Planning and Development Services

City of Aurora

Planning Division
15151 E. Alameda Parkway, Ste. 2300
Aurora, Colorado 80012
303.739.7250

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February 3, 2020

Carlo Ferreira
Aurora Tech Development LLC
250 Pilot Rd Ste 150
Las Vegas, NV 89119

Re: **Initial Submission Review –** Aurora Technology and Energy Corridor (ATEC) – Master Plan
Application Number: **DA-2214-00**
Case Number: **2020-7001-00**

Dear Mr. Ferreira:

Thank you for your initial submission, which we started to process on January 6, 2020. We have reviewed your plans and attached our comments along with this cover letter. The first section of our review highlights our major comments. The following sections contain more specific comments, including those received from other city departments and community members.

Since several important issues still remain, you will need to make another submission. Please revise your previous work and send us a new submission on or before February 24, 2020.

Note that all our comments are numbered. When you resubmit, include a cover letter specifically responding to each item. The Planning Department reserves the right to reject any resubmissions that fail to address these items. If you have made any other changes to your documents other than those requested, be sure to also specifically list them in your letter.

As always, if you have any comments or concerns, please give me a call. I may be reached at 303-739-7261.

Sincerely,

Deborah Bickmire, Planner II
City of Aurora Planning Department

Attachments: Mile High Flood District Comments, DEN Comments, Xcel Energy Comments, DEN Comments, Richard Schmidt Diagram

cc: Eva Mather - Norris Design 1101 Bannock Street Denver, CO 80204
Samantha Crowder - Norris Design
Scott Campbell, Neighborhood Liaison
Nancy Bailey, ODA
Filed: K:\$DA\2214.00rev1.rtf

Initial Submission Review

SUMMARY OF KEY COMMENTS FROM ALL DEPARTMENTS

- Incorporate design elements that will reflect a unique technology and energy character (Planning and Art)
- Coordination of pedestrian access with off-site conditions (Planning)
- Separation of utilities from oil and gas operations (Water)
- Identify Aurora Highlands PIP triggers for Powhaton Rd. (Public Works)
- Perform a tree inventory (Forestry)
- Provide an executed Avigation Easement form (Environmental)
- Provide document reference(s) (Real Property)
- Provide a .dwg file (Addressing)

PLANNING DEPARTMENT COMMENTS

1. Community Questions, Comments and Concerns

1A. Sixteen (16) adjacent property owners and nine (9) outside agencies were notified of this application. One comment was received from an adjacent property owner, and three outside agencies. See below for the adjacent property owner comments. Outside agency comments are attached. Please address the comments in your response.

1B. Richard Schmidt, Venture 2011, 303-589-2223 crsrls@msn.com

I have concerns about access to the 45' sliver (leg) that accesses Venture 2011, the 85 acre parcel south of 26th Avenue. I suggest that the new North/South (yellow street) be aligned with the 45' leg to tie into any future street that may be constructed South of 26th Ave. Maintain access. 45' was to be ½ of ROW for future street. See attached diagram.

2. Zoning and Land Use Comments

2A. The narrative for the proposed project generally repeats the narrative for The Aurora Highlands (TAH). The two projects are very different and the narrative needs to be adjusted accordingly. The ATEC area was removed from TAH for a reason, however, repeating all the design themes continues to tie them together.

2B. Permitted commercial and industrial uses shall be as permitted for the Airport District (AD) in UDO Table 3.2-1.

2C. There are two existing oil/gas pad sites and four more proposed in this Master Plan. All of the existing and proposed pad sites are included in the Conoco Phillips Operator Agreement. The Operator Agreement includes best management practices (BMPs), however, due to the concentration of pad sites within the proposed development, the proposed Master Plan should include Urban Design and Landscape Standards that exceed the BMPs to mitigate impacts.

3. Completeness and Clarity of the Application

3A. Provide a Mineral Rights Affidavit that includes the entire ATEC site.

3B. Tabs 1 & 6 – Letter of Introduction and Narrative

- The overview of the project is a recap of The Aurora Highlands narrative. The initial uses are oil and gas, which do not provide crucial support services or employment opportunities to the surrounding development. Create a more current narrative of the project that discusses the evolution of this development, how it may be similar to The Aurora Highlands and also how it will be different. The initial presentation discussed high tech development, research, and modern design concepts.
- See redlines in both tabs that elaborate on the above statement.

3C. Tab 3 – Context Map
- Show land use, planning areas, streets, open space, trails, etc.. along western boundary of ATEC.
- Show existing oil/gas pad sites adjacent to the master plan area.
- Use different symbols or label existing vs. proposed roads.
- Add adjacent property lines per Adam County records, primarily south of 26th Avenue.
- Add noise contours to legend.

3D. Tab 4 – Site Analysis
- Include the existing house and outbuildings in the narrative and add them to the existing conditions map.
- Expand discussion of the existing gas easements and their locations on the property. Include the overall width(s).
- There are trees surrounding the farmhouse. Add them to the existing vegetation overview.
- Show existing on-site oil/gas well pads on the map. Include what measures, if any, are being taken to minimize impacts on the adjacent residential development.
- Add noise contours to the legend.
- Label major contours.

3E. Tab 8 – Land Use Map and Matrix
- Show the adjacent land uses in The Aurora Highlands and demonstrate how the proposed plan coordinates vehicular and pedestrian connections. How will trail connections across Powhaton be handled?
- Provide more detail for the plans and alignment of Powhaton Road. How will the roadway align with the existing overhead power lines?
- Currently the alignment of Powhaton Road is within property owned by the Public Service Company (PSCo). Is there an agreement between the applicant and PSCo for right-of-way dedication?
- Provide more information for the trail and internal road located in PA-7. The alignments appear to cross, so explain how this will handled safely.
- Per the comments received by Richard Schmidt of Venture 2011, ensure the internal north/south road is adequately spaced so access from the south side of 26th Avenue will be possible.
- Item 3 in Form D references permitted commercial uses. Please include a reference that permitted commercial uses are those listed for the (AD) Airport District.
- Ensure standard notes are the same as those in the Master Plan Manual.
- See redlines for all comments and edits.

3F. Tab 9 – Open Space
- Powhaton Road will be a limited access major arterial. How are the trail connections and crossings going to be handled? How will the trails be incorporated into the street profile?
- The total open space acreage is not consistent with the Land Use Matrix.

3G. Tab 10 – Urban Design Standards
- Standards should reflect type of uses proposed. This is not a residential development. Look at ways to complement Aurora Highlands but incorporate a different vision that reflects technology.
- The compatibility matrix requires revision. Barbed wire and chain link fencing needs to align with the UDO standards.
- A Master Plan is expected to exceed code standards. Compliance with code for oil and gas operations is not acceptable. Numerous sites are going to be concentrated in this master plan and additional standards should be included.

4. Addressing (Phil Turner / 303-739-7357 / pcturner@auroragov.org)

4A. Please provide a digital .shp or .dwg file for addressing and other GIS mapping purposes. Include the parcel, street line, easement and building footprint layers at a minimum. Please ensure that the digital file provided in a NAD 83 feet, Stateplane, Central Colorado projection so it will display correctly within our GIS system. Please eliminate any line work outside of the target area. Please contact me if you need additional information about this digital file.

REFERRAL COMMENTS FROM OTHER DEPARTMENTS AND AGENCIES

5. Civil Engineering (Kristin Tanabe / 303-739-7306 / ktanabe@auroragov.org / Comments in green)
5A. The Master Plan will not be approved by Public Works until the Master drainage Study is approved.
Public Improvement Plan (PIP)
5B. Include language from The Aurora Highlands (TAH) PIP in the ATEC PIP regarding Powhaton. What happens if the ATEC area develops prior to the TAH triggers for Powhaton?
5C. The Powhaton Road alignment needs to be consistent with the TAH PIP. Improvements need to be shown. Address what will happen if PA-4 develops before the TAH triggers to build Powhaton.
5D. See redlines for all comments.

6. Traffic Engineering (Brianna Medema / 303-739-7336 / bmedema@auroragov.org / Comments in amber)
6A. Comments will be sent by separate cover. Please contact Brianna Medema directly with questions.

7. Fire / Life Safety (William Polk / 303-739-7371 / wpolk@auroragov.org / Comments in blue)
7A. Tab 8 - Land Use

- The developer must contact and consult with the COA Office of Emergency Management to first determine how many Whelen Siren locations will be required. Then revise the Land Matrix page to identify the Planning Areas where the systems will be located within. At the time of construction, the exact location of Whelen Warning System will be determined by the Office of Emergency Management. The Office of Emergency Management contact information: 303-739-7636 (phone), 303-326-8986 (fax), or (email) afd_oem@auroragov.org, Attn. Chief Chapman
- The Fire Department is evaluating the need for land dedications for this site. A Fire Life Safety representative will provide additional information once a decision has been made.

8. Aurora Water (Steve Dekoskie / 303-739-7490 / sdekoski@auroragov.org / Comments in red)
Master Utility Study and Public Improvement Plan
8A. No oil/gas wells are to be drilled within 350' of existing large diameter water mains 16" and larger, or other critical infrastructure such as proposed force mains. No utilities are to be installed through any oil and gas well pad sites. Keep water mains out of all well pad sites. All gathering laterals for well pad sites must meet minimum clearances when crossing Aurora Water utilities, floodplains and ROW. License agreements will be required for any encroachment into the City's easements.

9. Forestry (Rebecca Lamphear / 303-739-7177 / rlamphea@auroragov.org / Comments in purple)
9A. There will be trees impacted by development of this site. It is required that a tree inventory is conducted on this site before any grading activities begin. A sheet must be provided with the existing trees shown and the intention to remove or preserve. I have provided a list of Consulting Arborists that can be contacted to complete a tree inventory for you, which should include inches required to plant back onto the site and dollar value. Tree mitigation is always above and beyond the Landscape Code requirements. Any tree that is removed from this site should either be replaced within the landscape or be mitigated through payment to the Community Tree Fund.

Any trees that are preserved on the site during construction activities shall follow the standard details for Tree Protection per the current Parks, Recreation & Open Space Dedication and Development Criteria manual. Parks, Recreation & Open Space Dedication and Development Criteria manual. These notes shall be added to the plan.

Also, please show a tree mitigation chart on the landscape plan taken from the Landscape Manual page 29. If payment will be made into the Tree Planting Fund, add another column to the chart indicating the payment amount that will be made. If trees will be planted on the site, please show a symbol indicating trees that are specific to tree mitigation.

