APPENDIX E

City of Lodi's White Slough Pollution Control Facility Expansion Pond and Kingdon Air Park San Joaquin County, California Compatible Land Use and Wildlife Hazard

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City of Lodi's White Slough Pollution Control Facility Expansion Pond and Kingdon Air Park[1], San Joaquin County, California Compatible Land Use and Wildlife Hazard

1.0 INTRODUCTION

The City of Lodi proposes to construct an additional waste water treatment pond at its existing White Slough Pollution Control Facility, west of Kingdon Air Park, a privately owned, public use airport located in northern San Joaquin County (Figure 1).

The purpose of this report is to assess whether construction and operation of the expansion pond is a compatible land use with Kingdon Air Park in accordance with guidelines established in the San Joaquin County Airport Land Use Compatibility Plan, and whether the expansion pond will act as a wildlife attractant that increases the number of birds within the airport's Area of Influence (AIA).

California State Aeronautics Act, Public Utilities Code Sections 21670 – 21679.5. Article 3.5 outlines the statutory requirements for Airport Land Use Commissions (ALUCs) including the preparation of an Airport Land Use Compatibility Plan (ALUCP). In San Joaquin County, the ALUC was responsible for the preparation of the 2009 Airport Land Use Compatibility Plan Update and the 2013 Project Review Guidelines for the Airport Land Use Commission.

In February 2016, the City of Lodi met with ALUC staff to discuss the proposed expansion pond and to more fully understand the ALUC consistency determination guidance. The ALUC staff deferred any decisions until a full set of environmental and planning documents were available, but inferred that the ultimate land use decision could be made by the City.

The proposed expansion pond is proposed as an infill project at an existing facility within the Kingdon Air Park area of influence as defined by the San Joaquin Airport Land Use Compatibility Plan (Figure 2[2]).

1.1 Project Description

The City of Lodi proposes to construct a 70-acre infill expansion pond and associated conveyance infrastructure at the City-owned White Slough Pollution Control Facility (WSPCF). The 1,040-acre WSPCF is owned by the City and is located approximately 6.5 miles southwest of the City of Lodi in northern San Joaquin County.

The proposed expansion pond will be used to store disinfected, tertiary-treated effluent produced by the WSPCF for use as irrigation water on 886.67 acres of agricultural land that surrounds the WSPCF. The purpose of the project is to provide additional WSPCF effluent supplies for agricultural irrigation. The pond will serve as a water infiltration

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[1] Throughout this report, the Kingdon airfield is referred to as "Kingdon Air Park", the name under which it is permitted by the State of California. Generally, an air park is associated with a residential "fly-in" community or industrial park adjacent to an airport. Regardless, for the purposes of this report Kingdon Air Park is considered an airport.

[2] Figure 2 is taken directly from San Joaquin Council of Governments, *Project Review Guidelines for the Airport Land Use Commission*, 2013, Appendix A.

gallery to offset groundwater withdrawals caused by pumping and pond will contain treated water for ten months of the year.

The City of Lodi considered two alternative infill expansion pond locations within the existing WSPCF property as shown on Figure 3: 1) the southeastern location, east of Interstate 5, and 2) the northwestern location west of the Interstate 5 and the electrical transmission line which bisect the WSPCF property.

- An expansion pond location was proposed in the southeastern portion of the City's WSPCF property (Figure 3), approximately 3,100 feet (west) from the closet point on Kingdon Air Park. Since this location is within the 5,000-foot separation distance for wildlife attractants recommended by federal guidance for airports serving piston powered aircraft, it is not recommended as a site for the expansion pond.
- A 70-acre western infill expansion pond site is located on a portion of the City's agricultural fields directly west of the existing WSPCF treatment and storage facilities (Figure 3). The western infill expansion pond site would be constructed west of the electrical transmission lines that transect the City property and approximately 8,100-feet from closet point on Kingdon Air Park.

1.2 Central Land Use Issue

The following issues need to be addressed to understand the potential effect of the expansion pond as a wildlife attractant and if pond construction is consistent with land use guidelines. The remainder of this report reviews and attempts to clarify these questions.

- Does the construction and operation of an infill expansion pond at the City of Lodi's White Slough Pollution Control Facility represent a compatible land use within the area of influence of the Kingdon Air Park as defined by the San Joaquin County Updated Airport Land Use Compatibility Plan?

- Is the proposed WSPCF expansion subject to a "Consistency Determination" by the San Joaquin County Airport Land Use Commission?

- Is the proposed WSPCF expansion subject to a Federal Aviation Administration (FAA) review in accordance with FAA Advisory Circular 150/5200-33B, *Hazardous Attractants on or Near Airports*?

- Will the construction and operation of additional waste water treatment ponds at the City of Lodi's White Slough Pollution Control Facility act as a wildlife (bird) attractant?

2.0 PROJECT SETTING

2.1 Project Setting

Lodi's White Slough Pollution Control Facility is located at the eastern edge of the California Delta near the headwaters of the slough for which it is named (Figure 1). At an elevation of 7 to 15-feet above mean sea level, the WSPCF is located on reclaimed marsh land near the eastern edge of the northern San Joaquin Valley and is now

surrounded by irrigated agricultural fields. The City property which the WSPCF occupies is bisected, northwest to southeast, by an electrical transmission line and Interstate 5.

White Slough Pollution Control Facility's proximity to the California Delta, the largest estuary on the west coast of North America, strongly influences its relationship to wildlife movements and habitats. The California Delta provides permanent and seasonal habitat for dozens of species of birds which move back and forth between the Delta and the agricultural fields which form its eastern edge.

Within the project vicinity, intensively farmed fields provide foraging habitat for a variety of bird species, while riparian wetlands and woodlands associated with the Delta provide habitat for a wide variety of resident and migratory waterfowl. The existing wastewater ponds on the facility do not provide nesting habitat or a food source and appear to primarily be used for loafing.[3]

In addition to the aquatic and terrestrial habitats, including agricultural land uses, there are three man-made structures which should be considered when addressing potential hazards to aircraft with the vicinity of Kingdon Air Park. All three are located within the WSPCF: 1) Electrical transmission lines, 2) Power Plant and 3) Mosquito abatement ponds.

An overhead high voltage (230 kV) dual electrical transmission line traverses the WSPCF from north to south and is the eastern boundary of the proposed expansion pond. The transmission line is approximately 100-feet tall and about 8,100-feet west of Kingdon Air Park, it is at the western limit of flight tracks shown on ALUCP, Exhibit AKA-1. High voltage power transmission lines pose peculiar hazards to low flying aircraft and the FAA specifies that such structures be marked and lighted. Aircraft operating over or near the transmission lines at typically at an altitude of 800 to 1,000 feet which reduces the threat of electrical interference with communication and navigation devices.

In 2012, the California Energy Commission and Northern California Power Agency constructed a natural gas-fired 255-megawatt power generation facility with an evaporative cooling system on about 4.5-acres of the WSPCF. The power plant emits thermal plumes in the form of steam generated by its cooling towers. Although the FAA as found that thermal emission is not likely to pose a threat to aircraft, it is recommended that aircraft maintain a vertical separation of 1,000 feet above such facilities and is probably the existing vertical separation distance for aircraft using designated Kingdon Air Park flight tracks.

San Joaquin County Mosquito and Vector Control District operates the White Slough Mosquitofish Rearing Facility on the WSPCF property. The district operates about 8-acres of rearing ponds for mosquitofish (*Gambusia affinis*) which produces several thousand pounds of fish annually. The ponds attract a variety of bird species including herons and egrets which feed on the mosquitofish in the shallow rearing ponds.

[3] Moore Biological Consultants, *White Slough Water Pollution Control Facility Expansion Pond Project*, September 2016.

3.0 KINGDON AIR PARK

Kingdon Air Park is a privately owned[4] public use airport located east of the WSPCF in San Joaquin County. The airport was originally constructed in the early 1940's as a U.S. Army Air Corps training facility called Kingsbury Auxiliary Airfield, one of five auxiliary airfields associated with Stockton Army Airfield, now Stockton Metropolitan Airport. In 1946, the Stockton Army Airfield and its auxiliary airfield were declared surplus. All of the auxiliary airfields were deeded to municipalities expect for Kingsbury Auxiliary Airfield, which was ultimately renamed Kingdon.

