alaska.gov
P.O. Box 112506 Phone: 907-465-4498
Juneau AK 99801-2506 FAX: 907-465-4414

If you or someone you represent requires special accommodations in order to respond to this public notice, please call or email the project coordinator listed above or call Alaska Relay at

(800) 770-8973 for TTY (800) 770-8255 for voice
(800) 770-3919 for ASCII (866) 355-6198 for STS

Ask the communications assistant to call the project coordinator listed above so arrangements can be made to assist you.

COMMENTS ARE REQUESTED BY January 9, 2017

Attachments, History, Details

Attachments
None

Revision History
Created 11/17/2016 4:19:53 PM by kldirks
Modified 11/17/2016 4:21:02 PM by kldirks [Details]
Modified 11/17/2016 4:27:08 PM by kldirks [Details]
Modified 11/17/2016 4:29:50 PM by kldirks [Details]
Modified 11/17/2016 4:33:48 PM by kldirks [Details]
Modified 11/17/2016 4:36:07 PM by kldirks [Details]
Modified 11/21/2016 2:53:23 PM by kldirks [Details]
Modified 11/21/2016 2:56:35 PM by kldirks [Details]
Modified 11/21/2016 2:57:53 PM by kldirks [Details]
Modified 11/21/2016 2:58:32 PM by kldirks [Details]
Modified 11/21/2016 3:00:35 PM by kldirks [Details]
Modified 11/21/2016 3:08:06 PM by kldirks [Details]

Details

Department:	Transportation and Public Facilities
Category:	Public Notices
Sub-Category:	
Location(s):	Ketchikan
Project/Regulation #:	
Publish Date:	11/21/2016
Archive Date:	12/31/2016

Events/Deadlines:

AFFIDAVIT OF PUBLICATION

Legal No. 16025

STATE OF ALASKA,)
) SS:
Gateway Borough)

Kathy Williams, being duly sworn says: That she is a representative of the Ketchikan Daily News, a daily newspaper published at Ketchikan, in said Borough and State, and that the publication of which the annexed is a printed and true copy, was published in said newspaper at least once per week for one week, commencing on the 22nd day of November 2016 and ending on the 22nd day of November 2016.

Kathy Williams

Subscribed and sworn to before me this

22nd, day of

Nov., 2016

Tena Williams

Notary Public for Alaska
My Commission Expires 1.12.19

Official Seal
Tena Williams
Notary Public - State of Alaska
My Comm. Expires
January 12, 2019

South Tongass Highway Rehabilitation Project Public Open House Meetings

Saxman: Tuesday, December 6, 6-8 pm
Saxman Community Center
2841 South Tongass Highway
Ketchikan: Wednesday, December 7, 4:30 – 6:30 pm
Ted Ferry Civic Center
888 Venetia Avenue

The Alaska Department of Transportation and Public Facilities (DOT&PF), in coordination with the Federal Highway Administration (FHWA), proposes to rehabilitate approximately three miles of the South Tongass Highway and bike/pedestrian path from Deermount Street in Ketchikan to Surf Street. A new section of bike/pedestrian pathway is planned for the Saxman to Surf Street section. You are invited to attend a Public Open House on December 6th or 7th to learn about updates to the project's design, for follow up on comments received, and to give us your feedback. For more information visit: www.southtongasshighway.com or contact us at info@southtongasshighway.com. State#67571/67685; Federal # 0902031/0902039. If you have any questions or require additional information, please contact David Pyeatt, P.E., Project Manager at 907-465-4490 or Jim Scholl, Project Environmental Coordinator, at 907-465-4498. If you or someone you represent requires special accommodations in order to respond to this public notice or participate in the public meeting, please call or email (info@southtongasshighway.com) the project's Project Environmental Coordinator listed above or call Alaska Relay at (800) 770-8973 for TTY, (800) 770-8255 for voice, (800) 770-3919 for ASCII. (866) 355-6198 for STS and ask the communications assistant to call the Project Environmental Coordinator listed above so arrangement can be made to assist you.

Pubish: Nov. 22, 2016
No. 16025

165848
16025

Advertising Receipt

Ketchikan Daily News
PO Box 7900
Ketchikan, AK 99901
classified@ketchikandailynews.com

Phone: 907-225-3157
Fax: 907-225-1096

RECEIVED
NOV 28 2016

HDR Alaska, Inc.
ATTN: ALLISON BIASTOCK
2525 C Street, Suite 500
ANCHORAGE , AK 99503-2632

Acct #: 01103099
Ad #: 00033189
Phone: (907)644-2000
Date: 11/15/2016
Ad taker: SUB **Salesperson:**

Sort Line: #16025 South Tongass Highway **Classification:** 9140

Description	Start	Stop	Ins.	Cost/Day	Total
01 Ketchikan Daily News	11/22/2016	11/22/2016	1	164.00	164.00

Copy

Ad Text:

South Tongass
Highway
Rehabilitation Project
Public Open House Meetings
Saxman: Tuesday, December 6, 6-8 pm
Saxman Community Center
2841 South Tongass Highway
Ketchikan: Wednesday, December 7, 4:30 – 6:30 pm
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State#67571/67685; Federal # 0902031/0902039. If you have any questions or re

Total:	164.00
Tax:	0.00
Net:	164.00
Prepaid:	0.00
Total Due	164.00

Bucs focused on Seahawks, not playoff prospects

By FRED GOODALL
AP Sports Writer

TAMPA, Fla. — Tampa Bay's Dirk Koetter wants no part of a discussion about playoff prospects or aspirations.

The Buccaneers (5-5) have won two straight to climb back into contention for what would be their first berth in nearly a decade. However, the coach says his team can't afford to think about anything other than what's staring them in the face right now. And, that's a matchup against the first-place Seattle Seahawks (7-2-1).

Koetter bristled when he was asked if he detected a "playoff intensity" from the Bucs in practice this week.

"I want to feel a Seattle Seahawk-type of intensity because it's going to take the most intensity we've got to be with Seattle on Sunday," the first-year coach said. "That's all that really matters right now."

Jameis Winston also shrugged off questions about the playoff race.

"We've got to get a 'W' before we even talk about a 'P,' the second-year quarterback said, mindful that the Bucs were in a similar position a year ago, when they started 6-6 only to lose their final four games.

Winston had one of the best performances of his career in last week's confidence-bolstering 19-17 road win at Kansas City. The Seahawks have won three straight, including beating New England on the road, but figure to be far from full strength healthwise.

Nine players on Seattle's injury report, including safety Earl Thomas and cornerback DeShawn Shead, missed at least two days of practice in preparation for the Bucs.

Russell Wilson wasn't one of them, though. He's played through a string of injuries and has been one of the hottest quarterbacks in the league during the Seahawks' winning streak with 902 passing yards, six touchdowns and zero interceptions in victories over the Bills, Patriots and Eagles the past three weeks.

Tampa Bay Buccaneers quarterback Jameis Winston throws during warm-ups Nov. 20 in Kansas City, Mo. AP Photo/Reed Hoffmann

"There's been some significant injuries to a lot of the guys, and we've been able to overcome those situations and those injuries and still find ways to win, still find ways to play in the game and play at a high level," Wilson said, adding the focus in on doing "whatever it takes to win and continue to play great football."

Some things to know heading into the 13th meeting between franchises that entered the NFL as expansion mates in 1976:

THANKS, RUSSELL: Winston and Wilson had a long conversation at last season's Pro Bowl, and Tampa Bay's young quarterback came away impressed with his Seattle counterpart and Minnesota's Teddy Bridgewater. "Russell is a true professional, and he does his job the right way. I learned so much from him as far as what to eat, what a Pro Bowl quarterback should be like," Winston said.

DEPLETED DEFENSE: The Seahawks will be without defensive end Michael Bennett for the fifth straight game, unable to get him back from minor knee surgery in time to face his former team. Losses in the secondary likely will be more impactful. The Seahawks are expected to be without Thomas and Shead. Both suffered hamstring injuries in last week's win over Philadelphia. If Thomas doesn't play, it will be the first game he's missed in his career, snapping a streak of 106 consecutive starts. Steven Terrell likely would fill in for Thomas at free safety, while the combo of Neiko Thorpe and Jeremy Lane would take Shead's role opposite Richard Sherman.

BACK ON TRACK: Tampa Bay rookie PK Roberto Aguayo has rebounded from a shaky start to his pro career to begin show why the Bucs drafted him in the second round. Since misfiring on four of his first eight field goal tries, Aguayo has made nine of his last 10, including going 4-for-4 in last week's win at Kansas City. "This is what I do best. I've done it for a long time. Sometimes you've got to realize that," Aguayo said. "With the transition into the NFL, you try not to put an excuse on anything. You've just got to get through it. People can say, 'Was it this? Was it that?' At the end of the day, you've got to grind through it."

SCORECARD

NHL
National Hockey League
All Times EDT

EASTERN CONFERENCE

Atlantic Division

	GP	W	L	OT	Pts	GF	GA
Montreal	21	15	4	2	32	65	47
Tampa Bay	22	13	8	1	27	69	56
Ottawa	20	12	7	1	25	47	50
Boston	21	11	10	0	22	49	49
Florida	20	10	9	1	21	53	54
Detroit	21	10	10	1	21	53	56
Toronto	20	8	8	4	20	62	67
Buffalo	21	7	9	5	19	39	53

Metropolitan Division

	GP	W	L	OT	Pts	GF	GA
N.Y. Rangers	22	15	6	1	31	65	55
Washington	20	13	5	2	28	55	44
Pittsburgh	21	12	6	3	27	62	62
Columbus	19	11	5	3	25	61	45
New Jersey	20	10	6	4	24	50	51
Philadelphia	22	9	10	3	21	69	75
Carolina	19	8	7	4	20	46	52
N.Y. Islanders	20	6	10	4	16	49	63

WESTERN CONFERENCE

Central Division

	GP	W	L	OT	Pts	GF	GA
Chicago	22	14	6	2	30	65	57
St. Louis	21	11	7	3	25	54	57
Minnesota	20	11	7	2	24	55	36
Nashville	20	10	7	3	23	60	51
Dallas	22	9	8	5	23	57	72
Winnipeg	23	9	12	2	20	60	70
Colorado	19	9	10	0	18	42	55

Pacific Division

	GP	W	L	OT	Pts	GF	GA
Edmonton	22	12	8	2	26	67	57
San Jose	21	12	8	1	25	50	43
Los Angeles	21	11	9	1	23	55	53
Anaheim	21	9	8	4	22	54	52
Calgary	23	10	12	1	21	53	70
Vancouver	21	8	11	2	18	46	64
Arizona	19	7	10	2	16	46	62

NOTE: Two points for a win, one point for overtime loss.

Friday's Games
N.Y. Rangers 3, Philadelphia 2
San Jose 3, N.Y. Islanders 2
Chicago 3, Anaheim 2
Minnesota 6, Pittsburgh 2
Washington 3, Buffalo 1
Nashville 5, Winnipeg 1
Detroit 5, New Jersey 4, OT
Columbus 3, Tampa Bay 2
Calgary 2, Boston 1
Dallas 2, Vancouver 1
Arizona 3, Edmonton 2, SO

Saturday's Games
Carolina at Ottawa, 7 p.m.
Columbus at Florida, 7 p.m.
Washington at Toronto, 7 p.m.
New Jersey at Pittsburgh, 7 p.m.
Montreal at Detroit, 7 p.m.
Minnesota at St. Louis, 8 p.m.
Vancouver at Colorado, 10 p.m.
Chicago at Los Angeles, 10:30 p.m.
Anaheim at San Jose, 10:30 p.m.

Sunday's Games
Tampa Bay at Boston, 1 p.m.
Nashville at Winnipeg, 1 p.m.
Arizona at Edmonton, 3 p.m.
Florida at Carolina, 6 p.m.
Ottawa at N.Y. Rangers, 7 p.m.
Calgary at Philadelphia, 7:30 p.m.

NBA
National Basketball Association
All Times EDT

EASTERN CONFERENCE

Atlantic Division

	W	L	Pct	GB
Toronto	10	6	.625	—
Boston	9	7	.563	1
New York	8	7	.533	1½
Brooklyn	4	11	.267	5½
Philadelphia	4	12	.250	6

Southeast Division

	W	L	Pct	GB
Atlanta	10	6	.625	—
Charlotte	8	7	.533	1½
Orlando	6	10	.375	4
Washington	5	9	.357	4
Miami	5	10	.333	4½

Central Division

	W	L	Pct	GB
Cleveland	12	2	.857	—
Chicago	10	6	.625	3
Detroit	8	9	.471	5½
Indiana	8	9	.471	5½
Milwaukee	6	8	.429	6

WESTERN CONFERENCE

Southwest Division

	W	L	Pct	GB
San Antonio	13	3	.813	—
Memphis	10	6	.625	3
Houston	10	6	.625	3
New Orleans	6	11	.353	7½
Dallas	2	13	.133	10½

Northwest Division

	W	L	Pct	GB
Oklahoma City	9	8	.529	—
Utah	9	8	.529	—
Portland	9	9	.500	½
Denver	6	10	.375	2½
Minnesota	5	10	.333	3

Pacific Division

	W	L	Pct	GB
Golden State	14	2	.875	—
L.A. Clippers	14	3	.824	½
L.A. Lakers	8	9	.471	6½
Sacramento	6	10	.375	8
Phoenix	5	12	.294	9½

Friday's Games
San Antonio 109, Boston 103
Washington 94, Orlando 91
Chicago 105, Philadelphia 89
Cleveland 128, Dallas 90
Detroit 108, L.A. Clippers 97
New York 113, Charlotte 111, OT
Indiana 118, Brooklyn 97
Miami 90, Memphis 81
Toronto 105, Milwaukee 99
Utah 95, Atlanta 68
Minnesota 98, Phoenix 85
Oklahoma City 132, Denver 129, OT
Portland 119, New Orleans 104
Golden State 109, L.A. Lakers 85
Houston 117, Sacramento 104

Saturday's Games
New York at Charlotte, 7 p.m.
San Antonio at Washington, 7 p.m.
Detroit at Oklahoma City, 8 p.m.
Memphis at Miami, 8 p.m.
Minnesota at Golden State, 10:30 p.m.

Sunday's Games
Cleveland at Philadelphia, 1 p.m.
Denver at Phoenix, 3:30 p.m.
L.A. Clippers at Indiana, 6 p.m.
Milwaukee at Orlando, 6 p.m.
Sacramento at Brooklyn, 6 p.m.
New Orleans at Dallas, 7 p.m.
Houston at Portland, 9 p.m.
Atlanta at L.A. Lakers, 9:30 p.m.

NFL
National Football League
All Times EDT

AMERICAN CONFERENCE

East

	W	L	T	Pct	PF	PA
New England	8	2	0	.800	271	180
Miami	6	4	0	.600	216	216
Buffalo	5	5	0	.500	253	215
N.Y. Jets	3	7	0	.300	179	244

South

	W	L	T	Pct	PF	PA
Houston	6	4	0	.600	181	215
Indianapolis	5	6	0	.455	270	301
Tennessee	5	6	0	.455	261	275
Jacksonville	2	8	0	.200	193	265

North

	W	L	T	Pct	PF	PA
Pittsburgh	6	5	0	.545	266	222
Baltimore	5	5	0	.500	199	187
Cincinnati	3	6	1	.350	199	226
Cleveland	0	11	0	.000	184	325

West

	W	L	T	Pct	PF	PA
Oakland	8	2	0	.800	272	243
Kansas City	7	3	0	.700	222	187
Denver	7	3	0	.700	239	189
San Diego	4	6	0	.400	292	278

NATIONAL CONFERENCE

East

	W	L	T	Pct	PF	PA
Dallas	10	1	0	.909	316	213
N.Y. Giants	7	3	0	.700	204	200
Washington	6	4	1	.591	260	264
Philadelphia	5	5	0	.500	241	186

South

	W	L	T	Pct	PF	PA
Atlanta	6	4	0	.600	320	283
Tampa Bay	5	5	0	.500	235	259
New Orleans	4	6	0	.400	285	286
Carolina	4	6	0	.400	244	246

North

	W	L	T	Pct	PF	PA
Detroit	7	4	0	.636	247	238
Minnesota	6	5	0	.545	218	192
Green Bay	4	6	0	.400	247	276
Chicago	2	6	0	.200	157	237

West

	W	L	T	Pct	PF	PA
Seattle	7	2	1	.750	219	173
Arizona	4	5	1	.450	226	190
Los Angeles	4	6	0	.400	149	187
San Francisco	1	9	0	.100	204	313

Thursday's Games
Detroit 16, Minnesota 13
Dallas 31, Washington 26
Pittsburgh 28, Indianapolis 7

Sunday's Games
San Diego at Houston, 1 p.m.
Arizona at Atlanta, 1 p.m.
Cincinnati at Baltimore, 1 p.m.
San Francisco at Miami, 1 p.m.
Jacksonville at Buffalo, 1 p.m.
Tennessee at Chicago, 1 p.m.
Los Angeles at New Orleans, 1 p.m.
N.Y. Giants at Cleveland, 1 p.m.
Seattle at Tampa Bay, 4:05 p.m.
Carolina at Oakland, 4:25 p.m.
New England at N.Y. Jets, 4:25 p.m.
Kansas City at Denver, 8:30 p.m.

Monday's Game
Green Bay at Philadelphia, 8:30 p.m.

NCAA College football
Associated Press Top 25
All Times EST

Thursday
No. 25 LSU (7-4) beat No. 23 Texas A&M 54-39. Next: TBD.

