ANCHOR QEA

720 Olive Way, Suite 1900
Seattle, Washington 98101
Phone 206.287.9130
Fax 206.287.9131

December 19, 2014

Washington Department of Natural Resources Aquatic Resources
C/O Laurel Kanawyer
1111 Washington St. SE
PO Box 47027
Olympia, Washington 98504-7027

Re: Request for Aquatic Use Authorization
South Lake Union Buoy Installation Project

Dear Ms. Kanawyer:

The City of Seattle Department of Planning and Development (City) is submitting the enclosed Joint Aquatic Resources Permit Application (JARPA), including JARPA Attachment E, for the South Lake Union Buoy Installation Project. The City proposes to install eight permanent buoys in South Lake Union in Seattle, Washington, to demarcate a floatplane landing zone to allow for safe ingress and egress. We are requesting a Use Authorization for Washington Department of Natural Resources managed aquatic lands for this project. Please contact me at 206-854-3314 or atoney@anchorqea.com, if you have any questions. We look forward to working with you on this project.

Sincerely,

Alicia Toney
Anchor QEA, LLC

CC: Jim Holmes, City of Seattle
Heather Page, Anchor QEA, LLC

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) Form[1,2]

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.

US Army Corps of Engineers ®
Seattle District

AGENCY USE ONLY

Date received:

Agency reference #: _____

Tax Parcel #(s): _____

_____

_____

Part 1–Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]
South Lake Union Buoy Installation Project

Part 2–Applicant

The person and/or organization responsible for the project. [help]

2a. Name (Last, First, Middle)			
Holmes, Jim			
2b. Organization (If applicable)			
City of Seattle, Department of Planning and Development (City)			
2c. Mailing Address (Street or PO Box)			
700 5th Avenue, Suite 2000			
2d. City, State, Zip			
Seattle, Washington 98124-4019			
2e. Phone (1)	**2f.** Phone (2)	**2g.** Fax	**2h.** E-mail
(206) 684-8372	( )	( )	Jim.Holmes@seattle.gov

Part 3–Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [help]

3a. Name (Last, First, Middle)			
Toney, Alicia			
3b. Organization (If applicable)			
Anchor QEA, LLC			
3c. Mailing Address (Street or PO Box)			
720 Olive Way, Suite 1900			
3d. City, State, Zip			
Seattle, Washington 98101			
3e. Phone (1)	**3f.** Phone (2)	**3g.** Fax	**3h.** E-mail
(206) 903-3392	(206) 854-3314	( )	atoney@anchorqea.com

[1]Additional forms may be required for the following permits:
- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- If your project might affect species listed under the Endangered Species Act, you will need to fill out a Specific Project Information Form (SPIF) or prepare a Biological Evaluation. Forms can be found at http://www.nws.usace.army.mil/Missions/CivilWorks/Regulatory/PermitGuidebook/EndangeredSpecies.aspx.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

[2]To access an online JARPA form with [help] screens, go to http://www.epermitting.wa.gov/site/alias__resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.
For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@ora.wa.gov.

Part 4–Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [help]

☐ Same as applicant. (Skip to Part 5.)

☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☐ There are multiple upland property owners. Complete the section below and fill out JARPA Attachment A for each additional property owner.

☒ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete JARPA Attachment E to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
4b. Organization (If applicable)			
4c. Mailing Address (Street or PO Box)			
4d. City, State, Zip			
4e. Phone (1)	**4f.** Phone (2)	**4g.** Fax	**4h.** E-mail
( )	( )	( )	

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [help]

☐ There are multiple project locations (e.g. linear projects). Complete the section below and use JARPA Attachment B for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [help]
☐ Private ☐ Federal ☐ Publicly owned (state, county, city, special districts like schools, ports, etc.) ☐ Tribal ☒ Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)
5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]
Lake Union, Seattle, Washington
5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]
Seattle, Washington 98109
5d. County [help]
King

5e. Provide the section, township, and range for the project location. [help]

¼ Section	Section	Township	Range
NW	19	25 North	4 East

5f. Provide the latitude and longitude of the project location. [help]

- Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)

47.634353 North latitude / -122.335169 West longitude (WGS 84)

5g. List the tax parcel number(s) for the project location. [help]

- The local county assessor's office can provide this information.

192504HYDR, 302504HYDR, 292504HYDR, 202504HYDR

5h. Contact information for all adjoining property owners. (If you need more space, use JARPA Attachment C.) [help]

Note: These are the adjacent property owners to Kenmore Air, the entity directly related to the installation of the navigational buoys. At this time, a Nationwide Permit 1 is anticipated. If an individual permit is determined by the U.S. Army Corps of Engineers, the applicant will provide additional adjacent property owners if required.

Name	Mailing Address	Tax Parcel # (if known)
Washington State Department of Natural Resources	1111 Washington Street SE PO Box 47027 Olympia, Washington 98504-7027	192504HYDR, 302504HYDR, 292504HYDR, and 202504HYDR
Kenmore Air	950 Westlake Avenue N. Seattle, Washington 98109	4088803635
Associated General Contractors of Washington	1020 Westlake Avenue N. Seattle, Washington 98109	4088803642
Watermark Estate Management Services	948 Westlake Avenue N. Seattle, Washington 98109	4088803630
City Investors X LLC	950 Westlake Avenue N. Seattle, Washington 98109	4088803625

5i. List all wetlands on or adjacent to the project location. [help]

No known wetlands exist on or adjacent to the project location.

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [help]

The proposed project will occur within Lake Union.

5k. Is any part of the project area within a 100-year floodplain? [help]

☐ Yes ☒ No ☐ Don't know

5l. Briefly describe the vegetation and habitat conditions on the property. [help]

Aquatic vegetation in South Lake Union at the depths of the proposed project is limited but may include

coontail (*Ceratophyllym demersum)* and the invasive species Eurasian watermilfoil (*Myriophyllum spicatum;* City of Seattle 2010).

The shoreline adjacent to the project site is predominately developed with marinas, water recreation facilities, businesses, and floating residences. Concrete seawalls and bulkheads of riprap and angular rock are the primary shoreline features; however, softer shoreline features are located within South Lake Union as well. Vegetation on the upland property mainly includes maintained lawns, ornamental trees, and some native and non-native shrubs.

5m. Describe how the property is currently used. [help]

Lake Union is a freshwater lake located in Seattle. Because of the lake's proximity to and scenic views of the city, it is a popular recreational spot. Recreational activities include rowing, kayaking, paddle boarding, sailing, and motor boating. The lake is also used by boats on their way between Lake Washington and the Puget Sound.

There are two floatplane lanes that are in operation on Lake Union: one associated with Kenmore Air Seaplane Base and one associated with Seattle Seaplanes. Both have operated from Lake Union for more than 30 years, resulting in a well-established floatplane operation within Seattle. The existing floatplane operators have been utilizing a well-defined flight corridor to and from Lake Union for many years (Barnard Dunkelberg and Company 2011). On any given day, up to 18 planes operated by Kenmore Air may take off up to 40 times for domestic and international flights (Seattle Times 2013). Seattle Seaplanes also operates daily flights in and out of Lake Union.

5n. Describe how the adjacent properties are currently used. [help]

Lake Union is located within the city of Seattle. It is surrounded by marinas, water recreation facilities, floating residences, businesses, a museum, and city parks.

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [help]

The proposed permanent buoys will be located within Lake Union to depths up to 35 feet. Therefore, there are no structures above and below ground on the property. However, in 2014 during the busy summer weekends, 16 temporary navigational buoys were put in place in the same approximate location as the permanent buoys as a safety precaution.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [help]

1. From I-5 northbound or southbound take exit 167 for Mercer Street
2. Turn right on Fairview Avenue North
3. Arrive at South Lake Union

Part 6–Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [help]

The City proposes to install eight buoys in Lake Union in Seattle, Washington (Sheet 1 in Attachment 1). The eight buoys are proposed in the locations shown on Sheet 2 in Attachment 1 and would have lights mounted on them that pilots could activate before takeoffs or landings (Sheet 3 in Attachment 1). The lights would warn boaters to stay clear of a central strip or runway in the lake. Specifications for the buoys are included in Attachment 2. Final depth and specifications for the buoys will be determined in final design, but each buoy will be attached to a helical anchor via a galvanized metal chain.