In February 1972, the State of California issued an airport permit to Kingdon Properties and Kingdon Air Park, Inc. for the Kingdon Air Park[5]. Between 1946, when it was decommissioned by the War Department and 1972, Kingdon was probably used as an unregulated agricultural air strip for local crop duster operations. However, most maps published after 1946 and before 1972 show the facility as the "Kingdon Drag Strip"; the National Hot Rod Association lists Kingdon as an official drag strip until 1978.

Currently, twenty-seven aircraft are based at the airport which reported in 2015 about 8,000 annual operations (take-offs and landings)[6]. The airport has one runway (Runway 12-30), which is 60-feet wide and 3,705-feet in length with a maximum landing distance of 3,410 feet. When originally constructed, the airport had a full length parallel taxiway; however, the taxiway is closed.

In July 2009, San Joaquin County updated its Airport Land Use Compatibility Plan (ALUCP)[7]. Based on interviews with the airport management, the ALUCP indicates that in 2008 the airport served 3,812 itinerant aircraft operations (aircraft using the airfield as a transient) which included aircraft classifications represented by the Cessna Citation small business jet, Dash-6 de Havilland Twin Otter, a twin engine turboprop, and twin engine Beechcraft Baron. According to the ALUCP the airport served a total (local and itinerant) of 22,300 single engine aircraft operations in 2008. The long range forecast for anticipated annual aircraft operations is 84,500 although no date or analytics are provided to determine when or how these operational numbers are expected.

Important to this report, the ALUCP, Exhibit AKA-1, shows the airport's existing and ultimate arrival, departure and "touch-and-go" tracks. That is, the routes aircraft fly when arriving, departing or during pilot training. None of the tracks cross over the preferred alternative WSPCF expansion pond location, but do cross over the existing WSPCF ponds. Based on normal aircraft operations, most aircraft are probably at an altitude of 800 to 1,000-feet when they pass over the existing WSPCF.

Furthermore, proposed construction of the WSPCF infill expansion pond is within the Kingdon Air Park area of influence, or AIA, as shown in Figure 2. The ALUCP states, "The AIA indicates those areas in which current or future airport-related overflights, noise, safety, or airspace protection conditions may significantly affect land uses and

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[4] State of California, Department of Transportation, Division of Aeronautics, Airport Permit lists Kingdon Properties as the owner, January 24, 1984. Other sources list AG Project Management, LLC (FltPlan.com and AirNav.com).
[5] Kingdon Air Park, February 9, 1972, permit number SJ-9.
[6] AirNav.com, O20 Kingdon Airpark
[7] Airport Land Use Compatibility Plan Update, San Joaquin County, Aviation System, San Joaquin County, California, prepared by Coffman Associates, Inc. July 2009.

may require land use restrictions to address those conditions. The airport influence area indicates the area within which the ALUC [Airport Land Use Commission] review of certain land use actions is required." (Page 2-2, ALUCP Update, 2009).

4.0 APPLICABLE LAND USE GUIDELINES

4.1 Federal Land Use Guidance – Wildlife Attractants

Most federal aviation land use guidelines for development within the vicinity of an airport address impacts caused by aircraft noise or the construction of objects that penetrate federally regulated airspace. In the case of the WSPCF expansion ponds, neither of these general conditions is at issue. At the WSPCF the central land use issue is the construction of an infill expansion pond and the potential creation of a wildlife attractant – a new body of water.

Federal guidance for assessing potential wildlife attractants near an airport is found in FAA Advisory Circular (AC) 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*[8]. One purpose of the AC is to provide guidance regarding certain land uses that have the potential to attract hazardous wildlife on or near public use airports such as Kingdon Air Park. The ALUCP incorporated the AC into the ALUCP by stating, in part, "Projects having the potential to cause attraction of birds or other wildlife that can be hazardous to aircraft operations to be increased within the vicinity" should be assessed in "accordance with Advisory Circular 150/5200-33B, H*azardous Wildlife Attractants On or Near Airports.*"

However, Kingdon Air Park is not a federally obligated airport; it is not eligible for federal airport improvement grants and is not part of the National Plan of Integrated Airport Systems. Therefore, the FAA has no authority to review and comment on land use issues that may be examined for Kingdon Air Park in accordance with AC 150/5200-33B.[9] The ALUC may use guidance in the AC as part of its review process for wildlife attractants but the FAA is not a statutory or 'volunteer' reviewing agency.

By relying on guidance in the ALUCP even though there is no FAA funding or permit nexus for Kingdon Air Park, except for protection of federal airspace in the immediate vicinity of the airport, AC 150/5200-33B "recommends the guidance in [the] AC for land-use planners, operators of non-certificated airports, and developers of projects, facilities, and activities on or near airports." According to the AC the first step towards evaluating the potential for wildlife hazards within the vicinity of an airport is to determine the separation distance (in linear feet) from the airport to a potential wildlife attractant.

Following federal guidance in the AC, the minimum separation distance for wildlife attractants from Kingdon Air Park is 5,000 feet: "Airports that do not sell Jet-A fuel normally serve piston-powered aircraft. Notwithstanding more stringent requirements for specific land uses, the FAA recommends a separation distance of 5,000 feet at these airports for any of the hazardous wildlife attractants…or for new airport development projects meant to accommodate aircraft movement."[10] According to flightware.com (October 27, 2016) Kingdon Air Park does not sell Jet-A fuel, and therefore does not service aircraft whose use of the airport would require a greater

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[8] U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular Number 150/5200-33B *Hazardous Wildlife Attractants On or Near Airports,* August 28, 2007.
[9] Personal communication, FAA San Francisco Airports District Office, Brisbane, California, November 2016.
[10] AC 150/5200-33B, Section 1-2, p. 1.

separation distance and the ALUCP does not establish any more stringent requirements for "special land uses".

Furthermore, since no turbine powered aircraft are based at Kingdon Air Park[11], incidental use of the airport by turbine-powered, fixed-wing aircraft does not affect the 5,000-foot separation distance.[12]

According to a letter from the San Joaquin Council of Governments[13] which commented on the WSPCF expansion, the "project is…subject to FAA review as outlined in Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants on or Near Airports.* Of particular concern are land uses, including wastewater treatment facilities, within 10,000 feet of airport operations areas." As stated above, this statement is not supported by the AC or by FAA statutory reviewing authority.

However, the proposed expansion pond project is located within the Kingdon Air Park area of influence (Figure 2) and, therefore, may be subject to review by the ALUC.

4.2 Airport Land Use Compatibility

California law defines the area of influence, or Airport Influence Area (AIA), as "the area where airport-related factors may significantly affect land uses or necessitate restrictions on those uses as determined by an airport land use commission. According to the State Division of Aeronautics, the AIA is usually the planning area designated by an airport land use commission for each airport." The area of influence for Kingdon Air Park, as designated by the ALUC is shown in Figure 2 and includes the entire WSPCF.

The Kingdon Air Park area of influence is referred to as "Zone 8 (AIA)" on the *Kingdon Executive Airport*[14] *and Lodi Airpark Land Use Compatibility Zones* map.[15] Among the land use restrictions in Zone 8 are hazards to flights, including "land use development that may cause the attraction of birds to increase is also prohibited."

The adopted ALUCP identifies an area of influence that establishes the area subject to consistency with the policies and criteria in the ALUCP. Land use consistency determinations are limited to general and specific [land use] plans. The primary statutory limitation on the ALUC, stated in PUC Sections 21670(a)(2) and 21674(a), is the lack of authority over existing land uses. An ALUC has no authority to command changes to land uses that are existing or vested, regardless of whether they are incompatible with airport activities.