Friday
No. 6 Washington (11-1) beat No. 23 Washington State 45-17, Friday. Next: vs. Colorado or Southern Cal, Pac-12 championship at Santa Clara, Calif., Dec. 2.
No. 14 Western Michigan (12-0) beat Toledo 55-35. Next: vs. Ohio, MAC championship, Friday.
No. 17 Nebraska (9-3) lost to Iowa 40-10. Next: TBD.
No. 18 Houston (9-3) lost to Memphis 46-44. Next: TBD.
No. Boise State (10-2) lost to Air Force 27-20. Next: TBD.

Saturday
No. 1 Alabama vs. No. 16 Auburn, 3:30 p.m.
No. 2 Ohio State vs. No. 3 Michigan, Noon
No. 4 Clemson vs. South Carolina, 7:30 p.m.
No. 5 Wisconsin vs. Minnesota, 3:30 p.m.
No. 8 Penn State vs. Michigan State, 3:30 p.m.
No. 9 Colorado vs. No. 21 Utah, 7:30 p.m.
No. 11 Louisville vs. Kentucky, Noon
No. 12 Southern Cal vs. Notre Dame, 3:30 p.m.
No. 13 Florida at No. 15 Florida State, 8 p.m.
No. 19 West Virginia at Iowa State, 3:30 p.m.
No. 24 Tennessee at Vanderbilt, 7:30 p.m.

Men's college basketball
Associated Press Top 25

Friday
No. 1 Kentucky (6-0) beat UT Martin 111-76. Next: vs. Arizona State, Monday.
No. 5 Kansas (5-1) beat UNC Asheville 95-57. Next: vs. Long Beach State, Tuesday.
No. 7 Virginia (5-0) beat Iowa 74-41. Next: vs. Providence, Saturday.
No. 8 Arizona (5-1) lost to Butler 69-65. Next: vs. Texas Southern, Wednesday.
No. 10 Louisville (5-1) lost to No. 20 Baylor 66-63. Next: vs. No. 17 Purdue, Wednesday.
No. 11 Gonzaga (5-0) beat Florida 77-72. Next: vs. No. 21 Iowa State in AdvoCare Invitational, Sunday.
No. 14 UCLA vs. Nebraska at Titan Gym, Fullerton, Calif., Mid.
No. 19 West Virginia (4-1) lost to Temple 81-77. Next: vs. Manhattan, Monday.
No. 21 Iowa State (5-0) beat Miami 73-56. Next: vs. No. 11 Gonzaga in AdvoCare Invitational, Sunday.
No. 23 Rhode Island (5-1) beat Belmont 82-73. Next: at Valparaiso, Tuesday.
No. 24 Michigan State (4-3) beat Wichita State 77-72. Next: at No. 6 Duke, Tuesday.
No. 25 Florida State (5-1) beat Illinois 72-61. Next: vs. Minnesota, Monday.

Saturday's Games
No. 6 Duke vs. Appalachian State, Noon
No. 7 Virginia vs. Memphis or Providence at The Arena, Niceville, Fla., 3 or 6 p.m.
No. 9 Xavier vs. Northern Iowa, Noon
No. 12 Creighton vs. Loyola (Md.), 4:30 p.m.
No. 17 Purdue vs. NJIT, 3:30 p.m.
No. 18 Syracuse vs. South Carolina at the Barclays Center, 2:30 p.m.
No. 25 Michigan vs. Mount St. Mary's, 7 p.m.

Sunday's Games
No. 3 Indiana vs. MVSU, 4 p.m.
No. 11 Gonzaga in AdvoCare Invitational at HP Field House, Lake Buena Vista, Fla., TBA
No. 14 UCLA in Wooden Legacy at the Honda Center, Anaheim, Calif., TBA
No. 15 Saint Mary's (Cal) vs. UAB at Orleans Arena, Las Vegas, 5 p.m.
No. 16 Wisconsin vs. Prairie View A&M, 2 p.m.
No. 21 Iowa State in AdvoCare Invitational at HP Field House, Lake Buena Vista, Fla., TBA

Women's college basketball
Associated Press Top 25

Friday
No. 5 Baylor (5-1) beat Kent State 84-42. Next: vs. No. 18 DePaul, Saturday.
No. 6 Maryland (5-0) beat No. 23 Arizona State 83-42. Next: vs. Washington State, Saturday.
No. 7 Mississippi State (5-0) beat Oregon 75-63. Next: vs. San Jose State, Saturday.
No. 8 Ohio State (4-1) beat Florida Gulf Coast 79-66. Next: vs. No. 11 Syracuse, Saturday.
No. 9 UCLA (5-1) beat Toledo 75-73. Next: vs. Hawaii, Sunday, Dec. 4.
No. 10 Florida State (5-1) beat No. 25 Gonzaga 87-69. Next: vs. Michigan, Saturday.
No. 11 Stanford (5-1) beat Wichita State 87-59. Next: vs. Purdue, Saturday.
No. 11 Syracuse (4-1) beat George Washington 74-71. Next: vs. No. 8 Ohio State, Saturday.
No. 16 Florida (4-1) lost to Northwestern 73-68. Next: vs. Wofford, Wednesday.
No. 18 DePaul (4-0) beat Western Kentucky 77-69. Next: vs. No. 5 Baylor, Saturday.
No. 21 Miami (4-1) beat Grambling State 89-61. Next: vs. Texas Tech, Sunday.
No. 23 Arizona State (2-2) lost to No. 6 Maryland 83-42. Next: vs. St. John's, Saturday.
No. 24 Michigan State (5-1) beat Delaware 81-64. Next: vs. Cal State Northridge, Saturday.
No. 25 Gonzaga (3-2) lost to No. 10 Florida State 87-69. Next: vs. Wintrop, Saturday

Saturday's Games
No. 1 Notre Dame vs.TCU, 1 p.m.
No. 5 Baylor vs. No. 18 DePaul or Western Kentucky at Germain Arena, Estero, Fla., 11 a.m. or 5 p.m.
No. 6 Maryland vs. Washington State at South Point Arena, Las Vegas, 6:30 p.m.
No. 8 Ohio State vs. No. 11 Syracuse or George Washington at Germain Arena, Estero, Fla., 1:30 or 7:30 p.m.
No. 7 Mississippi State vs. San Jose State at the Stan Sheriff Center, Honolulu, 6 p.m.
No. 10 Florida State vs. Michigan at the UVI Sports & Fitness Center, St. Thomas, Virgin Islands, 9 p.m.
No. 11 Stanford vs. Purdue at the Hard Rock Hotel Riviera Maya, Cancun, Mexico, 1:30 p.m.
No. 15 Washington at Seattle, 7 p.m.
No. 23 Arizona State vs. St. John's at South Point Arena, Las Vegas, 4 p.m.
No. 24 Michigan State vs. Cal State Northridge or Detroit at the Matadome, Northridge, Calif., 7 p.m.
No. 25 Gonzaga vs. Winthrop at the UVI Sports & Fitness Center, St. Thomas, Virgin Islands, 5:45 p.m.

Sunday's Games
No. 3 South Carolina vs. No. 4 Louisville at MassMutual Center, Springfield, Mass., 1 p.m.
No. 5 Baylor in Gulf Coast Showcase at Germain Arena, Estero, Fla., TBA
No. 7 Mississippi State at Hawaii, 9:30 p.m.
No. 8 Ohio State in Gulf Coast Showcase, Germain Arena, Estero, Fla., TBA
No. 11 Syracuse in Gulf Coast Showcase at Germain Arena, Estero, Fla., TBA
No. 13 Oklahoma vs. Colorado State, 2 p.m.
No. 15 Washington at Portland, 5 p.m.
No. 17 Tennessee vs. Virginia Tech, 2 p.m.
No. 18 DePaul in Gulf Coast Showcase at Germain Arena, Estero, Fla., TBA
No. 19 West Virginia vs. High Point, 4 p.m.
No. 20 Kentucky vs. Samford, 2 p.m.
No. 21 Miami vs. Fordham or Texas Tech, TBA

KETCHIKAN DAILY NEWS
A DIVISION OF PIONEER PRINTING CO., INC.
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Our Opinion

No new taxes

This isn't the year to increase city taxes. The Ketchikan City Council appears to be in agreement.

Read more...

New roles in Juneau

Read more...

Letters/POVs

- Alaska's permanent fund dividend
- Trump's conflicts of interest

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Obituaries

None today

Around Ketchikan

Monday, December 05, 2016

SHALL WE DANCE? — Avery Olson, as the Sugar Plum Fairy, dances Nov. 26 during rehearsal for the Ketchikan Theatre Ballet's annual performance of "The Nutcracker" at the KTB studio. The show is Dec. 9 and 10 at Ketchikan High School. See "Annual 'The Nutcracker' set to open Dec. 9;" under Scene Headlines below. Staff photo by Taylor Balkom

Ketchikan Headlines

Feds: Illegal for marijuana users to own guns

Federal law bans marijuana users from buying and owning firearms. the U.S. Department of Justice confirmed this fall. In spring 2016, Sen. Lisa Murkowski, R-Alaska, wrote to U.S. Attorney General Loretta Lynch asking for clarity on how the federal government — given a years-long shift toward lax enforcement of anti-marijuana laws — will treat firearms owners in states that legalized marijuana. Read more...

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South Tongass Highway Rehabilitation
Deermount to Surf

If you drive, run, walk, or bike on the South Tongass Highway from Deermount to Surf Street you're invited to visit our

Online Open House

DECEMBER 8 - 30

To view meeting materials and provide comments.

The online open house will be accessible via

www.southtongasshighway.com

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South Tongass Highway Rehabilitation
Deermount to Surf

South Tongass Highway Rehabilitation Project
Deermount to Surf Street
C/O HDR
2525 C Street, Suite 500
Anchorage, AK 99503

Public Open House Meetings

Saxman
Tuesday, December 6, 6-8PM
Saxman Community Center
2841 South Tongass Highway

Ketchikan
Wednesday, December 7, 4:30-6:30PM
Ted Ferry Civic Center
888 Venetia Avenue

Sign up to receive email updates on our website at **www.southtongasshighway.com**

South Tongass Highway Rehabilitation
Deermount to Surf

Interested in the South Tongass Highway Rehabilitation Project?

Deermount to Surf Street

Join Us at the Upcoming Public Open House Meetings

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For more information visit 🌐: **www.southtongasshighway.com.** Contact us with questions or comments at ✉: **info@southtongasshighway.com.**

State #67571/67685; Federal # 0902031/0902039. If you have any questions or require additional information, please contact David Pyeatt, P.E., Project Manager, at 907-465-4490 or Jim Scholl, Project Environmental Coordinator, at 907-465-4498.

If you or someone you represent requires special accommodations in order to respond to this public notice or participate in the public meeting, please call or email (info@southtongasshighway.com) the project's Environmental Coordinator listed above or call Alaska Relay at (800) 770-8973 for TTY, (800) 770-8255 for voice, (800) 770-3919 for ASCII, (866) 355-6198 for STS and ask the communications assistant to call the project Environmental Coordinator listed above so arrangement can be made to assist you.

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(upper level entrance)

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Deermount to Surf

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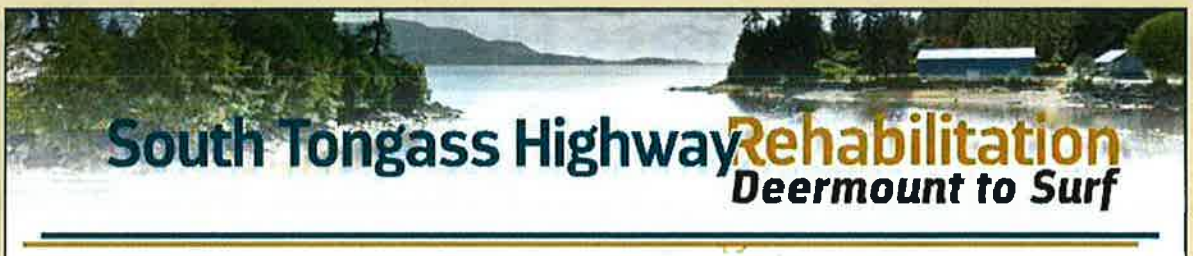

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at our Upcoming Public Open House Meetings

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(*upper level entrance)*

Ketchikan: Wednesday, December 7, 4:30-6:30PM
Ted Ferry Civic Center
888 VenetiaAvenue

You are invited to attend a Public Open House on December 6th or 7th to learn about updates to the project's design, for follow up on comments received, and to give us your feedback. The open house events are in Saxman and Ketchikan, and will have identical materials. Project team members will be available to answer questions and provide project details at both meetings. Refreshments will be provided.

Can't Make the Public Meetings?

Visit our Online Open House

December 8 - December 30, 2016

*Visit our **Online Open House** between December 8 and 31, 2016, to view meetingmaterials and provide comments at a time that is convenient to you. Theonline open house will be accessible via www.southtongasshighway.com.*

About the project: The Alaska Department of Transportation and PublicFacilities (DOT&PF), in coordination with the Federal HighwayAdministration (FHWA), proposes to rehabilitateapproximately three miles of the South Tongass Highway and bike/pedestrian pathfrom Deermount Street in Ketchikan to Surf Street. A new section ofbike/pedestrian pathway is planned for the Saxman to Surf Street section.

For more information, visit: www.southtongasshighway.com or email us at

info@southtongasshighway.com.

State #67571/67685; Federal #0902031/0902039. If you have anyquestions or require additional information, please contact David Pyeatt,P.E., Project Manager, at 907-465-4490 or Jim Scholl, Project EnvironmentalCoordinator, at 907-465-4498.

If you orsomeone you represent requires special accommodations in order to respond tothis public notice or participate in the public meeting, please call or email(info@southtongasshighway.com) the Project Environmental Coordinator listedabove or call Alaska Relay at (800) 770-8973 for TTY,(800) 770-8255 for voice, (800) 770-3919 for ASCII. (866) 355-6198 for STS andask the communications assistant to call the Project Environmental Coordinatorlisted above so arrangement can be made to assist you.

South Tongass Highway Rehabilitation Project
Saxman Public Open House
December 6, 2016 6-8 pm

South Tongass Highway Rehabilitation *Deermount to Surf*

Please Sign In.

Name (Please print)	Email	Join the mailing list! Y or N	Street Address	City	State	ZIP Code	Gender* (M/F)	Race* (W, AN, N, B, A, P, O)
Yvonne Watson	–		2592 Eagle Ave (PO Box 6036)	(Saxman) KTN	AK	99901	F	AK Native
Woody Watson	–		2592 Eagle	saxman	AK	99901	m	//
Bob Adams			3304 S Tongass	KTN	AK	99901	M	C
Gerd Kleinschmidt	[illegible]		2093 S Tongass					
Anthony Knuteson	ketchikan_charters@yahoo.com	Yes	2887 S. Tongass Hwy.	Saxman	AK	99901	M	W

*This information is **voluntary**. Its purpose is to ensure fair and equal representation by the public in all projects and programs administered by the Alaska Department of Transportation and Public Facilities.
Race Categories: White (W), Alaska Native (AN), Native American (N), Black (B), Hispanic (H), Asian (A), Pacific Islander (P), and Other (O).

South Tongass Highway Rehabilitation Deermount to Surf

South Tongass Highway Rehabilitation Project
Saxman Public Open House
December 6, 2016 6-8 pm

Please Sign In.

Name (Please print)	Email	Join the mailing list! Y or N	Street Address	City	State	ZIP Code	Gender* (M/F)	Race* (W, AN, N, B, A, P, O)
Sylvia Banie	tlingitdaughter@yahoo.com	N	2332 S tongass Hwy	Saxman	AK	9990[illegible]	F	AN
Caryl Williams	lily3vale icloud.com	Y	232 Halibut st.	Saxman	Ak	99901	F	AN
Marty Perez	[illegible]	Y	2322 S Tong Hwy	Saxman	AK	99901	M	AN
William Tatsuda	wbtatsuda@kpunet.net	Y	3150 S. Tongass Hwy and 633 Stedman St.	Ketchikan	AK	99901	M	
Harlan Heaton	harlanheaton@gmail.c	Y	5109 So Tongass	Ket	AK		M	
Sean Driskill	sdriskill@ANTHC.org	Y	4500 Diplomacy Drive Anchorage, AK 99518	Anchorage	AK		M	W
Brenton Alexander	bjalexander@anthc.org	Y	4500 Diplomacy Dr. Anchorage, AK 99518	Anchorage	AK	99518	M	

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Race Categories: White (W), Alaska Native (AN), Native American (N), Black (B), Hispanic (H), Asian (A), Pacific Islander (P), and Other (O).

Please Sign In.

South Tongass Highway Rehabilitation Project
Ketchikan Public Open House
December 7, 2016 4:30 – 6:30 pm

South Tongass Highway Rehabilitation *Deermount to Surf*

Name (Please print)	Email	Join the mailing list! Y or N	Street Address	City	State	ZIP Code	Gender* (M/F)	Race* (W, AN, N, B, A, P, O)
Linda K Randall	ladylkrandall@gmail.com	Y	146 Forest Park Dr.	Ketchikan	AK	99901	F	W.
Mary Stephenson	mlstephenson@iserv.net	Y	PO 5506	"	"	"	F	O
CAROLINE [illegible]	—	N	119 Austin St	"	"	"	F	O
Judith McQuerry	judith.mcquerry@yahoo.com	N	2196 S. Tongass Hwy	KTN	AK	99901	F	O
Sam McQuerry	samcquerry@gmail.com	N	2196 South Tongass Hwy	Ketchikan	AK	99901	M	O
STEPHEN REEVE	smreeve@mac.com	Y	POB 23154 KTN	KTN			M	
Deborah Hayden	dh@swiftventure.com	Y	1101 Victorson Court	KTN	AK	99901	F	
MARVIN HILL	[illegible]@KPUNET.NET		808 FOREST PARK	KTN	AK	99901	M	—
TOM & DOREEN CAFFREY	pvcces@gci.net	Y	929 STEDMAN ST.	KTN	AK	99901	F+M	W
Judy Needham	gjneedham68@yahoo.com	Y	3115 Tide Ave.	KTN	AK	99901	F	—
[illegible] Needham		Y	3115 Tide Ave	KTN	AK	99901	M	
[illegible]			3004 [illegible]	"	"	"	M	W
Mark Minillo	mark.minillo@dot.ak.gov	Y		Craig				
John Clifton	clifton@kpunet.net	Y	2266 STG	Ktn	AK	99901	M	
Stephen Bradford	stephenb@kgbak.us	Y	540 Water	Ktn			M	

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Please Sign In.