6b. Describe the purpose of the project and why you want or need to perform it. [help]

As the lake is becoming busier, the need for buoys or other visual markers to delineate the floatplane lanes is also increasing. The eight buoys are proposed to be permanently installed in Lake Union to demarcate a floatplane landing zone to allow for safe ingress and egress of floatplanes.

6c. Indicate the project category. (Check all that apply) [help]

☐ Commercial ☐ Residential ☐ Institutional ☒ Transportation ☐ Recreational
☐ Maintenance ☐ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [help]

☐ Aquaculture	☐ Culvert	☐ Float	☐ Retaining Wall (upland)
☐ Bank Stabilization	☐ Dam / Weir	☐ Floating Home	☐ Road
☐ Boat House	☐ Dike / Levee / Jetty	☐ Geotechnical Survey	☐ Scientific Measurement Device
☐ Boat Launch	☐ Ditch	☐ Land Clearing	☐ Stairs
☐ Boat Lift	☐ Dock / Pier	☐ Marina / Moorage	☐ Stormwater facility
☐ Bridge	☐ Dredging	☐ Mining	☐ Swimming Pool
☐ Bulkhead	☐ Fence	☐ Outfall Structure	☐ Utility Line
☒ Buoy	☐ Ferry Terminal	☐ Piling/Dolphin	
☐ Channel Modification	☐ Fishway	☐ Raft	

☐ Other:

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [help]

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

Construction methods for the proposed project are limited to placing the buoys into the water from a boat or barge within Lake Union. Divers will install the helical anchors by screwing the anchors into the bottom substrate. Helical anchors do not require excavation for installation, and should only cause minimal, if any, turbidity because the method involves screwing the anchor into the substrate. No activities will occur within the 100-year floodplain.

6f. What are the anticipated start and end dates for project construction? (Month/Year) [help]

- If the project will be constructed in phases or stages, use JARPA Attachment D to list the start and end dates of each phase or stage.

Pending issuance of permits, DPD will install them during the following timeframe:

Start date: June 1, 2015 End date: July 1, 2015 ☐ See JARPA Attachment D

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [help]

$80,000

6h. Will any portion of the project receive federal funding? [help]

- **If yes**, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

☐ Check here if there are wetlands or wetland buffers on or adjacent to the project area. (If there are none, skip to Part 8.) [help]

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [help]

☒ Not applicable

7b. Will the project impact wetlands? [help]

☐ Yes ☒ No ☐ Don't know

7c. Will the project impact wetland buffers? [help]

☐ Yes ☒ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [help]

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☐ Yes ☒ No

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [help]

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☐ Yes ☒ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [help]

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☐ Yes ☐ No ☒ Not applicable

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [help]

Not applicable

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [help]

Activity (fill, drain, excavate, flood, etc.)	Wetland Name[1]	Wetland type and rating category[2]	Impact area (sq. ft. or Acres)	Duration of impact[3]	Proposed mitigation type[4]	Wetland mitigation area (sq. ft. or acres)

[1] If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.
[2] Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.
[3] Indicate the days, months or years the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.
[4] Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: _____

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [help]

Not applicable

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [help]

Not applicable

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, "waterbodies" refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [help]

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [help]

☐ Not applicable

Helical anchors do not require excavation for installation, and should only cause minimal, if any, turbidity because the method involves screwing the anchor into the substrate. Best management practices (BMPs) will be implemented when installing the buoys to avoid or minimize impacts, as follows:

- All equipment to be used for construction activities shall be clean and inspected prior to arriving at the site, to ensure no potentially hazardous materials are exposed and the equipment is functioning properly.
- Work vessels will not be allowed to ground out during construction activities.
- No petroleum products or other deleterious materials will enter waters of Lake Union.

8b. Will your project impact a waterbody or the area around a waterbody? [help]

☒ Yes ☐ No

8c. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [help]

- **If Yes**, submit the plan with the JARPA package and answer 8d.
- **If No, or Not applicable,** explain below why a mitigation plan should not be required.

☐ Yes ☐ No ☒ Not applicable

No mitigation measures beyond avoidance and minimization measure are proposed due to the nature of proposed construction activities.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [help]

Not applicable

8e. Summarize impact(s) to each waterbody in the table below. [help]

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name[1]	Impact location[2]	Duration of impact[3]	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
Install eight navigational buoys, including helical anchors	Lake Union	In water	Permanent	0	800 sq. ft.

[1] If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.
[2] Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.
[3] Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [help]

No fill is proposed as part of this project.

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [help]

No excavation or dredging will occur as part of this project.

Part 9–Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact
Washington Department of Natural Resources	Laurel Kanawyer	(253) 441-0904	September 23, 2014
U.S. Army Corps of Engineers	Jacalen Printz	(206) 764-6901	October 28, 2014
		( )	

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [help]

- **If Yes,** list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: http://www.ecy.wa.gov/programs/wq/303d/.

☒ Yes ☐ No

For Category 5, Lake Union has the following listed parameters: lead, aldrin, bacteria, and total phosphorus.

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help]

- Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.

Puget Sound – 17110019

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help]

- Go to http://www.ecy.wa.gov/services/gis/maps/wria/wria.htm to find the WRIA #.

WRIA 8 – Cedar-Sammamish

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help]

- Go to http://www.ecy.wa.gov/programs/wq/swqs/criteria.html for the standards.

☒ Yes ☐ No ☐ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help]

- If you don't know, contact the local planning department.
- For more information, go to: http://www.ecy.wa.gov/programs/sea/sma/laws_rules/173-26/211_designations.html.

☐ Rural ☒ Urban ☐ Natural ☐ Aquatic ☐ Conservancy ☒ Other:

The buoys will be placed in the middle of the lake, where there is no shoreline designation. However, Kenmore Air is located within the urban stable shoreline designation.

9g. What is the Washington Department of Natural Resources Water Type? [help]

- Go to http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesApplications/Pages/fp_watertyping.aspx for the Forest Practices Water Typing System.

☒ Shoreline ☐ Fish ☐ Non-Fish Perennial ☐ Non-Fish Seasonal

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help]

- **If No**, provide the name of the manual your project is designed to meet.

☐ Yes ☒ No

This project does not introduce any new impervious surface, and no new stormwater controls are proposed.

Name of manual:

9i. Does the project site have known contaminated sediment? [help]

- **If Yes**, please describe below.

☐ Yes ☒ No

Adjacent areas around the lake have known contamination. Sediment bioassays were collected as part of the Washington State Department of Ecology's Water Quality Assessment (Ecology 2014a, 2014b); none of the samples exceed the Sediment Management Standards bioassay criterion.

9j. If you know what the property was used for in the past, describe below. [help]

Lake Union was formed during the last glacial maximum, the Vashon Stade of the Late Wisconsin glaciation. The lake shoreline rose through the early and mid-Holocene with post-glacial changes to the landscape (Troost 2011). Most of the project area has likely never been subaerial and available for settlement. Potential cultural resources in the vicinity would consist of things that have come to rest at the lake bottom. This may include precontact or historic watercraft or isolated artifacts.

One such resource has been identified in the project vicinity, the wreck of the tug *J.E. Boyden* (site 45KI1005). The vessel was mapped by divers in 2010 (Major and Racine 2010). It is several hundred feet from the nearest proposed anchor location, as shown on Sheet 2 in Attachment 1.

The planned ground disturbance for the project is minimal. The eight anchors will be screwed in by divers within the vicinity of previously existing temporary buoys. Although there may be unidentified resources at the bottom of Lake Union, the very limited scope of the buoy installation work indicates that potential for impacting cultural resources is low.

9k. Has a cultural resource (archaeological) survey been performed on the project area? [help]

- **If Yes**, attach it to your JARPA package.

☐ Yes ☒ No

Though a cultural resources survey has not been performed for the project, an earlier dive survey was conducted that identified the wreck of the tug *J.E. Boyden* within the project area.

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]

Species and critical habitat that are listed under the federal Endangered Species Act (ESA) that occur in the vicinity of the project or may be affected by the proposed work are listed in Table 1. Please see Attachment 3 for the ESA No Effect Letter.