The City of Lodi General Plan (April 2010) designates the WSPCF as a Public/Quasi-Public land use and has since the mid-1960's. This land use classification is applied to properties owned by government entities or quasi-public users and includes government facilities, public and private schools, and libraries. Therefore, according to the *California*

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[11] San Joaquin Council of Governments, Airport Land Use Commission and the San Joaquin County Airport Land Use Compatibility Plan, Table AKA-1.
[12] Ibid, AC150/5200-33B, Appendix A, line 15.
[13] San Joaquin Council of Governments (ALUC), letter to Ms. Heather R. Shaddox, Project Geologist Petralogix Engineering Inc., November 10, 2015, regarding San Joaquin ALUC Comments for White Slough Pollution Control Facility Storage Expansion and Surface, Agricultural, and Groundwater Supply Improvement Project
[14] The name "Executive Airport" is a marketing term usually associated with airports that serve as reliever airports; it does not denote any particular characteristics or services.
[15] San Joaquin Council of Governments, *Project Review Guidelines for the Airport Land Use Commission*, 2013, Appendix A.

Airport Land Use Planning Handbook, WSPCF is considered an existing use and has a vested right to construct treatment facility improvements.[16]/[17]

Existing land uses in vicinity of the Kingdon Air Park for which the ALUC asserts jurisdiction are shown on ALUCP Exhibit 2KA-3; that is, land use planning designations in either the City of Lodi or the San Joaquin County General Plans. According to the ALUCP, ALUC review for land uses identified in the City of Lodi's General Plan terminates east of Interstate 5 and does not include the WSPCF.

Furthermore, "where development is not in conformance with the criteria set forth in this ALUCP already exists, additional infill development of similar land uses may be allowed to occur even if such land uses are to be prohibited elsewhere in the zone." (ALUCP Section 3.2, Special Conditions 3.2.1 Infill).

However, since the WSPCF is located within the ALUCP area of influence for the Kingdon Air Park, the ALUC may initiate a consistency determination review because, "Land use development that may cause the attraction of birds to increase is also prohibited." There is some conflict over ALCU jurisdictional reviews. Therefore, to determine if "the attraction of birds" is likely to increase because of the construction and operation of the 70-acre infill expansion pond, Wallace Environmental Consulting conducted four seasonal bird counts on the WSPCF. The underlying assumption is that if an increase in the number of birds attracted to a new body of water is greater than the number of birds attracted to existing land use, there may be an increase hazard to aircraft using Kingdon Air Park.[18]

7.0 WILDLIFE HAZARDS

7.1 Existing WSPCF Conditions

As shown in Figure 4, the area for the proposed expansion pond is west of the existing 50-acres of wastewater treatment ponds and northwest of about 8.5-acres of mosquito abatement ponds all located within the existing WSPCF. The ground where the expansion pond will be located has historically been used to grow alfalfa, wheat and corn, a crop mix consistent with other area agricultural operations.

Water contained in the existing ponds is used to irrigate crops on the WSPCF and as infiltration basins for groundwater recharge. The sides if the ponds are composed of rock, the bottoms are unlined. There is very little vegetation on the sides of the ponds or on the areas immediately surrounding the ponds. Some of the ponds hold water year around, while others are dry during months when irrigation is most widely used.

7.2 Wildlife Observations

Four two-day seasonal bird observation studies were made in the winter, spring, summer and fall of 2016. The studies, conducted by a qualified airport wildlife biologist, were intended to count and identify the number and types of birds visiting the existing ponds and the proposed location of the infill expansion pond. A supplemental part of the observations was to determine which direction the birds flew at different times of the day.

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[16] Section 3.5.1, pg. 3-49
[17] Section 3.5.1, pg. 3-51
[18] Bird counts were conducted by a certified airport wildlife biologist in the winter, spring, summer and fall of 2016.

The observations were made at the WSPCF ponds, the mosquito abatement ponds and in the agricultural field west of the existing WSPCF ponds.

Bird observations at the WSPCF are considered to be representative of a given year since the observations were conducted seasonally over a one year period. Bird movements between the California Delta and the San Joaquin Valley are affected by seasonal migration patterns along the Pacific Flyway, available habitat and by seasonal crop types. Bird observations on and over the WSPCF were unobstructed because of the open nature of the facility.

Bird counts and flight directions were observed over four, two day periods in 2016. Each observation period lasted at least 12 hours and paid particular attention to birds in the morning and evening when they are typically most active. The observations occurred throughout the WSPCF including the mosquito abatement ponds where fish are raised for vector control. All of the open water ponds and the agricultural fields which will become the expansion pond on the WSPCF attracted birds which were identified and counted each day.

Most frequently observed birds visiting WSPCF and the mosquito abatement pond areas are shown in Table 1. The frequently observed birds visiting the agricultural fields are shown in Table 2. (Complete bird count data are presented in Appendix A.)

Table 1: Most Frequently Observed Birds in Existing Pond Areas

Bird	Total Observations (2016)
Canada goose (*Branta canadensis*)	413
Mallard (*Anas plattrynchos*)*	343
Bufflehead (*Bucephala albeola*)*	401
American coot (*Fulica Americana*)*	904
Killdeer (*Charadrius vocferus*)*	435
Least sandpiper (*Calidris minutilla*)*	379
Gull (California and Western gulls; undifferentiated)*	319
Starlings (*Sturnus vulgaris*)	140
Song sparrow (*Melospiza melodia*)	804
House finch (*Carpodacus mexicanus*)	156
Blackbirds (Red-winged and Brewers; undifferentiated)	673

*Observed only in WSPCF ponds

A total of about 6,445 birds were observed over the course of four observation periods either on or in the vicinity of the existing ponds. Of that number, 40% were observed in February (winter); 26% in April (spring); 20% in July (summer) and 14% in October (fall). These numbers are consistent with regional bird counts which indicate that the California Delta, and the Sacramento and San Joaquin Valleys offer wintering habitat to migratory bird species along the Pacific Flyway. The resident, or year-around, birds, probably includes Starlings, Song sparrow, House finch and Blackbirds which were also observed in large numbers in the agricultural fields.

To break down the observed bird counts further, over the course of eight days, about 805 individual birds were observed each day. If that number is extrapolated for a one-year period, about 294,000 birds visit the ponds annually. Since the existing ponds occupy about 50-acres, there are about 5,875 bird visits per acre of pond surface per year.

However, since the proposed infill expansion pond is operated only 10 months of the year, and is dry in July and August, the actual number of birds likely to be attracted to the pond is less than if the ponds were used year-around. Therefore, based on 70-acres of new ponds operating 10 months of the year, the estimated number of annual bird visits is probably about 411,000. However, that number is offset by the number of birds already visiting the 70-acres of agricultural land.

A total of about 3,672 birds were observed over the course of four observation periods in the vicinity of the agricultural fields. Of that number, 27% were observed in February (winter); 17% in April (spring); 32% in July (summer) and 25% in October (fall). These numbers are consistent with bird counts which indicate that birds are feeding on crops during the summer growing season. The resident, or year-around, birds probably includes Starlings, Song sparrow, House finch and Blackbirds which were also observed in large numbers around the ponds.

Table 2: Most Frequently Observed Birds in Agricultural Fields

Bird	Total Observations (2016)
Red-tailed hawk (*Buteo jamaicensis*)	130
Long-billed curlew (*Numenius americanus*)	290
Western kingbird (*Tyrannus verticalis*)	128
Crow (*Corvus brachyrhynchos*)	510
Western meadowlark (*Sturnella neglecta*)	201
Starlings (*Sturnus vulgaris*)	647
Song sparrow (*Melospiza melodia*)	134
Blackbirds (Red-winged and Brewers; undifferentiated)	1040

To break down the observed bird counts further, over the course of eight days, about 460 individual birds were observed each day. If that number is extrapolated for a one-year period, about 167,900 birds visit the 70-acres of agricultural land to be replaced by the proposed infill expansion pond annually. Since the existing agricultural land occupies about 70-acres; annually there are about 2,400 bird visits per acre.

Based on observations at the WSPCF it is estimated that the new ponds will attract about 411,000 birds annually. The increase in annual bird visits is likely about 243,100.

Therefore, based on field observations, and extrapolating 2,400 bird visits per acre per year over the 7,481-acre[19] Kingdon Air Park area of influence, for a total of about 17,954,000 annual bird visits, it can be projected that infill expansion pond acts as a bird attractants within the area of influence and represents about a 1.35 percent increase in total birds attracted to the area of influence.