South Tongass Highway Rehabilitation Project
Ketchikan Public Open House
December 7, 2016 4:30 – 6:30 pm

South Tongass Highway Rehabilitation
Deermount to Surf

Name (Please print)	Email	Join the mailing list! Y or N	Street Address	City	State	ZIP Code	Gender* (M/F)	Race* (W, AN, N, B, A, P, O)
Brett Sellin	brettsse@hotmail.com	Y	1019 Dunsan St, Ketchikan AK 99901				M	W

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Race Categories: White (W), Alaska Native (AN), Native American (N), Black (B), Hispanic (H), Asian (A), Pacific Islander (P), and Other (O).

Please Sign In.

South Tongass Highway Rehabilitation Project
Ketchikan Public Open House
December 7, 2016 4:30 – 6:30 pm

South Tongass Highway Rehabilitation
Deermount to Surf

Name (Please print)	Email	Join the mailing list? Y or N	Street Address	City	State	ZIP Code	Gender* (M/F)	Race* (W, AN, N, B, A, P, O)
William Tatsuda								
OLNEY WEBB	WEBB @ KPUNET. NET	Y	PENNOCK IS.		AK	99901	ME	WI

*This information is **voluntary**. Its purpose is to ensure fair and equal representation by the public in all projects and programs administered by the Alaska Department of Transportation and Public Facilities.
Race Categories: White (W), Alaska Native (AN), Native American (N), Black (B), Hispanic (H), Asian (A), Pacific Islander (P), and Other (O).

South Tongass Highway Rehabilitation
Deermount to Surf

www.southtongasshighway.com

Please share your comments.

Comments can also be e-mailed to info@southtongasshighway.com

(1) The intersection of Deermont and Stedman has very heavy loads at different times of the day. Given the ~~obstructs~~ obstructions near the intersection, the sight distance is inadequate. This is the most congested intersection in town, and I consider it the most hazardous.

(2) KPU replaced some poles along the upland side. The only problem is that they did not remove the old poles. These should be removed to improve access and visibility.

Name: Tom Caffrey

Email: pvcces@gci.net

Address: P.O. Box 6215

City: Ketchikan **State:** Alaska **Zip:** 99901

Please add me to the project e-mail list. ☐

South Tongass Highway Rehabilitation
Deermount to Surf

www.southtongasshighway.com

Please share your comments.

Comments can also be e-mailed to info@southtongasshighway.com

We don't need a sidewalk on the uphill side of Stedman between Community Conn. & the Cemetary. a Crosswalk at ~~Deermount~~ the Cemetary would be nice but not essential.

I would prefer NO fill between our house & Lynches. The Basket fill is doing fine with no cracks or problems. Fill would mean even at low tide there would be no beach to walk on.

I have extended the Chain link fence from where it was to my driveway. If DOT provides an extended fence, I would be happy to remove my fence.

Trash Cans need to be along the path, not so much at the Bus shelters. People will probably Not cross the Hwy to deposit trash.

Name: Judith McQuerry

Email: judith.mcquerry@yahoo.com

Address: 2196 S Tongass

City: KTN **State:** AK **Zip:** 99901

Please add me to the project e-mail list. ☐ already on it

Welcome

South Tongass Highway Rehabilitation Project Public Open House

Meeting & Project Purpose

Project Purpose:

The Alaska Department of Transportation and Public Facilities (DOT&PF) has identified the need to resurface, restore, and rehabilitate a portion of the South Tongass Highway and related non-motorized facilities in order to improve operations and provide for the safe movement of vehicle, bicycle, and pedestrian traffic.

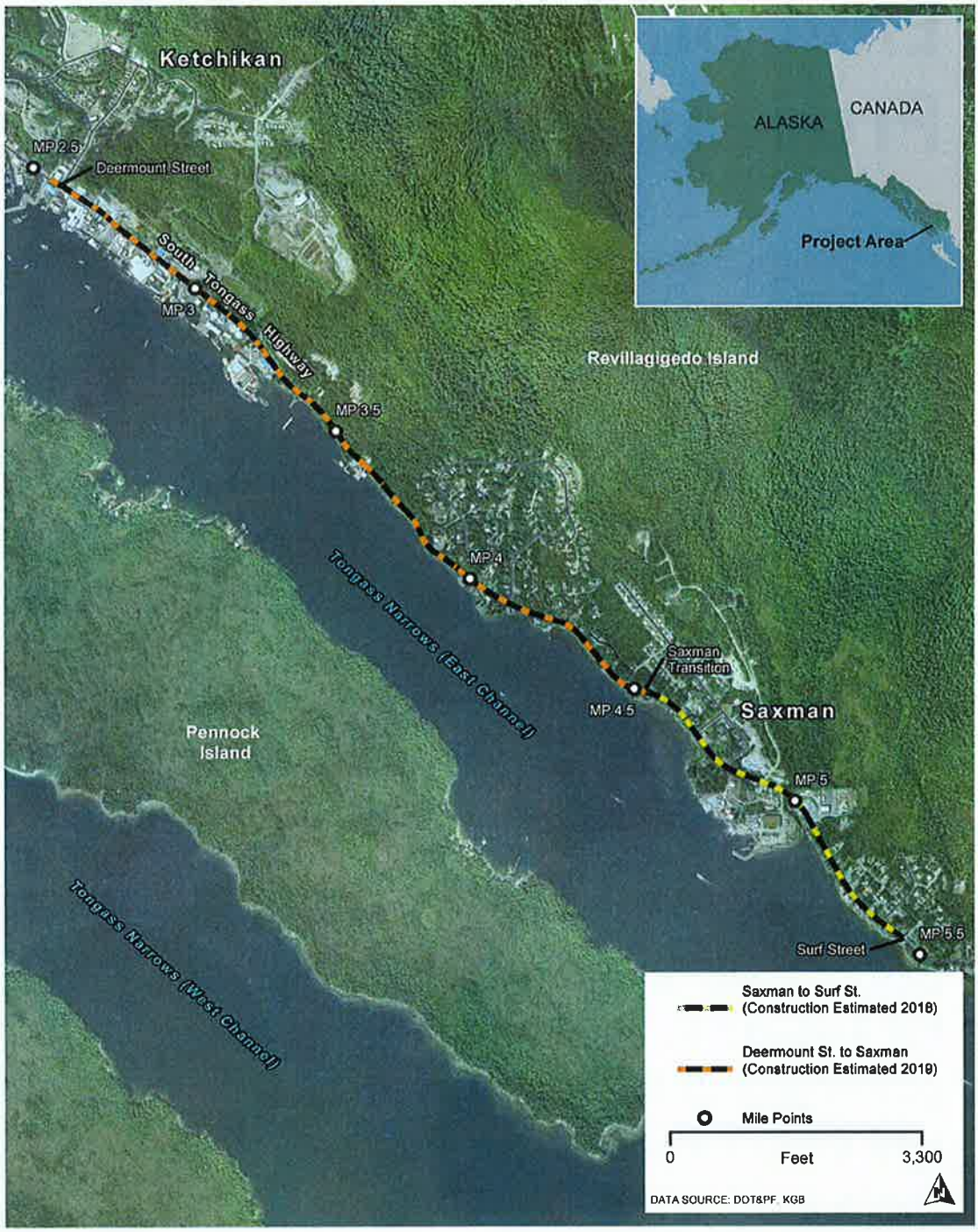
Meeting Purpose:

Tonight's Open House is to share information about the project's:

- Updated Design
- Environmental Review Process
- Anticipated Right of Way Impacts
- Multi-use pathway and sidewalk improvements
- Next steps

Most importantly, this meeting provides you with an opportunity to speak with project team members. We welcome your questions and comments.

Project Area Map



SOUTH TONGASS HIGHWAY REHABILITATION
PROJECT AREA

FIGURE 1
SOUTH TONGASS HIGHWAY REHABILITATION PROJECTS

Environmental Review Process and Permitting

The project team has been studying the human and natural environment in the project corridor.

Surveys of fish and wildlife, plants, cultural and historic resources, and wetlands have been conducted. The project team is reviewing the latest design drawings to assess potential impacts of the rehabilitation project on these resources and the local communities. These potential impacts will be identified in an environmental document slated for completion this winter.

DOT&PF will obtain permits for impacts to fish habitat, placement of fill in wetlands, and disturbance to bald eagle nests prior to construction.

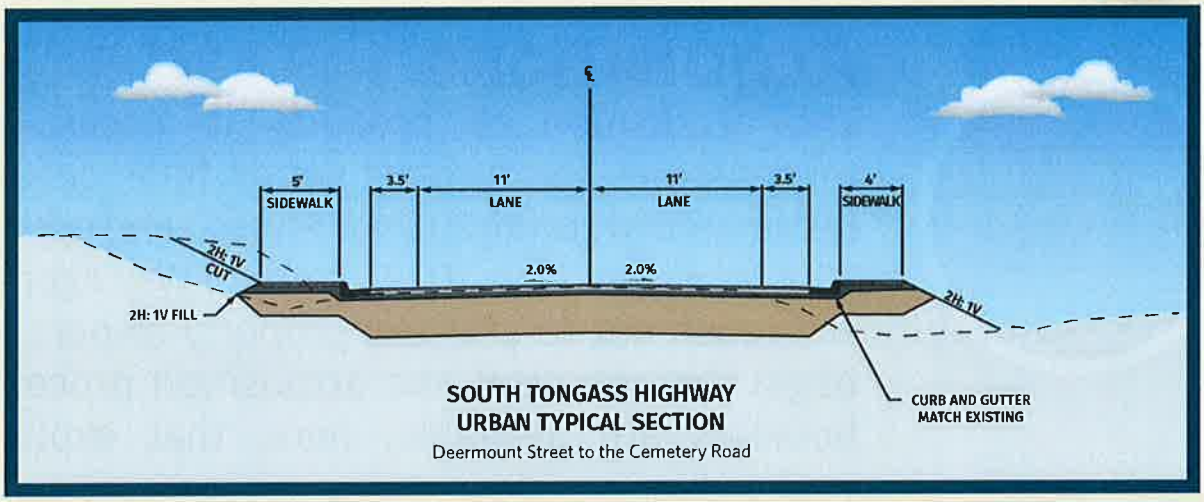
We're Listening to your Comments

What We Heard	Our Response
We should improve pedestrian safety, especially in the Saxman area.	DOT&PF has conducted vehicle and pedestrian counts in areas along the project corridor, and is examining the results to determine if and where additional pedestrian facilities (crosswalks, additional signage, etc.) may be warranted.
There is not enough public parking for pathway users.	DOT&PF is looking for opportunities to add public parking areas as a part of this project.
The multiple speed limits in the project area are confusing, and people often speed. Will you change the speed limit?	DOT&PF is looking at whether or not speed limits will be changed. Speed limits are determined by the function of the road, and the topography of the road.
Will you be impacting my property for this project?	DOT&PF will need to acquire some private property for this project. Acquisition will be in accord with the Uniform Act of 1970 (pamphlets that describe the rights and benefits of an affected person). Also, some property owners will be contacted about encroachments within the highway right-of-way. Encroachments (improvements within the State ROW) will be resolved by removal or permit.
There needs to be trash receptacles on the pathway.	In coordination with Ketchikan Gateway Borough, trash receptacles will be installed next to bus shelters. The KGB will collect trash from the receptacles.
The utility poles in the pathway are dangerous, particularly to cyclists.	To the extent practicable, utility poles will be relocated.

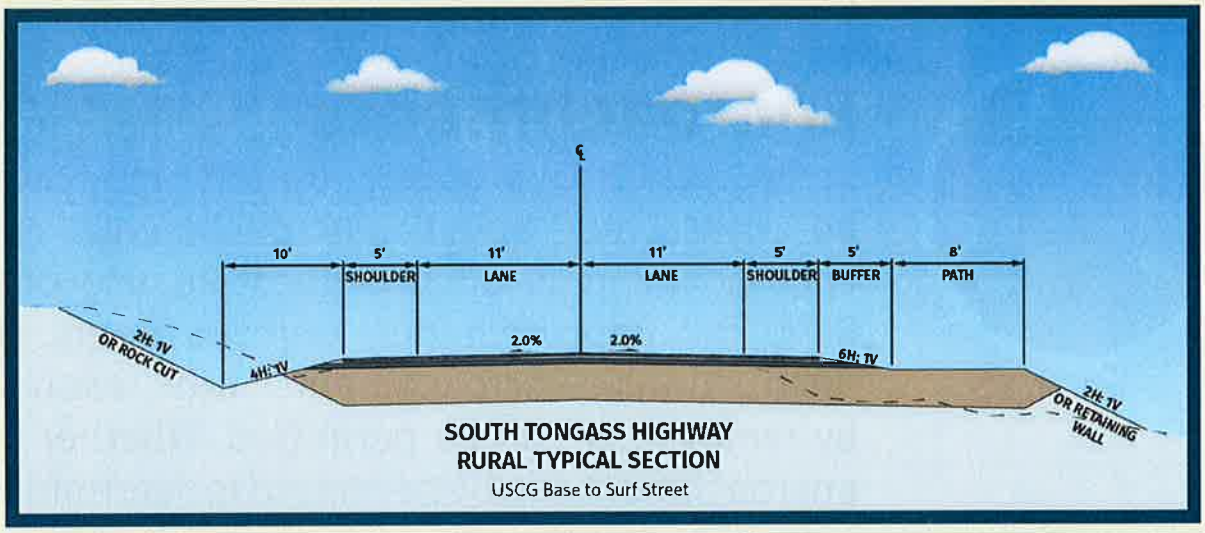
Project Design Elements

- Pavement rehabilitation
- Reconstructing the existing pathway and provide new portions of pathway – the pathway will be continuous throughout the project
- New additional sidewalks between Deermount Street and Cemetery Road
- Improving drainage (including new inlets, storm drains, ditches, and culverts)
- Relocating utilities as needed
- In some locations, rock cuts will be needed to accommodate the improvements
- Retaining walls will be constructed in areas where topography warrants
- For some properties, driveways/access points will be realigned to accommodate the roadway's expanded footprint
- Bus stop turnouts and shelters are being included in the design. Locations would be selected coordination with the Ketchikan Gateway Borough (KGB) Transit Manager and the City of Saxman

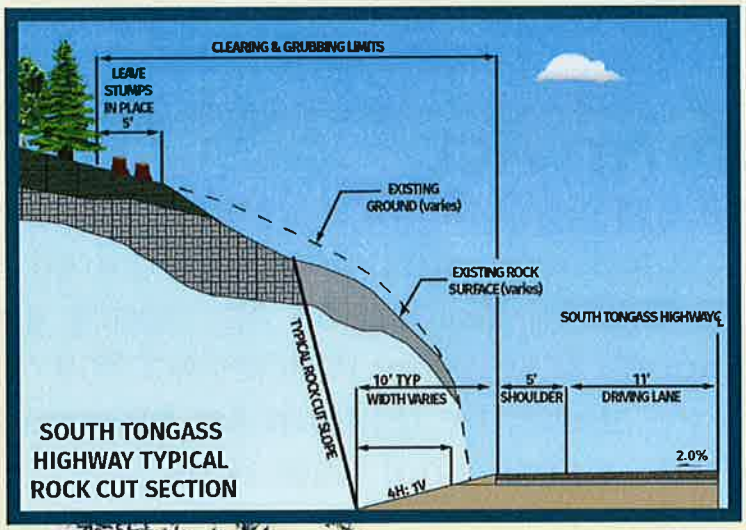
Typical Cross Sections



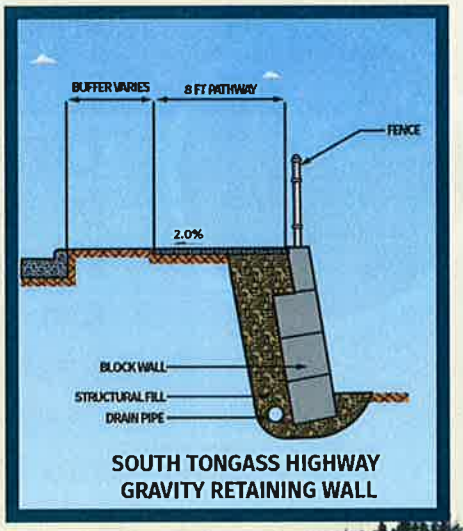
SOUTH TONGASS HIGHWAY
URBAN TYPICAL SECTION
Deermount Street to the Cemetery Road



SOUTH TONGASS HIGHWAY
RURAL TYPICAL SECTION
USCG Base to Surf Street



SOUTH TONGASS HIGHWAY TYPICAL ROCK CUT SECTION



SOUTH TONGASS HIGHWAY GRAVITY RETAINING WALL

Right-of-Way (ROW) Impacts

Acquisitions

The acquisition of property is necessary to construct this project. After final design (estimated in spring 2017 for Phase 1 and spring 2018 for Phase 2), DOT&PF Right of Way Agents will reach out to affected property owners to begin the appraisal and acquisition process. Booklets are available, here, that explain your rights.