Table 1

Species and Critical Habitat with Federal ESA Status That May Occur in the Project Area

Common Name (Scientific Name)	Jurisdiction	ESA Status	Critical Habitat
Chinook salmon (*Oncorhynchus tshawytscha*) Puget Sound ESU	NMFS	Threatened	Designated; occurs in Action Area
Steelhead (*Oncorhynchus mykiss*) Puget Sound DPS	NMFS	Threatened	None designated in Action Area (proposed January 14, 2013)
Bull trout (*Salvelinus confluentus*) Coastal-Puget Sound DPS	USFWS	Threatened	Designated; occurs in Action Area
Marbled murrelet (*Brachyramphus marmoratus*)	USFWS	Threatened	None designated in Action Area

Notes:
ESU – Evolutionarily Significant Unit
DPS – Distinct Population Segment
NMFS – National Marine Fisheries Service
USFWS – U.S. Fish and Wildlife Service

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]

Review of the Washington Department of Fish and Wildlife priority habitats and species database (WDFW 2014) identified the following priority species and habitats occur in the project vicinity, Lake Union:

- Chinook salmon
- Steelhead
- Sockeye (*Oncorhynchus nerka*)
- Coho salmon (*Oncorhynchus kisutch*)
- Western Pacific pond turtle (*Actinemys marmorata*)

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at http://apps.ecy.wa.gov/opas/.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@ora.wa.gov.
- For a list of addresses to send your JARPA to, click on agency addresses for completed JARPA.

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [help]

- For more information about SEPA, go to www.ecy.wa.gov/programs/sea/sepa/e-review.html.

☐ A copy of the SEPA determination or letter of exemption is included with this application.

☐ A SEPA determination is pending with _____ (lead agency). The expected decision date is _____.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [help]

☒ This project is exempt (choose type of exemption below).

☒ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt?

Washington Administrative Code (WAC) 197-11-800(2)(k) and Seattle Municipal Code (SMC) 25.05.800.B.10: "The installation of any property, boundary or survey marker, other than fences, regardless of whether or not on lands covered by water."

☐ Other: _____

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [help]

LOCAL GOVERNMENT

Local Government Shoreline permits:

☐ Substantial Development ☐ Conditional Use ☐ Variance

☒ Shoreline Exemption Type (explain):

WAC 173-27-040(2)(f): Construction or modification of navigational aids such as channel markers and anchor buoys. SMC 23.60.020.C.5: "Construction or modification, by or under the authority of the Coast Guard or a designated port management authority, of navigational aids such as channel markers and anchor buoys."

Other City/County permits:

☐ Floodplain Development Permit ☐ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☒ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – Attach Exemption Form

Effective July 10, 2012, you must submit a check for $150 to Washington Department of Fish and Wildlife, unless your project qualifies for an exemption or alternative payment method below. **Do not send cash.**

Check the appropriate boxes:

☐ $150 check enclosed. Check #_____
Attach check made payable to Washington Department of Fish and Wildlife.

☒ Charge to billing account under agreement with WDFW. (Agreement # 12-1765)

☐ My project is exempt from the application fee. (Check appropriate exemption)
- ☐ HPA processing is conducted by applicant-funded WDFW staff. Agreement #_____
- ☐ Mineral prospecting and mining.
- ☐ Project occurs on farm and agricultural land. (Attach a copy of current land use classification recorded with the county auditor, or other proof of current land use.)
- ☐ Project is a modification of an existing HPA originally applied for, prior to July 10, 2012. HPA #_____

Washington Department of Natural Resources:

☒ Aquatic Use Authorization

Complete JARPA Attachment E and submit a check for $25 payable to the Washington Department of Natural Resources. **Do not send cash.**

Washington Department of Ecology:

☐ Section 401 Water Quality Certification

FEDERAL GOVERNMENT

United States Department of the Army permits (U.S. Army Corps of Engineers):

☐ Section 404 (discharges into waters of the U.S.) ☒ Section 10 (work in navigable waters)

United States Coast Guard permits:

☒ Private Aids to Navigation (for non-bridge projects)

Part 11–Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [help]

11a. Applicant Signature (required) [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. _____ (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. _____ (initial)

James Holmes		Dec 17, 2015
Applicant Printed Name	Applicant Signature	Date

11b. Authorized Agent Signature [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Alicia Toney	Alicia Toney	December 19, 2014
Authorized Agent Printed Name	Authorized Agent Signature	Date

11c. Property Owner Signature (if not applicant) [help]
Not required if project is on existing rights-of-way or easements.

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Property Owner Printed Name	Property Owner Signature	Date

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341.
ORIA publication number: ENV-019-09 rev. 08/2013

References

Barnard Dunkelberg and Company, 2011. *South Lake Union Height and Density Draft EIS/Summary of South Lake Union Floatplane Surface and Approach/Departure Boundary Assessment & Criteria Review*. June.

City of Seattle, 2010. *Shoreline Characterization Report*. Originally published: January 2010. Available from: http://www.ecy.wa.gov/programs/sea/shorelines/smp/mycomments/seattle/characterizationRpt.pdf.

Ecology (Washington State Department of Ecology), 2014a. Water Quality Assessment for Washington Listing 500019. Accessed: October 30, 2014. Available from: http://apps.ecy.wa.gov/wats/ViewListing.aspx?LISTING_ID=500019.

Ecology, 2014b. Water Quality Assessment for Washington Listing 500020. Accessed: October 30, 2014. Available from: http://apps.ecy.wa.gov/wats/ViewListing.aspx?LISTING_ID=500020.

Major, Maurice, and Mike Racine, 2010. Submerged Historic Archaeological Resource Registration Form, KI01005. On file at the Department of Archaeology and Historic Preservation, Olympia, WA.

Seattle Times, 2013. Lake Union's boom sets high bar for planes. Originally published: January 20, 2013. Available from: http://seattletimes.com/html/localnews/2020179790_seaplaneflightpathxml.html.

Troost, Kathy Goetz, 2011. *Geomorphology and Shoreline History of Lake Washington, Union Bay, and Portage Bay Technical Memorandum*. Prepared for the Washington State Department of Transportation, Olympia, WA.

WDFW (Washington State Department of Fish and Wildlife, 2014. WDFW PHS on the web. Available from: http://wdfw.wa.gov/mapping/phs/. Accessed on: October 1, 2014.

JARPA ATTACHMENT E

US Army Corps of Engineers ®
Seattle District

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) [help]

AGENCY USE ONLY

Date received:_____; ☐ **Town**

☐ **Application Fee Received;** ☐ **Fee N/A**

☐ **New Application;** ☐ **Renewal Application**

Type/Prefix #:_____; **NaturE Use Code:**_____

LM Initials & BP#:_____

RE Assets Finance BP#:_____

New Application Number:_____

Trust(s):_____; **County:**_____

AQR Plate #(s):_____

Gov Lot #(s): _____

Tax Parcel #(s):_____

Attachment E:
Aquatic Use Authorization on Department of Natural Resources (DNR)-managed aquatic lands [help]

Complete this attachment and submit it with the completed JARPA form only if you are applying for an Aquatic Use Authorization with DNR. Call (360) 902-1100 or visit www.bit.ly/dnr_aquatic_lease for more information.

- DNR recommends you discuss your proposal with a DNR land manager before applying for regulatory permits. Contact your regional land manager for more information on potential permit and survey requirements. You can find your regional land manager by calling (360) 902-1100 or going to http://www.dnr.wa.gov/Publications/aqr_land_manager_map.pdf. [help]
- The applicant may not begin work on DNR-managed aquatic lands until DNR grants an Aquatic Use Authorization.
- Include a $25 non-refundable application processing fee, payable to the "Washington Department of Natural Resources." (Contact your Land Manager to determine if and when you are required to pay this fee.) [help]

DNR may reject the application at any time prior to issuing the applicant an Aquatic Use Authorization. [help]

1. Applicant Name (Last, First, Middle)

Holmes, Jim

2. Phone Number and Email

(206) 684-8372 / Jim.Holmes@seattle.gov

3. Which of the following applies to Applicant? Check one and, if applicable, attach the written authority – bylaws, power of attorney, etc. [help]

☐ Corporation	☐ Individual
☐ Limited Partnership	☐ Marital Community (Identify spouse):_____
☐ General Partnership	☒ Government Agency
☐ Limited Liability Company	☐ Other (Please Explain):
Home State of Registration: _____	

4. Washington UBI (Unified Business Identifier) number, if applicable: [help]

Not applicable

5. Are you aware of any existing or previously expired Aquatic Use Authorizations at the project location?

☐ Yes ☒ No ☐ Don't know

If Yes, Authorization number(s):_____

6. Do you intend to sublease the property to someone else?

☐ Yes ☒ No

If Yes, contact your Land Manager to discuss subleasing.