David Merriman	Arbor Scape	5044 S. Youngfield Court Morrison, CO 80465	303-795-2381
Keith Worley	Forestree Development, LLC	7377 Osage Rd, Larkspur, CO 80118	303-681-2492
Scott Grimes	Colorado Tree Consultants	coloradotreeconsultants@yahoo.com	303-720-8170
Stefan Ringgenberg	Boulder Tree and Landscape Consulting	7289 Petursdale Court Boulder, CO 80301	303-530-0640
Steve Geist	SavATree	8585 E Warren Ave, Denver, CO 80231	303-306-3144

10. Parks and Open Space (PROS) (Doug Hintzman / 303-739-7147 / dhintzma@auroragov.org / Comments in purple)

Open Space, Circulation and Village Plan

10A. Ideally, a trail corridor along the internal road is preferred (see dashed line). The minimum distance between a trail corridor and oil pad should be 350'.

10B. Using existing utility easements for trails is acceptable, but the area within easements cannot receive credit towards dedication requirements.

Urban Design Standards

10C. PROS prefers fencing along trails to be 3-rail open space fence.

10D. Parking at oil and gas sites is only permitted within the buffer and it must be screened from view.

Public Improvement Plan

10E. Add a section for the open space planning areas and state when they will be developed.

11. Real Property (Darren Akrie / 303-739-7331 / dakrie@auroragov.org / Comments in magenta)

11A. See the redlines on the legal description. The Title Commitment shows a different document dedicating the parcel in Section 21 (B1124713). Please send in the other document shown in the Title Commitment for review.

12. Public Art (Roberta Bloom / 303-739-6747 / rbloom@auroragov.org)

12A. The public art plan for the Aurora Technology and Energy Corridor (ATEC) should reflect its unique qualities and distinguish it from The Aurora Highlands plan. It appears that this area will be entirely non-residential with an emphasis on Technology and Energy, yet the images are identical and the language is nearly identical. Few of the images seem to reflect technology and/or energy.

Ideally, the public art plan for ATEC should reflect the goals, values and focus of the Technology and Energy Corridor. Thought should be given to art forms and artists that can convey those values. The narrative should describe those possibilities and the images should reflect possibilities beyond what was shared with the mixed use development.

While very early on in this process, the timeline should identify some future date or speculative beginning (early 2023 – just as an example), rather than leaving it completely open ended.

So, in summary, please revise the narrative and imagery to reflect the focus of the Technology and Energy Corridor and within the timeline, provide some date references.

13. Environmental (Porter Ingrum / 303-739-7227 / pingrum@auroragov.org)

13A. Denver International Airport Influence District

Portions of this property are located within the Airport Influence District of Denver International Airport (DEN), therefore, the applicant must assure that an avigation easement has been conveyed to the City of Aurora and DEN for the *substation portion* of this application and that this easement has been recorded with the Adams County Clerk and Recorder along with the first plat in accordance with Section 146-2.6.2B.2 of the UDO.

To streamline this process, the City of Aurora will record the avigation easement for the applicant. The applicant is responsible for the following:

- Completing the easement form
- Obtaining the property owner's signature
- Notarizing the document
- Including a legal description of the property
- Including a survey of the property.

The completed easement form can be dropped off or e-mailed to Porter Ingrum at pingrum@auroragov.org. It may also be e-mailed to the case manager. The easement form is available on the city website at www.auroragov.org, Business Services, Development Center, Development Process, Forms & Applications.

Development in the AID shall comply with height restrictions in the underlying zone district, which do not intrude into 14 CFR 77 surfaces for military airports. Vendors of real property located within the Airport Influence District are required to provide notice to prospective purchasers in accordance with Section 146-2.6.2B.3. The notice will state that the property may be subject to some of the annoyances or inconveniences associated with proximity to an airport including noise, vibration, and odors. Please contact Porter Ingrum at 303-739-7227 with any additional questions regarding the AID.

14. Denver International Airport (DEN) (Tim Hester / tim.hester@flydenver.com)
See attached comments

15. Mile High Flood District (Teresa Patterson / tpatterson@udfcd.org)
See attached comments.

16. Xcel Energy / Donna George / donna.l.george@xcelenergy.com
See attached comment letter.

MILE HIGH FLOOD DISTRICT

2480 W. 26th Ave Suite 156-B | Denver, CO 80211
TEL 303 455 6277 | FAX 303 455 7880

www.mhfd.org

MAINTENANCE ELIGIBILITY PROGRAM (MEP)

MHFD Referral Review Comments

For Internal MHFD Use Only.	
MEP ID:	107993
Submittal ID:	10004311
MEP Phase:	Referral

Date: January 30, 2020

To: **Deborah Bickmire**
Via email

RE: MHFD Referral Review Comments

Project Name:	Aurora Technology and Energy Corridor FDP
Location:	North of 26th Ave, between Monaghan Mile Road and Powhaton Road
Drainageway:	First Creek Watershed, Second Creek Watershed, Box Elder Creek Watershed

This letter is in response to the request for our comments concerning the referenced project. We have reviewed this proposal only as it relates to maintenance eligibility of major drainage features, in this case:

- Regional detention basins (8562, 8552) at the headwaters of tributaries to First Creek Tributary T
- Detention basin (SC-1) outfall to the tributary to Second Creek headwaters
- Regional detention basin (SC-2) at and channel improvements to Second Creek headwaters
- Detention basin (BE-1, BE-3) outfalls to the Box Elder Creek tributary headwaters
- Regional detention basins (BE-2, BE-4) to the Box Elder Creek tributary headwaters

We have the following comments to offer:

1) Thank you for providing a master drainage report and acknowledging the need for stormwater conveyance by effective and safe means. This site is uniquely situated at the headwaters of several different stream systems, and will have significant impacts on the downstream drainageways.
2) Given the considerable change in land use in the proposed condition, meeting target flows will be critical to maintaining the stability of systems downstream of this site. Specifically:
    a. Detention ponds (8562, 8552) tributary to First Creek should meet target MDP flows for planned regional detention.
    b. Detention ponds (SC-1, SC-2) tributary to Second Creek should meet target MDP flows for planned regional detention. This study, as noted in the MDR, is in process. The intent of the current ongoing master plan is to reduce flows draining to DIA to natural condition flows and evenly distribute regional detention amongst the various developments within the watershed. The MDP alternatives analysis is complete and a selected plan has been chosen. Once analysis of the selected plan is complete, target flows can be provided.
    c. Detention ponds (BE-1, BE-2, BE-3, and BE-4) tributary to Box Elder Creek should achieve flows equivalent to 90% of existing, per the MDP existing hydrology.

3) In general, the detention pond plan provided appears to handle flow conveyance in an appropriate way. There may be an opportunity to combine some detention ponds, if there is interest in doing so. The District would be happy to discuss the opportunities further with the design team. Specifically:
    a. Combining ponds SC-1 and SC-2
    b. Combining ponds BE-1 and BE-2
4) The District strongly recommends that the site consider the use of runoff reducing practices. The District appreciates the use of detention ponds to manage peak flows leaving the site. However, given the site's location at the headwaters of several drainages with large undeveloped areas downstream, the District is also interested in properly managing increased flows at lower events that will have an impact on the channel's stability. The District is happy to discuss these opportunities with the design team.
5) Per District policy, a channel with 130 acres or more of tributary area is considered a major drainageway and should exist in an open channel condition. While most drainage on this site does not meet this threshold, there is approximately 1800' to 1900' of Second Creek channel in the northwest corner of your site that is considered major drainageway. The framework development plans does not indicate any open channel provided for this stream. The District would like to discuss opportunities to create open channel for Second Creek in this part of the site.
6) It is understood that the master drainage report does not represent final design, but there is currently one detention pond, SC-1, that is shown in direct conflict with the proposed internal north-south street at its intersection with 48th Avenue. The district would like to discuss opportunities for resolving the placement of this road and detention basin.

We appreciate the opportunity to review this proposal. Please feel free to contact me with any questions or concerns.

Sincerely,

Teresa L Patterson

Teresa Patterson, P.E., CFM
Project Manager, Watershed Services
Mile High Flood District

Bickmire, Deborah

From: Hester, Tim - DEN <Tim.Hester@flydenver.com>
Sent: Monday, February 03, 2020 8:56 AM
To: Bickmire, Deborah
Cc: Marion, Rachel - DEN; Hodson, Levi E - APHIS
Subject: Re: DA-2214-00 Aurora Technology and Energy Corridor (ATEC) Master Plan
Attachments: 150-5200-33B - Hazardous Wildlife Attractants.pdf

Ms. Deborah Bickmire
Planning Department Case Manager
15151 E. Alameda Parkway, Ste. 2300
Aurora, Colorado 80012

Re: DA-2214-00 Aurora Technology and Energy Corridor (ATEC) Master Plan

Dear Ms. Bickmire,

Denver International Airport received your referral later dated January 9, 2020 for DA-2214-00 Aurora Technology and Energy Corridor (ATEC) Master Plan. We appreciate the opportunity to comment on the proposal and DEN provides the following comments:

- The site is found within/under the navigable airspace associated with DEN, as promulgated and regulated by the Federal Aviation Administration (FAA) under 14 CFR Part 77, Objects Affecting the Navigable Airspace. Based on Part 77 and the development site location, the proponent is required to file notice with the FAA, via the FAA Form 7460-1 process (Notice of Proposed Construction or Alteration), of any structure or temporary construction equipment (e.g., cranes) that penetrate Part 77 surfaces. The FAA website from which the need for the 7460 process can be determined ("Notice Criteria Tool") and/or the filing can be initiated is: https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

- The proposed development falls within the DEN 5-mile separation criteria for the final build-out of future DEN Runways. The Wildlife Biologists from USDA assigned to DEN assist in implementing DEN's Wildlife Hazard Management Plan and have requested coordination as this project progresses. USDA and DEN will provide assistance with the requirements outlined in the current version of FAA Advisory Circular 150/5200-33 (see attached). DEN also requests that the landscape plan include maintenance of trees and grasses to reduce attractants for wildlife such as raptor species, blackbirds/starlings, and geese. Water quality ponds/detention structures must be designed to meet a 48-hour drain time following a 100 year event.

Thanks again for the opportunity to review and comment on the Aurora Technology and Energy Corridor (ATEC) Master Plan.

TIM HESTER, AICP
SENIOR AIRPORT PLANNER
Denver International Airport
Planning & Design
Airport Office Building| 7th Floor
8500 Peña Boulevard | Denver, CO 80249-6340
(303) 342-2391 | (720) 534-8750
TIM.HESTER@FLYDENVER.COM | WWW.FLYDENVER.COM
Click here to visit DEN on social media

U.S. Department
of Transportation

Federal Aviation Administration

Advisory Circular

Subject: HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS	**Date:** 8/28/2007	**AC No:** 150/5200-33B
	Initiated by: AAS-300	**Change:**

1. PURPOSE. This Advisory Circular (AC) provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. It also discusses airport development projects (including airport construction, expansion, and renovation) affecting aircraft movement near hazardous wildlife attractants. Appendix 1 provides definitions of terms used in this AC.