7.3 Bird Movements

Bird movements over the WSPCF indicate that regardless of the time of day or time of year, most birds move from the Delta into the agricultural fields (west to east) east of WSPCF or from the agricultural fields into the Delta (east to west). The most numerous birds migrating back-and-forth from the Delta were ducks, crows, blackbirds and gulls.

Ducks and other aquatic birds move towards other sources of water in the rivers, ponds and sloughs east and west of Interstate 5. The gulls probably move into plowed or fallow

[19] ALUCP, Table IX.b 1, pg. F-14

fields, while the crows, starlings and blackbirds move into vineyards, orchards, row crops, wheat/alfalfa fields and a cattle feed lot east of Interstate 5.

Table 3: Percentage of Birds by Flight Direction, Morning Observations

Season/ Flight Direction	W→E	E→W	SE→NW	NW→SE	SW→NE	NE→SW	Total Birds Observed
Winter (%)	14	2	29	8	43	7	733*
Spring (%)	6	3	≤1	≤1	8	≤1	154*
Summer (%)	13	2	1	9	1	≤1	474*
Fall (%)	12	1	≤1	≤1	41	10	611*

*Other bird movement north to south or south to north, east and west of Interstate 5.

Most frequently observed bird species in the morning movements:

- Winter: Ducks (31%); Gulls (13%) and Blackbirds (36%)
- Spring: Crows (73%) and Ducks (8%)
- Summer: Crows (43%) and Blackbirds (30%)
- Fall: Crows (45%) and Blackbirds (42%)

Table 4: Percentage of Birds by Flight Direction, Evening Observations

Season/ Flight Direction	W→E	E→W	SE→NW	NW→SE	SW→NE	NE→SW	Total Birds Observed
Winter (%)	65	33	≤1	≤1	5	≤1	110*
Spring (%)	65	9	≤1	9	≤1	≤1	26*
Summer (%)	≤1	58	≤1	≤1	≤1	≤1	244**
Fall (%)	24	≤1	≤1	≤1	6	≤1	178*

*Other bird movement north to south or south to north, east and west of Interstate 5.
**Large numbers of birds (37%) were observed flying north/south along the Interstate 5 corridor east of WSPCF

Most frequently observed bird species in the morning movements:

- Winter: Ducks (32%) and Gulls (64%)
- Spring: Ducks (61%) and Canada Geese (23%)
- Summer: Blackbirds (82%) and Egrets (5%)
- Fall: Egrets (39%) and Canada Geese (49%)

Bird movements over the WSPCF demonstrate a relationship between the Delta environment and the agricultural fields east of Interstate 5. During the summer growing season, flocking birds such as crows and blackbirds dominate the movement as they flock to, or return from, the agricultural fields within the Kingdon Air park area of influence. Spring and winter movements are dominated by flocking birds, ducks and geese as they traverse the area of influence to forage in fallow fields and aquatic habitats; migrating herons and egrets also moved over the WSPCF to and from roosting areas in riparian habitat along rivers and sloughs east and west of Interstate 5.

Bird movements indicate that the Kingdon Air Park area of influence is an active and attractive habitat from many species of birds. It is clear, that regardless of the time of year, birds move across the boundary between the California Delta and the San Joaquin Valley to forage and roost in the agricultural fields which dominate land use in the area of influence.

8.0 CONCLUSIONS

1. Eastern portions of the White Slough Pollution Control Facility are within 5,000-feet of the Kingdon Air Park, including portions of the existing ponds; the proposed 70-acre infill expansion pond is approximately 8,000 west of the airport and is the recommended project location.
2. White Slough Pollution Control Facility infill expansion pond construction is not subject to FAA review as a possible wildlife hazard because Kingdon Air Park is not a federally obligated airport.
3. White Slough Pollution Control Facility is located on land owned by the City of Lodi which has designated it Public/Quasi-Public land use. According to the *California Airport Land Use Planning Handbook*, WSPCF is considered an existing use and has a vested right to construct treatment facility improvements.
4. San Joaquin County ALUC does not have jurisdiction over an existing land use when that land use is permitted within a designated land use as shown on an adopted General Plan.
5. San Joaquin County ALUC has included the WSPCF within the Kingdon Air Park area of influence, Zone 8, which prohibits the construction of facilities that increase the number of birds attracted to the area of influence.
6. Bird counts conducted in 2016 indicate that the number of birds will increase by about one percent at the new infill ponds verses the number birds currently attracted to the existing land uses within the 7,481-acre Kingdon Air Park area of influence.
7. Bird movements indicate that birds move freely between the California Delta and the San Joaquin Valley and are attracted to existing aquatic habitat generally west of Interstate 5 and the agricultural land which dominate land use east of Interstate 5.
8. Bird movements from the WSPCF to the east can be divided into two groups; 1) flocking birds such as blackbirds, starling and crows which generally travel within a few tens-of-feet from the ground under the transmission lines and across Interstate 5, and 2) Larger aquatic birds such as ducks, gulls, geese, egrets and herons move at higher altitudes, but probably less than 300-feet to 500-feet when they cross Interstate 5.
9. Birds traversing from the Delta without using WSPCF habitat may be at altitudes between 500-feet and 3,000-feet. Typically these birds are moving to locations east of Interstate 5 and include geese, ducks and some raptors.

9.0 REFERENCES

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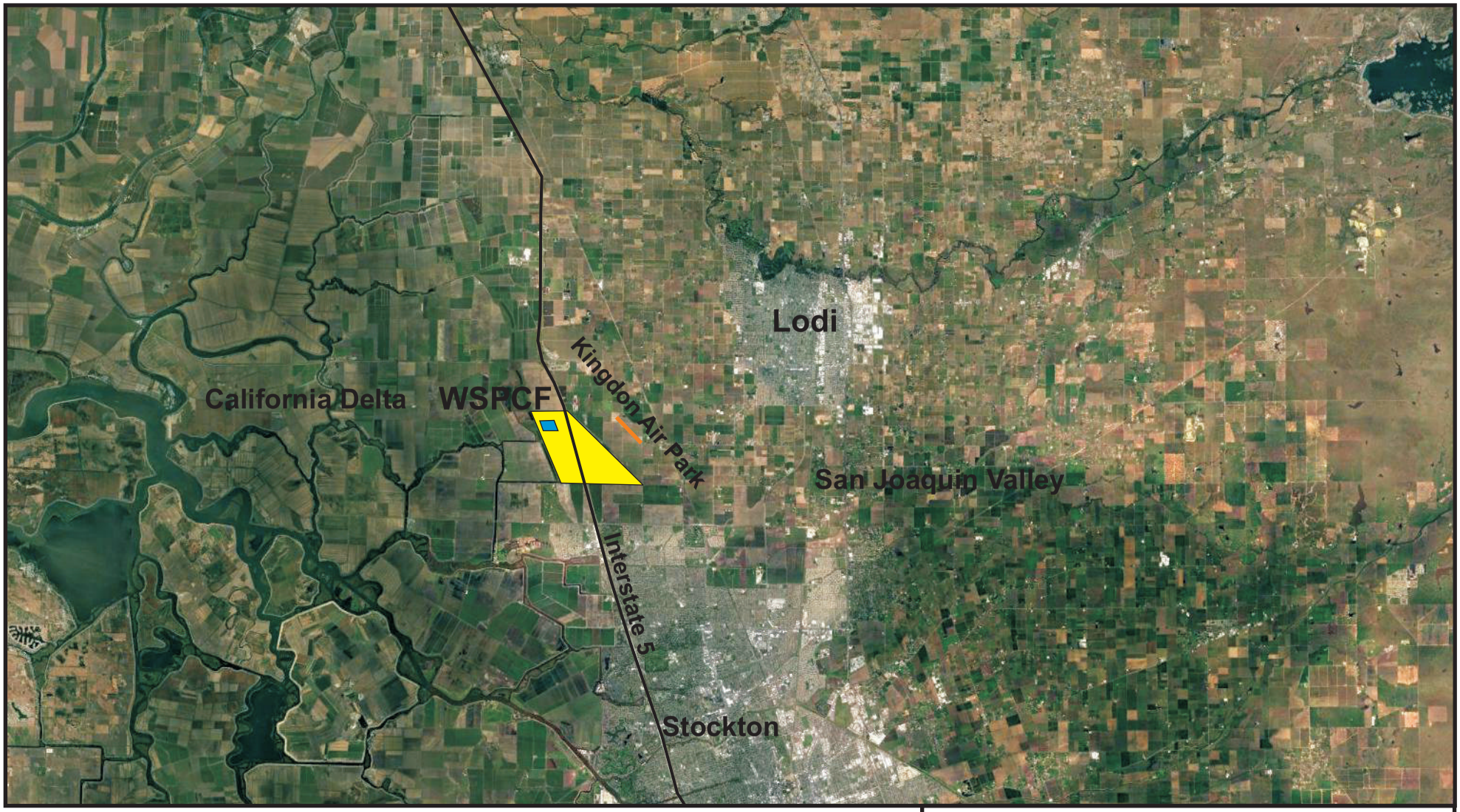
West Yost Associates, Technical Memorandum, February 11, 2014, Land Application Area Expansion Study for the City of Lodi White Slough Water Pollution Control Facility.