7. If fill material was used previously on DNR-managed aquatic lands, describe below the type of fill material and the purpose for using it. [help]

Not applicable

To be completed by DNR and a copy returned to the applicant.

Signature for projects on DNR-managed aquatic lands:

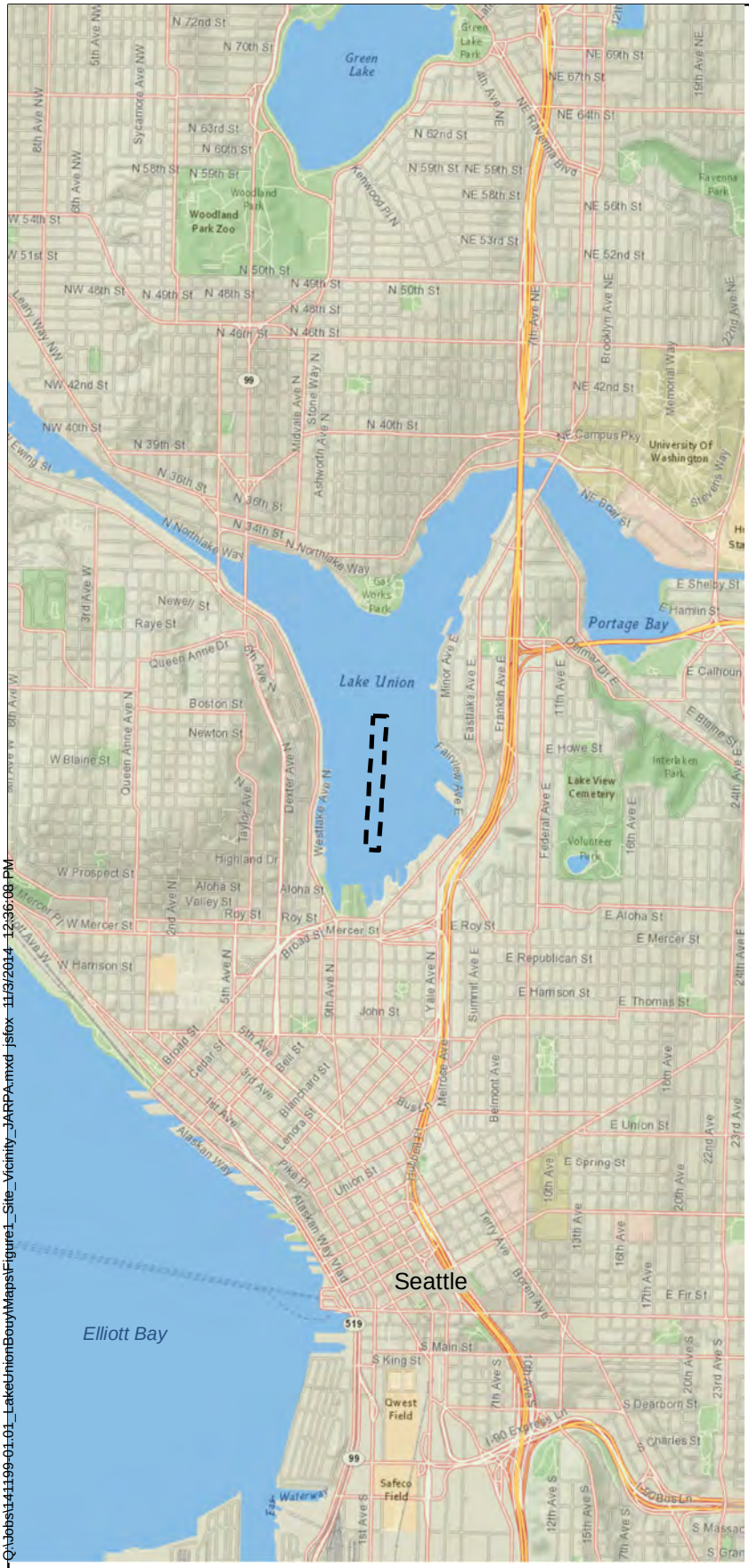
Applicant must obtain the signature of DNR Aquatics District Manager OR Assistant Division Manager if the project is located on DNR-managed aquatic lands.

I, a designated representative of the Dept. of Natural Resources, am aware that the project is being proposed on Dept. of Natural Resources-managed aquatic lands and agree that the applicant or his/her representative may pursue the necessary regulatory permits. My signature does not authorize the use of DNR-managed aquatic lands for this project.

Printed Name	**Signature**	
Dept. of Natural Resources	Dept. of Natural Resources	Date
District Manager or Assistant Division Manager	District Manager or Assistant Division Manager	

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341.
ORIA Publication ENV-049-12 rev. 08/2013

ATTACHMENT 1
JARPA SHEETS



0 1
Miles

SOURCE: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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VICINITY MAP

PURPOSE: DEMARCATE A LANDING ZONE FOR SAFE INGRESS AND EGRESS OF FLOATPLANES

DATUM: MLLW 0.0'
LATITUDE: 47°38'04"N
LONGITUDE: -122°20'06"W

NAME: SOUTH LAKE UNION BUOY INSTALLATION
SEATTLE, WASHINGTON 98109
ADJACENT PROPERTY OWNERS:
1 - WASHINGTON STATE DNR
2 - KENMORE AIR
3 - ASSOCIATED GENERAL CONTRACTORS OF WASHINGTON
4 - WATERMARK ESTATE MANAGEMENT SERVICES
5 - CITY INVESTORS X LLC

PROPOSED: INSTALLATION OF EIGHT NAVIGATIONAL BUOYS AND ASSOCIATED ANCHORS

IN: LAKE UNION
NEAR/AT: CITY OF SEATTLE
COUNTY OF: KING
STATE: WASHINGTON

DATE: NOVEMBER 2014

ANCHOR QEA
720 Olive Way
Suite 1900
Seattle, WA 98101
206-287-9130

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PURPOSE: DEMARCATE A LANDING ZONE FOR SAFE INGRESS AND EGRESS OF FLOATPLANES

