APPENDIX E

BIOLOGICAL ASSESSMENT SUMMARY

AND

ENDANGERED AND THREATENED SPECIES TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM

THE WATERSHED COMPANY

Date: May 22, 2015
To: Renee Dowlin, Jviation, Inc.
From: Ryan Kahlo, PWS, Ecologist
Project Number: 130507
Project Name: Harvey Field Master Plan

Subject: Biological Assessment Summary

All development projects that require federal permits, utilize federal funding, and/or occur on federal lands are required to address the potential project impacts on federally-listed threatened or endangered species and their designated or proposed critical habitat under Section 7 of the Endangered Species Act (ESA). Such projects are also required to address impacts to Essential Fish Habitat under the Magnuson-Stevens Fisheries Management and Conservation Act. Potential impacts include direct impacts, such as injury, mortality, or disturbance (take) of listed species that occur as an immediate effect of a project action, possibly including noise disturbance, habitat loss, or in-water work effects (i.e., turbidity increases, dewatering streams, fish removal) and indirect effect that occurs later in time as a result of the completed project (i.e. long-term storm water impacts, altering predator/prey relationships, and long-term habitat alterations). Impact assessment is addressed through the preparation of a Biological Assessment (BA) study. This BA Summary was done for the Harvey Field Master Plan which, when complete, will include proposed development over the next 20 years. As the Master Plan does not contain the detailed information to prepare a complete BA, this memorandum summarizes the typical review process for a BA, identifies those species likely to be assessed as part of the BA, and recognizes the project components most likely to affect listed species.

The extent of project-related effects (action area) on listed species is determined by the outer limits of disturbance resulting from all project components, aquatic and terrestrial. This can include the distance to which noise disturbances will dissipate to below ambient levels during and after construction; the downstream extent of water quality impacts from turbidity or stormwater effects; the effects from the loss of active river floodplain storage areas; and/or the extent of beneficial effects related to habitat improvements associated with the project implementation.

An analysis of potential effects on listed species through preparation of a BA will yield one of three determinations:

1. no effect;

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2. may affect, not likely to adversely affect; or
3. may affect, likely to adversely affect.

A "no effect" determination would require absolutely no effect, positive or negative, for all species in the action area. Even small behavioral disturbance of a listed species would negate a "no effect" determination. A "no effect" determination is very unlikely given the scope of the project and the proximity of documented listed fish species.

A determination of "may affect, not likely to adversely affect" does not require formal consultation between the governing federal agency – U.S. Fish and Wildlife Service and/or National Marine Fisheries Service (Services). Rather, the federal lead agency for the project would informally consult with Services and, assuming the Services concurred with the effect determination, no in-depth review would occur.

A determination of "may affect, likely to adversely affect" requires formal consultation with the Services. Formal consultation can lead to significant delays in the permitting timeline. Therefore, all feasible attempts should be made to minimize the potential impacts to arrive at a determination of "may affect, not likely to adversely affect."

According to a preliminary review of Priority Habitat and Species Data available from Washington Department of Fish and Wildlife, there are no ESA-listed terrestrial species in the vicinity of Harvey Field, including the topographically low area south of Airport Way. However, multiple threatened or endangered fish species are documented in the Snohomish River and Batt Slough, including Chinook salmon, steelhead, and bull trout. Steelhead and bull trout rearing is documented in the Snohomish River, while the presence of all three species is documented or presumed in Batt Slough. A fish screen is present over the inlet to the culvert at the east end of the Wetland A ditch (beneath the railroad tracks). This screen functions as a complete migration barrier to any of the salmonid fish species mentioned above. Furthermore, water quality in the permanently inundated portions of the ditch is likely too poor to support salmonid fish species. Therefore, the presence of any salmonid fish species in Wetland A can likely be discounted. However, since the ditch associated with Wetland A drains directly to Batt Slough and the Snohomish River, any direct impacts to Wetland A or any areas draining directly to Wetland A, including stormwater impacts, would necessitate assessing the effects on the listed fish species above.