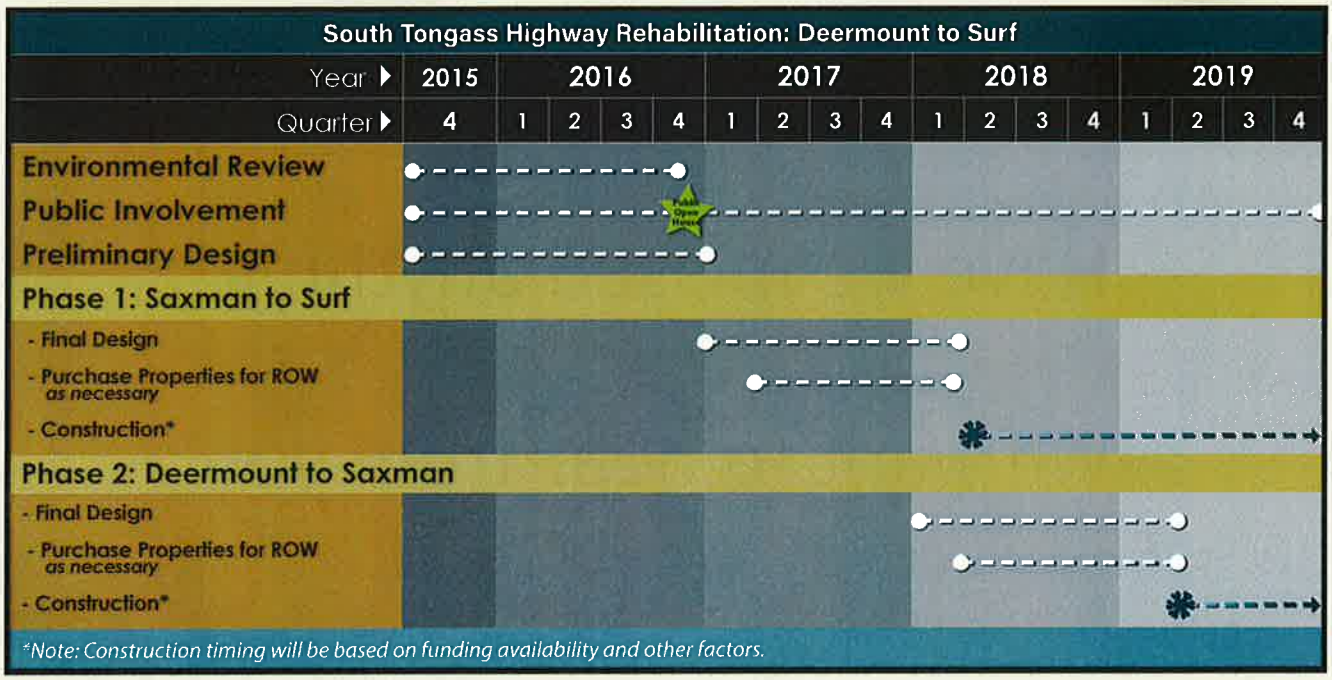
Encroachments

Some adjacent property owners may also be contacted about encroachments. An encroachment is an unauthorized use of a ROW for improvements, objects, items, or obstructions. Encroachments are resolved by removal, or can be permitted. Whether an encroachment can be permitted is determined on a case by case basis.

Uniform Act

DOT&PF and FHWA follow the comprehensive appraisal and acquisition process required by the 1970 Uniform Relocation Assistance and Real Property Acquisition Policies Act. You can read more about the Uniform Act by visiting the DOT&PF website: dot.state.ak.us

Schedule and Next Steps



Next Steps:

- DOT&PF will continue to consider your input as it advances, then finalizes, the project design
- Once the design for each phase is complete, DOT&PF will begin the property appraisal and acquisition process and coordinate with affected land owners

Comments

Have we missed anything?

We want to hear from you!

Please fill out a comment form, or send comments via email to

info@southtongasshighway.com

Need more project information? Visit the project website!

www.southtongasshighway.com

South Tongass Highway Rehabilitation
Deermount to Surf

South Tongass Highway Rehabilitation
Deermount to Surf
Project Fact Sheet

The Alaska Department of Transportation & Public Facilities (DOT&PF), is proposing to rehabilitate three miles of South Tongass Highway and related non-motorized facilities from Deermount Street to Surf Street. The South Tongass Highway Rehabilitation project would improve operations and provide for safe movement of vehicle, bicycle, and pedestrian traffic.

Project Background:

South Tongass Highway serves the Cities of Ketchikan and Saxman as well as the entire Ketchikan Gateway Borough. The roadway is a minor arterial and provides travel connections between the City of Ketchikan and communities to the south. The highway is an undivided, two-lane roadway with many private driveways, limited shoulders, and an adjacent multi-use pathway along most sections.

Project Overview

This project would improve operations on South Tongass Highway, rehabilitate the roadway, reconstruct the existing multi-use pathway and extend it through Saxman, improve drainage, and relocate utilities. In some places, project engineers will examine the need for minor realignments of the roadway to improve sight distances. Replacement guardrails, handrails, and chain link fencing may also be a part of the project. The project team is currently examining potential environmental impacts and preparing the project's required environmental documentation; no significant environmental impacts are anticipated.

Project Features Being Considered

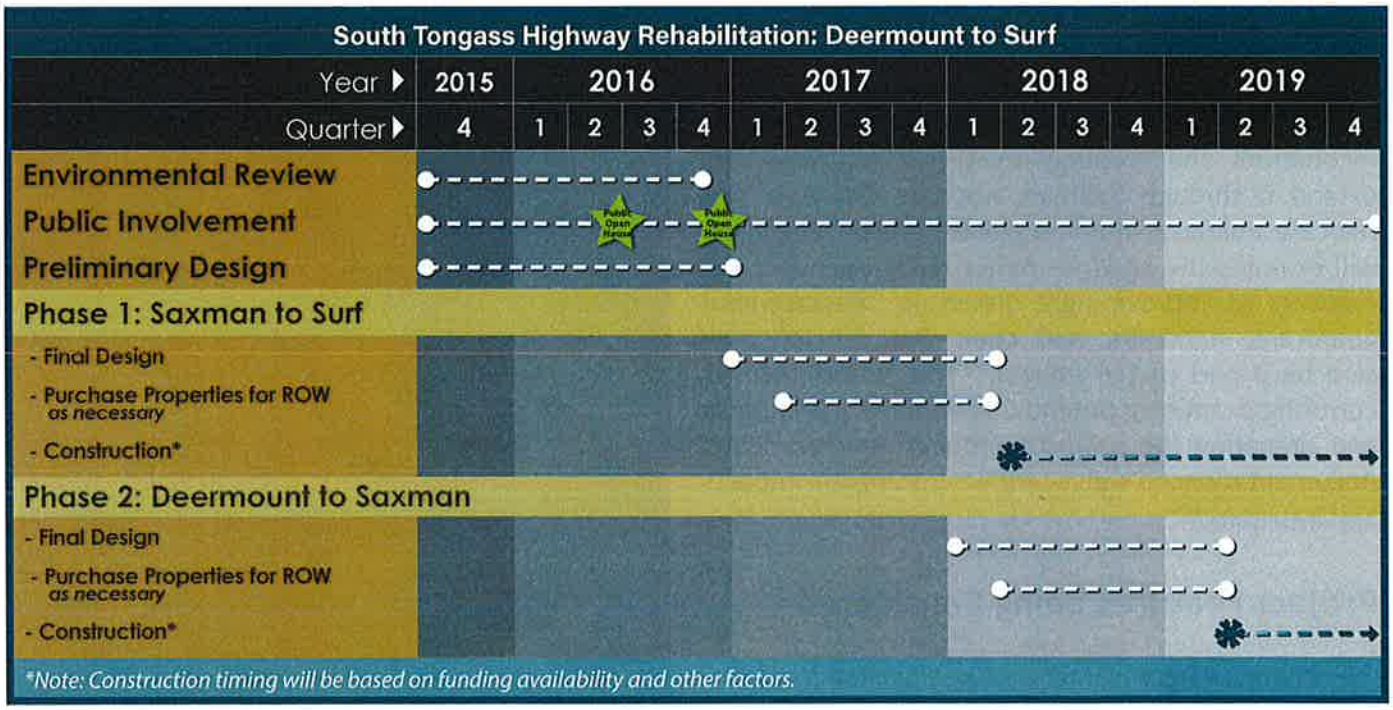
- Highway improvements to design standards, with rock cuts as needed
- Removal or permitting of right of way encroachments
- Reconstruction of the bike/pedestrian pathway
- Extension of the pathway through Saxman
- New sidewalks between Deermount Street and Cemetery Road
- Drainage improvements (including new inlets, storm drains, ditches, and culverts)
- Utility relocations
- Bus stop turnouts and shelters at locations determined in coordination with the Ketchikan Gateway Borough Transit Manager and the City of Saxman

Schedule

This project has two planned construction phases: the first being the southern portion from Saxman to Surf Street, the second being the segment between Deermount Street and Saxman. Construction on the first phase, Saxman to Surf Street, is anticipated to begin in 2018. Construction on the Deermount Street to Saxman section is slated to start in 2019. Construction dates are contingent on the availability of funding and other factors.

Get Involved

DOT&PF wants to hear from you as we develop the project design and environmental review, and prepare for construction. We will keep the public informed of project progress via newsletters, meetings, and the website. To learn more about the project, to sign up for the project e-mail list, or to find out how to leave a comment, visit **www.southtongasshighway.com**.



Contact

If you would like to request additional information or share your ideas, please contact:

David Pyeatt, P.E.
Project Manager
DOT&PF
Email: info@southtongasshighway.com
Phone: 907-465-4490

Jim Scholl
Project Environmental Coordinator
DOT&PF
Email: info@southtongasshighway.com
Phone: 907-465-4498

Bonnie Easley-Appleyard
Public Involvement Lead
HDR Public Involvement
Email: info@southtongasshighway.com
Phone: 907-644-2000

South Tongass Highway Rehabilitation
Deermount to Surf
Frequently Asked Questions

1. When will this project be constructed?

Pending funding availability, construction for Phase 1 (Saxman to Surf Street) will begin in 2018. Phase 2 (Deermount Street to Saxman) is slated to begin construction in 2019. Construction of both phases is anticipated to take two to three construction seasons to complete.

2. Will this project move the highway from its existing location?

Due to the proximity of the coastline, utilities, existing development, and the area's natural topography, DOT&PF does not anticipate major shifts in the existing alignment. Planned improvements may straighten some curves to improve sight distances and facilitate traffic movements. The project's preliminary design maintains the highway's 11-foot-wide lanes and provides shoulder improvements (widening) where feasible.

3. Will the speed limits in the project area change when construction is complete?

The project team continues to examine posted speeds in the project area and is considering whether to change speed limits. Since the pedestrian path is separated from the traveled way, lowering the 45 miles per hour segment is unwarranted. However, the project team has not made a final decision on posted speed.

4. Will the State need to acquire Right-of-Way for the project? Whose properties will be affected?

The project is currently in the preliminary design phase. At this point, specific Right-of-Way (ROW) impacts are not final, however, ROW acquisitions will be necessary.

The Phase 1 (Saxman to Surf Street) ROW acquisition phase is scheduled to begin in summer 2017; Phase 2 (Deermount Street to Saxman) acquisitions are anticipated to begin in spring 2018.

5. What is an encroachment? How does this impact me?

Some property owners may also be contacted about encroachments in the existing state-owned ROW. An encroachment is an unauthorized use of a ROW by improvements, objects, items, or obstructions. Encroachments are resolved by removal, or can be permitted (allowed with a permit). Whether an encroachment can be permitted is determined on a case by case basis.

6. How is the project funded? What will it cost?

This project is included in the Statewide Transportation Improvement Program (STIP), the spending plan for Federal Aid. The project will be funded with a mix of federal and State dollars with an approximate 90% federal 10% State ratio. The current STIP shows approximately $9 million for Phase 1 (Saxman to Surf Street), and $15 million for Phase 2 (Deermount Street to Saxman). These cost estimates will be refined during final design.

7. Will there be changes to the pathway and sidewalks in the project area?

The existing pathways and sidewalks adjacent to the highway in the project area will be rehabilitated as part of this project. New pathway sections are planned for the water side of the highway from the Forest Park Drive intersection to Surf Street. Once constructed, this new section of pathway will create a continuous pathway along South Tongass Highway from US Coast Guard Base to the Mountain Point vicinity.

The project also provides for a new sidewalk on the land side of the highway between Deermount Street and Cemetery Road.

8. Will the project add more parking near the pathway?

DOT&PF is aware of public parking shortages near the pathway. The project team continues to look for opportunities to add parking areas as a part of this project's design. However, development of a parking lot may not be possible due to limited ROW.

If you are aware of any parking opportunities, let us know with your comments.

9. How will this project impact existing private and commercial driveways/ access off the highway?

Some impacts to existing driveways may occur. If driveway relocations are necessary, DOT&PF will work with property owners to finalize driveway configurations.

10. Will trees be cleared in the existing state right-of-way for this project?

Given the narrow corridor, tree clearing is likely. DOT&PF may clear trees up to the limits of the proposed/acquired ROW line.

11. Will crosswalks be added as a part of this project?

Where warranted by pedestrian traffic counts, crosswalks are being considered as a part of the project design.

12. Will there be new bus stops constructed with this project? Where will they be built?

Bus stop turnouts and shelters may be constructed as a part of this project. DOT&PF is coordinating with the Borough Transit Manager and the City of Saxman to determine locations for potential stops/ shelters. Preliminary bus turnouts are in the vicinity of the following locations:

- Forest Park Drive
- Totem Row
- Dog Salmon Ave
- Shoup Street

Memo

Meeting Date: Tuesday, December 6th & Wednesday December 7th

Project: South Tongass Highway Rehab

To: David Pyeatt, DOT&PF

From: Allison Biastock, HDR

Subject: **Summary: December 6th and 7th Public Open House in Saxman and Ketchikan, Alaska**

Project Staff/Agency Attendees:

Jim Scholl (DOT&PF)
David Pyeatt (DOT&PF)
Keith Karpstein (DOT&PF)
Chris Croft (HDR)
Allison Biastock (HDR)
Carol Snead (HDR)
Tom Kretzschmar (HDR)

Stakeholder Attendees:

Area residents and landowners
Business owners
Mark Minnillo, ADF&G

Open House Purpose

The purpose of the open house events was to share information about the project's preliminary design, scope, and schedule, and to solicit public feedback.

Saxman's Public Open House Summary:

On Tuesday, December 6, 2016, the South Tongass Highway Rehab project hosted a public open house from 6:00PM to 8:00PM at the Saxman Community Center, 2841 Tongass Highway, Saxman, Alaska.

Attendance

Twelve people signed in to the event (sign-in sheets attached). Approximately 2 additional people attended but did not sign in.

Ketchican's Public Open House Summary:

On Wednesday, December 7, 2016, the South Tongass Highway Rehab project hosted a public open house from 4:30PM to 6:30PM at the Ted Ferry Civic Center, 888 Venetia Avenue, Ketchikan, Alaska.

Attendance

Eighteen people signed in to the event (sign-in sheets attached).

Advertising

The meetings and online open house were advertised in the following ways:

- Meeting information posted on the project website: http://southtongasshighway.com/
- Publication on the State of Alaska Online Public Notice System

- Publication on the DOT&PF public involvement calendar
- Postcard mailed to area parcel owners and identified stakeholders on November 28, 2016
- Ketchikan Daily News legal ad on November 11, 2016.
- Ketchikan Daily News graphic print ads on November 27, and December 4, 2016
- Ketchikan Daily News on-line ads from November 29-December 7, 2016
- E-mail notification sent to elected officials and stakeholders on November 28, 2016
- E-newsletters sent to existing project contact list on November 22 , 2016 and follow up reminder for online open house on December 5, 2016
- Community fliers distributed in Saxman and Ketchikan
- A meeting flier was included in December's City of Saxman Newsletter

Meeting Materials

The materials presented were the same at both open house meetings:

- Handouts (project fact sheet, FAQs, comment sheets)
- Graphic posters including typical cross section
- Project map on a central table

Media Coverage

No member of the press was identified at either meeting. To date, there has been no media coverage of the event.

Comments

Four formal written comment forms were received (attached).

In addition, the following informal comments were noted by staff while engaging with open house attendees.

These informal comments include:

- Slower speed limit south of Deermount would improve safety.
- Slower speed limit through Saxman and south of Totem Row would improve safety.
- The phase 2 portion needs to be repaved now. Can DOT go through and add a 2-inch top layer as an interim measure (before 2020)?
- Invasive plant species are a big problem, especially further south (Rotary Beach, near the hatchery at Herring Bay)
- Every road project through Saxman takes more land from the City of Saxman
- You should have made Deermont intersection safety improvements two years ago.
- If you provide pedestrian path parking, install waste receptacles
- Is this a 1% for the arts project? If so, the Ketchikan historical society would like to install art or interpretation near the canneries
- The Deermont intersection is dangerous for all users
- The Native people settled in Saxman in 1893
- Mostly I was able to answer questions from the graphics and posters – thanks!
- Please protect the golden spruce as it is a rare tree just north of forest park drive where the two double barrel culverts reside
- A signal at Deermount Intersection is needed, tour bus back-ups on Deermount cause vehicles to cut through Tatsuda's

- A left turn lane should be added on Stedman to go up Deermount
- Difficult to see at Deermount intersection
- Wider sidewalk preferred on downhill side between Deermount and USCG base
- A lot of water comes off of the Forest Park Neighborhood as more houses get built, please make culverts larger or add more

Photos:

Saxman:

Ketchikan:

Follow Up

- HDR will post the meeting posters on the project website's library page.
- New email addresses captured on the project sign-in sheets will be added to the project email list.
- Comments will be considered and responses will be sent.