City of Lodi's White Slough Pollution Control Facility Expansion Pond and Kingdon Air Park
San Joaquin County, California
Compatible Land Use and Wildlife Hazard

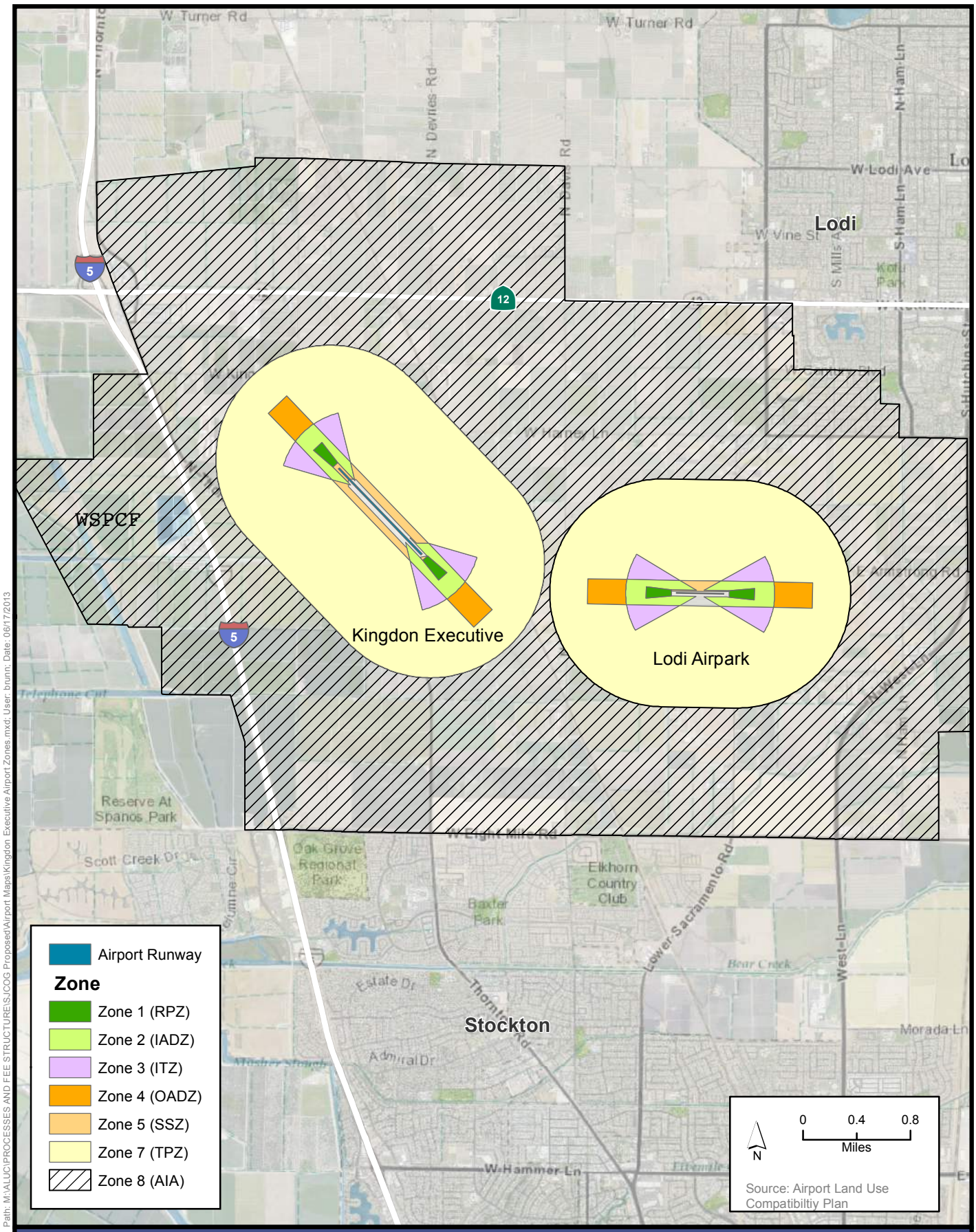
FIGURES



City of Lodi
Proposed Expansion of
Wastewater Treatment Ponds

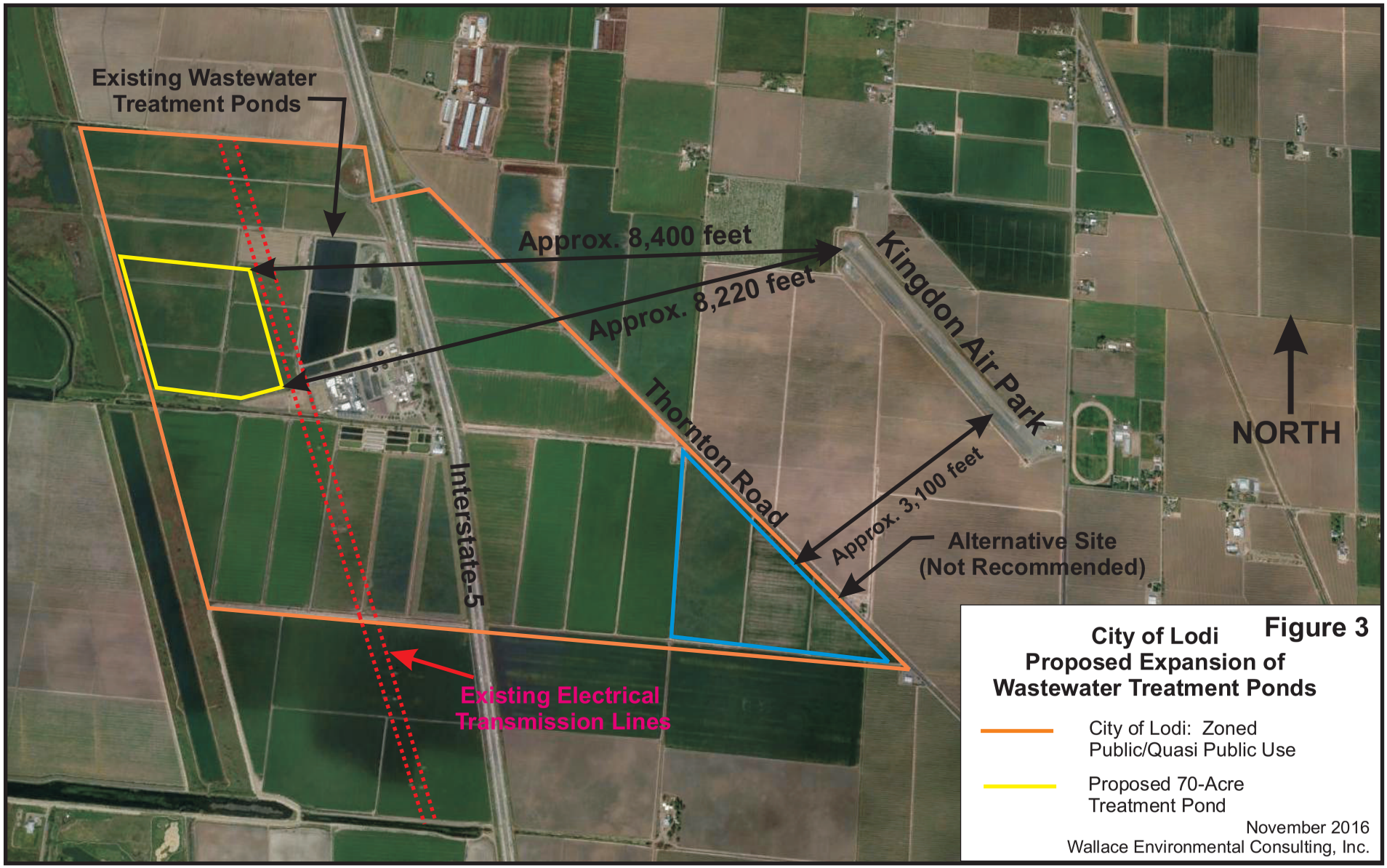
Figure 1

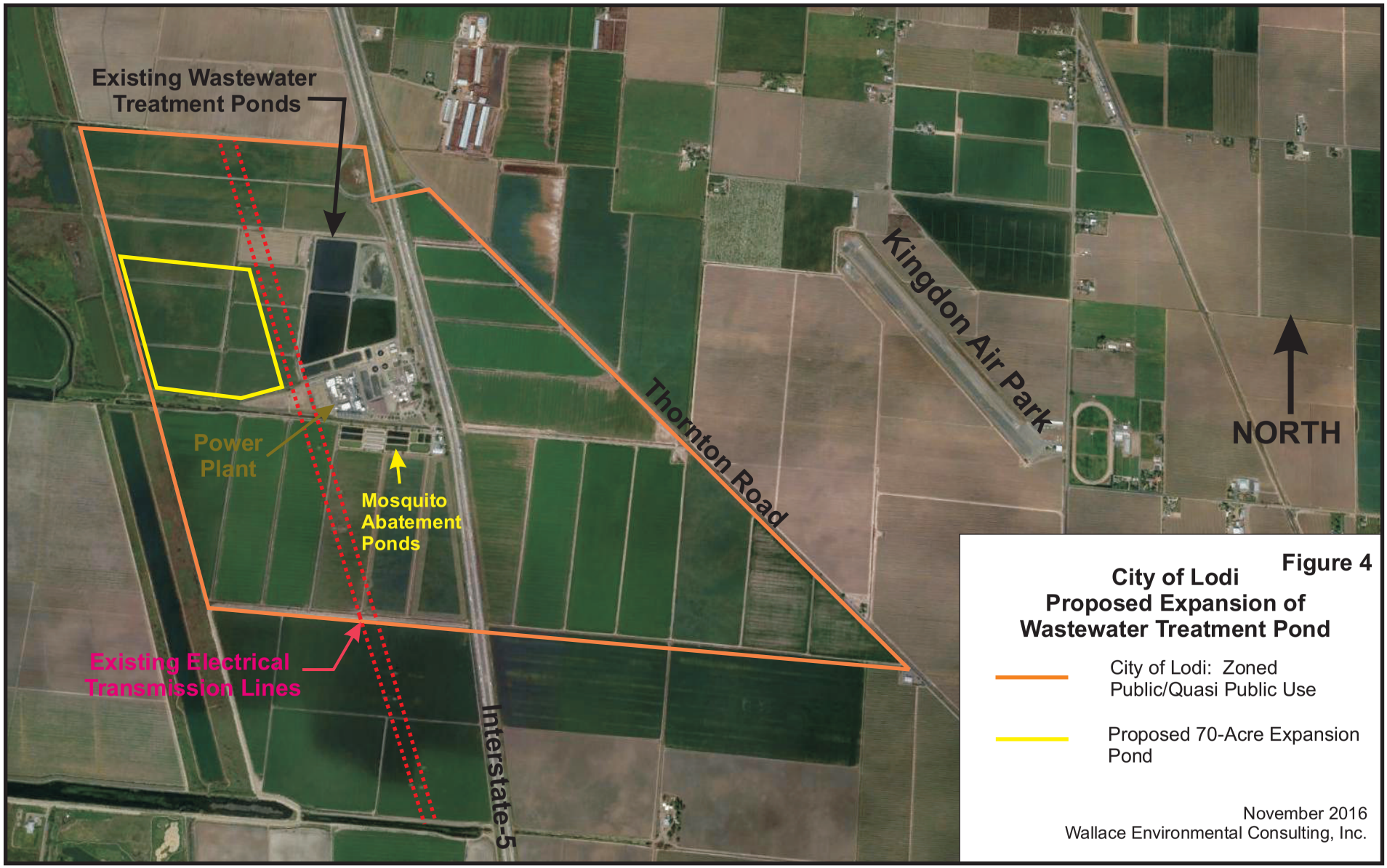
FIGURE 2



Path: M:\ALUC\PROCESSES AND FEE STRUCTURE\SJCOG Proposed\Airport Maps\Kingdon Executive Airport Zones.mxd; User: brunn; Date: 06/17/2013

KINGDON EXECUTIVE AIRPORT AND LODI AIRPARK LAND USE COMPATIBILITY ZONES


Existing Wastewater Treatment Ponds
Approx. 8,400 feet
Approx. 8,220 feet
Kingdon Air Park
Thornton Road
Interstate-5
Approx. 3,100 feet
Alternative Site (Not Recommended)
NORTH
Existing Electrical Transmission Lines
City of Lodi
Proposed Expansion of Wastewater Treatment Ponds
Figure 3
City of Lodi: Zoned Public/Quasi Public Use
Proposed 70-Acre Treatment Pond
November 2016
Wallace Environmental Consulting, Inc.


Existing Wastewater Treatment Ponds
Power Plant
Mosquito Abatement Ponds
Existing Electrical Transmission Lines
Interstate-5
Thornton Road
Kingdon Air Park
NORTH
Figure 4
City of Lodi
Proposed Expansion of Wastewater Treatment Pond
City of Lodi: Zoned Public/Quasi Public Use
Proposed 70-Acre Expansion Pond
November 2016
Wallace Environmental Consulting, Inc.