Based on our current understanding of the proposed Master Plan development, the project components mostly likely to adversely affect listed fish species relate to stormwater generated from the new location of the Airport Road connector and the extended runway. Roadway-generated stormwater can have significant

detrimental impacts on salmonids. Sediments, heavy metals, polycyclic aromatic hydrocarbons (PAHs), pesticides, and nutrients can enter waterbodies through bank erosion, road run-off, landslides, or overland flow. Heavy metals and PAHs, which are both associated with cars and runoff from roads and parking lots, are disruptive to salmonid physiology and behavior. Therefore, stormwater generated through impervious surfaces with vehicular use is among the highest water quality concerns for salmonids.

In addition to standard conservation measures and best management practices (BMPs) implemented during project construction, a project of this scope will require significant stormwater management. A combination of flow control and enhanced/infiltration treatment mechanisms will be necessary to prevent an increase in pollutant discharge into salmonid-bearing waters. Given the close proximity to such waters, natural dilution will not contribute to reducing pollutant loads prior to reaching endangered species habitat.

Stormwater management must be sufficient to ensure that the likelihood of pollutant concentration, particularly dissolved copper and zinc, exceeding the adverse sub-lethal effect thresholds for the receiving waterbody is insignificant (i.e., less than one percent). If exposure of listed species to stormwater effects is likely and significant, a determination of "may affect, likely to adversely affect" may be warranted, resulting in formal consultation with the Services.

TECHNICAL MEMORANDUM

THE WATERSHED COMPANY

Date: February 11, 2015
To: Renee Dowlin
From: Ryan Kahlo, PWS
Project Number: 130507
Project Name: Harvey Field

Subject: Summary of ESA-listed Species and Migratory Birds of Conservation Concern in Snohomish County/Project Area

Table 1: ESA-listed Species Present/Historically Present in Snohomish County

Species	Federal Status	Date listed	State Status	Habitat Description
Oregon Spotted Frog *Rana pretiosa*	Threatened	9/29/2014	Endangered	Large, emergent wetlands in forested landscapes near a perennial body of water.
Marbled murrelet *Brachyramphus marmoratus*	Threatened	10/1/1992	Threatened	Nearshore areas of Puget Sound for foraging and old-growth and mature coniferous forests for nesting.
Northern spotted owl *Strix occidentalis caurina*	Threatened	6/26/1990	Endangered	Old-growth and mature coniferous forests.
Streaked horned lark *Eremophila alpestris strigata*	Threatened	11/4/2013	Endangered	Native prairies, coastal dunes, and agricultural fields with substantial areas of bare ground. Only historical presence in Snohomish County.
Yellow-billed cuckoo *Coccyzus americanus*	Threatened	11/3/2014	Species of Concern	Large riparian corridors with dense canopy closures provided by cottonwood and willow communities.
Chinook salmon *Oncorhynchus tshwaytscha*	Threatened	6/28/2005	Species of Concern	Marine environment as adults, and estuarine environments for rearing. Mainstem of larger freshwater streams for spawning and seaward migration..
Steelhead *Oncorhynchus mykiss*	Threatened	5/11/2007	None	Variety of environments, including marine and freshwater. Preferred freshwater habitat is fast-moving, well oxygenated streams with gravel substrate and deep pools.
Bull trout *Salvelinus confluentus*	Threatened	6/10/1998	Species of Concern	Marine environment and cold, clean freshwater streams with stable stream conditions, substantial cover, and clean gravel substrate.