Meeting Summary

Meeting Date: Monday, December 5, 2016

Project: South Tongass Highway Rehabilitation: Deermount to Surf Street

To: David Pyeatt, DOT&PF

From: Allison Biastock, HDR

Meeting: **Tatsuda's Grocery**

Project Team
Jim Scholl (DOT&PF)
David Pyeatt (DOT&PF)
Keith Karpstein (DOT&PF)
Chris Croft (HDR)
Allison Biastock (HDR)
Carol Snead (HDR)
Tom Kretzschmar (HDR)

Tatsuda's
William Tatsuda
Katherine Tatsuda

The project team met with the Tatsuda's at their grocery store at 4PM on December 5, 2016. The purpose of the meeting was to provide an update on the project, and to discuss right of way and the store's access, parking and a proposed parking concept (attached).

Parking Concept

Following introductions and a preliminary review at the proposed parking lot concept at the check-in area at the front of the store, Katherine and William Tatsuda and the project team went out into the parking lot to tour the parking area and store access points. DOT&PF shared that the main reason for the proposed changes was an effort to improve roadway deficiencies and corresponding safety. The following points/items were discussed:

- When asked if a stoplight was going to be added to the Deermount intersection, DOT&PF responded no, that a traffic light was not warranted by traffic counts. DOT&PF explained that a crosswalk and a push-button activated rapid flashing beacon would be added at that intersection to improve pedestrian safety.
- Tatsudas: It is very hard for cars turning left onto S. Tongass from Deermount or our western access to see oncoming traffic. The "hardest part" of that intersection is turning left from Deermount.
- The Tatsudas noted that it *could* be better if the proposed parking lot access onto S. Tongass had three lanes, incoming, and outgoing left and right.
- The proposed parking lot concept could work with one way traffic (counterclockwise) (DOT&PF).
- W. Tatsuda asked about accident data, and the project team shared that we did have it, and there had been a handful of accidents in the area in the past ten years.
- Per the proposed change from angled parking spots to perpendicular spots – vehicles turning into and backing out of those spots will block traffic movement in the parking lot (W. Tatsuda).
- Katherine Tatsuda commented that the parking lot is tight as is, and that the store gets traffic from all directions. She noted that "cliff spots" (removed in proposed parking

concept) work well for bigger rigs and vehicles with trailers (of which they get many). She also noted that the angled spots are easier and faster for cars and big trucks to get out of.

- Large delivery trucks at times need to park in the angled spots in the front lot.
- DOT&PF confirmed when asked that the proposed number of spots in the parking concept is the same number as the existing lot layout.
- The Tatsudas agreed that the Tongass-Deermount intersection is a challenge, and the crosswalk is dangerous. They asked if a turn lane had been considered at the intersection. (Not warranted by traffic counts). They also commented on the speed limit change on S. Tongass west of the store is in a bad location, and were please to hear that the project team is considering keeping the lower speed limit until the Tongass Community Connections Bldg. east of their store.
- The transit bus stop kitty-corner from the store is a popular stop, the Tatsudas shared, as it serves the canneries, the store, the University building and South Tongass Community Connection bldg.
- Katherine Tatsuda noted that the street lighting on Tongass near their store is poor – and it can be downright bad during bad weather.
- Both Tatsudas noted that a concern with a new parking concept is that people would get confused by the traffic pattern change. The store has been in that location for 40 years, and the parking lot has been the same. They remodeled the store over a year ago, and people still use the old (no longer functional) door out of habit.
- The Tatsudas also commented that Ketchikan drivers stop for one another (wave one another into traffic) – so that helps with traffic congestion during busy times.
- By limiting access, the Tatusdas expressed concern that the backup on Deermount (folks wanting to turn left) could get worse, and then traffic could block one of their two entrances.

Right of Way Issues

After touring and discussing the front parking lot, the team walked over to the side of the building to look at the Alaska Liquor (Tatsuda tenants) storage trailer and cardboard recycling container – both of which are in the SOA ROW. The Tatsudas were unaware that these improvements were in the state owned ROW, and asked if their recently install electric transformer box was in the ROW (it was not). Last year, during their store remodel, they improved the area behind their store – paving/adding concrete walkways, curbs, walk in freezer storage area, and drainage improvements. As a note, DOT&PF looked into the strip drain in the gutter and it was functioning well; free flowing with little accumulated debris.

The team looked at other locations in the proximity for the storage container. The storage container is owned by Alaska Liquor (Melanie and Jessica Isner, mother and daughter), but the private land it sits on is owned by Tatsuda's.

DOT&PF pledged to connect with Melanie and Jessica to discuss the ROW issue (project team members met with them on 12.7.16). The Tatsuda's expressed their appreciation for the site visit and discussion. DOT&PF pledged that they would go "back to the drawing board" on the parking concept, and see what they could come up with considering the feedback received.

Meeting Summary

Meeting Date: Tuesday, December 6, 2016
Project: South Tongass Highway Rehabilitation: Deermount to Surf Street
To: David Pyeatt, DOT&PF
From: Allison Biastock, HDR

Meeting: **United States Coast Guard, Base Ketchikan**

Project Team
Jim Scholl (DOT&PF)
David Pyeatt (DOT&PF)
Keith Karpstein (DOT&PF)
Chris Croft (HDR)
Allison Biastock (HDR)
Carol Snead (HDR)
Tom Kretzschmar (HDR)

USCG
Beverly Freitas, Real Estate – on phone
Thomas Logan, Acting Facilities Engineer
Brian Winburn, Base Executive Officer
Ashley Holt, Commanding Office

Environmental Process

Following introductions Jim Scholl gave an environmental update, explaining this project anticipated completing its categorical exclusion in Jan 2017. Jim covered the environmental surveys to date, and noted that the project will be impacting a fish stream by replacing a culvert, and DOT&PF will be applying for an eagle take permit for one of the nests near the project area. Jim noted that there was no nest located near USCG land. The project is also planning for marine fill in some areas. Per cultural resources, the report is done and soon going to SHPO for concurrence. Jim offered to share the CE and the cultural resources Report with the USCG, but added that the cultural resources report contains information that is protected; so it's not a public document.

Beverly asked if any environmental surveys occurred on USCG property, and if so, did you have a permit? Jim said he believed so and said he'd look into it. (Follow up – the cultural resources surveyor did reach out to the USCG base, and base staff accompanied him on the portion of his survey that occurred inside the USCG fence).

Carol Snead added that the team has prepared an invasive species survey, a hazmat database search, a wetlands report, a survey of fish streams and habitat, and an environmental justice report in support of the CE.

Design Overview:

Chris Croft gave a brief design overview, noting that it is approximately 40% complete, and that the drill plan for the geotechnical investigation is almost done (the drill plan USCG received was a draft, not final). DOT&PF is looking at drill sites for geotechnical investigation. Chris showed the existing ROW, and proposed project footprint on maps, noting the project limits represent cut/fill areas.

Chris shared that DOT&PF intends to widen the shoulder in the area by the cliff across from the base, USCG commented that will help open up that blind area, as visibility is limited. Chris stated that the improvement in that area will be outside state owned ROW. Chris also noted that the final project limits are pending geotech, so the lines on the map are still preliminary.

Geotechnical Investigation ROE

Keith asked Beverly if DOT&PF will need permits for geotechnical investigations on USCG property. (Yes.) When asked when DOT&PF plans to drill, Chris said that would need to be coordinated with the driller, but DOT&PF is looking to expedite the geotechnical investigation as it is a critical path item. Keith confirmed that there is a need to drill on USCG property, and will need the USCG environmental process to be complete before we do that. Beverly said that USCG would need to complete its NEPA documentation for the drilling ROE, a 2 to 3–week process. Once USCG NEPA is done, Beverly said she needed a week or so to issue the permit. Ashley Holt said that the USCG staff in Ketchikan want to help, but we'll need to coordinate on our end, so as soon as you know timing, let us know.

Jim noted that DOT&PF can share its CE document and cultural report with USCG; Beverly said that would be helpful.

Winburn – do you have locations for drilling? Chris said not yet, the final drill plan will show the drill areas. USCG noted that drilling near the guard shack would impact base operations. Chris shared that the drilling process is fairly quick, it should just take a few hours to drill then backfill. Jim added that the driller uses a small tracked vehicle. Keith stated that the drillers may need to remove small trees, but should be able to avoid large timber.

Per timing for the geotechnical investigation, Chris said DOT&PF hopes to solidify a drill plan by end of the month, then start ROE permit conversations in late December, but it may be early January 2017. DOT&PF wants to get drilling started as soon as possible, and will coordinate with USCG ASAP. Keith also added that there will be additional coordination (maybe a pre-drill meeting) to make sure drillers/times, etc. will work for the USCG.

Per next steps for the ROE for drilling, Beverly noted that January seems like a quick turnaround given the holidays. Keith responded that DOT&PF will get her the info for the ROE ASAP, hopefully in a couple weeks. Beverly asked why SHPO is involved in the process. Jim responded saying since NEPA is invoked, DOT&PF needs to proceed under section 106. So SHPO must concur with the lead agency's findings of effects on cultural resources. Beverly asked if there was anything historic at the USCG. Jim thought that the USCG building was eligible, but was not certain if it was listed. He added that there are many, many historic

properties on this stretch. Jim said that he will be contacting SHPO as soon as next week, and they have 30 days to respond. Beverly commented that alone is a 30 day window before the USCG can start its process.

Beverly offered to relay any ROE permits she had granted associated with this project. Jim thanked her.

Project Limits

Thomas Logan asked if the project will affect the USCG fence line, noting there is electrical on that line. Chris responded that DOT&PF plans to replace the pile supported pathway in that area with a constructed wall, and that there will need to coordination with the USCG when it's constructed. That's a tight space and will be challenging. Logan asked about impacts to the footbridge, to which Chris responded that the design refreshes the slopes near the bridge, but does not impacts its structural integrity. Logan noted that there are electrical and other utilities associated with that footbridge.

Winburn offered to share some old drawings of the base – pending approval from USCG security. Chris thanked him and said that would be very useful.

Holt asked about the marine fill, Chris said that there is a plan for a 2:1 slope with fill on USCG coastline. 2:1 is the recommended stable slope for roadway work. Keith shared that the pathway is supported by gabion wire basket walls (constructed in mid 90's), and that the existing pathway is failing and deteriorating. DOT&PF's intent is to provide a more stable slope.

Winburn asked where the necessary fill will come from. Chris responded that the geotech investigation will help answer that. It would be optimal if we can use on-site rock. Dave Pyeatt noted that the project won't go below 0 ft (mean low water level) on USCG property.

Schedule

Chris gave an overview of the schedule, noting there were two construction phases. Holt asked about the chance for phase 1 to start late next year? Keith responded that if we get pre construction work wrapped up in Aug 2017, we miss our construction window. April 2018 is a likely start date.

Land Acquisition

Keith asked how the acquisition process will go for the project. Beverly responded that DOT&PF may be able to acquire land under the Federal Highway Act. The USCG may give DOT&PF an easement, but then may be able to give DOT&PF land outright under the Highway Act. (The USCG did something similar in Seattle, Beverly shared.) Tom Kretzschmar asked how long the Highway Act transfer process is, and Beverly said over a year. Beverly continued noting that if DOT&PF did the acquisition, most of the paperwork burden would be on DOT&PF, not USCG, and she offered to send information on the statute.

Tom noted that the state needs to certify right of way ownership before moving ahead with any construction, and Beverly said USCG could give a temporary construction easement for the

work to begin while DOT&PF moves forward with the acquisition process. Keith added that there is time to move through the process since this portion of the project is part of Phase 2 construction.

Jim stated that ROW work cannot start until we have an approved CE document.

Beverly asked about coordination with the Federal Government, to which DOT&PF confirmed we are working with FHWA on project.

Other

Holt asked about the slope on coast opposite their docks, will the fill impact any water levels? He noted that area is near the railway where they move vehicles. Keith said fill would not affect water levels in the basin.

Chris asked if there other property owners within the USCG area? USCG answered no.

Winburn asked if DOT&PF will meet with the USCG again? Jim said there are no more public meetings or trips to Ketchikan planned at this time, but we can meet anytime by teleconference. Beverly noted that much of this workflow will go through her office, and she can assist with quick turnaround times, and added that if we want to start permit process for temporary construction easement now while waiting for the acquisition process to be completed, she can request that.

Meeting Summary

Meeting Date:	Tuesday, December 6, 2016, 4:00-5:30PM
Project:	South Tongass Highway Rehabilitation: Deermount to Surf Street
To:	David Pyeatt, DOT&PF
From:	Allison Biastock, HDR
Meeting:	**Neighborhood Meeting**

Project Team:
Jim Scholl (DOT&PF)
David Pyeatt (DOT&PF)
Keith Karpstein (DOT&PF)
Chris Croft (HDR)
Allison Biastock (HDR)
Carol Snead (HDR)
Tom Kretzschmar (HDR)

Attending Neighbors:
Elizabeth Einset
Roy Eckert
Cisco Flores
Craig and Juanita Cannon
Carolyn and Terry Thompson

Summary:
On Tuesday, December 6, 2016, the South Tongass Highway Rehabilitation project hosted a Neighborhood Meeting from 4:00PM to 5:30PM at the Saxman Community Center, 2841 Tongass Highway, Saxman, Alaska. The purpose of this event was to share information about the project's preliminary (40%) design, the proposed pathway, and anticipated impacts to property owners on the water side of the Surf Street portion of the project. Property owners received an invitation with a figure (attached) and were encouraged to attend and provide their feedback on the proposed design. Project team members engaged with attendees, answering many questions and discussing individual property owner concerns.

Meeting Materials
- Handouts (project fact sheet, FAQs, comment sheets)
- Graphic posters including with design and environmental information, and typical cross sections
- Large scale neighborhood area map with preliminary project limits

Comments:
While no formal written comments were received, the project team did get to engage with all attendees individually to answer questions and hear their feedback. Some of the comments we heard from property owners are outlined below.

The **Thompsons** were overall pleased with how impacts to their property have been minimized. They asked about the height of the proposed retaining walls, noting privacy, and the amount of gravel that collects each year at the base of their existing wall. When asked, Keith estimated about 4-5 feet between the Thompson's walls and the pathway (they joked about selling hot dogs out of their window).

Roy **Eckert** commented that he has paved his entire driveway area all the way to the road (some of that driveway is in the state owned ROW). He asked about the fill slope on his property, he has spent a lot of time and money bringing in fill and soil to make a lawn for his kids. DOT&PF told him that the fill slope on the corner of his lot, once completed, will be covered in topsoil and re-seeded. Roy expressed concern with the loss of the guardrail near his property, he has young children and folks drive very fast through that area. He relayed that the Ortiz home was once almost hit by a drunk driver – and would have been without the existing guardrail. DOT&PF shared that they are considering a slower speed limit through this area. Roy also asked why the state, in a budget crisis, was spending so much money on this project (DOT&PF explained this project is primarily funded with federal dollars.)

Craig and Juanita **Cannon** have worked to address water issues on their lot. There appears to be a culvert that was plugged by a buoy. There was also a concern about their porch – their previous porch was encroaching, so they made some improvements to the porch and added a concrete wall to address the encroachment. They wanted DOT&PF to take a photo of their new porch for the record, and DOT&PF committed to come take a look at their property during this trip.

- Members of the project team did go visit the Cannon property on 12.7.16 to photograph the porch. See below.

Cisco **Flores** has plans to add a new entryway/portico to his property that is about 7x20 feet. He noted that he has all the necessary KGB permits to do so. He also has plans to extend his fence, but will wait until this project is complete to do so. (DOT&PF noted that they'd like to follow up on these permits).

Elizabeth **Einset** noted that the easement noted on the map on her property is an old sewer outfall that is no longer in use. She also inquired about the rules for adding a fence on her property, or in the ROW – DOT&PF explained encroachments, and how she should avoid them, If she did build a fence, DOT&PF noted, she would need an encroachment permit that would need to updated every 5 years.

Cannon's improved porch.

Meeting Summary

Meeting Date: Wednesday, December 7, 2016

Project: South Tongass Highway Rehabilitation: Deermount to Surf Street

To: David Pyeatt, DOT&PF

From: Allison Biastock, HDR

Meeting: **City of Saxman, Organized Village of Saxman, KGB Transit, and ANTHC**

Project Team
Jim Scholl (DOT&PF)
David Pyeatt (DOT&PF)
Keith Karpstein (DOT&PF)
Mark Minnillo (ADF&G – invited by DOT&PF)
Chris Croft (HDR)
Allison Biastock (HDR)
Carol Snead (HDR)
Tom Kretzschmar (HDR)

City of Saxman
Leona Haffner, City Clerk
Caryl Williams, City Council
Woodrow Watson, City Council
Max Mercer, Consultant

Organized Village of Saxman
Lee Wallace, President, Transportation
Sylvia Banie, Vice President (she also associated with the City of Saxman)

Ketchikan Gateway Borough Transit
Kyan Reeve
Leslie Jackson

Alaska Native Tribal Health Consortium (ANTHC) – Saxman Sewer Project
Brenton Alexander
Sean Driskill

Environmental Process

Following introductions, Jim Scholl provided an update on the project environmental process and the CE document.