City of Lodi's White Slough Pollution Control Facility Expansion Pond and Kingdon Air Park
San Joaquin County, California
Compatible Land Use and Wildlife Hazard

APPENDIX A

BIRD SURVEY RESULTS

Trip Ponds	2/13-14 2016	4/28-29 2016	7/20-21 2016	10/8-9 2016	Total
Species					
Eared grebe		5	1	38	44
American white pelican			4		4
Double crested cormorant			2	1	3
Western grebe	2				2
Great blue heron	2	2	6	2	12
Great egret	5		20	26	51
Snowy egret	6	1	50	43	100
Canada goose	20	24	152	12	208
Greater white-fronted goose		6			6
Mallard	108	215	20		343
Northern shovler	34			49	83
American widgeon	75				75
Canvasback	72	21	47		140
Lesser scaup		10			10
Common goldeneye		1			1
Bufflehead	398	2		1	401
Ruddy duck	22			9	31
American coot	568	281	1	54	904
Red-tailed hawk		2	8	2	12
Turkey vulture		1		1	2
California quail			3		3
Black-bellied plover		129		5	134
Killdeer	179	120	70	66	435
Black-necked stilt	66	11	111	51	239
American avocet	11	2			13
Greater yellowlegs	12		42	10	64
Long-billed curlew		2			2
Least sandpiper	75		219	85	379
Long-billed dowitcher		53			53
Gull	316	3			319
Forster's tern		19	4		23

Rock pigeon	37		5	1	43
Black phoebe	2		4	2	8
Cliff swallow		114			114
Barn swallow		10	20	6	36
Crow		21		2	23
American robin			6		6
Starlings	100	3	7		110
Song sparrow	169	357	184	23	733
House finch			51		51
Blackbirds Red-winged and/or Brewers	130	13	35	292	470
Total	2409	1423	1067	743	5642