Bocaccio *Sebastes paucispinus*	Endangered	4/28/2010	Species of Concern	Marine environment. Rocky reefs, kelp canopies, and artificial structures as juveniles, transitioning to rocky bottoms and outcrops as adults. Typically found 50-250 meters deep.
Yellow rockfish *Sebastes ruberrimus*	Threatened	4/28/2010	Species of Concern	Rocky reefs, kelp canopies, and artificial structures as juveniles, transitioning to rocky bottoms and outcrops as adults. Typically found 91-180 meters deep.
Canary rockfish *Sebastes pinnigger*	Threatened	4/28/2010	Species of Concern	Marine environment. Rocky reefs, kelp canopies, and artificial structures as juveniles, transitioning to rocky bottoms and outcrops as adults. Typically found 50-250 meters deep.
Green sturgeon (Southern DPS) *Acipenser medirostris*	Threatened	4/7/2006	None	Spawn in mainstems of large, turbulent rivers with cobble substrate and clean cold water. Southern DPS does not spawn in Washington rivers. Adults inhabit oceans, bays, and estuaries. Rare in Puget Sound.
Eulachon *Thaleichthys pacificus*	Threatened	3/18/2010	Species of Concern	Inhabit ocean waters to 300 meters deep. Spawn in large, snowmelt-fed rivers less than 50ºF with sand or coarse gravel substrate. Not believed to spawn in Puget Sound tributaries.
Orca (killer whale) *Orcinus orcus*	Endangered	11/18/2005	Endangered	Marine environment, including Puget Sound residents.
Humpback whale *Megaptera novaeangliae*	Endangered	12/2/1970	Endangered	Marine environment from Central America and Mexico (winter) north to southern British Columbia (summer/fall). Rare in Puget Sound.
Canada lynx *Lynx canadensis*	Threatened	3/24/2000	Threatened	Moist coniferous forests with cold, snowy winters.
Grey wolf *Canis lupis*	Endangered	3/9/1978	Endangered	Anywhere large ungulates are available as prey base and human-caused mortality is not excessive. Only historically found in Snohomish County.
Grizzly bear *Urso arctos horribilus*	Threatened	7/28/1975	Endangered	Areas with extensive forest cover interspersed with shrublands, grasslands and meadows. Home ranges must have complex habitat types. Only historically found in Snohomish County.

*No ESA-listed threatened or endangered plant or insect species are documented to occur in Snohomish County

Table 2: Migratory Birds of Concern Potentially Present within the Project Area

Species	Seasonal Occurrence in Project Area	Habitat
Bald eagle *Haliaeetus leucocephalus*	Year-round	Coastal areas or near large inland lakes and rivers that have abundant fish and shores with large trees.
Black swift *Cypseloides niger*	Breeding	Forested areas near rivers (nesting) or mountainous areas and coastal cliffs (foraging)
Caspian tern *Hydroprogne caspia*	Breeding	Fresh- and saltwater wetlands, especially estuaries, coastal bays, and beaches.
Cassin's finch *Carpodacus cassinii*	Year-round	Dry, open, coniferous forests
Fox sparrow *Passerella liaca*	Year-round	Breed in high elevations, especially in wet meadows or in scattered conifers. Winter in recent clearcuts and tangled brush, especially blackberry thickets.
Olive-sided flycatcher *Contopus coopen*	Breeding	Forest openings, preferring recently-burned or cleared areas.
Peregrine falcon *Falco peregrinus*	Breeding	Hunt in open areas along coasts or large waterbodies. Nest on cliffs or cliff-like structures, including tall buildings in urban environments.
Purple finch *Carpodacus purpureus*	Year-round	Moist coniferous and mixed lowland forests.
Rufous hummingbird *Selasphorus rufus*	Breeding	Edges and open areas within coniferous forests.
Short-eared owl *Asio flammeus*	Year-round	Open terrain, including shrub-steppe, grasslands, agricultural areas, marshes, wet meadows, and shorelines.
Willow flycatcher *Empidonax traillii*	Breeding	Willow thickets and brushy areas near streams, marshes, or other wetlands, and in clear-cuts and other open areas with nearby trees or brush.

Figure 1: Map of Potential Habitat Areas

Map has been removed due to species sensitive information.