2. APPLICABILITY. The Federal Aviation Administration (FAA) recommends that public-use airport operators implement the standards and practices contained in this AC. The holders of Airport Operating Certificates issued under Title 14, Code of Federal Regulations (CFR), Part 139, Certification of Airports, Subpart D (Part 139), may use the standards, practices, and recommendations contained in this AC to comply with the wildlife hazard management requirements of Part 139. Airports that have received Federal grant-in-aid assistance must use these standards. The FAA also recommends the guidance in this AC for land-use planners, operators of non-certificated airports, and developers of projects, facilities, and activities on or near airports.

3. CANCELLATION. This AC cancels AC 150/5200-33A, *Hazardous Wildlife Attractants on or near Airports*, dated July 27, 2004.

4. PRINCIPAL CHANGES. This AC contains the following major changes, which are marked with vertical bars in the margin:

a. Technical changes to paragraph references.

b. Wording on storm water detention ponds.

c. Deleted paragraph 4-3.b, *Additional Coordination.*

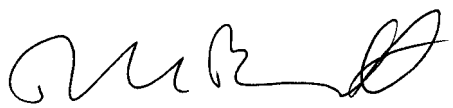
5. BACKGROUND. Information about the risks posed to aircraft by certain wildlife species has increased a great deal in recent years. Improved reporting, studies, documentation, and statistics clearly show that aircraft collisions with birds and other wildlife are a serious economic and public safety problem. While many species of wildlife can pose a threat to aircraft safety, they are not equally hazardous. Table 1

ranks the wildlife groups commonly involved in damaging strikes in the United States according to their relative hazard to aircraft. The ranking is based on the 47,212 records in the FAA National Wildlife Strike Database for the years 1990 through 2003. These hazard rankings, in conjunction with site-specific Wildlife Hazards Assessments (WHA), will help airport operators determine the relative abundance and use patterns of wildlife species and help focus hazardous wildlife management efforts on those species most likely to cause problems at an airport.

Most public-use airports have large tracts of open, undeveloped land that provide added margins of safety and noise mitigation. These areas can also present potential hazards to aviation if they encourage wildlife to enter an airport's approach or departure airspace or air operations area (AOA). Constructed or natural areas—such as poorly drained locations, detention/retention ponds, roosting habitats on buildings, landscaping, odor-causing rotting organic matter (putrescible waste) disposal operations, wastewater treatment plants, agricultural or aquaculture activities, surface mining, or wetlands—can provide wildlife with ideal locations for feeding, loafing, reproduction, and escape. Even small facilities, such as fast food restaurants, taxicab staging areas, rental car facilities, aircraft viewing areas, and public parks, can produce substantial attractions for hazardous wildlife.

During the past century, wildlife-aircraft strikes have resulted in the loss of hundreds of lives worldwide, as well as billions of dollars in aircraft damage. Hazardous wildlife attractants on and near airports can jeopardize future airport expansion, making proper community land-use planning essential. This AC provides airport operators and those parties with whom they cooperate with the guidance they need to assess and address potentially hazardous wildlife attractants when locating new facilities and implementing certain land-use practices on or near public-use airports.

6. MEMORANDUM OF AGREEMENT BETWEEN FEDERAL RESOURCE AGENCIES. The FAA, the U.S. Air Force, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture - Wildlife Services signed a Memorandum of Agreement (MOA) in July 2003 to acknowledge their respective missions in protecting aviation from wildlife hazards. Through the MOA, the agencies established procedures necessary to coordinate their missions to address more effectively existing and future environmental conditions contributing to collisions between wildlife and aircraft (wildlife strikes) throughout the United States. These efforts are intended to minimize wildlife risks to aviation and human safety while protecting the Nation’s valuable environmental resources.



DAVID L. BENNETT
Director, Office of Airport Safety
and Standards

Table 1. Ranking of 25 species groups as to relative hazard to aircraft (1=most hazardous) based on three criteria (damage, major damage, and effect-on-flight), a composite ranking based on all three rankings, and a relative hazard score. Data were derived from the FAA National Wildlife Strike Database, January 1990–April 2003.[1]

Species group	Ranking by criteria			Composite ranking[2]	Relative hazard score[3]
	Damage[4]	Major damage[5]	Effect on flight[6]		
Deer	1	1	1	1	100
Vultures	2	2	2	2	64
Geese	3	3	6	3	55
Cormorants/pelicans	4	5	3	4	54
Cranes	7	6	4	5	47
Eagles	6	9	7	6	41
Ducks	5	8	10	7	39
Osprey	8	4	8	8	39
Turkey/pheasants	9	7	11	9	33
Herons	11	14	9	10	27
Hawks (buteos)	10	12	12	11	25
Gulls	12	11	13	12	24
Rock pigeon	13	10	14	13	23
Owls	14	13	20	14	23
H. lark/s. bunting	18	15	15	15	17
Crows/ravens	15	16	16	16	16
Coyote	16	19	5	17	14
Mourning dove	17	17	17	18	14
Shorebirds	19	21	18	19	10
Blackbirds/starling	20	22	19	20	10
American kestrel	21	18	21	21	9
Meadowlarks	22	20	22	22	7
Swallows	24	23	24	23	4
Sparrows	25	24	23	24	4
Nighthawks	23	25	25	25	1

[1] Excerpted from the *Special Report for the FAA, "Ranking the Hazard Level of Wildlife Species to Civil Aviation in the USA: Update #1, July 2, 2003".* Refer to this report for additional explanations of criteria and method of ranking.

[2] Relative rank of each species group was compared with every other group for the three variables, placing the species group with the greatest hazard rank for $\geq$ 2 of the 3 variables above the next highest ranked group, then proceeding down the list.

[3] Percentage values, from Tables 3 and 4 in Footnote 1 of the *Special Report*, for the three criteria were summed and scaled down from 100, with 100 as the score for the species group with the maximum summed values and the greatest potential hazard to aircraft.

[4] Aircraft incurred at least some damage (destroyed, substantial, minor, or unknown) from strike.

[5] Aircraft incurred damage or structural failure, which adversely affected the structure strength, performance, or flight characteristics, and which would normally require major repair or replacement of the affected component, or the damage sustained makes it inadvisable to restore aircraft to airworthy condition.

[6] Aborted takeoff, engine shutdown, precautionary landing, or other.

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SECTION 1.

GENERAL SEPARATION CRITERIA FOR HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS.

1-1. INTRODUCTION. When considering proposed land uses, airport operators, local planners, and developers must take into account whether the proposed land uses, including new development projects, will increase wildlife hazards. Land-use practices that attract or sustain hazardous wildlife populations on or near airports can significantly increase the potential for wildlife strikes.

The FAA recommends the minimum separation criteria outlined below for land-use practices that attract hazardous wildlife to the vicinity of airports. Please note that FAA criteria include land uses that cause movement of hazardous wildlife onto, into, or across the airport's approach or departure airspace or air operations area (AOA). (See the discussion of the synergistic effects of surrounding land uses in Section 2-8 of this AC.)

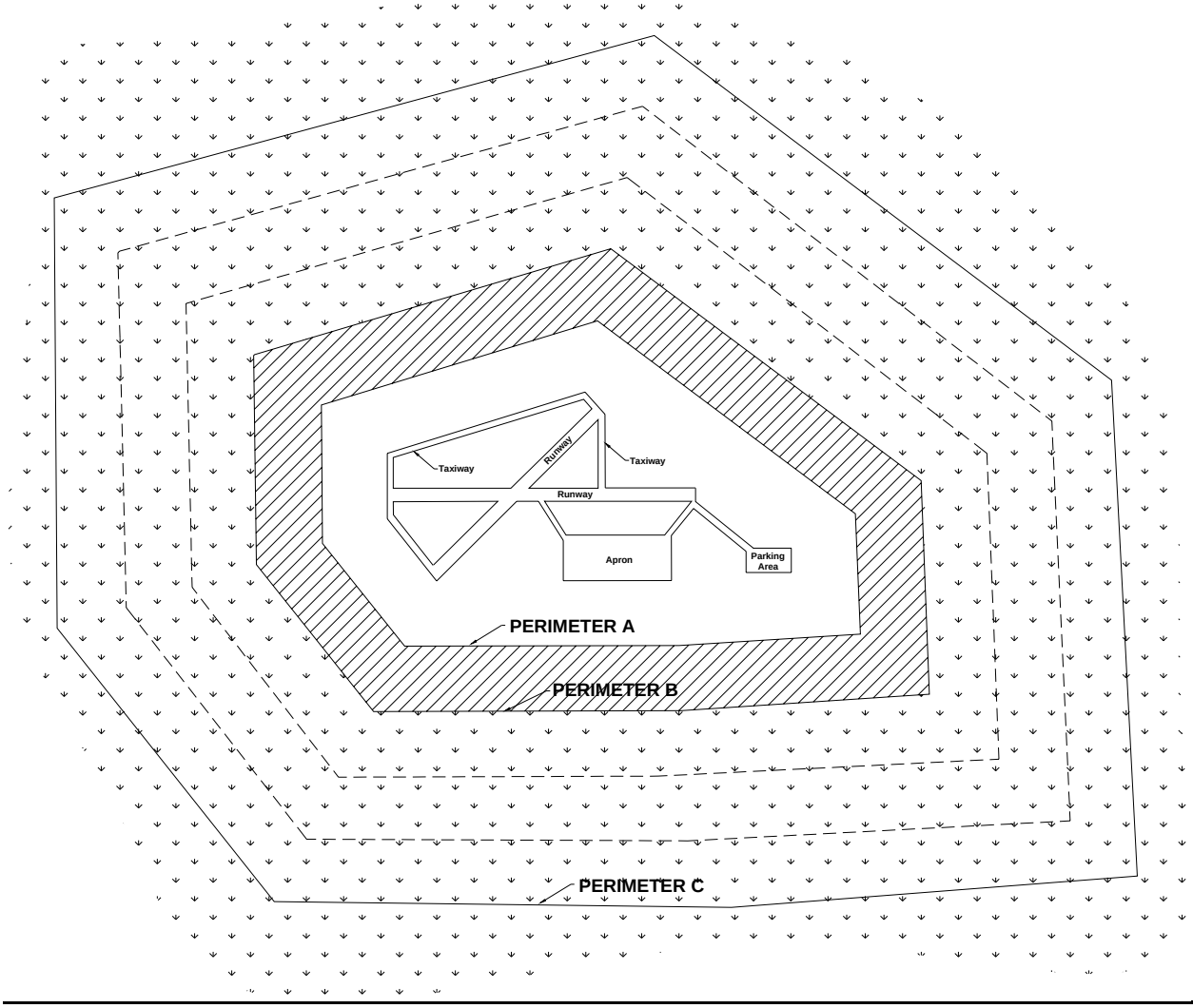
The basis for the separation criteria contained in this section can be found in existing FAA regulations. The separation distances are based on (1) flight patterns of piston-powered aircraft and turbine-powered aircraft, (2) the altitude at which most strikes happen (78 percent occur under 1,000 feet and 90 percent occur under 3,000 feet above ground level), and (3) National Transportation Safety Board (NTSB) recommendations.