Trip Ag	2/13-14 2016	4/28-29 2016	7/20-21 2016	10/8-9 2916	Total
Species					
Double crested cormorant	8				8
Western grebe	2				2
Great blue heron	1		4	3	8
Sandhill Crane				4	4
Great egret			12	23	35
Snowy egret			1		1
Canada goose				3	3
Mallard	8				8
Red-tailed hawk	53	47	27	3	130
Coopers hawk				1	1
Northern harrier	17	24	11	1	53
Turkey vulture	4	16	3	5	28
American kestrel	27		1	4	32
Killdeer	3		1	69	73
Long-billed curlew				290	290
Least sandpiper	43				43
Eurasian collered-dove				2	2
Mourning dove	28	43	22		93
Western kingbird		33	95		128
Horned lark			75		75
Barn swallow			37		37
Crow	79	104	229	98	510
American robin	2				2
Northern mockingbird		12	15	2	29
Western meadowlark	129			72	201
Starlings	224		422	1	647
White-crowned sparrow	19	15			34
Song sparrow	55	79			134
House sparrow				4	4
Lincoln sparrow				6	6
House finch		11			11

Blackbirds Red-winged and/or Brewers	278	239	202	321	1040
Total	980	623	1157	912	3672

Trip Mosquito Abatement and Power Plant	2/13-14 2016	4/28-29 2016	7/20-21 2016	10/8-9 2016	Total
Species					
Double crested cormorant	5	3			8
Western grebe	2				2
Great blue heron	4	1	5	2	12
Great egret			4	3	7
Green heron				2	2
Snowy egret			8	6	14
Canada goose	6	12	40	38	96
Swainson's hawk				1	1
Red-tailed hawk	1	4	1	1	7
Coopers hawk				1	
Northern harrier	2	3	1		6
Killdeer	23	47	22		92
Black-necked stilt				1	1
Forster's tern		3			3
Rock pigeon	5	7	8	3	20
Eurasian collered-dove	2	8	3	1	14
Mourning dove	10	9	11	8	38
Black phoebe		3		3	6
Western kingbird		2			
Northern mockingbird				2	2
Western scrub jay				9	9
Crow	9	8		3	20
American robin	1	1	2		4
Starlings	29	1			30
White crowned sparrow				1	1
Song sparrow	38	39	24		101
House finch	43	35	26		104
Blackbirds Red-winged and/or Brewers	26	90	31	56	203
Total	206	276	186	141	803

City of Lodi's White Slough Pollution Control Facility Expansion Pond and Kingdon Air Park
San Joaquin County, California
Compatible Land Use and Wildlife Hazard

BIRD MOVEMENT RESULTS

Morning Movement	North→South E of I5	South→North E of I5	North→South W of I5	South→North W of I5	West→East	East→West	SE→NW	NW→SE	SW→NE	NE→SW	Flights west of ponds	Total
Species												
Great egret				1					4	18	2	25
Snowy egret										3		3
Canada goose										40		40
Red-tailed hawk	1	1										2
Sandpiper									4			4
Crow		162		2	6	1			102		7	280
Blackbirds Red-winged/Brewers		46		2	66	6			137			257
Total	1	209		611	72	7			247	61	9	611

Morning Movement	North→South E of I5	South→North E of I5	North→South W of I5	South→North W of I5	West→East	East→West	SE→NW	NW→SE	SW→NE	NE→SW	Flights west of ponds	Total
Species												
Great blue heron	1					2						3
Snowy egret					1							1
Canada goose			5	2	1				3			11
Ducks	1			1	3						8	13
Red-tailed hawk						1					2	3
Killdeer				1								1
Gull	1	1			2						2	6
Terns					2							2
Crow	6	4	3			1			1			15
Blackbirds Red-winged/Brewers	37	51		2					9			99
Total	46	56	8	6	9	4			13		12	154

Morning Movement	North→South E of I5	South→North E of I5	North→South W of I5	South→North W of I5	West→East	East→West	SE→NW	NW→SE	SW→NE	NE→SW	Flights west of ponds	Total
Species												
American white pelican					1	1						2
Double crested cormorant					1						1	2
Great blue heron					1							1
Great egret				5	1	5				3		14
Snowy egret			4	3								7
Canada goose			34									34
Ducks							5					5
Red-tailed hawk			1		1				1		10	13
Sandpiper					1	2						3
Mourning dove					1				5			6
Crow		202										202
Blackbirds Red-winged/Brewers		61	2	3	57	1					19	143
Total								42				42
		263	41	11	64	9	5	42	6	3	30	474

Morning Movement/Winter	North→South E of I5	South→North E of I5	North→South W of I5	South→North W of I5	West→East	East→West	SE→NW	NW→SE	SW→NE	NE→SW	Flights west of ponds	Total
Species												
Great blue heron					1							1
Snowy egret										1		1
Ducks					10	12	200		3	6		231
Sandpiper								60				60
Gull					93				1			94
Crow		28							44			72
Sparrows			7									7
Blackbirds Red-winged/Brewers									267			267
Total		28	7		104	12	200	60	315	7		733

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2015-AWP-11595-OE

Issued Date: 12/15/2015

Craig Hoffman
City of Lodi
221 West Pine Street
Lodi, CA 95240

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wastewater Storage Pond (NW Location)
Location:	Lodi, CA
Latitude:	38-05-25.64N NAD 83
Longitude:	121-23-39.25W
Heights:	10 feet site elevation (SE)
	4 feet above ground level (AGL)
	14 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 L.

This determination expires on 06/15/2017 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

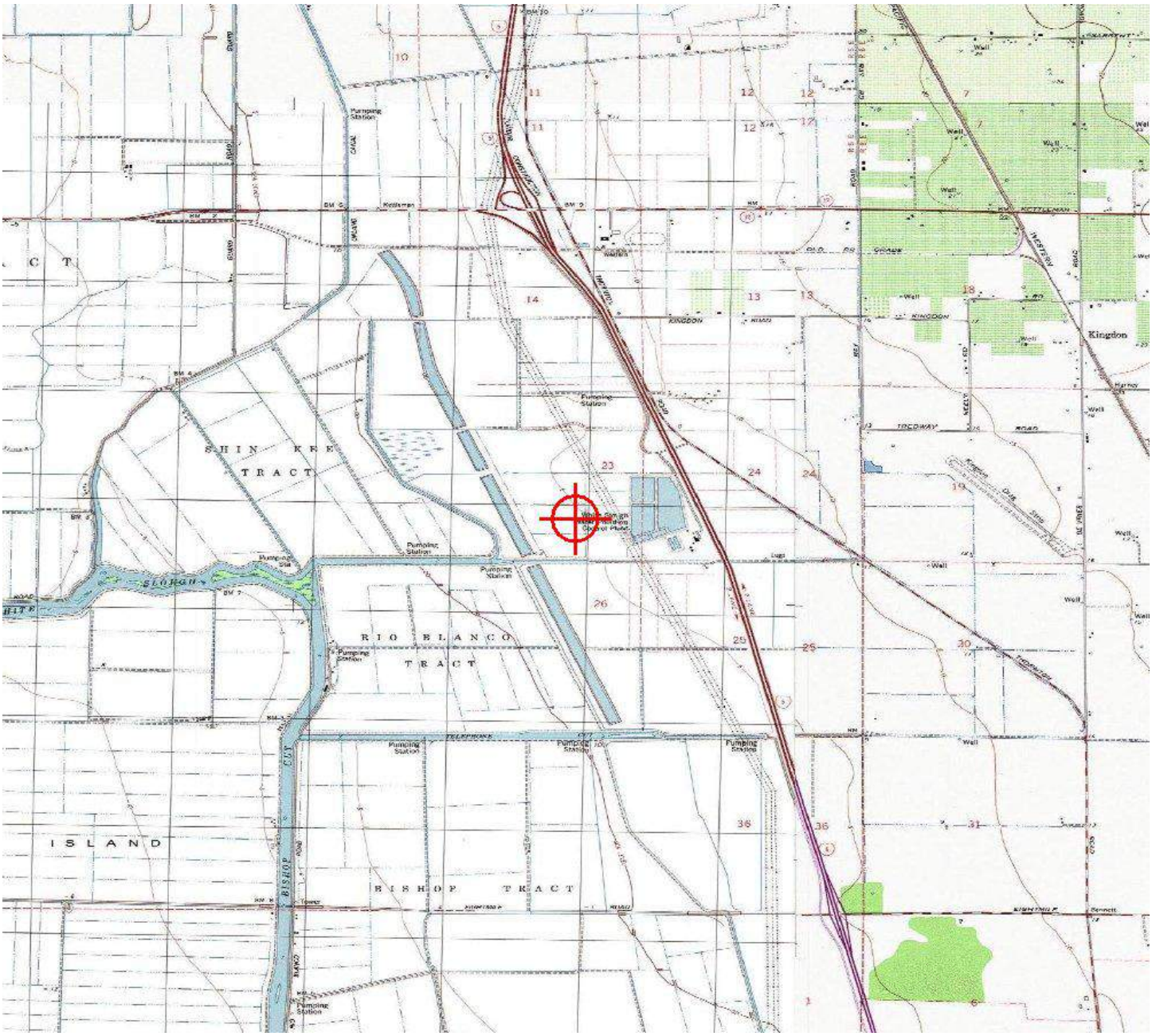
Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (310) 725-6557. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2015-AWP-11595-OE.