DATUM: MLLW 0.0'
LATITUDE: 47°38'04"N
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SEATTLE, WASHINGTON 98109
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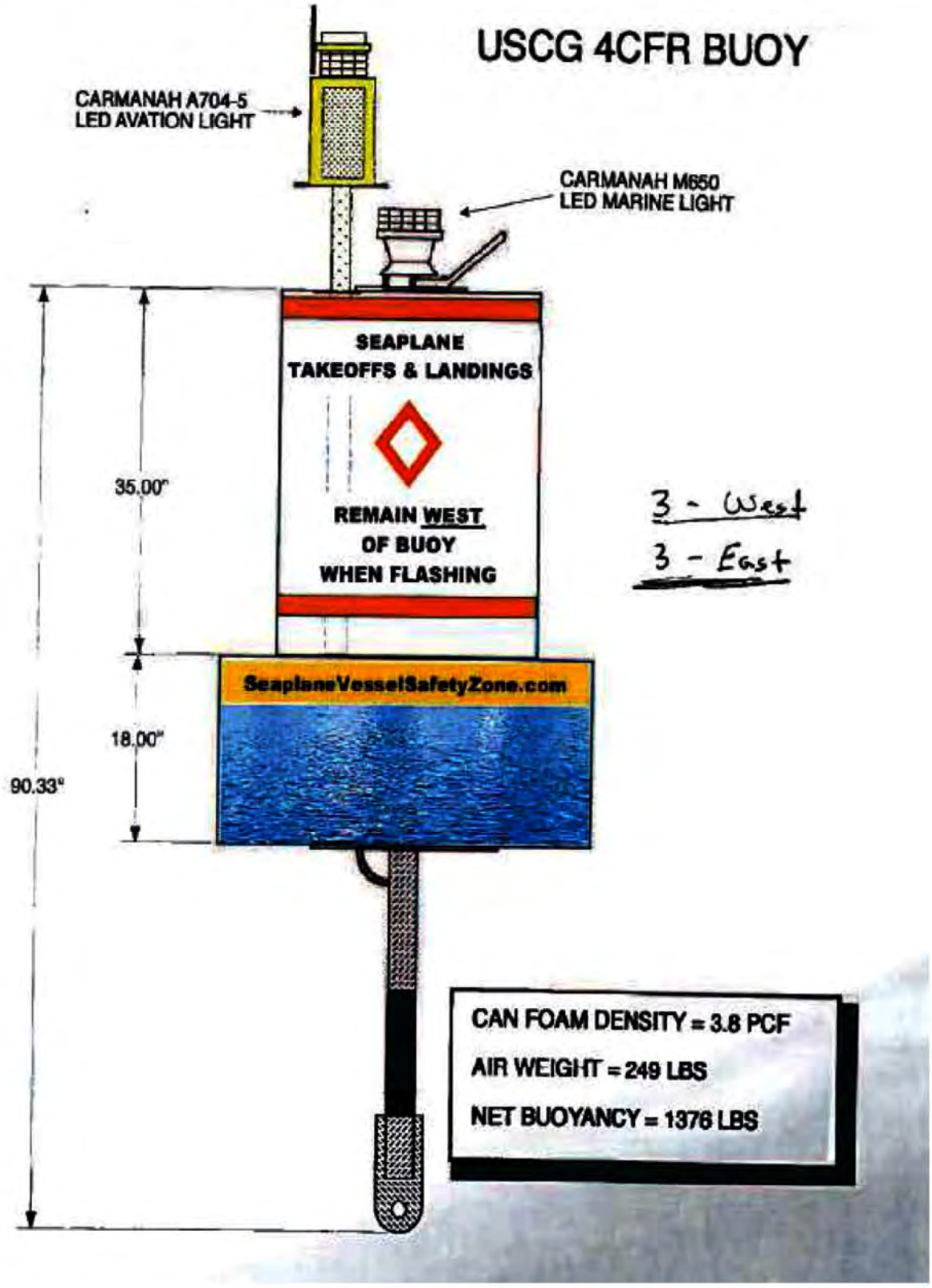
DATE: NOVEMBER 2014

ANCHOR QEA
720 Olive Way
Suite 1900
Seattle, WA 98101
206-287-9130

Lake Union Seaplane Buoy/Lighting Design



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DATE: NOVEMBER 2014

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PURPOSE: DEMARCATE A LANDING ZONE FOR SAFE INGRESS AND EGRESS OF FLOATPLANES

DATUM: MLLW 0.0'
LATITUDE: 47°38'04"N
LONGITUDE: -122°20'06"W

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PROPOSED: INSTALLATION OF EIGHT NAVIGATIONAL BUOYS AND ASSOCIATED ANCHORS

IN: LAKE UNION
NEAR/AT: CITY OF SEATTLE
COUNTY OF: KING
STATE: WASHINGTON

DATE: NOVEMBER 2014

ANCHOR QEA
720 Olive Way
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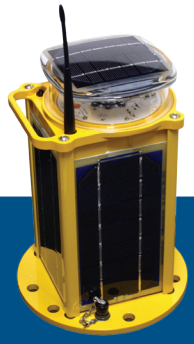
Seattle, WA 98101
206-287-9130

ATTACHMENT 2
BUOY SPECIFICATIONS

carmanah®
we put solar to work



MODEL

A704-5

SOLAR LED AVIATION AND OBSTRUCTION LIGHT

IN USE FOR THOUSANDS OF AVIATION AND OBSTRUCTION APPLICATIONS WORLDWIDE, CARMANAH SOLAR LED LIGHTS ARE TRUSTED BY THE WORLD'S MOST DEMANDING CUSTOMERS TO PERFORM UNDER SOME OF THE HARSHEST OPERATING ENVIRONMENTS ON EARTH.

WITH OPTIONAL WIRELESS CONTROL, THE HIGH-POWERED A704-5 SOLAR LED AVIATION AND OBSTRUCTION LIGHT IS DESIGNED TO DELIVER ON-COMMAND PERFORMANCE IN EXTREME CONDITIONS.

- Up to 44 cd of intensity in "autonomous high" mode
- Up to 240 cd of intensity in "temp high" mode
- Dusk-to-dawn or on-command operation
- Push-button operation or optional wireless control
  NVG-compatible IR option available

Applications include: Runway edge lighting – (ICAO Annex 14), portable or expedited airfield lighting, emergency runway lighting, helipad lighting, threshold lighting and obstruction lighting.

- **Easy installation and relocation:** no specialized work crew required, limited air traffic disruption, and lights are immediately operational. Featuring a built-in handle, the A704-5 can be quickly relocated for temporary or emergency applications. Multiple mounting options available.
- **Self-contained and low maintenance:** all components are incorporated within a compact, stand-alone unit. The A704-5 also features a replaceable battery pack that extends the service life, reducing the total cost of ownership and resulting in significant cost savings.
- **Unprecedented reliability:** microprocessor Energy Management System (EMS) monitors and adapts the brightness to environmental conditions for reliable performance and long life under the toughest conditions.
- **User friendly:** easy programming and operation options include push-button operation or optional wireless control system offering secure 900 MHz wireless control from ground or air. External 12 Volt service port allows for external charging or use of supplementary power source.
- **Protect personnel and assets:** Optional handheld wireless control allows for remote operation of an A704-5 airfield including mode changes for enhanced visibility in poor weather conditions, or to blackout or infrared in response to immediate threat.
- **Meets tough industry standards:** Certifications include ICAO and Explosive Atmosphere.
- **Green solution:** a clean, renewable and reliable energy source with the lightest environmental footprint. The A704-5 features recyclable batteries.

CARMANAH A704-5 CUSTOMERS

Al Asad AB, USMC – Iraq
Barking Sands Airfield, US Navy – USA
Dover AFB, USAF – USA
Camp Lemonier Djibouti, US Marine Corps – Africa
Camp Victory, US Army – Iraq
Carupano Airport – Venezuela
Fort Rucker, US Army – USA
Government of Bahamas, Various airports
Mackall Army Airfield, US Army – USA
Pope AFB, US Air Force – USA
Royal Singapore Air Force Base – Singapore
Royal Australia Air Force Base – Australia
Salemo Army Airfield, US Army – Afghanistan
CFB Trenton, Canadian Air Force – Canada
Turkish Police Force – Turkey
Qalat Air Base, US Army – Afghanistan

Certified System ISO 9001 CE Pb

REPRESENTED BY:

Carmanah Technologies Corp. • Building 4-203 Harbour Road, Victoria BC V9A 3S2, Canada • Telephone: 1.250.380.0052 • Fax: 1.250.380.0062 • Email: info@carmanah.com

MODEL A704-5

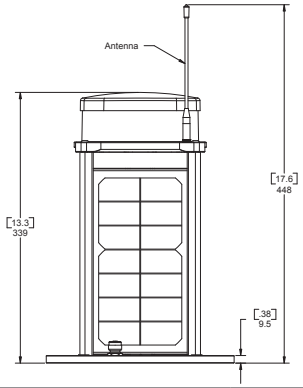
SOLAR LED AVIATION AND OBSTRUCTION LIGHT