Jim went over NEPA process, and CE document noting that the team has completed several environmental studies. He relayed that the team is aware of the bald eagles nests in the project area and will be applying for a full take permit for one that will be approximately 30 feet from construction. He explained that the permit is a precaution in case the trees roots are damaged by construction equipment (but that we hope the tree remains unharmed). Jim also shared that DOT&PF is looking at using an exclusion device to encourage the pair to nest in another tree (hopefully not closer to construction) in the area during construction. DOT&PF will do all it can to save the trees, but there will be compaction/vibration close to the roots. Jim also talked about the replacement of the wooden box culvert for the project area's sole anadromous stream, wetlands surveys, and the plan to control invasive species in the project footprint. The Cultural Resources Report is complete (DOT&PF findings show no adverse effects) and will soon be sent to SHPO for concurrence. Jim shared that DOT&PF hoped to complete the CE document in January 2017.

Question: Max Mercer - when you use and exclusion device with the eagles, do they ever come back to their nests? Answer: Jim - eagles may return to the same nest year after year, but there is a breeding area for each breeding pair, and they use 2 or three trees within that area ~~in their lifetime~~. Usually if we

use an exclusion device, the pairs use a different nest in the same area (hopefully in areas farther away from the construction).

Question: Sylvia Banie – I'm concerned about the nests. Nests are a draw for visitors. I have nests on my property, I leave them alone. Our culture believes that the eagles are here to protect us. Response: Jim – do you feel it would be better to do nothing with the nests? (Sylvia said she did not know). Jim noted that we could do nothing, but the risk is to the tree itself. If we are 30 feet from a tree doing excavation, we could damage/snag tree roots. We hope that doesn't happen, but we don't want a tree to topple with eaglets in it. We don't have to put in an exclusion device. We respect the Native culture, and are happy to coordinate with the Tribe re: whether we use an exclusion device. Keith Karpstein noted that we'll know more about potential impacts as we advance the design. Jim also shared that he is consulting two USFWS raptor biologists, once he gets their recommendation, he'll consult with the Tribe.

Design Update:

Chris Croft gave an update on the project design noting that our figures now show proposed limits (cut/fill slopes and excavation limits). We are still in preliminary design, but once the CE is approved, we will move into PS&E phase, we will advance more detailed elements of the design. We hope to have a final design (for Phase 1) late this year.

Sylvia asked about fill areas outside of the existing ROW, and Tom Kretzschmar stated that fill areas will likely be easements, and that the property owner would need to be compensated for using that property. Tom explained that an easement is different than a fee simple transfer (we aren't taking the property). The easement must be evaluated to find out how much the land is worth.

Follow Up on Issues Identified at Previous Meetings

Pedestrian crossings/safety: Chris discussed Totem Row and the desired crosswalk. DOT&PF did an analysis using pedestrian and traffic counts, then looked at three options: a traffic signal, a pedestrian crossing signal, and a RRFB (rapid flashing beacons). For a traffic signal there are thresholds that need to be met (8 warrants that need to be met) – we found that a traffic signal is not warranted. We also found that a traditional signal crosswalk was not warranted. The project team is proposing a RRFB, which is an FHWA approved measure to improve crosswalks. Its push button activated sign that alerts drivers the crosswalk will be in use using rapidly flashing lights.

Brent Alexander asked that if the RRFB crosswalk legally requires cars to stop or slow down? Keith responded that yes, it's a legal crosswalk.

Sylvia asked whether these RRFBs are used in other villages, as she has heard about crosswalks not slowing anyone down. DOT&PF responded that they are being used in Juneau, but are a relatively new technology, and offered to share information about them with the meeting participants.

When asked how RRFBs are powered, Chris responded that they can use a direct source (as in this case), or solar power. He added that RRFBs are also good because they are push button activated, so drivers don't get "accustomed" to seeing the lights. Chris covered the other the basics of how the lights of the crosswalk work, and the anticipated signage and shared that the project team is looking at a similar crosswalk at Deermount.

(KGB, noted that they had a lit crosswalk near the tunnel downtown, and ended up removing it for lack of effectiveness, DOT&PF clarified that crosswalk was a different technology).

Sidewalks and Pathway: Per the proposed landside sidewalk from Tatsuda's to Cemetery Road, KGB representatives asked that DOT&PF consider widening the sidewalk on the water side instead of adding a 5 foot sidewalk on the land side. They said that more folks use the water side sidewalk, and that the current sidewalk in narrow and unwelcoming. There are many residential buildings in the area, and a lot of traffic on that sidewalk. They also noted that the delivery trucks to Tatsuda's make the landside not ideal for an improved sidewalk. Chris Croft noted that the current waterside sidewalk in that area is the minimum width of 4 feet, and that many of the driveways are not ADA compliant. KGB would like to keep the "waterfront trail" and improve the waterside sidewalk – even if that meant there were no additional sidewalk constructed on the land side (limited room in that corridor for a wider waterside sidewalk AND a new landside sidewalk). KGB asked if DOT&PF could narrow the roadway lanes in the Deermount to Cemetery Road section to allow for a wider sidewalk on the water side? KGB shared that on North Tongass where improvements included a landside trail – many folks are running across the highway to access the water side of the road.

KGB, we think it's ideal to keep a waterfront side trail, and DOT has been helpful in "filling in holes" of that waterside trail. KGB also asked about pushing the lower speed limit out to the Community Connections building (DOT&PF is planning that). When KGB asked whether the project would include "way finding" – DOT&PF responded that the design is not yet to that level of detail.

DOT&PF shared that they will be rehabilitating the existing pathway and sidewalks. Past the Tatsuda's to Cemetery Road section, the pathway will be separated except in the narrow Surf Street area where it will be separated from the roadway by curb/gutter. KGB asked if there is a safety separation. Chris responded that in some places there is guardrail, and in some places there will be a 5 foot buffer of vegetation. Sylvia noted that currently, there are long stretches of guardrail, and folks can't access the path unless they climb over it or walk down the road to a place where the guardrails open. Can DOT do something about that? Is that feasible? Keith noted that have to look at guardrails from a safety standpoint, and need to consider vehicle safety - but that DOT&PF can look into that request. Keith also shared that the project will improve the 5-foot shoulder, too. Sylvia shared that elders use the path, and it would be good for them to have a place to access the trail.

Speed limits: DOT&PF is pushing the 30 MP speed limit down past community connections, and considering keeping Saxman's 30MPH zone through until the end of the project at Surf Street. Sylvia stated that Saxman has been trying to get DOT to reduce speed limit in Saxman, and would like it to be 25mph. Keith stated that he noted that comment.

Saxman Sewer Project: ANTHC representatives provided a brief project update, including a brief overview of their environmental process (NEPA, SHPO, etc.). The City of Saxman (CoS) currently uses outfalls, etc. This project will be connecting to the existing system at Forest Park, decommissioning the Forest Park treatment facility, adding lift stations, and ultimately tying into the Mountain Point treatment area. The project team is currently conducting a sewer main investigation (Stephl), and will be getting that report soon. Per schedule: the project will have two phases. Currently, they are at approx. 40% design, and still need geotech data. ANTHC intends to be in Saxman in Sept 2017 to construct lift stations (Phase 1), then return spring 2018 for the force main (Phase 2). ANTHC hopes that DOT&PF's S. Tongass Phase 1 contractor will also bid on their sewer project contract.

Sylvia asked on which side of the road will the project be constructed? ANTHC responded on both sides. (The project will be in front of Sylvia's house.)

Keith asked about a project completion date, to which ANTHC responded March/April 2018. ANTHC will keep DOT appraised of our progress. Jim Scholl offered to share the eagle nest locations, and confirmed

the anadromous stream location with ANTHC. DOT&PF will follow up with ANTHC re: questions related to eagle permits.

Leona Haffner noted that the CoS will maintain the ownership of the project, but has contracted with the Borough to maintain the sewer project once completed.

Busses and Bus Shelters: Chris shared that DOT&PF has updated the design of the Bear Clan intersection to better accommodate radial turns, and to improve the sight distances. Per school bus/child safety at the S. Tongass Services Bldg., the current design provides two bus pullouts in the area, and we hope the borough will allow the school busses to use those pullouts, too.

Sylvia B. asked about the fire hydrant on Bear Clan, will it be moved? Chris responded that as a part of the project there are utilities that need to be readjusted, including that hydrant. Once we get into the detailed design, we will identify a new location for that hydrant to ensure fire service in the area.

Transit Kyan Reeve with KGB transit asked about bus pullouts – are they reflected on the maps? Chris responded that they are not called out, but you can see where we are proposing them in the project limit lines. KBG asked about the possibility of a bus pullout north of Totem Row – is that possible? KGB continued that it is not always ideal for us to have a bus stop right across from the tribal offices, that they think it may be better If we put a stop farther north on Tongass – and by doing so there would be fewer folks that miss the bus. Chris noted that this is a hard intersection, as it is steep, and a pullout north of Tongass would require much more ROW. Lee Wallace noted that he does see folks waiting for that bus in front of his Tribal offices. Currently, KGB noted, there is a informal "flag stop" at the Stop Sign at Tongass/Totem Row – but following construction of this project, the KGB won't be able to do flag stops. KGB suggested a potential stop at Eagle Ave and Totem? (Note – that is outside the project area.) Lee Wallace asked about his June 2016 suggestion of a larger pullout for the waterside bus stop as vans, busses, taxis, etc. use it, and they block the transit area. Chris responded that, considering that comment, we are providing a longer than normal pullout that is 100FT long (typically pullouts are 30 feet for a transit bus). Lee Wallace asked if there were going to be markings for the transit bus (to keep non transit users fro blocking the spot)? Kyan added that KGB likes to co-locate bus stops with schools, but it's harder to team up with taxis, etc. Chris notes that we can provide signage to better delineate the bus pullout portion of the pullout.

Bus Shelters: locations: KGB stated that they we are interested in co-locations, etc. Lee Wallace, the Organized Village of Saxman Road Safety Assessment identified congestion on Killer Whale – where there was a transit and school bus stop. The stop was moved back, and a shelter was added – now it's right below the carving center. Lots of elementary students catching bus at Killer Whale and Halibut street. We also like the cedar/carved design with the etched glass of that new shelter structure. KGB transit noted that a shelter is less needed on the eastbound route stops. Chris asked of the Dog Salmon location going towards town (westbound) is a potential location? KGB responded that Dog Salmon is not really a set stop – more of a flag stop. KGB's Kyan asked Saxman representatives if they liked the idea of a formal stop at this spot, with the shelter? (By Cape Fox Corp). DOT&PF noted that this project cannot add any stops outside the project area. Keith followed by noting that this discussion could be continued at a later time. Lee Wallace stated that Killer Whale is the best place for a shelter, butt that location is not in DOT project area. KGB added that they are proposing to move the Forest Park stop farther north on Tongass. Chris said the ability to do so will depend on whether we can adjust design plans near Forest Park Drive, as there are many constraints there.

Environmental:

Jim asked Lee Wallace about the ponded fish in the anadromous stream area (with box culvert). Is that the stream you were talking about? Lee confirmed it was, as did ADF&G's Mark Minnillo. Lee reiterated that he has seen fish pooling below the existing culvert. Jim noted that the culvert likely worked when originally constructed, and that DOT&PF does a hydraulic analysis, then looks at options. Mark - are there any thoughts on what to do with that stream to which Chris responded that all options can be considered at this point. Jim mentioned that he and Mark had talked about a bottomless arch – which would maintain the natural stream bed. ANTHC stated that they want to ensure there is adequate room for the sewer mains (gravity mains) above whatever culvert is used.

Schedule

Keith stated that DOT&PF work will begin immediately after ANTHC is done with the sewer project – with and estimated start date of May 2018 for Phase 1. Phase 2 will likely start in 2019, but phase 1 may spill into 2019, in which case, phase 2 will be pushed back to 2020.

Kyan asked about transit loops on the way out vs. the way in? Could we discuss further at a later time? DOT&PF said yes.)

Meeting concluded.

Meeting Summary

Meeting Date: Tuesday, December 6, 2016

Project: South Tongass Highway Rehabilitation: Deermount to Surf Street

To: David Pyeatt, DOT&PF

From: Allison Biastock, HDR

Meeting: **Ketchikan Indian Community**

Project Team
Jim Scholl (DOT&PF)
David Pyeatt (DOT&PF)
Keith Karpstein (DOT&PF)
Chris Croft (HDR)
Allison Biastock (HDR)
Carol Snead (HDR)
Tom Kretzschmar (HDR)

Ketchikan Indian Community
Joel Azure, Housing and Transportation Programs
Tony Gallegos, Cultural Resources and Environmental

Following introductions, Jim Scholl gave a brief update on the project's **environmental process**, including the status of the NEPA document and cultural resources report, and an overview of completed studies.

Chris Croft provided a **design update**, sharing that it is about 40% complete, and, in addition to the rehabilitating of the roadway, will include a new pathway and sidewalks, drainage and culverts and some new turn lanes. Chris added that the project's geotechnical investigation drill plan is being finalized, and that there will be workers on site early next year – DOT&PF will be seeking the appropriate Right of Entry (ROE) permits. Per ROW needs, DOT&PF has a preliminary footprint, but it needs to be trued up with the information from the future geotechnical report.

Deermount Intersection: Joel started by stating that it's amazing there aren't more accidents at the Deermount intersection, and that the Ketchikan Indian Community (KIC) proposes removing some of the access points. KIC did a safety survey which shows that the crosswalk signage in Ketchikan is inconsistent. There used to be a lighting system on the Deermount intersection crosswalk, but it is no longer there. Joel also noted that there are a large number of transients in the area, as well as foot traffic from canneries to Tatsuda's during busy times. KIC proposes an island, signage, and speed limit signs with flashers (speed indicators) in the area. Keith shared that DOT&PF did come up with a parking plan for Tatsudas, but the store said it would not work. Keith noted that DOT&PF might look at another parking option, and that he wanted KIC to know that DOT&PF is pursuing this concern. Keith also shared information about the highly visible RRFB flashing beacon crosswalk that is planned, and that DOT&PF is considering extending the 20MPH zone past the gas station to Community Connections to help calm

traffic in the area. There will also be a sidewalk extension on the north side of Tongass to Cemetery Road.

Chris clarified that the sidewalk on the landside will be a 4 foot sidewalk, and there will be a 5 foot sidewalk on the water side. He also confirmed that the project will be rehabilitating the existing pathway, which KIC was pleased to hear.

Joel noted that a KIC road safety audit highlighted that sometimes signs aren't visible – so signage upgrades will improve safety.

Right of Way: Chris said that DOT&PF made as many improvements as possible in the existing footprint, but there will be some ROW acquisitions needed. Keith commented that per KIC's proposed island at the Deermount intersection, that's a tight ROW, and he was unsure about the ability to do it. DOT&PF will consider the request at final design.

Subsistence: Jim asked whether there are subsistence resource access points in the project. Tony asked if Jim was referring to shoreline access (yes), and said there were no particular sites. However, Tony continued, subsistence access such as access to the shore for anglers or folks with boats is important. KIC would like to see continued access without a fence to climb over, safe stairs, etc. Tony noted that this access is not just tribal citizens, but the general public, too. Jim commented that DOT&FP will maintain access that is there now, and Keith added that the project will eliminate fencing/retaining walls when possible. Tony said that openings in the fence would be good to allow multiple access points; Chris noted that there are safety requirements for fencing, but that DOT&PF could look at types of fencing, etc. and try and find a balance between access and safety.

Carol Snead asked if there are staircases? Tony – yes, once you are over the fence, there are stairs/access to a platform deck, then down to the shore. KIC would appreciate multiple sites to access the shoreline, and doing so would also help with parking congestion.

Parking: Keith shared that DOT&PF has had challenges finding locations for parking. Any ideas? Tony – with expansion in the area near Doyon's could you put some cars in the areas you are adding fill?? Kayaks are heavily used here, and access for launching would be wonderful. Tony noted that there may be some sort of improvement where KIC could follow up with a secondary project after DOT&PF lays the groundwork. Keith noted that DOT&PF usually looks at such collaborations on a case by case basis. Jim commented about the USACE permits for such an improvement. Joel noted that where there is access there is use, and noted that KIC could provide letters of support if necessary.

Bridge Funding: Joel wanted DOT&PF to know that KIC can help fund bridges, and can apply for assistance in preliminary engineering and construction. The funds require 20% match. Keith shared that DOT&PF is looking at the Herring Cove Bridge, and that he will coordinate with his DOT&PF planners regarding this funding option.

Cultural Resources and Interpretive Signs: Jim noted that our Cultural Resources report shows no impacts. Per the interpretive signs, Tony noted that there could be educational signs about stormwater, and the lack of storm water treatment. Signs could be educational re: water treatment. As an example, Jim noted CBJ – plaques near storm drains that state "this drains directly into fish streams." Tony shared that he is a fish biologist by training. Rockfish habitat is great! They need substrate for nursing areas. If DOT&PF wanted to do some assessment/follow up related to shoreline rocks (rip rap) , Tony noted that KIC could help provide additional information. Jim said that would be great, but such an effort couldn't be a part of this project. Jim noted that during his eelgrass survey, he observed lots of rocky substrate, and

DOT&PF is not required to monitor that. Tony noted that with KIC's Sea Grant funding, they are doing some work with underwater cameras, looking at sea cucumber and the gum boot chiton species that are subsistence resources. Jim said that sharing any such studies would be beneficial to DOT&PF resources folks.