1-2. AIRPORTS SERVING PISTON-POWERED AIRCRAFT. 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 mentioned in Section 2 or for new airport development projects meant to accommodate aircraft movement. This distance is to be maintained between an airport's AOA and the hazardous wildlife attractant. Figure 1 depicts this separation distance measured from the nearest aircraft operations areas.

1-3. AIRPORTS SERVING TURBINE-POWERED AIRCRAFT. Airports selling Jet-A fuel normally serve turbine-powered aircraft. Notwithstanding more stringent requirements for specific land uses, the FAA recommends a separation distance of 10,000 feet at these airports for any of the hazardous wildlife attractants mentioned in Section 2 or for new airport development projects meant to accommodate aircraft movement. This distance is to be maintained between an airport's AOA and the hazardous wildlife attractant. Figure 1 depicts this separation distance from the nearest aircraft movement areas.

1-4. PROTECTION OF APPROACH, DEPARTURE, AND CIRCLING AIRSPACE. For all airports, the FAA recommends a distance of 5 statute miles between the farthest edge of the airport's AOA and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace.

Figure 1. Separation distances within which hazardous wildlife attractants should be avoided, eliminated, or mitigated.



PERIMETER A: For airports serving piston-powered aircraft, hazardous wildlife attractants must be 5,000 feet from the nearest air operations area.

PERIMETER B: For airports serving turbine-powered aircraft, hazardous wildlife attractants must be 10,000 feet from the nearest air operations area.

PERIMETER C: 5-mile range to protect approach, departure and circling airspace.

SECTION 2.

LAND-USE PRACTICES ON OR NEAR AIRPORTS THAT POTENTIALLY ATTRACT HAZARDOUS WILDLIFE.

2-1. GENERAL. The wildlife species and the size of the populations attracted to the airport environment vary considerably, depending on several factors, including land-use practices on or near the airport. This section discusses land-use practices having the potential to attract hazardous wildlife and threaten aviation safety. In addition to the specific considerations outlined below, airport operators should refer to *Wildlife Hazard Management at Airports,* prepared by FAA and U.S. Department of Agriculture (USDA) staff. (This manual is available in English, Spanish, and French. It can be viewed and downloaded free of charge from the FAA's wildlife hazard mitigation web site: http://wildlife-mitigation.tc.FAA.gov.). And, *Prevention and Control of Wildlife Damage,* compiled by the University of Nebraska Cooperative Extension Division. (This manual is available online in a periodically updated version at: ianrwww.unl.edu/wildlife/solutions/handbook/.)

2-2. WASTE DISPOSAL OPERATIONS. Municipal solid waste landfills (MSWLF) are known to attract large numbers of hazardous wildlife, particularly birds. Because of this, these operations, when located within the separations identified in the siting criteria in Sections 1-2 through 1-4, are considered incompatible with safe airport operations.

a. Siting for new municipal solid waste landfills subject to AIR 21. Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Public Law 106-181) (AIR 21) prohibits the construction or establishment of a new MSWLF within 6 statute miles of certain public-use airports. Before these prohibitions apply, both the airport and the landfill must meet the very specific conditions described below. These restrictions do not apply to airports or landfills located within the state of Alaska.

The airport must (1) have received a Federal grant(s) under 49 U.S.C. § 47101, et. seq.; (2) be under control of a public agency; (3) serve some scheduled air carrier operations conducted in aircraft with less than 60 seats; and (4) have total annual enplanements consisting of at least 51 percent of scheduled air carrier enplanements conducted in aircraft with less than 60 passenger seats.

The proposed MSWLF must (1) be within 6 miles of the airport, as measured from airport property line to MSWLF property line, and (2) have started construction or establishment on or after April 5, 2001. Public Law 106-181 only limits the construction or establishment of some new MSWLF. It does not limit the expansion, either vertical or horizontal, of existing landfills.

NOTE: Consult the most recent version of AC 150/5200-34, *Construction or Establishment of Landfills Near Public Airports,* for a more detailed discussion of these restrictions.

b. Siting for new MSWLF not subject to AIR 21. If an airport and MSWLF do not meet the restrictions of Public Law 106-181, the FAA recommends against locating MSWLF within the separation distances identified in Sections 1-2 through 1-4. The separation distances should be measured from the closest point of the airport's AOA to the closest planned MSWLF cell.

c. Considerations for existing waste disposal facilities within the limits of separation criteria. The FAA recommends against airport development projects that would increase the number of aircraft operations or accommodate larger or faster aircraft near MSWLF operations located within the separations identified in Sections 1-2 through 1-4. In addition, in accordance with 40 CFR 258.10, owners or operators of existing MSWLF units that are located within the separations listed in Sections 1-2 through 1-4 must demonstrate that the unit is designed and operated so it does not pose a bird hazard to aircraft. (See Section 4-2(b) of this AC for a discussion of this demonstration requirement.)

d. Enclosed trash transfer stations. Enclosed waste-handling facilities that receive garbage behind closed doors; process it via compaction, incineration, or similar manner; and remove all residue by enclosed vehicles generally are compatible with safe airport operations, provided they are not located on airport property or within the Runway Protection Zone (RPZ). These facilities should not handle or store putrescible waste outside or in a partially enclosed structure accessible to hazardous wildlife. Trash transfer facilities that are open on one or more sides; that store uncovered quantities of municipal solid waste outside, even if only for a short time; that use semi-trailers that leak or have trash clinging to the outside; or that do not control odors by ventilation and filtration systems (odor masking is not acceptable) do not meet the FAA's definition of fully enclosed trash transfer stations. The FAA considers these facilities incompatible with safe airport operations if they are located closer than the separation distances specified in Sections 1-2 through 1-4.

e. Composting operations on or near airport property. Composting operations that accept only yard waste (e.g., leaves, lawn clippings, or branches) generally do not attract hazardous wildlife. Sewage sludge, woodchips, and similar material are not municipal solid wastes and may be used as compost bulking agents. The compost, however, must never include food or other municipal solid waste. Composting operations should not be located on airport property. Off-airport property composting operations should be located no closer than the greater of the following distances: 1,200 feet from any AOA or the distance called for by airport design requirements (see AC 150/5300-13, *Airport Design*). This spacing should prevent material, personnel, or equipment from penetrating any Object Free Area (OFA), Obstacle Free Zone (OFZ), Threshold Siting Surface (TSS), or Clearway. Airport operators should monitor composting operations located in proximity to the airport to ensure that steam or thermal rise does not adversely affect air traffic. On-airport disposal of compost by-products should not be conducted for the reasons stated in 2-3f.

f. Underwater waste discharges. The FAA recommends against the underwater discharge of any food waste (e.g., fish processing offal) within the separations identified in Sections 1-2 through 1-4 because it could attract scavenging hazardous wildlife.

g. Recycling centers. Recycling centers that accept previously sorted non-food items, such as glass, newspaper, cardboard, or aluminum, are, in most cases, not attractive to hazardous wildlife and are acceptable.

h. Construction and demolition (C&D) debris facilities. C&D landfills do not generally attract hazardous wildlife and are acceptable if maintained in an orderly manner, admit no putrescible waste, and are not co-located with other waste disposal operations. However, C&D landfills have similar visual and operational characteristics to putrescible waste disposal sites. When co-located with putrescible waste disposal operations, C&D landfills are more likely to attract hazardous wildlife because of the similarities between these disposal facilities. Therefore, a C&D landfill co-located with another waste disposal operation should be located outside of the separations identified in Sections 1-2 through 1-4.

i. Fly ash disposal. The incinerated residue from resource recovery power/heat-generating facilities that are fired by municipal solid waste, coal, or wood is generally not a wildlife attractant because it no longer contains putrescible matter. Landfills accepting only fly ash are generally not considered to be wildlife attractants and are acceptable as long as they are maintained in an orderly manner, admit no putrescible waste of any kind, and are not co-located with other disposal operations that attract hazardous wildlife.

Since varying degrees of waste consumption are associated with general incineration (not resource recovery power/heat-generating facilities), the FAA considers the ash from general incinerators a regular waste disposal by-product and, therefore, a hazardous wildlife attractant if disposed of within the separation criteria outlined in Sections 1-2 through 1-4.

2-3. WATER MANAGEMENT FACILITIES. Drinking water intake and treatment facilities, storm water and wastewater treatment facilities, associated retention and settling ponds, ponds built for recreational use, and ponds that result from mining activities often attract large numbers of potentially hazardous wildlife. To prevent wildlife hazards, land-use developers and airport operators may need to develop management plans, in compliance with local and state regulations, to support the operation of storm water management facilities on or near all public-use airports to ensure a safe airport environment.

a. Existing storm water management facilities. On-airport storm water management facilities allow the quick removal of surface water, including discharges related to aircraft deicing, from impervious surfaces, such as pavement and terminal/hangar building roofs. Existing on-airport detention ponds collect storm water, protect water quality, and control runoff. Because they slowly release water

after storms, they create standing bodies of water that can attract hazardous wildlife. Where the airport has developed a Wildlife Hazard Management Plan (WHMP) in accordance with Part 139, the FAA requires immediate correction of any wildlife hazards arising from existing storm water facilities located on or near airports, using appropriate wildlife hazard mitigation techniques. Airport operators should develop measures to minimize hazardous wildlife attraction in consultation with a wildlife damage management biologist.

Where possible, airport operators should modify storm water detention ponds to allow a maximum 48-hour detention period for the design storm. The FAA recommends that airport operators avoid or remove retention ponds and detention ponds featuring dead storage to eliminate standing water. Detention basins should remain totally dry between rainfalls. Where constant flow of water is anticipated through the basin, or where any portion of the basin bottom may remain wet, the detention facility should include a concrete or paved pad and/or ditch/swale in the bottom to prevent vegetation that may provide nesting habitat.

When it is not possible to drain a large detention pond completely, airport operators may use physical barriers, such as bird balls, wires grids, pillows, or netting, to deter birds and other hazardous wildlife. When physical barriers are used, airport operators must evaluate their use and ensure they will not adversely affect water rescue. Before installing any physical barriers over detention ponds on Part 139 airports, airport operators must get approval from the appropriate FAA Regional Airports Division Office.