Aviation yellow chassis

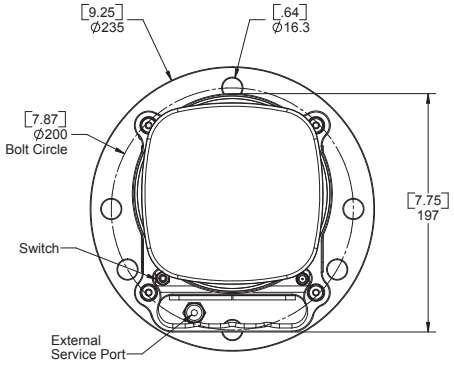
Olive drab chassis

TECHNICAL DRAWINGS AND DIMENSIONS

SIDE VIEW



TOP VIEW



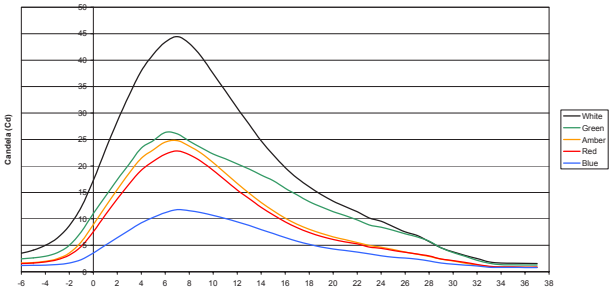
ADDITIONAL OPTIONS AND FEATURES

HANDHELD WIRELESS CONTROLLER

- Secure wireless control of A704-5
- User and Administrator password access control
- Included rechargeable lithium ion battery and charger
- 12 hours of continuous operation on a single charge
- Controls up to eight groups of lights independently

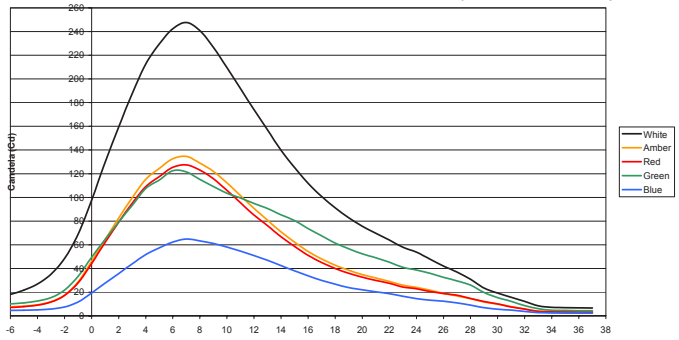
PHOTOMETRIC PERFORMANCE

A704-5 - ALL COLOURS - AVERAGE DIVERGENCE INTENSITY (AUTONOMOUS HIGH)



Note: Intensity dependent on location. Based on equatorial location of 12-hour night duration and steady-on (001) flash code.

A704-5 - ALL COLOURS - AVERAGE DIVERGENCE INTENSITY (TEMPORARY HIGH)



TECHNICAL FEATURES AND SPECIFICATIONS

Solar Panel	HIgh-efficiency solar panels
Battery	Replaceable, recyclable best-in-class SLA battery pack with extreme temperature range. Battery status feedback via LEDs.
Light Source	Ultra-bright LEDs feature innovative optic and lens design for optimum light divergence.
Intensity	Up to 44.3 cd autonomous high mode (white). Up to 240 cd temp high mode (white).
Flash Patterns	User-programmed via onboard push-button switch or optional handheld wireless controller for steay-on mode or one flash pattern.
Construction	Fully self-contained weather, corrosion and vandal-resistant unit with premium-grade UV-resistant polycarbonate head. Extruded aluminum body.
Colours	LEDs: white, red, amber, blue, green, red/green split, amber/white split, red/white split. All colours available with infrared output. CHASSIS: aviation yellow, olive drab
Ambient Operating Temperature	-22 to 122˚ F (-30 to 50˚ C)
Storage Temperature	-40 to 176˚ F (-40 to 80˚ C)
Weight	26 lb (11.75 kg)
Automatic Light Control (ALC)	ALC dynamically reduces brightness in response to unusually low amounts of sunlight to ensure continued operation
Radio Receiver	902-928 MHz FHSS

Specifications may be subject to change

Carmanah Technologies Corp. • Building 4-203 Harbour Road, Victoria BC V9A 3S2, Canada • Telephone: 1.250.380.0052 • Fax: 1.250.380.0062 • Email: info@carmanah.com

carmanah®

MODEL

M650

SOLAR LED MARINE LANTERN

- COMPACT, DURABLE AND VERSATILE
- 2 NM RANGE FOR MOST LOCATIONS[1]
- UP TO 44 CD IALA PEAK
- CONFIGURE WITH ON-BOARD USER INTERFACE, INFRARED PROGRAMMER OR PC SOFTWARE
- GPS SYNCHRONIZED FLASH OPTION
- USCG PATON 33CFR67 CLASS C

Applications

- Fixed or floating visual aids to navigation
- Marina and dock lighting
- Port lighting
- Offshore oil & gas infrastructure
- Hazard marking
- Barge lighting
- Bridge lighting

Range

Depending on location, colour and flash pattern, the M650 is capable of up to 44 cd and over 4 NM range. Simulate your specific application and location using the Marine Lantern Selector Tool at carmanahmarine.com

Easy Installation

Just mount the M650 and it emits light dusk-to-dawn while maintaining its battery. High-quality construction increases vandal and theft resistance.

Low Maintenance

The M650 integrates solar panels, battery, electronics, and LED light source into a compact, stand-alone, maintenance-free unit. The replaceable battery extends service life well beyond 5 years.

Reliable

The Energy Management System (EMS) monitors all operations to provide consistent output in the harshest environments. Testing to demanding industry standards and MIL specifications ensures high performance for many years.

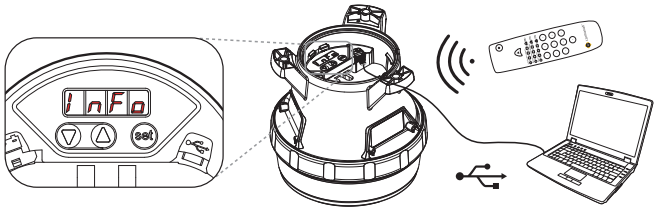
Trusted

With thousands of installations worldwide, Carmanah solar LED lights operate year-round and are trusted by:

- Australian Maritime Systems
- Brazilian Naval Commission
- Canadian Coast Guard
- Maritime and Port Authority of Singapore
- SERBA, Uruguay
- Petrobras, Brazil
- PDVSA, Venezuela
- NOAA – National Data Buoy Centre
- Panama Canal
- Suez Canal, Egypt
- Trinity House Light House Service, UK
- United States Coast Guard
- Vancouver Port Authority

Carmanah/Sabik is backed by a worldwide network of distributors. To find yours visit carmanahmarine.com or call +1.250.380.0052 (toll-free US & Canada 1.877.722.8877)

REPRESENTED BY:



MODEL M650

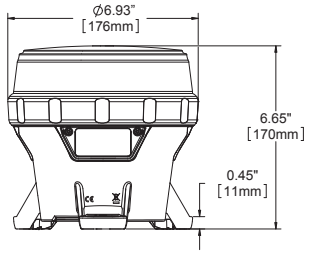
SOLAR LED MARINE LANTERN

SPECIFICATIONS

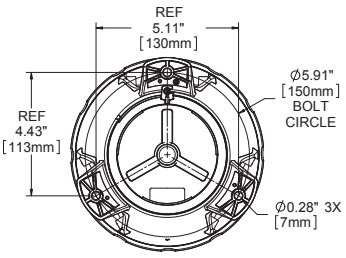
Solar Panel	High-efficiency cells with bypass and blocking diode function. Maximum power point tracking (MPPT) for optimal energy collection.
Battery	Tool-less replaceable and recyclable best-in-class battery pack with extreme temperature range. Battery status feedback of Good, Charge, Low or Bad (Replace) and actual battery voltage.
Light Source	High-power LED. Colour-specific temperature-corrected LED drivers provide consistent intensity under all operating conditions.
Maximum Peak Intensity (as per IALA rating)	44 cd (Green LEDs)
Vertical Divergence	> 8° (FWHM)
Flash Patterns	256+ (including steady-on) Custom available.
Day / Night Transition	Selectable from 25 to 925 lux in 25 lux increments.
Construction	Premium grade UV resistant, polycarbonate/polysiloxane co-polymer body and lens material. Double O-ring sealing with waterproof vent.
Colours	Red, Green, White, Yellow and Blue. As per IALA "Optimum" Recommendation E-200-1, dated December 2008.
Operating Temperature	-45 to 124 °F (-43 to 51 °C) ambient temperature. The M650 will function up to 190 °F (88 °C) internal and surface temperatures.
Storage Temperature	-45 to 176 °F (-43 to 80 °C) Not including batteries.
Colour Indicator	Yes. Red, Green, White, Yellow and Blue.
Weight	3.5 lb (1.58 kg)
Wind Loading	140 knots (72 m/s)
Ice Loading	0.03 psi (22 kg/m^2)
Automatic Light Control (ALC)	When enabled, ALC will dynamically reduce brightness in response to unusually low amounts of sunlight to ensure continued operation.
GPS Synchronization	Optional GPS enables two or more lanterns to flash in unison.
Compliance	USCG PATON 33CFR66 & CFR67 Class C
	UL 2108, CSA C22.2 No.250.0, RoHS, WEEE