Section 106: Jim noted that the Section 106 consultation is in process. SHPO will review findings. Once the APE is finalized, letters will go out for concurrence.

Tony asked about stormwater treatment. Jim replied that the area discussed (near Community Connections on the north side has good potential for bioswale use. Tony asked about vegetation, and Jim offered to give ideas for grasses. Tony asked about biofiltrations, to which Jim responded that it would be a challenge because the ROW is so narrow. Jim also said that DOT&PF is most concerned about oily runoff, like from parking lots (first flush). Dave Pyeatt confirmed the project is complying with NPDES.

Tony offered to take a project map to KIC's "Way of Life" committee, saying he may be able to get some additional comments for the project.

Tony asked if DOT&PF has obtained permits for fill. DOT&PF responded that it has not. Tony asked if there were any plans for structures to make the fill areas into useable space (indicating location on map)? Jim noted that much of that land is USCG land – so security is an issue. Keith noted that the proposed 2:1 slope will make shoreline access easier, but, Jim noted, we can't guarantee access.

Tony urged more parking opportunities.

Tony finished the meeting by asking DOT&PF to keep in mind that they are working with tribes who have access to programs that could help with various aspects of their projects. Jim shared that he is excited about the underwater camera monitoring project that Tony mentioned.

Meeting Summary

Meeting Date: Wednesday, December 7, 2016
Project: South Tongass Highway Rehabilitation: Deermount to Surf Street
To: David Pyeatt, DOT&PF
From: Allison Biastock, HDR

Meeting: **Ketchikan Gateway Borough, City of Ketchikan Public Works**

Project Team
Jim Scholl (DOT&PF)
David Pyeatt (DOT&PF)
Keith Karpstein (DOT&PF)
Chris Croft (HDR)
Allison Biastock (HDR)
Carol Snead (HDR)
Tom Kretzschmar (HDR)

KGB
Morgan Barry, Deputy Director, Public Works
Deanna Garrison, Asst. Borough Manager
Alex Peura, Public Works Director
Chris French, Planning Lead
Richard Harney, Principal Planner
Dan Bockhorst, Borough Manager
Kyan Reeve, Transit Lead
Leslie Jackson, Transit

City of Ketchikan
Mark Hilson, Public Works Director
Seth Bakken, Asst. Public Works Director

Following introductions, Jim Scholl gave a brief update on the project's **environmental process**, including the status of the NEPA document and cultural resources report, and an overview of completed studies.

Chris Croft provided a **design update**, sharing that it is about 40% complete, and, in addition to the rehabilitating the roadway, will include a new pathway and sidewalks, drainage and culverts and some new turn lanes. Chris added that the project's geotechnical investigation drill plan is being finalized, and that there will be workers on site early next year – DOT&PF will be seeking the appropriate Right of Entry (ROE) permits.

Mark Hilson with the City of Ketchikan asked about phasing and construction – Chris shared that the project has two distinct phases that will be constructed separately, and shared start/end of each phase as well as information about the construction schedule.

Seth Bakke wondered if the geotech work will extend to the pathway area? DOT&PF responded yes, that there will be an investigation of the entire project area, and pathway areas that are currently failing will be looked at. Keith added that fill areas will be added on the water side to try and eliminate failing gabions/retaining walls, and that cuts on the land side will help mitigate rockfall dangers.

Right of Way (ROW): Richard asked about ROW needs in the Surf Street area to which Chris answered that the design can be narrowed by using curb and gutters in that area and optimizing other aspects of the design to minimize impacts to parcels. It was noted, however, that some of the homes in that area have parking that is in existing ROW (encroaching).

Richard Harney noted that the setback from the property line is supposed to be 15 feet. He wanted DOT&PF to be aware that KGB has a (proposed?) re-zone for 10 feet for higher density properties that will impact this area. KGB(Richard continued) is in favor of the new pathway, but recognizes that it will become a parking area for a boat or truck. Keith noted that this is really an enforcement issue, and that DOT&PF can post signs, but can't enforce. Dan Bockhorst noted that KGB public safety will ultimately enforce, and that the borough has a lot of encroachments. Morgan Barry noted that the Alaska State Troopers (AST) may have enforced encroachments on the existing bike path. Kyan Reeve added that some sort of clear marking delineating the pathway verse someone's driveway would be helpful for law enforcement, and suggested DOT&PF speak to AST about what would help them. Keith responded that one side of the path will be delineated by the curb and gutter in the Surf Street area.

Richard Harney asked that DOT&PF ROW surveyors get in touch with KGB before conducting any work. Dan Bockhorst confirmed that all ROW goes through the Borough planning commission, and that KGB wants to memorialize permitted encroachments so future work reflects them.

Tom Kretzschmar asked if there will be surveys on just the frontage or the entire parcel. Richard responded just the frontage, and that KGB would like to know if DOT&PF is using actual record boundaries. KGB saw some survey inaccuracies on the Ward Cove project.

Seth asked DOT&PF if there will be ROW needs from City of Ketchikan or KGB. Keith noted it looks like there could be a little bit of City land by the cemetery.

Parking: Seth asked if the project was planning any new parking areas. Keith responded that DOT&PF looked into this and there are not a lot of options. DOT&PF is currently looking at some marine fill in the areas south of Doyon's property near Oyster, where it may be possible to widen the shoulder with parallel parking spaces (estimated around 5 spaces each). Seth asked if all the potential parking areas were on the existing pathway, are there no new locations? KGB offered that HNA properties south of the Saxman Seaport has some land for sale that may be an option, but it's expensive. Keith noted that the proposed parking locations don't require purchasing property. Richard asked how parallel parking will impact the traffic flow, and has angled parking been considered? Keith stated that the team is still looking into the details. KGB is pleased that DOT&PF is considering parking.

Sidewalk – Deermount to Cemetery Road: KGB's Richard and Kyan asked about the sidewalk from Tatsudas to the U.S. Coast Guard location. Would it make more sense to have the sidewalk stop at Community Connections and widen the existing sidewalk on the water side? Most of the pedestrians are on the water side, as is the trail. Could the design shift the lanes over to make more room for water side pedestrian facilities?

Chris responded that DOT&PF can look into whether a wider sidewalk on the water side (and narrower on the upland side) is possible. Regarding making the traffic lanes narrower, Chris said, we need the planned 11 foot lanes to accommodate turning radii for busses, trucks and other large vehicles.

Regarding the existing waterside sidewalk, said KGB's Morgan Barry, there are a few points where the sidewalk bottlenecks, such as near Tatsuda's. In that location if there are folks passing on the sidewalk in the other direction, someone ends up on the road.

Kyan asked if the ROW for the cannery building is up to the sidewalk or the road? Chris responded that the sidewalk is right up against the ROW, and noted that there will be some partial acquisitions in the industrial area.

Richard asked if it is required to have a sidewalk on the upland side? Keith responded that DOT&PF has presented it to the public and has had no negative comments.

Mark Hilson noted that folks do park at the cemetery and walk their dogs, therefore there is some pedestrian use in that area. Morgan said some folks park at the cemetery then cross the street and use the pathway.

Kyan – in a perfect world, we would have sidewalks on both sides in this area. But, in this case, KGB asks that DOT&PF focus on the water side. Keith pledged to look into this.

Pedestrian Crossings: Pedestrian crosswalks with Rectangular Rapid Flash Beacon (RRFB)s will be added at Totem Way and at Deermount.

(KGB mistook the RRFB with a different crosswalk technology that had been unsuccessfully tried near the downtown tunnel. DOT&PF corrected that assumption and further explained how the RRFBs work, and clarified that DOT&PF will be maintaining the signals).

Kyan asked how many feet off the Totem intersection the crosswalk would be? Chris responded it will be directly at the south corner.

Bus Shelters/Pullout: Chris shared that at the Organized Village of Saxman's request a longer pullout that can be used for vehicles other than transit busses has been designed across from Totem Row, and DOT&PF is looking at the best signage to ensure the pullout is used properly. Kyan said that some sort of physical delineation for the transit bus area within the pullout would be helpful, too. KGB is worried about taxis, etc. using the transit stop and blocking busses.

Chris shared the additional proposed bus pullout locations near Surf and Shoup streets, and near Dog Salmon Ave.

Kyan said that there is a notion of co-locating a school and transit bus station (northbound) at Forest Park. Chris said that DOT&PF is looking more closely at co-locating, and that a turn pocket is being added at Forest Park.

Deanna Garrison asked if the project has coordinated with the School District? Chris responded that we will be.

Morgan noted that, per a new sidewalk near Forest Park on upland side, there may be a new sidewalk on the south side of Forest Park, but not the north side. KGB needs to discuss this with the Forest Park Service Area, and will keep DOT& PF in the loop. The preferred location for the Tongass bus stop is on the north side of Forest Park, said KGB, but if it needs to stay on the south end, so be it.

Speed limits: Keith shared that the project plans to extend the 20 MPH zone past Deermount street to Community Connections, and that the other speed adjustment is keeping 30 MPH through the Saxman area to Surf Street (project end). Chris added that there will be an update on the signage throughout the project area, with more reminder speed limit signs, etc. Alex Peura stated that if the speed limit near Surf will be changed, it would be good to carry that lower limit through to Rotary Beach.

Other: Alex asked if **lighting** will be included (it was in the other Tongass project)? Keith responded it will not, but that the existing lighting will be maintained. Chris noted that some of the poles will be relocated. KGB stated that including lighting would be very beneficial.

Mark Hilson shared that the City has a new standard that requires a **curb stop** and **valve box** for water services that are out in the street (i.e., no cap to run over). The City will also require access at the curb. Chris requested any design details that the City could share, and that DOT&PF will do its best to reflect them in the final design. Per replacing manholes, Chris noted that they will be adjusted to grade, and if warranted, replaced. Keith offered that if the manholes need new frames, DOT&PF can work with the City on that.

Alex Peura confirmed that the **Saxman Sewer project** was discussed in DOT&PF's meeting with the City of Saxman.

Seth with the City of Ketchikan asked if the project is still looking at **closing a driveway at Tatsuda's**? Keith noted that DOT&PF had a proposed parking concept, but Tatsuda's didn't think it would work - so DOT&PF is going back to the drawing board. KGB and the City of Ketchikan noted that they like the idea of removing Tatsuda's western access on Tongass for safety reasons, there are lots of pedestrian accidents there. Keith added that the RRFB crosswalk at Deermount will be a safety improvement, and that DOT&PF is pursuing others.

Schedule: Keith stated that DOT&PF work will begin immediately after Alaska Native Tribal Health Consortium is done with the sewer project – with an estimated start date of May 2018 for Phase 1. Phase 2 will likely start in 2019, but Phase 1 may spill into 2019, in which case, Phase 2 will be pushed back to 2020.

Keith added that DOT&PF will look at local concurrence (Plans In-Hand) in mid-summer 2017.

South Tongass Highway Rehabilitation
Deermount to Surf

If you drive, run, walk, or bike on the South Tongass Highway from Deermount to Surf Street you're invited to visit our

Online Open House

DECEMBER 8 - 30

To view meeting materials and provide comments.

The online open house will be accessible via

www.southtongasshighway.com

For more information visit: www.southtongasshighway.com.
Or contact us at info@southtongasshighway.com

Welcome!

Welcome to the South Tongass Highway Rehabilitation Project Online Open House. This open house features posters and handouts from the December 6 and 7 Open House meetings in Ketchikan and Saxman. If you are visually impaired **click here** to view a text version of this website.

Meeting Purpose

This online meeting is designed to share information with members of the public having an interest in the project. Please continue through this online open house to learn a bit more about the project's schedule, design and scope.

Your feedback is important!

We encourage you to submit your comments at the end of your session. Please let us know your thoughts!

Reference Documents and Meeting Handouts

Throughout this Online Open House, we reference certain documents that can be found on the project website at www.southtongasshighway.com. For your convenience, we also provide links to the relevant documents per each poster under the title "Reference Documents" or "Meeting Handouts".

Meeting Handouts

- *Project Fact Sheet*
- *Frequently Asked Questions*
- *Comment Sheet*

Background image provided by Google Earth.

South Tongass Rehabilitation Project – Comment Log

ID #	Date Received	Contact	Comment	Response
33.	8.15.16	Richard Harney, KGB Email:richardh@kgbak.us	Hello, please find the Borough's written comments below. The Borough provided verbal comments to the ADOT&PF planning team while they were in Ketchikan and we hope those comments were also recorded by ADOT&PF. Sidewalks: The bike path from should be buffered rather than being contiguous with the asphalt roadway, with no more pedestrian protection than a narrow vegetated swale. This would require a rolled-curb, curb and gutter, vehicle barrier, lowered walkway (similar to the existing condition), or other designed displacement. 12+00 to 52+00: · Project north: New sidewalk along this side of Stedman Street is good, as it provides a pedestrian route from the Cemetery, Schmolck, Stonetree Veterinary, and Community Connections to Tatsudas and the remainder of Stedman Street. Kyan recommended a bus pull-out at Community Connections for a stop, maintaining the stop at Schmolck (for the canneries), and the elimination of the stop at the cemetery in favor of one at the south end of the sidewalk across from the Coast Guard Base. · Project south: Recommendation was made to examine pedestrian traffic patterns. It was noted that the waterfront promenade and Joseph Williams Sr. Coastal trail are located along the waterfront, and that the project south sidewalk – which is not intended to be expanded beyond its current width – is minimal for passing pedestrians. It encourages multiple street crossings for pedestrians, which may not be advantageous from a public safety perspective. Bus pull-out was recommended at the south entrance to the Coast Guard base. 52+00 to 94+00:: · Project north: at Doyon's landing, provide contiguous grading with roadway for flag stop ID #143. · Project south: Bus pull-out at the provided parking at Doyon's landing should work. 94+00 to 99+00: · In the next year, the Borough will be installing utilities to approximately 101+00. Mostly these will be on the project north	DOT&PF decided that respond given the recent meeting with the Borough. Meetings notes were summarized and included in scoping summary.

ID #	Date Received	Contact	Comment	Response
			side. The existing oceanic outfall line from the Forest Park WWTP crosses the roadway at 95+25 or thereabouts, and it is our intent to work with the neighbors to abandon private marine outfalls in favor of the Mountain Point system. This may require road crossings for private services. · Project north: School Bus Stop at Forest Park Drive should be consolidated with Transit Bus Stop, subject to approval by KGBSD. Could be accomplished by either a sidewalk running from Forest Park Drive down to the Transit Bus Stop, or expanding the grade at the bottom of Forest Park Drive. Plans show Finished Profile Grade at Forest Park Drive as lower than existing: Forest Park Drive is exceptionally steep, with no opportunity to improve the highway approach. Should the South Tongass Highway elevation decrease, the approach will have to steepen commensurately. · Project south: no comments, other than the sewer comments above. 99+00 to 148+00: · Most of this portion is located within Saxman's corporate boundaries. The success of our wastewater project is, however, predicated upon Saxman successfully installing a wastewater force main running from the north corporate limits at Oyster Avenue to the south corporate limits near Shoup Street. That in-ground work will need to be coordinated with any stormdrainage improvements to be performed by ADOT&PF. It is also unclear whether any overhead utilities will be moved below ground. At STA 122+00, Saxman also has plans to construct a new harbor facility. That should be accommodated within the design proposed by ADOT&PF. Bus stops in Saxman should be per the attached drawing developed in 2012.	
34.	8.26.16	Joel Azure, Ketchikan Indian Community Email: jazure@KICTRIBE.onmicrosoft.com	I am writing to document the Ketchikan Indian Communities comments regarding the projects proposed in the state STIP. Specifically these comments pertain to Need ID 21114; S. Tongass Hwy Improvements Deermount to Saxman. Of interest to KIC and the community regarding this section of road is the intersection of Deermount St. and Stedman. This intersection is heavily utilized by both motor vehicles and pedestrians and its	Thank you for your comment Mr. Azure. DOT&PF is serious about safety and appreciates your insightful recommendations. At this time we have developed preliminary improvements to the Deermont / Stedman intersection and to the configuration of access to the grocery store. We have an on-site meeting planned with the grocery store

South Tongass Rehabilitation Project – Comment Log

ID #	Date Received	Contact	Comment	Response
		Phone: 907-228-9431 429 Deermount St. Ketchikan, AK 99901	current configuration lends itself to a disproportionate share of accidents and near accidents for all users. By way of reference the intersection is abutted by a major grocery store, a University of Alaska Southeast satellite campus, a day care and social services center, a drycleaner, bus stop, and storage facilities. Nearby are canneries and other forms of employment and the cross walk at this location is heavily utilized by pedestrians and bicyclists alike. The dangers of this intersection are magnified because it is near the transition from the S.Tongass speed zone to Stedman speed zone and has four two-way turn out locations from adjacent parking lots. These turn-out locations present a challenge for motorists attempting to turn off of Deermount onto Stedman due to the difficulty in recognizing either a driver's intent to pull into, or out of the adjacent parking area simultaneously as they are attempting to merge onto Stedman. Compounding the hazard is the heavily used and poorly marked cross walk that injects pedestrians into this melee. There are numerous documented accidents and uncounted near misses that make the safety improvements we are suggesting of critical importance to KIC. Our suggestions are illustrated on the attached map and include: 1. The removal of the parking lot access point nearest deermount street and the expansion of the access point farthest from deermount. (illustrated by red and green lines on the attached map. 2. The addition of an island with a crosswalk cutout in the middle of Stedman street. (marked by green and red crossed box).	owner to discuss the improvements. Although we have not yet finished the design of the intersection our emphasis will be on improved safety. We look forward to meeting with the Ketchikan Indian Communities (KIC) the week of December 5, 2016. We hope to see you either at the meeting with KIC or at the public meeting at the Ted Ferry Center.