The FAA recommends that airport operators encourage off-airport storm water treatment facility operators to incorporate appropriate wildlife hazard mitigation techniques into storm water treatment facility operating practices when their facility is located within the separation criteria specified in Sections 1-2 through 1-4.

b. New storm water management facilities. The FAA strongly recommends that off-airport storm water management systems located within the separations identified in Sections 1-2 through 1-4 be designed and operated so as not to create above-ground standing water. Stormwater detention ponds should be designed, engineered, constructed, and maintained for a maximum 48–hour detention period after the design storm and remain completely dry between storms. To facilitate the control of hazardous wildlife, the FAA recommends the use of steep-sided, rip-rap lined, narrow, linearly shaped water detention basins. When it is not possible to place these ponds away from an airport's AOA, airport operators should use physical barriers, such as bird balls, wires grids, pillows, or netting, to prevent access of hazardous wildlife to open water and minimize aircraft-wildlife interactions. When physical barriers are used, airport operators must evaluate their use and ensure they will not adversely affect water rescue. Before installing any physical barriers over detention ponds on Part 139 airports, airport operators must get approval from the appropriate FAA Regional Airports Division Office. All vegetation in or around detention basins that provide food or cover for hazardous wildlife should be eliminated. If soil conditions and other requirements allow, the FAA encourages

the use of underground storm water infiltration systems, such as French drains or buried rock fields, because they are less attractive to wildlife.

c. Existing wastewater treatment facilities. The FAA strongly recommends that airport operators immediately correct any wildlife hazards arising from existing wastewater treatment facilities located on or near the airport. Where required, a WHMP developed in accordance with Part 139 will outline appropriate wildlife hazard mitigation techniques. Accordingly, airport operators should encourage wastewater treatment facility operators to incorporate measures, developed in consultation with a wildlife damage management biologist, to minimize hazardous wildlife attractants. Airport operators should also encourage those wastewater treatment facility operators to incorporate these mitigation techniques into their standard operating practices. In addition, airport operators should consider the existence of wastewater treatment facilities when evaluating proposed sites for new airport development projects and avoid such sites when practicable.

d. New wastewater treatment facilities. The FAA strongly recommends against the construction of new wastewater treatment facilities or associated settling ponds within the separations identified in Sections 1-2 through 1-4. Appendix 1 defines wastewater treatment facility as “any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes.” The definition includes any pretreatment involving the reduction of the amount of pollutants or the elimination of pollutants prior to introducing such pollutants into a publicly owned treatment works (wastewater treatment facility). During the site-location analysis for wastewater treatment facilities, developers should consider the potential to attract hazardous wildlife if an airport is in the vicinity of the proposed site, and airport operators should voice their opposition to such facilities if they are in proximity to the airport.

e. Artificial marshes. In warmer climates, wastewater treatment facilities sometimes employ artificial marshes and use submergent and emergent aquatic vegetation as natural filters. These artificial marshes may be used by some species of flocking birds, such as blackbirds and waterfowl, for breeding or roosting activities. The FAA strongly recommends against establishing artificial marshes within the separations identified in Sections 1-2 through 1-4.

f. Wastewater discharge and sludge disposal. The FAA recommends against the discharge of wastewater or sludge on airport property because it may improve soil moisture and quality on unpaved areas and lead to improved turf growth that can be an attractive food source for many species of animals. Also, the turf requires more frequent mowing, which in turn may mutilate or flush insects or small animals and produce straw, both of which can attract hazardous wildlife. In addition, the improved turf may attract grazing wildlife, such as deer and geese. Problems may also occur when discharges saturate unpaved airport areas. The resultant soft, muddy conditions can severely restrict or prevent emergency vehicles from reaching accident sites in a timely manner.

2-4. WETLANDS. Wetlands provide a variety of functions and can be regulated by local, state, and Federal laws. Normally, wetlands are attractive to many types of wildlife, including many which rank high on the list of hazardous wildlife species (Table 1).

NOTE: If questions exist as to whether an area qualifies as a wetland, contact the local division of the U.S. Army Corps of Engineers, the Natural Resources Conservation Service, or a wetland consultant qualified to delineate wetlands.

a. Existing wetlands on or near airport property. If wetlands are located on or near airport property, airport operators should be alert to any wildlife use or habitat changes in these areas that could affect safe aircraft operations. At public-use airports, the FAA recommends immediately correcting, in cooperation with local, state, and Federal regulatory agencies, any wildlife hazards arising from existing wetlands located on or near airports. Where required, a WHMP will outline appropriate wildlife hazard mitigation techniques. Accordingly, airport operators should develop measures to minimize hazardous wildlife attraction in consultation with a wildlife damage management biologist.

b. New airport development. Whenever possible, the FAA recommends locating new airports using the separations from wetlands identified in Sections 1-2 through 1-4. Where alternative sites are not practicable, or when airport operators are expanding an existing airport into or near wetlands, a wildlife damage management biologist, in consultation with the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the state wildlife management agency should evaluate the wildlife hazards and prepare a WHMP that indicates methods of minimizing the hazards.

c. Mitigation for wetland impacts from airport projects. Wetland mitigation may be necessary when unavoidable wetland disturbances result from new airport development projects or projects required to correct wildlife hazards from wetlands. Wetland mitigation must be designed so it does not create a wildlife hazard. The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Sections 1-2 through 1-4.

(1) Onsite mitigation of wetland functions. The FAA may consider exceptions to locating mitigation activities outside the separations identified in Sections 1-2 through 1-4 if the affected wetlands provide unique ecological functions, such as critical habitat for threatened or endangered species or ground water recharge, which cannot be replicated when moved to a different location. Using existing airport property is sometimes the only feasible way to achieve the mitigation ratios mandated in regulatory orders and/or settlement agreements with the resource agencies. Conservation easements are an additional means of providing mitigation for project impacts. Typically the airport operator continues to own the property, and an easement is created stipulating that the property will be maintained as habitat for state or Federally listed species.

Mitigation must not inhibit the airport operator's ability to effectively control hazardous wildlife on or near the mitigation site or effectively maintain other aspects of safe airport operations. Enhancing such mitigation areas to attract hazardous wildlife must be avoided. The FAA will review any onsite mitigation proposals to determine compatibility with safe airport operations. A wildlife damage management biologist should evaluate any wetland mitigation projects that are needed to protect unique wetland functions and that must be located in the separation criteria in Sections 1-2 through 1-4 before the mitigation is implemented. A WHMP should be developed to reduce the wildlife hazards.

(2) Offsite mitigation of wetland functions. The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Sections 1-2 through 1-4 unless they provide unique functions that must remain onsite (see 2-4c(1)). Agencies that regulate impacts to or around wetlands recognize that it may be necessary to split wetland functions in mitigation schemes. Therefore, regulatory agencies may, under certain circumstances, allow portions of mitigation to take place in different locations.

(3) Mitigation banking. Wetland mitigation banking is the creation or restoration of wetlands in order to provide mitigation credits that can be used to offset permitted wetland losses. Mitigation banking benefits wetland resources by providing advance replacement for permitted wetland losses; consolidating small projects into larger, better-designed and managed units; and encouraging integration of wetland mitigation projects with watershed planning. This last benefit is most helpful for airport projects, as wetland impacts mitigated outside of the separations identified in Sections 1-2 through 1-4 can still be located within the same watershed. Wetland mitigation banks meeting the separation criteria offer an ecologically sound approach to mitigation in these situations. Airport operators should work with local watershed management agencies or organizations to develop mitigation banking for wetland impacts on airport property.

2-5. DREDGE SPOIL CONTAINMENT AREAS. The FAA recommends against locating dredge spoil containment areas (also known as Confined Disposal Facilities) within the separations identified in Sections 1-2 through 1-4 if the containment area or the spoils contain material that would attract hazardous wildlife.

2-6. AGRICULTURAL ACTIVITIES. Because most, if not all, agricultural crops can attract hazardous wildlife during some phase of production, the FAA recommends against the used of airport property for agricultural production, including hay crops, within the separations identified in Sections 1-2 through 1-4. . If the airport has no financial alternative to agricultural crops to produce income necessary to maintain the viability of the airport, then the airport shall follow the crop distance guidelines listed in the table titled "Minimum Distances between Certain Airport Features and Any On-Airport Agricultural Crops" found in AC 150/5300-13, *Airport Design*, Appendix 17. The cost of wildlife control and potential accidents should be weighed against the income produced by the on-airport crops when deciding whether to allow crops on the airport.

a. Livestock production. Confined livestock operations (i.e., feedlots, dairy operations, hog or chicken production facilities, or egg laying operations) often attract flocking birds, such as starlings, that pose a hazard to aviation. Therefore, The FAA recommends against such facilities within the separations identified in Sections 1-2 through 1-4. Any livestock operation within these separations should have a program developed to reduce the attractiveness of the site to species that are hazardous to aviation safety. Free-ranging livestock must not be grazed on airport property because the animals may wander onto the AOA. Furthermore, livestock feed, water, and manure may attract birds.

b. Aquaculture. Aquaculture activities (i.e. catfish or trout production) conducted outside of fully enclosed buildings are inherently attractive to a wide variety of birds. Existing aquaculture facilities/activities within the separations listed in Sections 1-2 through 1-4 must have a program developed to reduce the attractiveness of the sites to species that are hazardous to aviation safety. Airport operators should also oppose the establishment of new aquaculture facilities/activities within the separations listed in Sections 1-2 through 1-4.

c. Alternative uses of agricultural land. Some airports are surrounded by vast areas of farmed land within the distances specified in Sections 1-2 through 1-4. Seasonal uses of agricultural land for activities such as hunting can create a hazardous wildlife situation. In some areas, farmers will rent their land for hunting purposes. Rice farmers, for example, flood their land during waterfowl hunting season and obtain additional revenue by renting out duck blinds. The duck hunters then use decoys and call in hundreds, if not thousands, of birds, creating a tremendous threat to aircraft safety. A wildlife damage management biologist should review, in coordination with local farmers and producers, these types of seasonal land uses and incorporate them into the WHMP.

2-7. GOLF COURSES, LANDSCAPING AND OTHER LAND-USE CONSIDERATIONS.

a. Golf courses. The large grassy areas and open water found on most golf courses are attractive to hazardous wildlife, particularly Canada geese and some species of gulls. These species can pose a threat to aviation safety. The FAA recommends against construction of new golf courses within the separations identified in Sections 1-2 through 1-4. Existing golf courses located within these separations must develop a program to reduce the attractiveness of the sites to species that are hazardous to aviation safety. Airport operators should ensure these golf courses are monitored on a continuing basis for the presence of hazardous wildlife. If hazardous wildlife is detected, corrective actions should be immediately implemented.

b. Landscaping and landscape maintenance. Depending on its geographic location, landscaping can attract hazardous wildlife. The FAA recommends that airport operators approach landscaping with caution and confine it to airport areas not associated with aircraft movements. A wildlife damage management biologist should review all landscaping plans. Airport operators should also monitor all landscaped areas on a continuing basis for the presence of hazardous wildlife. If

hazardous wildlife is detected, corrective actions should be immediately implemented.