DIMENSIONS

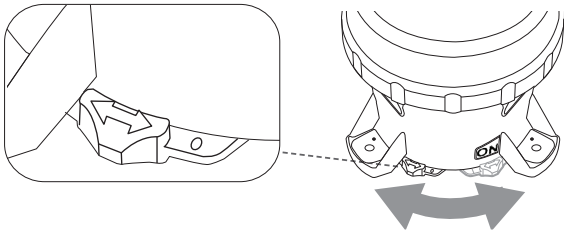
SIDE VIEW



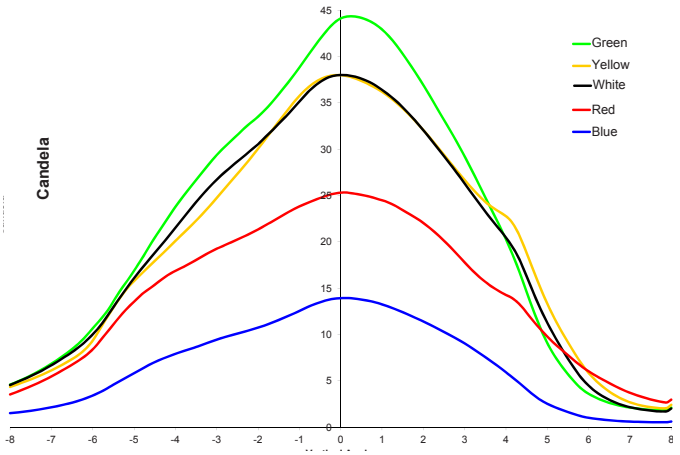
BOTTOM VIEW



SWITCHED VIEW



PHOTOMETRIC PERFORMANCE



Note: Peak IALA intensity dependent on location. Plot based on equatorial location of 12-hour night duration and 21% duty cycle flash code.

[1] Transmissivity of 0.74.

Designed and tested to the toughest industrial standards:

Immersion:	EN 60529; IP68; MIL-STD-202G: Method 104A, Test Condition B.
Shock and Vibration:	MIL-STD-202G: Shock, Specified Pulse, Method 213B, Test Condition G; Vibration, Method 204, Test Condition B, 10g peak.
Corrosion:	MIL-STD-810G: Salt Fog, Method 509.4, 2 cycles of 48 hr. at 35°C, ASTM B117-73 (1979).
Solar Radiation:	MIL-STD-810G: Solar Radiation, Method 505.5, Procedure II, Climate cycle A2.
Chemical Resistance:	Tested to MIL-STD-810G, Method 504, Procedure II.
Hail:	EN 61215, 25mm OD up to 23m/s.
EMC/EMI/ESD:	47 CFR Part 15, Subpart B, Section 15.109; EN 60945: 2002, Clauses 9.1, 9.3, 10.1, 10.4 and 10.9; EN 61000: ESD, 6-2: 2005, table 1; 4-2: 200, 4-5: 2001, EMI, 4-3: 1995.
Light Source:	IALA E-200-1 (2008)
UL and CSA:	Conforms to the UL 2108 and CSA C22.2 No. 250.0 standards

CONFIGURATION

MODEL	OUTPUT ▼	SWITCH ▼	CONTROL ▼	CHASSIS ▼
M650	RED GREEN WHITE YELLOW BLUE	SWITCHED NON-SWITCHED	GPS NON-GPS	GREY

Document: MARI_M650 Spec_RevF DOC-017
US Patent Numbers 6573659, 6013985. Other patents pending.

ATTACHMENT 3
ENDANGERED SPECIES ACT NO EFFECT LETTER

ANCHOR QEA

720 Olive Way, Suite 1900
Seattle, Washington 98101
Phone 206.287.9130
Fax 206.287.9131

December 19, 2014

U.S. Army Corps of Engineers, Seattle District
C/O Jacalen Printz
P.O. Box 3755
Seattle, Washington 98124-3577

Re: Lake Union Buoy Installation Project Endangered Species Act No Effect Letter

Dear Ms. Printz:

The City of Seattle Department of Planning and Development proposes to install eight floatplane safety buoys in Lake Union in Seattle, Washington (Sheet 1 in Attachment 1 of the Joint Aquatic Resource Permit Application [JARPA]). The eight buoys are proposed to demarcate a floatplane landing zone in South Lake Union to allow for safe ingress and egress of floatplanes (Sheet 2 in Attachment 1 of the JARPA).

We have prepared this letter for submittal to the U.S. Army Corps of Engineers (USACE) in fulfillment of requirements of the Endangered Species Act (ESA). We also evaluated the presence of Essential Fish Habitat (EFH) as indicated in the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson Stevens Act).

This letter determines that there will be "no effect" on listed species in the area, because project activities combined with best management practices (BMPs) will not create any appreciable impacts to listed species or critical habitat. The remainder of this letter discusses the project location, timing, and proposed work, as well as the existing conditions and listed species in the vicinity of the project and the conclusions for the no effect determination.

PROJECT BACKGROUND

There are two floatplane lanes that are in operation on Lake Union: one associated with Kenmore Air Seaplane Base and one associated with Seattle Seaplanes. Both have operated from Lake Union for more than 30 years, resulting in a well-established floatplane operation within Seattle. The existing floatplane operators have been utilizing a well-defined flight corridor to and from Lake Union for many years (Barnard Dunkelberg and Company 2011). As the lake is becoming busier, the need for buoys or other visual markers to delineate the existing floatplane lanes is also increasing.

PROJECT LOCATION AND SETTING

The project is located within Lake Union, a freshwater lake located in Seattle. Because of the lake's proximity to and scenic views of Seattle, it is a popular recreational spot. Recreational activities include rowing, kayaking, paddle boarding, sailing, and motor boating. The lake is also used by boats on their way between Lake Washington and the Puget Sound. On any given day, up to 18 planes operated by Kenmore Air may take off up to 40 times for domestic and international flights (Seattle Times 2013). Seattle Seaplanes also operates daily flights in and out of Lake Union.

PROJECT DESCRIPTION

The eight buoys are proposed to be permanently installed in Lake Union to demarcate a floatplane landing zone to allow for safe ingress and egress of floatplanes. The buoys are proposed in the locations shown on Sheet 2 and would have lights mounted on them that pilots could activate before takeoffs or landings (Sheet 3 in Attachment 1 of the JARPA). The lights would warn boaters to stay clear of a central strip or runway in the lake. Specifications for the buoys are included in Attachment 2 of the JARPA. Final depth and specifications for the buoys will be determined in final design, but the buoys will be attached to the helical anchor via a galvanized metal chain. Helical anchors do not require excavation for installation and should only cause minimal, if any, turbidity because the method involves screwing the anchor into the substrate.

Project Timing

Bouy installation is scheduled to occur over a 1-month period, once permits are in place.

Construction Methods

Construction methods for the proposed project are limited to placing the buoys into the water from a boat or barge. Divers will install the helical anchors by screwing the anchors into the bottom substrate of Lake Union. The following BMPs will be implemented during the project to avoid or minimize impacts:

- All equipment to be used for construction activities shall be cleaned and inspected prior to arriving at the project site, to ensure no potentially hazardous materials are exposed and the equipment is functioning properly.
- Work vessels shall not be allowed to ground out during construction activities.
- No petroleum products or other deleterious materials shall enter waters of Lake Union.

LISTED SPECIES AND EFFECTS ANALYSIS

Table 1 details ESA-listed species and critical habitats that may potentially occur in the vicinity of the project or might be affected by the proposed work (NMFS 2014; USFWS 2014).