Signature Control No: 273905609-275166526 (DNE)
Karen McDonald
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2015-AWP-11595-OE



SAN JOAQUIN COUNCIL OF GOVERNMENTS

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THE COUNTY OF
SAN JOAQUIN

November 10, 2015

Ms. Heather R. Shaddox, Project Geologist
Petralogix Engineering Inc.
26675 Bruella Road
Galt, CA 95632

RE: San Joaquin ALUC Comments for White Slough Pollution Control Facility Storage Expansion and Surface, Agricultural, and Groundwater Supply Improvement Project

Dear Ms. Shaddox:

The San Joaquin Council of Governments (SJCOG), acting as the Airport Land Use Commission (ALUC), has reviewed the request for comments on items to be included as part of the initial environmental study. This project includes the construction of a 70-acre Expansion Pond at the White Slough Water Pollution Control Facility (WPCF). The project proposes two different possibilities for project location. Both locations are located within the area of influence for Kingdon Airport near Lodi.

Given proposed project locations, and pursuant to the State Aeronautics Act (Public Utilities Code Section 21676), the project is subject to a Consistency Determination by the San Joaquin County ALUC. All projects within Kingdon Airport's area of influence are subject to the policies and criteria within the San Joaquin County Airport Land Use Compatibility Plan (ALUCP). The site map included with the letter to our office dated October 1, 2015 was utilized for the attached map of the two proposed project areas relative to the airport safety zones for Lodi's Kingdon Airport. Site 1, the preferred site, spans across two zones of the referenced ALUCP: Zone 7 TPZ (Traffic Pattern Zone), and Zone 8 AIA (Airport Influence Area). Site 2, the secondary option, occupies Zone 8 solely.

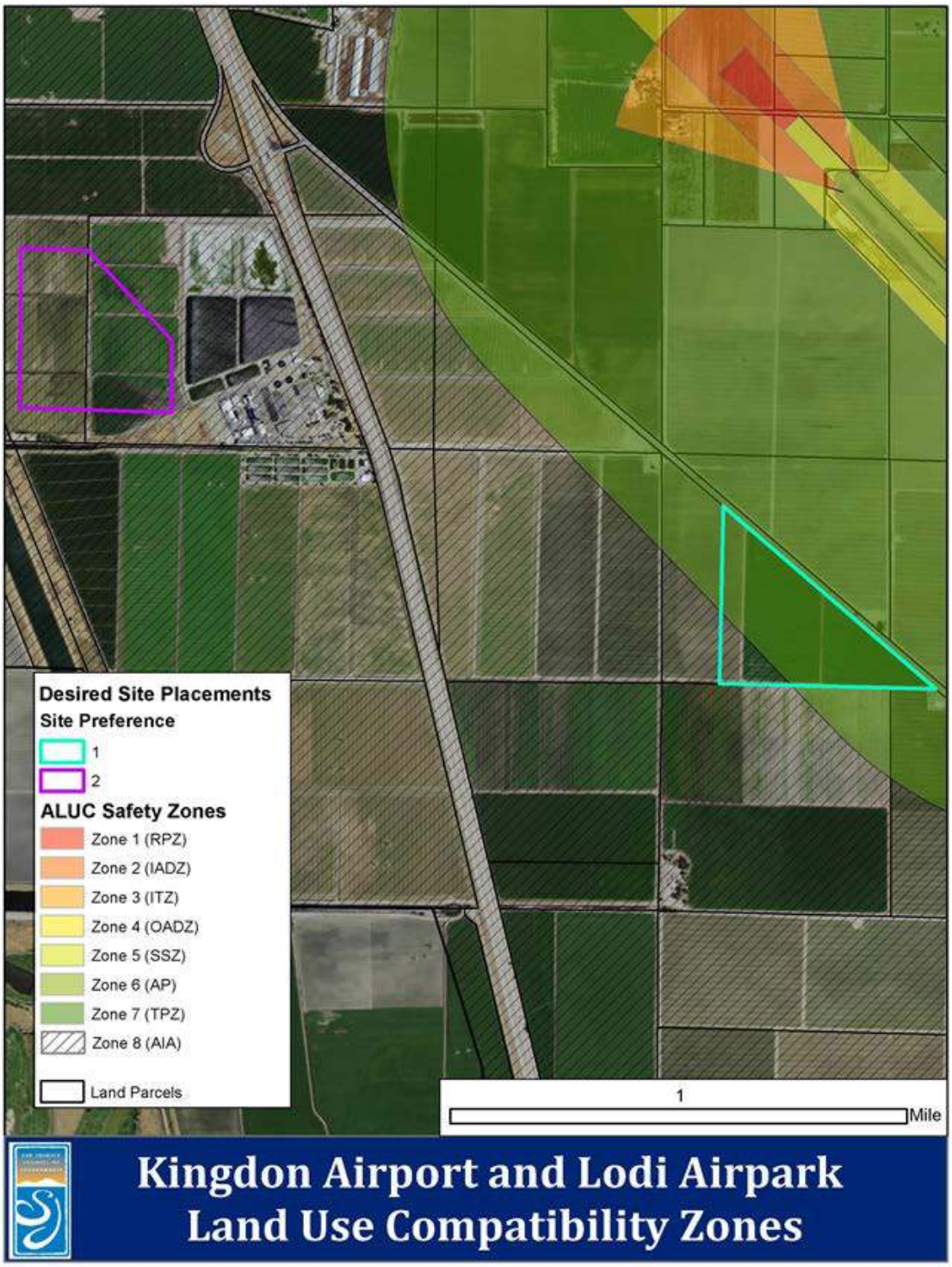
Among other conditions that will be covered at the time of the consistency

determination is potential hazards to flight. Potential hazards to flight include "land use development that may cause the attraction of birds to increase." Therefore, any environmental document should contain a consistency analysis of the proposed land uses relative to the 2009 ALUCP zones for Kingdon Airport, particularly as they relate to the potential for increased attraction of birds. The project is further subject to FAA review as outlined in Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants on or Near Airports.* Of particular concern are land uses, including wastewater treatment facilities, within 10,000 feet of airport operations areas. The FAA encourages early notification of such land-uses (project proponents may use FAA Form 7460-1, Notice of Proposed Construction or Alteration, to notify the appropriate FAA Regional Airports Division Office). ALUC staff will review and provide comments on the Initial Study or other environmental document when it is made available for public review, including any hazard determination by the FAA. The 2009 San Joaquin County ALUCP document can be found at this link: http://www.sjcog.org/index.aspx?nid=107.

Thank you again for the opportunity to comment. Please contact ALUC staff Kim Anderson if you have any questions or comments at (209) 235- 0565, or by email at anderson@sjcog.org.

Sincerely,

Kim Anderson, Senior Regional Planner
San Joaquin Council of Governments

Attachment

ATTACHMENT 1