Turf grass areas can be highly attractive to a variety of hazardous wildlife species. Research conducted by the USDA Wildlife Services' National Wildlife Research Center has shown that no one grass management regime will deter all species of hazardous wildlife in all situations. In cooperation with wildlife damage management biologist, airport operators should develop airport turf grass management plans on a prescription basis, depending on the airport's geographic locations and the type of hazardous wildlife likely to frequent the airport

Airport operators should ensure that plant varieties attractive to hazardous wildlife are not used on the airport. Disturbed areas or areas in need of re-vegetating should not be planted with seed mixtures containing millet or any other large-seed producing grass. For airport property already planted with seed mixtures containing millet, rye grass, or other large-seed producing grasses, the FAA recommends disking, plowing, or another suitable agricultural practice to prevent plant maturation and seed head production. Plantings should follow the specific recommendations for grass management and seed and plant selection made by the State University Cooperative Extension Service, the local office of Wildlife Services, or a qualified wildlife damage management biologist. Airport operators should also consider developing and implementing a preferred/prohibited plant species list, reviewed by a wildlife damage management biologist, which has been designed for the geographic location to reduce the attractiveness to hazardous wildlife for landscaping airport property.

c. Airports surrounded by wildlife habitat. The FAA recommends that operators of airports surrounded by woodlands, water, or wetlands refer to Section 2.4 of this AC. Operators of such airports should provide for a Wildlife Hazard Assessment (WHA) conducted by a wildlife damage management biologist. This WHA is the first step in preparing a WHMP, where required.

d. Other hazardous wildlife attractants. Other specific land uses or activities (e.g., sport or commercial fishing, shellfish harvesting, etc.), perhaps unique to certain regions of the country, have the potential to attract hazardous wildlife. Regardless of the source of the attraction, when hazardous wildlife is noted on a public-use airport, airport operators must take prompt remedial action(s) to protect aviation safety.

2-8. SYNERGISTIC EFFECTS OF SURROUNDING LAND USES. There may be circumstances where two (or more) different land uses that would not, by themselves, be considered hazardous wildlife attractants or that are located outside of the separations identified in Sections 1-2 through 1-4 that are in such an alignment with the airport as to create a wildlife corridor directly through the airport and/or surrounding airspace. An example of this situation may involve a lake located outside of the separation criteria on the east side of an airport and a large hayfield on the west side of an airport, land uses that together could create a flyway for Canada geese directly across the airspace of the airport. There are numerous examples of such situations;

therefore, airport operators and the wildlife damage management biologist must consider the entire surrounding landscape and community when developing the WHMP.

SECTION 3.

PROCEDURES FOR WILDLIFE HAZARD MANAGEMENT BY OPERATORS OF PUBLIC-USE AIRPORTS.

3.1. INTRODUCTION. In recognition of the increased risk of serious aircraft damage or the loss of human life that can result from a wildlife strike, the FAA may require the development of a Wildlife Hazard Management Plan (WHMP) when specific triggering events occur on or near the airport. Part 139.337 discusses the specific events that trigger a Wildlife Hazard Assessment (WHA) and the specific issues that a WHMP must address for FAA approval and inclusion in an Airport Certification Manual.

3.2. COORDINATION WITH USDA WILDLIFE SERVICES OR OTHER QUALIFIED WILDLIFE DAMAGE MANAGEMENT BIOLOGISTS. The FAA will use the Wildlife Hazard Assessment (WHA) conducted in accordance with Part 139 to determine if the airport needs a WHMP. Therefore, persons having the education, training, and expertise necessary to assess wildlife hazards must conduct the WHA. The airport operator may look to Wildlife Services or to qualified private consultants to conduct the WHA. When the services of a wildlife damage management biologist are required, the FAA recommends that land-use developers or airport operators contact a consultant specializing in wildlife damage management or the appropriate state director of Wildlife Services.

NOTE: Telephone numbers for the respective USDA Wildlife Services state offices can be obtained by contacting USDA Wildlife Services Operational Support Staff, 4700 River Road, Unit 87, Riverdale, MD, 20737-1234, Telephone (301) 734-7921, Fax (301) 734-5157 *(http://www.aphis.usda.gov/ws/)*.

3-3. WILDLIFE HAZARD MANAGEMENT AT AIRPORTS: A MANUAL FOR AIRPORT PERSONNEL. This manual, prepared by FAA and USDA Wildlife Services staff, contains a compilation of information to assist airport personnel in the development, implementation, and evaluation of WHMPs at airports. The manual includes specific information on the nature of wildlife strikes, legal authority, regulations, wildlife management techniques, WHAs, WHMPs, and sources of help and information. The manual is available in three languages: English, Spanish, and French. It can be viewed and downloaded free of charge from the FAA's wildlife hazard mitigation web site: http://wildlife-mitigation.tc.FAA.gov/. This manual only provides a starting point for addressing wildlife hazard issues at airports. Hazardous wildlife management is a complex discipline and conditions vary widely across the United States. Therefore, qualified wildlife damage management biologists must direct the development of a WHMP and the implementation of management actions by airport personnel.

There are many other resources complementary to this manual for use in developing and implementing WHMPs. Several are listed in the manual's bibliography.

3-4. WILDLIFE HAZARD ASSESSMENTS, TITLE 14, CODE OF FEDERAL REGULATIONS, PART 139. Part 139.337(b) requires airport operators to conduct a Wildlife Hazard Assessment (WHA) when certain events occur on or near the airport.

Part 139.337 (c) provides specific guidance as to what facts must be addressed in a WHA.

3-5. WILDLIFE HAZARD MANAGEMENT PLAN (WHMP). The FAA will consider the results of the WHA, along with the aeronautical activity at the airport and the views of the airport operator and airport users, in determining whether a formal WHMP is needed, in accordance with Part 139.337. If the FAA determines that a WHMP is needed, the airport operator must formulate and implement a WHMP, using the WHA as the basis for the plan.

The goal of an airport's Wildlife Hazard Management Plan is to minimize the risk to aviation safety, airport structures or equipment, or human health posed by populations of hazardous wildlife on and around the airport.

The WHMP must identify hazardous wildlife attractants on or near the airport and the appropriate wildlife damage management techniques to minimize the wildlife hazard. It must also prioritize the management measures.

3-6. LOCAL COORDINATION. The establishment of a Wildlife Hazards Working Group (WHWG) will facilitate the communication, cooperation, and coordination of the airport and its surrounding community necessary to ensure the effectiveness of the WHMP. The cooperation of the airport community is also necessary when new projects are considered. Whether on or off the airport, the input from all involved parties must be considered when a potentially hazardous wildlife attractant is being proposed. Airport operators should also incorporate public education activities with the local coordination efforts because some activities in the vicinity of your airport, while harmless under normal leisure conditions, can attract wildlife and present a danger to aircraft. For example, if public trails are planned near wetlands or in parks adjoining airport property, the public should know that feeding birds and other wildlife in the area may pose a risk to aircraft.

Airport operators should work with local and regional planning and zoning boards so as to be aware of proposed land-use changes, or modification of existing land uses, that could create hazardous wildlife attractants within the separations identified in Sections 1-2 through 1-4. Pay particular attention to proposed land uses involving creation or expansion of waste water treatment facilities, development of wetland mitigation sites, or development or expansion of dredge spoil containment areas. At the very least, airport operators must ensure they are on the notification list of the local planning board or equivalent review entity for all communities located within 5 miles of the airport, so they will receive notification of any proposed project and have the opportunity to review it for attractiveness to hazardous wildlife.

3-7 COORDINATION/NOTIFICATION OF AIRMEN OF WILDLIFE HAZARDS. If an existing land-use practice creates a wildlife hazard and the land-use practice or wildlife hazard cannot be immediately eliminated, airport operators must issue a Notice to Airmen (NOTAM) and encourage the land–owner or manager to take steps to control the wildlife hazard and minimize further attraction.

SECTION 4.

FAA NOTIFICATION AND REVIEW OF PROPOSED LAND-USE PRACTICE CHANGES IN THE VICINITY OF PUBLIC-USE AIRPORTS

4-1. FAA REVIEW OF PROPOSED LAND-USE PRACTICE CHANGES IN THE VICINITY OF PUBLIC-USE AIRPORTS.

a. The FAA discourages the development of waste disposal and other facilities, discussed in Section 2, located within the 5,000/10,000-foot criteria specified in Sections 1-2 through 1-4.

b. For projects that are located outside the 5,000/10,000-foot criteria but within 5 statute miles of the airport's AOA, the FAA may review development plans, proposed land-use changes, operational changes, or wetland mitigation plans to determine if such changes present potential wildlife hazards to aircraft operations. The FAA considers sensitive airport areas as those that lie under or next to approach or departure airspace. This brief examination should indicate if further investigation is warranted.

c. Where a wildlife damage management biologist has conducted a further study to evaluate a site's compatibility with airport operations, the FAA may use the study results to make a determination.

4-2. WASTE MANAGEMENT FACILITIES.

a. Notification of new/expanded project proposal. Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Public Law 106-181) limits the construction or establishment of new MSWLF within 6 statute miles of certain public-use airports, when both the airport and the landfill meet very specific conditions. See Section 2-2 of this AC and AC 150/5200-34 for a more detailed discussion of these restrictions.

The Environmental Protection Agency (EPA) requires any MSWLF operator proposing a new or expanded waste disposal operation within 5 statute miles of a runway end to notify the appropriate FAA Regional Airports Division Office and the airport operator of the proposal (40 CFR 258, *Criteria for Municipal Solid Waste Landfills*, Section 258.10, *Airport Safety*). The EPA also requires owners or operators of new MSWLF units, or lateral expansions of existing MSWLF units, that are located within 10,000 feet of any airport runway end used by turbojet aircraft, or within 5,000 feet of any airport runway end used only by piston-type aircraft, to demonstrate successfully that such units are not hazards to aircraft. (See 4-2.b below.)