Table 1
Species and Critical Habitat with Federal ESA Status
That May Occur in the Action Area

Common Name (Scientific Name)	Jurisdiction	ESA Status	Critical Habitat
Chinook salmon (*Oncorhynchus tshawytscha*) Puget Sound ESU	NMFS	Threatened	Designated; occurs in Action Area
Steelhead (*Oncorhynchus mykiss*) Puget Sound DPS	NMFS	Threatened	None designated in Action Area (proposed January 14, 2013)
Bull trout (*Salvelinus confluentus*) Coastal-Puget Sound DPS	USFWS	Threatened	Designated; occurs in Action Area
Marbled murrelet (*Brachyramphus marmoratus*)	USFWS	Threatened	None designated in Action Area

Notes:
ESU = Evolutionarily Significant Unit
DPS = Distinct Population Segment
NMFS = National Marine Fisheries Service
USFWS = U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) identifies the additional listed species of Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), grizzly bear (*Ursus arctos*), and northern spotted owl (*Strix occidentalis caurina*), and species proposed for listing of North American wolverine (*Gulo gulo luteus*) and Oregon spotted frog (*Rana pretiosa*) to be present in King County (USFWS 2014). However, these terrestrial species are not addressed in this No Effect Letter due to lack of suitable habitat within and adjacent to the Action Area. Listed plant species identified by USFWS to be present in King County include golden paintbrush (*Castilleja levisecta*; USFWS 2014). This species is also not addressed in this No Effect Letter due to lack of suitable habitat within and adjacent to the Action Area. National Marine Fisheries Service (NMFS) identifies several aquatic species that occur in the marine environment of Puget Sound (NMFS 2014). Marine species are not addressed in this No Effect Letter because the project is located within the freshwater environment of Lake Union.

Review of the Washington Department of Fish and Wildlife Priority Habitats and Species Database online (WDFW 2014) identified the following priority species and habitats in the project vicinity, Lake Union:

- Chinook salmon
- Steelhead
- Sockeye (*Oncorhynchus nerka*)
- Coho salmon (*Oncorhynchus kisutch*)
- Western Pacific pond turtle (*Actinemys marmorata*)

The Action Area (Sheet 4 in Attachment 1 of the JARPA) will be limited to the immediate vicinity of the installation of the buoys. The buoys will be anchored to the bottom of Lake Union and will remain in a fixed position following construction. Land use in the vicinity of the project area consists of high-density commercial and residential areas in the uplands. Noise associated with construction will result in discountable changes in the ambient noise levels surrounding normal use and operation of boats and floatplanes in Lake Union and traffic and residential and commercial activities in the upland areas.

The aquatic areas around the project provide suitable migration and rearing habitat for listed fish such as salmonids and foraging habitat for birds such as marbled murrelet. The

freshwater environment of the Action Area does not provide suitable habitat for ESA-listed terrestrial species, marine fish, or marine mammals.

ESA-listed species will not be susceptible to impacts related to project activities because the project construction activities will be limited to installing buoys in an area where frequent boat and floatplane traffic currently occurs and BMPs will be implemented to ensure that no spills or introduction of deleterious materials occur in the water. Therefore, we have determined that this project will have "no effect" on listed species. Additionally, the project will have "no effect" on designated critical habitats for these species. Table 2 summarizes the potential listed species and critical habitats that could occur in the Action Area, the effect determinations, and the rational for the determinations.

Table 2
Effect Determinations and Rationale

Listed Species	Critical Habitat in Action Area?	Jurisdictional Agency	Effect Determination	Effect Determination Rationale
Chinook salmon Puget Sound ESU	Designated; occurs in Action Area	NMFS	NE	There is no possibility of effects to species or habitats from the project because all work will be confined to an area of the lake with frequent existing boat and floatplane traffic and will not measurably affect in-water or in-air noise levels.
Steelhead Puget Sound DPS	None designated in Action Area (proposed January 14, 2013)	NMFS	NE	There is no possibility of effects to species or habitats from the project because all work will be confined to an area of the lake with frequent existing boat and floatplane traffic and will not measurably affect in-water or in-air noise levels.

Listed Species	Critical Habitat in Action Area?	Jurisdictional Agency	Effect Determination	Effect Determination Rationale
Bull trout Coastal-Puget Sound DPS	Designated; occurs in Action Area	USFWS	NE	There is no possibility of effects to species or habitats from the project because all work will be confined to an area of the lake with frequent existing boat and floatplane traffic and will not measurably affect in-water or in-air noise levels.
Marbled murrelet	None designated in Action Area	USFWS	NE	There is no possibility of effects to species or habitats from the project because all work will be confined to an area of the lake with frequent existing boat and floatplane traffic and will not measurably affect in-water or in-air noise levels.

Notes:
DPS = distinct population segment
ESU = evolutionarily significant unit
NE = no effect
NMFS = National Marine Fisheries Service
USFWS = U.S. Fish and Wildlife Service

ESSENTIAL FISH HABITAT CONSULTATION

The Magnuson-Stevens Act mandates that NMFS must identify EFH for federally managed marine fish. Federal agencies are required to consult with NMFS on all activities, or proposed activities, authorized, funded, or undertaken by the agency that may adversely affect EFH. In the project vicinity, the Pacific Fishery Management Council (PFMC) has designated EFH for the EFH composite group of Pacific salmon (NMFS 1998; PFMC 1998a, 1998b, 1999). The Pacific salmon composite includes Chinook salmon, coho salmon, and pink salmon (*O. gorbuscha*) (PFMC 1999). The freshwater environment of the Action Area, Lake Union, does not include the two EFH composite groups of the marine species groundfish and coastal pelagic fish.

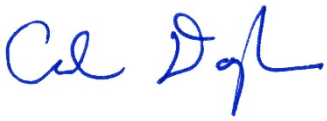
This project will have no effect on designated salmonid EFH, as the project construction activities will be limited to installing buoys in an area where frequent boat and floatplane traffic currently occurs and BMPs will be implemented to ensure that no deleterious

materials are allowed to enter the water during construction. This determination is justified based on the following rationale:

- This project is highly unlikely to result in any measurable effects to water quality within the Action Area.
- This project is highly unlikely to detrimentally affect sediments in the Action Area.
- The Action Area represents a very small area of overall EFH for the freshwater Pacific salmon EFH species assemblage.

It is our understanding that this assessment satisfies the necessary responsibilities for the USACE requirements per Section 7(c) of the ESA and the Magnuson-Stevens Act at this time. If more information is needed or additional questions or comments are required, please contact me at (206) 903-3343.

Sincerely,



Anchor QEA, LLC

CC: Jim Holmes, City of Seattle
Alicia Toney, Anchor QEA, LLC
Heather Page, Anchor QEA, LLC

REFERENCES

Barnard Dunkelberg and Company, 2011. *South Lake Union Height and Density Draft EIS/Summary of South Lake Union Floatplane Surface and Approach/Departure Boundary Assessment & Criteria Review*. June.

NMFS (National Marine Fisheries Service), 1998. *Essential Fish Habitat West Coast Groundfish Appendix*. NMFS, Seattle, Washington.

NMFS, 2014. Endangered Species Act status reviews and listing information. Available from: http://www.nwr.noaa.gov/ESA-Salmon-Listings/Index.cfm. Accessed on: October 1, 2014.

PFMC (Pacific Fishery Management Council), 1998a. *The Pacific Coast Groundfish Fishery Management Plan*. Pacific Fishery Management Council, Portland, Oregon.

PFMC, 1998b. *Coastal Pelagics Fishery Management Plan*. Pacific Fishery Management Council, Portland, Oregon.

PFMC, 1999. Appendix A. *Identification and Description of Essential Fish Habitat, Adverse Impacts, and Recommended Conservation Measures for Salmon*. Pacific Fishery Management Council, Portland, Oregon.

Seattle Times, 2013. Lake Union's boom sets high bar for planes. Originally published: January 20, 2013. Available from: http://seattletimes.com/html/localnews/2020179790_seaplaneflightpathxml.html.

USFWS (U.S. Fish and Wildlife Service), 2014. Western Washington endangered species status and listing information by county. Available from: http://www.fws.gov/wafwo/speciesmap/KingCounty0312.pdf. Accessed on: October 1, 2014.

WDFW (Washington State Department of Fish and Wildlife), 2014. WDFW PHS on the web. Available from: http://wdfw.wa.gov/mapping/phs/. Accessed on: October 1, 2014.