South Tongass Rehabilitation Project – Comment Log

ID #	Date Received	Contact	Comment	Response
			3. Increased crosswalk signage that includes flashing lights when pedestrians are crossing. These modifications would have the following effects: 1. Increase the distance between traffic merging onto Stedman street from deermount and the extremely nearby existing grocery parking lot access point thereby allowing greater recognition times for realizing other drivers intentions. 2. Provide a safety buffer for pedestrians crossing as well as increased visibility for motorists to see bicyclists and pedestrians utilizing the crosswalk. 3. Increase available parking for the grocery store while preventing the existing two access points being regularly used as a "turnaround". I believe these suggestions will benefit the safety of all users transiting thru this section of roadway. Please feel free to contact me with any comments.	
35.	9.9.16	Judith McQuerry Email: Judith.mcquerry@yahoo.com	I would very much like to see some waste receptacles along the South Tongass bike path. Some of us pick up trash along the path and it would be really nice to not have to carry it all the way home and put it in our own garbage cans.	Waste management is not typically addressed by DOT&PF, and we suggest you discuss this with the City of Ketchikan.
36.	9.30.16	Joe Williams Joe Williams, Jr Phone:907-225-6754 Email: jcwandsons@gmail.com	I would like to suggest that on corner of South Tongass and Bear Clan street now going north on the land side of the road there is a culvert going across the highway. My suggestion is to remove the culvert and have the run off continue down to the next culvert which is by the Fire Hall and the Old School house. This could mean making the culvert a bit larger but it will be a better place for a out fall.	Thank you for your suggestion, Mr. Williams. It has been passed on to the design team and will be considered as we look at drainage in the project area.

South Tongass Rehabilitation Project – Comment Log

ID #	Date Received	Contact	Comment	Response
37.	10.14.16	Barry Hogarty (female) Email: barry.hogarty@gmail.com	Just had an encounter with a survey crew on South Tongass bike path. Could not see survey tripod until I was literally right on top of it on my daily bike ride from Deermount. Luckily I was able to avoid a bad fall. Talked to survey crew, they are aware. They need to be much more aware. Direct sun behind the tripod obscured it from view. Very dangerous. Still shaking from adrenaline rush! We do get sunshine once in a while down here😁 No, I don't. Just made the assumption. Sorry, I should have asked. I did not recognize them as local surveyors though. I have talked with David, the DOT engineer. Thanks for getting back to me!	Thanks for letting me know, Mr. Hogarty. DOT&PF is serious about safety. Before passing your comment on, I'd like to make sure it was a DOT&PF crew. I know we are surveying down at the Gravina Ferry Terminal and out on the Shelter Cove project but I didn't think we had any survey needs on the S. Tongass project right now. I also know there is a KPU sewer line project being constructed before DOT&PF improves the S Tongass Highway so the surveyors may not be a DOT&PF crew. I am checking, now, to see if we have a crew on the S Tongass bike trail but do you have any indication the survey crew was a DOT&PF crew? Ms. Hogarty. I just spoke with David Pyatt and I found out I made a wrong assumption on gender based on first name. My apology. I have passed on your concern to KGB because we believe the surveyors were working on the sewer project. I am sure KGB will take the appropriate action. I will let you know the outcome.Thank you again for alerting us Ms. Hogarty. The survey crew was from R&M Ketchikan and were working for a Consultant on a DOT&PF project. The Consultant and crew has been contacted and appropriate measures have been taken to assure survey crew visibility while working.
38.	12.7.16	Elizabeth Einset Email: eeinset@gmail.com 2976 S Tongass	I was at the neighborhood open house meeting yesterday and understand that parking is still a challenge. There is an empty lot on the market just past the apartments that are on the south (or east) side of Saxman seaport that might be a possibility. It is listed by Coastal. Thanks for all the work and I look forward to this project moving forward.	Thank you for pointing out this opportunity, Ms. Einset. Our designers will consider this parcel as we proceed with design of the project.
39.	12.7.16	Tom Caffrey Email:pvcces@gci.net	1) The intersection of Deermount and Stedman has very heavy loads at different times of the day. Given the obstructions near the intersections, the sight distance is inadequate. This is the most congested intersection in town, and I consider the most hazardous. 2) KPU replaced some poles along the upland side. The only problem is that they did not remove the old	

South Tongass Rehabilitation Project – Comment Log

ID #	Date Received	Contact	Comment	Response
			poles. These should be removed to improve access and visibility.	
40.	12.7.16	Judith McQuerry Email: Judith.mcquerry@yahoo.com	We don't need a sidewalk o the uphill side of Stedman between Community Connections and the Cemetery. A crosswalk at the Cemetery would be nice but not essential. I would prefer no fill between our house (2196 S. Tongass) & Lynches. The basket fill is doing fine with no cracks or problems. Fill would mean even at low tide there would be no beach to walk on. I have extended the chain link fence from where it was to my driveway. If DOT provides an extended fence, I would be happy to remove my fence. Trash cans NEED to be ALONG the path, not just at bus shelters. People will probably NOT cross the hwy to deposit trash.	
41.	12.8.16	Bob Pelkey Email: bpelkey@TridentSeafoods.com	I wasn't able to attend the 2nd Public Open House in Ketchikan on Dec 7th, but still had concerns to address regarding the project, many of these I had shared during the 1st round of public comment, with exception to the1st one listed below. * Newest idea? Consider checking to see if the new considered land side Sidewalk from Deermount St. to Coast Guard Base Ketchikan can utilize the Bases "Overhead Pedestrian Bridge", where-by a gradual sidewalk path can transverse the land side/ hill side from Stedman Street level to the level of the Pedestrian Bridge, perhaps starting the grade upward just past the roadway entrance to the Cemetery ? This could eliminate a Cross Walk across Stedman Street/S. Tongass Highway at the near entrance to the CG base, as an option? A similar grade like of that out on north Tongass Highway across from the Totem Bight State Park.	Thank you for your interest in the project Mr. Pelkey. We will consider your comments and provide a response at a later date as the design is further developed. What we can share with you, now, is that the Coast Guard pedestrian bridge is a secure area and is it is highly unlikely to be used by the general public in the future.

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			* Reduce the 30mph, or maintain and extend the 20mph Speed Zone Limit from in front of SE University Robertson Building to Anderes Oil (Crowley Fuel) & SE property line next to AGS . * Add overhead Street Lights in the area from the Laundry Mat to the north west end of Tatsudas Gas Station. * Widen the Side Walk along the entire current waterside route from Deermount to Coast Guard base Ketchikan. * Upon widening the sidewalk or not, could serious consideration be made to improve the Curb Entrance to the alleyway between the Laundry Mat /Schmolck Mechanical and Trident Seafoods buildings? It was worked on in most recent years for unknown reasons, when redone (twice?) the curb became steeper in its approach from off of Stedman Street, automobiles lower front ends (valance area below the bumper) hit this curb entrance, when it wasn't an issue before attempting to improve it for whatever unknown reason(s) by our local DOT staff? * Upgrade and/or change the Hand Railing to ADA along the large white Cannery structure across from Tatsudas to the container staging area for 646 Trident Seafoods. * Change and consider how Tatsudas Groceries egress and exit areas function to Stedman and Deermount streets. * With Speed zone changes to either side of the Deermount intersection perhaps a Traffic Light Signal "WOULD NOT" be needed for some time into the future I would hope? * ROA in-part or whole the Rock Pit across from Trident Seafoods and next to Community Connections/Coffee Stand for future Parking Lot for those who will use the improved path to	

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			Buggy Beach recreational area and perhaps beyond at some point. This could also allow the curve in the street in this area to be reduced and/or eliminated because the State would own the ROW? * Remove or somehow look at eliminating or reducing the Curve on Stedman Street that is agentic to Trident Seafood's 10 unit Apartment Building and directly in front to the Coffee Stand area. * Lower the street level grade approaching the Coast Guard base area entrance. Thanks again for your work regarding this improvement project. And I also look forward to submitting concerns related the Tunnel to Deermount Street improvement project, one major concern being the idea to reduce south bound lanes from 2 to 1 along Front Street, traffic will be backed up along Front & Water Streets to the Plaza Mall/ White Cliff street area all day during the tourist season for 5 months if this occurs in my own experienced long term belief. I would more than likely be able to transverse this stretch of roadway on my old bicycle more efficiently and quicker than using a motorized vehicle if this part of the project actually occurs?	
42.	12.9.16	William Tatsuda Email:Wtatsuda525@gmail.com	My wife, Xiao Nan Tatsuda uses the Borough Bus regularly. She catches the bus across from our house in front of Gaffney's house when going into town and the bus lets her off just past our house going South where the walking path begins now next to our driveway. Are there provisions for these bus stops in you plan? I spoke with one of your team about selling the state a strip of our land that could be combined along with some of my neighbor, Dan and Lori Ortiz's land to provide some parking for the walking path. My wife would like bus stops on both sides of	Hello Mr. Tatsuda, Thank you for the comment sent December 9, 2016. Your comment is, *My wife, Xiao Nan Tatsuda uses the Borough Bus regularly. She catches the bus across from our house in front of Gaffney's house when going into town and the bus lets her off just past our house going South where the walking path begins now next to our driveway. Are there provisions for these bus stops in you plan? I spoke with one of your team about selling the state a strip of our*

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			the highway there too. My wife says the bus stops serve the Shoup St area, too.	*land that could be combined along with some of my neighbor, Dan and Lori Ortiz's land to provide some parking for the walking path. My wife would like bus stops on both sides of the highway there too. My wife says the bus stops serve the Shoup St area, too.* DOT&PF is still working on the exact bus stop locations and shelters. DOT&PF is coordinating with the Borough Transit Manager and the City of Saxman to determine these locations. Preliminary bus turnouts are in the vicinity of Shoup Street, Forest Park Drive, Totem Row, and Dog Salmon Ave. More information will be provided on the project website (http://southtongasshighway.com/index.html) once we have determined the locations. If you have any questions, feel free to contact me.
43.	12.12.16	Sarah McNabb Email:sarahmcnabb@me.com	We operate a tour company in Saxman Native Village and depend on the road to be open and operational in the summer. Can you tell me how this is going to impact the traffic between the cruise ship docks and Saxman Native Village?	Great question! The way it works is we, DOT&PF, set up a Traffic Control Plan (TCP) that the contractor must follow. The TCP will be part of their contract. It is premature to create the TCP but it would be helpful to get your planned schedules or typical schedules so that we can integrate them into our TCP. Once we have a rough TCP, we could review it with you and others to make sure we minimize the impact. Feel free to contact me anytime. Thanks.
44.	12.15.16	Thomas Bellanich Email: Tombell78ferry@yahoo.com	May I start out with I have been out of town for the last month dealing with my son been real sick with a bad hart. When I chacked in I found this letter about meeting for waterside property owners. I see that you are still thinking about acquistion part of my water front property. WOW I thought we have talk about this and there was not going to be any acquistion. I dont understand this. I sure do not approve of it in any way. I have talked with KGB and they have moved the bus stop down the road if this was what you were thinking of. So please call me any time as I do not use the e-mail much and get on to the computer. cell 907-617-0033 Thomas Bellanich	Once again I need to apologize for the latest plan that was presented to the public that showed a bus pullout in the front of your lot on South Tongass Highway. I wasn't aware that this was being proposed until the map was rolled out in front of me at the start of the public meeting. At that point, I immediately directed our design consultant to pursue an alternative location for the bus pullout for the same reasons that you previously discussed with me. I understand that this is a very important lot for you and your family and you have every intention of developing the lot in the future. Attached is the revised plan with the bus pullout removed. You can see from this updated plan that there is only minimal impact to the edge of

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				your property as shown by the red dashed line. This small area is needed to slope the fill from the back of sidewalk to match the existing ground. This appears to be only a few feet at one point along the frontage. When you do develop your lot, this area would no longer be necessary if the lot were developed at or near the same elevation as the sidewalk. I would be happy to discuss this with you further if you like. I can be reached at 907-465-1796.
45.	12.16.16	Mary Stephenson Email:marystep@iserv.net PO Box 5506 Ketchikan 99901	Here are my observations for roadway. A reminder, I am the tour guide/driver of a tour bus going to Herring Cove for wildlife experience. 1. Saxman pull-out for The BUS system arrives hourly at the top of the hour, noon for example, to unload passengers. The rest of the 55 minutes, the pull out is available for tour vehicles: taxis, vans, and motor coach size vehicles. The pavement length for improvement must be at least 45 feet to accommodate 2 vehicles or 1 big one. It is important that the width of the pull out can accommodate pedestrians to stand safely while boarding, deplaning, and/or jump off for a quick photo opportunity. FYI – there is a dirt trail that leads down to the beach right in this loading zone area. Make sure the pavement is not a drastic drop – causing a safety hazard – getting in/out of this dirt trail egress. 2. Just beyond the pull-out is a street (name unknown) however, house number is 232 and its across the street from the Shakes burnt out shell of a house and 1895 totem pole. Hopefully, the pavement will provide an extension into this street to again, provide a pull out of smaller vehicles to stop for eagle, nest, house, totem and....not to jeopardize the good will of the homeowners of street.	

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			3. Pull outs due to eagles / nests are used at the following street locations. 2100 Lundin, 2557 Tongass, 2941 Tongass, and finally the 3 homes: 3204 – 3226 – 3244 Tongass 4. Saxman – north bound at Bear Clan Street – the entrance sits above a culvert and soil sinks into large dips – for a tour bus, the rear end gets caught up making a right turn. Making the usual right turn and within the double yellow line, the driver will hit the pot hole with right front axle and wreck the heck out of the front end alignment. To avoid this, driver pulls into oncoming traffic (of course clear from sight) and corrects himself once on the roadway. 5. Eradication of Japanese knotweed tree. Attached is my memo to the Powerhouse property owners. There is a big cluster at the large pull out just before Mountain Point boat launch. The pull out is used by the scuba diving company as the cove down below is idea for viewing sea creatures. It's a popular pull out because of the eagles who sit on the big pine tree. Any chance someone can pave this parking lot? A fatal accident occurred there in 2016, thought the lot was not the cause of the accident. Thank you for pushing through with this very long process and after it is completed, Herring Cove Bridge and pedestrian walkways will be next. Smooth sailing for me if I live to the year 2020!!! oh my –hopefully we will have a new president by then!!!!	
46.	2.23.17	Joe Williams Email: jcwandsons@gmail.com	2.23.17 I trust all things are going well on the project for South Tongas in Ketchikan.	2.23.17 Thanks Mr. Williams. Either myself or someone with more right of way experience will be contacting you soon.

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			I have not been able to locate the person you have suggested to me about the State purchasing my property for parking for the bike path. Please have them contact me about this so I know that the property is available for that, at my email address or by phone. 5.1.17 I have not heard from right of way. Please forward this to who needs to answer my questions.	5.17.16 Mr. Williams, Thank you for the offer of availability of your land for purchase. At this time, DOT&PF is considering a voluntary sale of the property. However, no decision can be made until we have final design of the S. Tongass Highway complete which is expected in Fall 2017. The enclosed brochure Acquiring Property for Federal Projects explains your rights and entitlements as an owner of real property to be acquired for a federally funded project or program. If you have any questions about the project or right of way acquisition, please contact our Consultant, Tom Kretzschmar, 907-644-2029, thomas.kretzschmar@hdrinc.com or call me at 465-4490 for additional information.
47.	3.3.17	Pete Fana Email: peterfana@gmail.com South Tongass Mile 6	The stretch of highway between the mountain point boat launch & mountain point lookout is mostly undeveloped. Both the boat launch and lookout are popular with locals and tourists. From May through September both locations are crowded; the parking lots are often full an patrons will park boats with trailers along the highway. Also, small town companies will drop tourists off at the boat launch to view and photograph Eagles feasting on fish carcasses. These folks are in harms way as patrons launch boats. It would be beneficial to add more parking between the two locations; the area is currently used for a waste area for rock slides in the vicinity, with a small amount of design the area would be utilized for surplus "waste" rock from the S. Tongass highway reconstruction project and shaped for parking. Thanks for the opportunity to comment.	Thank you for providing input on the South Tongass Highway Rehabilitation Project. We are aware of the issues regarding parking and safety on the S Tongass Highway however the Mountain Point area is outside the project limits. It may be the Construction Contractor would utilize the areas you identify as a waste area for excess rock. Waste areas outside the project area would be chosen by the Contractor but we could certainly inform the Contractor of the potential after we award the contracts. Any questions, feel free to contact me.
48.	5.2.17	Juaneta Cannon Email: juaneta@akforest.org 3016 S Tongass Hwy Ketchikan, AK 99907	We live at 3016 S Tongass Hwy, Ketchikan. I wanted to call attention to a drainage problem we have at our home.	5.2.17 Thank you for passing on your concerns Ms. Cannon. Either the project manager or myself will be able to give you some more information after a discussion with the designer.

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		907-617-5649 cell	We live on the water side of the highway and have had the house for 13 years. Before we owned it, my husbands uncle owned the house for 40 plus years. Drainage has always been a problem – at one time, after they did work on the road about 14 or 15 years ago, there was a actual stream running accoress the concrete in the basement. After several contractors worked on it, the water has been diverted around the house. We now have a basement apartment and cannot have run-off water in the basement. When it rains heavily, across the highway from our house, on the mountain side – the shoulder of the road fills up with water 7 feet wide, 20 feet long about 12 to 14 inches deep – approximately.	