When new or expanded MSWLF are being proposed near airports, MSWLF operators must notify the airport operator and the FAA of the proposal as early as possible pursuant to 40 CFR 258.

b. Waste handling facilities within separations identified in Sections 1-2 through 1-4. To claim successfully that a waste-handling facility sited within the separations identified in Sections 1-2 through 1-4 does not attract hazardous wildlife and does not threaten aviation, the developer must establish convincingly that the facility will not handle putrescible material other than that as outlined in 2-2.d. The FAA strongly recommends against any facility other than that as outlined in 2-2.d (enclosed transfer stations). The FAA will use this information to determine if the facility will be a hazard to aviation.

c. Putrescible-Waste Facilities. In their effort to satisfy the EPA requirement, some putrescible-waste facility proponents may offer to undertake experimental measures to demonstrate that their proposed facility will not be a hazard to aircraft. To date, no such facility has been able to demonstrate an ability to reduce and sustain hazardous wildlife to levels that existed before the putrescible-waste landfill began operating. For this reason, demonstrations of experimental wildlife control measures may not be conducted within the separation identified in Sections 1-2 through 1-4.

4-3. OTHER LAND-USE PRACTICE CHANGES. As a matter of policy, the FAA encourages operators of public-use airports who become aware of proposed land use practice changes that may attract hazardous wildlife within 5 statute miles of their airports to promptly notify the FAA. The FAA also encourages proponents of such land use changes to notify the FAA as early in the planning process as possible. Advanced notice affords the FAA an opportunity (1) to evaluate the effect of a particular land-use change on aviation safety and (2) to support efforts by the airport sponsor to restrict the use of land next to or near the airport to uses that are compatible with the airport.

The airport operator, project proponent, or land-use operator may use FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, or other suitable documents similar to FAA Form 7460-1 to notify the appropriate FAA Regional Airports Division Office. Project proponents can contact the appropriate FAA Regional Airports Division Office for assistance with the notification process.

It is helpful if the notification includes a 15-minute quadrangle map of the area identifying the location of the proposed activity. The land-use operator or project proponent should also forward specific details of the proposed land-use change or operational change or expansion. In the case of solid waste landfills, the information should include the type of waste to be handled, how the waste will be processed, and final disposal methods.

a. Airports that have received Federal grant-in-aid assistance. Airports that have received Federal grant-in-aid assistance are required by their grant assurances to take appropriate actions to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations. The FAA recommends that airport operators to the extent practicable oppose off-airport land-use changes or practices within the separations identified in Sections 1-2 through 1-4 that may attract hazardous wildlife. Failure to do so may lead to noncompliance with applicable grant assurances. The FAA will not approve the placement of airport

development projects pertaining to aircraft movement in the vicinity of hazardous wildlife attractants without appropriate mitigating measures. Increasing the intensity of wildlife control efforts is not a substitute for eliminating or reducing a proposed wildlife hazard. Airport operators should identify hazardous wildlife attractants and any associated wildlife hazards during any planning process for new airport development projects.

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APPENDIX 1. DEFINITIONS OF TERMS USED IN THIS ADVISORY CIRCULAR.

1. **GENERAL.** This appendix provides definitions of terms used throughout this AC.

    1. **Air operations area.** Any area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron.

    2. **Airport operator.** The operator (private or public) or sponsor of a public-use airport.

    3. **Approach or departure airspace.** The airspace, within 5 statute miles of an airport, through which aircraft move during landing or takeoff.

    4. **Bird balls.** High-density plastic floating balls that can be used to cover ponds and prevent birds from using the sites.

    5. **Certificate holder.** The holder of an Airport Operating Certificate issued under Title 14, Code of Federal Regulations, Part 139.

    6. **Construct a new MSWLF.** To begin to excavate, grade land, or raise structures to prepare a municipal solid waste landfill as permitted by the appropriate regulatory or permitting agency.

    7. **Detention ponds.** Storm water management ponds that hold storm water for short periods of time, a few hours to a few days.

    8. **Establish a new MSWLF.** When the first load of putrescible waste is received on-site for placement in a prepared municipal solid waste landfill.

    9. **Fly ash.** The fine, sand-like residue resulting from the complete incineration of an organic fuel source. Fly ash typically results from the combustion of coal or waste used to operate a power generating plant.

    10. **General aviation aircraft.** Any civil aviation aircraft not operating under 14 CFR Part 119, Certification: Air Carriers and Commercial Operators.

    11. **Hazardous wildlife.** Species of wildlife (birds, mammals, reptiles), including feral animals and domesticated animals not under control, that are associated with aircraft strike problems, are capable of causing structural damage to airport facilities, or act as attractants to other wildlife that pose a strike hazard

    12. **Municipal Solid Waste Landfill (MSWLF).** A publicly or privately owned discrete area of land or an excavation that receives household waste and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 CFR § 257.2. An MSWLF may receive

other types wastes, such as commercial solid waste, non-hazardous sludge, small-quantity generator waste, and industrial solid waste, as defined under 40 CFR § 258.2. An MSWLF can consist of either a stand alone unit or several cells that receive household waste.

13. **New MSWLF.** A municipal solid waste landfill that was established or constructed after April 5, 2001.

14. **Piston-powered aircraft.** Fixed-wing aircraft powered by piston engines.

15. **Piston-use airport.** Any airport that does not sell Jet-A fuel for fixed-wing turbine-powered aircraft, and primarily serves fixed-wing, piston-powered aircraft. Incidental use of the airport by turbine-powered, fixed-wing aircraft would not affect this designation. However, such aircraft should not be based at the airport.

16. **Public agency.** A State or political subdivision of a State, a tax-supported organization, or an Indian tribe or pueblo (49 U.S.C. § 47102(19)).

17. **Public airport.** An airport used or intended to be used for public purposes that is under the control of a public agency; and of which the area used or intended to be used for landing, taking off, or surface maneuvering of aircraft is publicly owned (49 U.S.C. § 47102(20)).

18. **Public-use airport.** An airport used or intended to be used for public purposes, and of which the area used or intended to be used for landing, taking off, or surface maneuvering of aircraft may be under the control of a public agency or privately owned and used for public purposes (49 U.S.C. § 47102(21)).

19. **Putrescible waste.** Solid waste that contains organic matter capable of being decomposed by micro-organisms and of such a character and proportion as to be capable of attracting or providing food for birds (40 CFR §257.3-8).

20. **Putrescible-waste disposal operation.** Landfills, garbage dumps, underwater waste discharges, or similar facilities where activities include processing, burying, storing, or otherwise disposing of putrescible material, trash, and refuse.

21. **Retention ponds.** Storm water management ponds that hold water for several months.

22. **Runway protection zone (RPZ).** An area off the runway end to enhance the protection of people and property on the ground (see AC 150/5300-13). The dimensions of this zone vary with the airport design, aircraft, type of operation, and visibility minimum.

23. **Scheduled air carrier operation.** Any common carriage passenger-carrying operation for compensation or hire conducted by an air carrier or commercial

operator for which the air carrier, commercial operator, or their representative offers in advance the departure location, departure time, and arrival location. It does not include any operation that is conducted as a supplemental operation under 14 CFR Part 119 or as a public charter operation under 14 CFR Part 380 (14 CFR § 119.3).

24. **Sewage sludge.** Any solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works. (40 CFR 257.2)

25. **Sludge.** Any solid, semi-solid, or liquid waste generated form a municipal, commercial or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. (40 CFR 257.2)

26. **Solid waste.** Any garbage, refuse, sludge, from a waste treatment plant, water supply treatment plant or air pollution control facility and other discarded material, including, solid liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or by product material as defined by the Atomic Energy Act of 1954, as amended, (68 Stat. 923). (40 CFR 257.2)

27. **Turbine-powered aircraft.** Aircraft powered by turbine engines including turbojets and turboprops but excluding turbo-shaft rotary-wing aircraft.

28. **Turbine-use airport.** Any airport that sells Jet-A fuel for fixed-wing turbine-powered aircraft.

29. **Wastewater treatment facility.** Any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes, including Publicly Owned Treatment Works (POTW), as defined by Section 212 of the Federal Water Pollution Control Act (P.L. 92-500) as amended by the Clean Water Act of 1977 (P.L. 95-576) and the Water Quality Act of 1987 (P.L. 100-4). This definition includes any pretreatment involving the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. (See 40 CFR Section 403.3 (q), (r), & (s)).

30. Wildlife. Any wild animal, including without limitation any wild mammal, bird, reptile, fish, amphibian, mollusk, crustacean, arthropod, coelenterate, or other invertebrate, including any part, product, egg, or offspring thereof (50 CFR 10.12, *Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants*). As used in this AC, wildlife includes feral animals and domestic animals out of the control of their owners (14 CFR Part 139, Certification of Airports).

31. Wildlife attractants. Any human-made structure, land-use practice, or human-made or natural geographic feature that can attract or sustain hazardous wildlife within the landing or departure airspace or the airport's AOA. These attractants can include architectural features, landscaping, waste disposal sites, wastewater treatment facilities, agricultural or aquaculture activities, surface mining, or wetlands.

32. Wildlife hazard. A potential for a damaging aircraft collision with wildlife on or near an airport.

33. Wildlife strike. A wildlife strike is deemed to have occurred when:

a. A pilot reports striking 1 or more birds or other wildlife;

b. Aircraft maintenance personnel identify aircraft damage as having been caused by a wildlife strike;

c. Personnel on the ground report seeing an aircraft strike 1 or more birds or other wildlife;

d. Bird or other wildlife remains, whether in whole or in part, are found within 200 feet of a runway centerline, unless another reason for the animal's death is identified;

e. The animal's presence on the airport had a significant negative effect on a flight (i.e., aborted takeoff, aborted landing, high-speed emergency stop, aircraft left pavement area to avoid collision with animal) (Transport Canada, Airports Group, *Wildlife Control Procedures Manual*, Technical Publication 11500E, 1994).

2. RESERVED.

Right of Way & Permits

1123 West 3rd Avenue
Denver, Colorado 80223
Telephone: **303.571.3306**
Facsimile: 303. 571.3284
donna.l.george@xcelenergy.com

January 22, 2020

City of Aurora Planning and Development Services
15151 E. Alameda Parkway, 2nd Floor
Aurora, CO 80012

Attn: Deborah Bickmire

Re: Aurora Technology and Energy Corridor (ATEC) Master Plan, Case # DA-2214-00

Public Service Company of Colorado's (PSCo) Right of Way and Permits Referral Desk has determined **there are conflicts** with the above captioned project. Public Service Company has an existing electric **transmission** line and an existing high pressure natural gas **transmission** pipeline and associated land rights as shown within this property. **Any activity** including grading, proposed landscaping, erosion control or similar activities involving our existing right-of-way **will require Public Service Company approval**. Encroachments across Public Service Company's easements must be reviewed for safety standards, operational and maintenance clearances, liability issues, and acknowledged with a Public Service Company License Agreement to be executed with the property owner. **PSCo is requesting that, prior to any final approval of the development plan,** it is the responsibility of the property owner/developer/contractor to contact the following for **development plan review** and execution of License Agreements:

- **for Electric Transmission**: email coloradorightofway@xcelenergy.com or website www.xcelenergy.com/rightofway
- **for High Pressure Natural Gas Transmission**: https://www.xcelenergy.com/working_with_us/builders/encroachment_requests - click on Colorado if necessary; an engineer will then be in contact to request specific plan sheets

Please be aware PSCo owns and operates existing electric distribution facilities. The property owner/developer/contractor must complete the application process for any new gas or electric service, or modification to existing facilities via xcelenergy.com/InstallAndConnect. It is then the responsibility of the developer to contact the Designer assigned to the project for approval of design details. Additional easements may need to be acquired by separate document for new facilities.

For future planning and to ensure that adequate utility easements are available within this development, PSCo will require minimum 10-foot wide utility easements around the perimeter of each commercial/industrial lot, including tracts, parcels and/or open space areas.

Donna George
Right of Way and Permits
Public Service Company of Colorado / Xcel Energy
Office: 303-571-3306 – Email: donna.l.george@xcelenergy.com

Exhibit B

Minimum Requirements for Grading and Excavation near Public Service Company of Colorado Transmission Pipeline(s)

1) General

a. Colorado State Law Requires notification before excavation around utilities occurs. Requestor or Requestor's Contractor must call the Utility Notification Center of Colorado (UNCC) 1-800-922-1987 (811 when calling within Colorado) 48 hours prior to excavation, including the grading of the right of way, begins. Public Service Company of Colorado (PSCo) representatives provide these construction locates at its' cost as a participant in the one call system.

b. All costs for labor, equipment and materials required to repair any damage to the pipeline(s) caused by Requestor or its' Contractors will be the responsibility of the Requestor and/or its Contractors for reimbursement to PSCo.

c. Requestor's Contractor shall provide access to PSCo facilities on the project site for inspection by PSCo Personnel. Open excavations that need to be entered by PSCo Personnel shall conform to all federal, state and local jurisdictional codes and regulations governing safe entry and exit from open excavations.

d. A fully executed agreement, applicable to the type of right being requested, between the Requestor and PSCo must be completed prior to construction activity within the PSCo ROW.

e. Requests for installation of improvements by Requestor within the PSCo ROW must be reviewed and approved by PSCo High Pressure (HP) Gas Engineering and Operations. Installation of, and all costs associated with any improvements, are the responsibility of the Requestor. All costs associated with repairs or relocation of these improvements to accommodate PSCo Operations and Maintenance work on the existing pipeline(s) or installation of a new pipeline will be the responsibility of the Owner of record of the property at the time the work is performed.

f. In the mutual interest of project coordination and scheduling of PSCo resources for your project, PSCo requests invitation to the Pre-Construction Meeting to obtain actual schedules and construction plans, make introductions and address any site specific conditions or project changes that have occurred between Final Design Review and Construction.

g. Any exceptions to the Minimum Requirements stated in this document must be requested in writing and reviewed by PSCo HP Gas Engineering and Operations before approval for construction activity on the PSCo pipeline(s) permitted ROW is given.

h. Any change in Requestor's construction plan and or scope of work that was agreed to between the Requestor and PSCo prior to, or during, construction must be presented to PSCo HP Gas Engineering and Operations for additional review and modification of requirements.

i. Additional requirements may apply to address issues not foreseen during review of Requestor's proposal.

2) Engineering

a. Specifications of weight and type of any heavy equipment or trucks planned to be run over or along the pipeline(s) are required to be submitted to PSCo HP Gas Engineering for analysis of excessive live load stresses induced on the pipeline(s) prior to approval for crossing is given.

   i. Should calculated allowable stresses induced by Requestor equipment traveling over the PSCo pipeline(s) be exceeded, Requestor will be required to install additional temporary fill over the pipeline(s).

   ii. If calculated allowable combined stress on the pipeline(s) can not be reduced below limits by adding additional protective fill over the pipeline(s) or the depth of additional fill is deemed impractical, a temporary bridging structure installed over the pipeline(s) will be required to mitigate the excess stress on the pipeline(s).

      1. This bridging structure must be constructed of timbers, plates or other material that does not allow the driving surface to come in contact with the ground surface. The supports for the driving surface of the bridging structure may be of dirt or other material with the inside edges of the supports placed a minimum of 5 feet from the center line of the PSCo pipeline(s).

b. Requestor's Plans must contain surveyed horizontal location of the PSCo pipeline(s) throughout the project area based on current field locates. Surveyed vertical location of the PSCo pipeline(s) based on pothole information must be presented on the Proposed Construction Drawings Profile Sheets at all Requestor facility crossing locations of the pipeline(s) prior to final comment and approval of the plans.

c. Locates and or potholing for the purpose of Requestor's engineering, design and construction drawings to establish the horizontal and vertical locations of PSCo facilities and all associated costs will be the responsibility of Requestor. A PSCo representative will be required to be on site during any pothole operations.

   i. Potholing with excavation equipment during frost conditions will not be allowed unless contractor thaws ground prior to excavation. Potholing with vac-truck will be allowed under any conditions

d. **Any excavator acting in a reckless manner while working in the area of Xcel Energy pipelines shall be asked to stop their work in that area. Work will not be allowed to continue until Xcel Energy personnel deem the situation has returned to a safe situation.**

e. Blasting Near PSCo Facilities

i. Notification

1. In accordance with Article 7 of Title 9 of CRS "Explosive Act", Section 6.1.7, Utilities must be notified at least 24 hours prior to commencement of blasting activity. If Blasting is anticipated for this project an "Explosive Use Application and Notification" and the associated Agreement Document must be processed before blasting activities may commence near the PSCo pipeline(s). It is recommended that this notification be made at least one month in advance of actual blasting activities to allow for processing of these documents and any studies that may need to be performed to access the applicants blasting plan.

ii. Limits

1. Buried Pipe - Total Combined (Effective) Stresses on the pipe must not exceed **50**% of the specified minimum yield strength of the pipe.

2. Above Ground Pipe –Blasting operations must not generate Peak Particle Velocity (PPV) greater than 1 in/sec.

f. Vibrations from dynamic compaction equipment or other sources must be maintained at a peak particle velocity of not greater than 1 in /sec as measured in any one of the three components of a seismographic reading.

3) **Inspection**

a. PSCo will require that one of its Field Operators be on site during the potholing, excavation, site grading, backfill operations, compaction, and installation of your facilities when working within the pipeline(s) easement and/or a minimum of fifteen (15) Ft from the outer limits of the locate marks for the PSCo pipeline(s). This standby expense is covered by PSCo during a normal 8 hour day Monday - Friday. Any time required in excess of 8 hours per day or weekend and holidays will be billed to the Third Party of the facilities under construction at the applicable PSCo Labor Overtime Rates and Equipment/Vehicle Rates.

b. Requests for standby will be filled on a first-come, first-served basis, consistent with the number of personnel available for standby and Xcel Energy workload at that time. It is not our intent to unnecessarily impede the work schedule of the installation contractor, and we will strive to be as available as possible.

c. Appointments for standby excavations shall be scheduled to minimize the amount of time Xcel Energy personnel are waiting during contractor setup. Contractors will be charged at the applicable straight time or overtime PSCo labor rate and Equipment/Vehicle per hour for time between appointment time and actual start time (i.e. a call for an 8:00 A.M. standby and actual construction start time of 10:00 A.M. will result in 2 hours of the applicable straight time or overtime PSCo labor and Equipment/vehicle charges)

d. Frequency and duration of Field Operator Standby will be determined during the initial site visit with the Requestor's Construction Contractor based on construction schedule and phasing of construction activities as they relate to work near the PSCo pipeline(s).

e. Potholing frequency during construction will be at the discretion of the PSCo Inspector on site on an as needed basis based on field conditions and proximity of the excavation to the pipe.

f. Potholing with excavation equipment during frost conditions will not be allowed unless contractor thaws ground prior to excavation. Potholing with vac-truck will be allowed under any conditions.

4) Construction

a. Grading, Excavation, Installation, Backfill

i. A "Method of Construction Plan" shall be provided to PSCo HP Gas Engineering and Operations for review and approval prior to the beginning of construction.

ii. For Parallel Encroachments, the recommended method of construction is to place the trench spoils between the Requestor line and the PSCo line and set the working side on the opposite side of the trench from the spoil pile.

1. Alternate Method of Construction
   a. Install a layer of straw or some other method of identifying the top of the existing ground elevation then place trench spoils on top of the line. During backfill operations, removal of the spoil shall stop at the level of the warning material.

   b. Requests to work above existing PSCo pipeline(s), either on top of existing ground elevation or top of spoil pile, will be reviewed on a case by case basis. Requestor must provide specs for all equipment that will be traveling on top of the line for calculation of combined stresses for determination if allowable combined stress levels are exceeded prior to approval of this method

iii. The maximum unsupported length of PSCo's 2" and larger diameter High Pressure Natural Gas pipeline(s) is **15** feet.

1. Specific calculations can be made for pipe diameter's greater than 2" in outside diameter to determine greater free span lengths.

2. Should Requestor excavation require a greater length of the pipe be exposed than allowable stress limits dictate, plans for providing support will be required to be submitted to PSCo HP Gas Engineering for review and approval. This support system can be provided by the third party's contractor and installed under the supervision of the on-site PSCo Energy Employee. A list of qualified pipeline contractors to perform this work, if needed, can be supplied to you if so requested.

iv. If site re-grading leaves less than 36" of cover over the PSCo pipeline(s), the pipe will have to be lowered or additional protection measures installed over the pipe such as concrete capping or steel plating. Any mitigation measures, including engineering of such structures, will be at the expense of the Third Party of the facilities being constructed.

v. Backfill operations around exposed sections of PSCo's pipeline(s) shall be inspected by a PSCo representative.

vi. Any sections of the PSCo pipeline(s) that are exposed during construction must be padded with material passing ¾" minus screens that is non-angular in shape to a depth of one (1) foot above the top of pipe before native material passing 6" minus screens or two (2) feet above the top of pipe before native material passing greater than 6" plus screens can be used for the remaining backfill. Bedding material of an angular nature and/or passing 2" minus screens may be used if rock shield, epoxy coating applied to a thickness of 30 mils or greater, or other abrasion resistant coating, is installed around the pipe over the entire exposed length. Installation of any such additional protective coating installation shall be inspected by a PSCo representative.

vii. Utilization of flowable fill with cement or fly ash binder material may be utilized once one (1) foot of cover is established over the PSCo pipeline(s) with consolidated, non-abrasive, bedding material. The flowable fill must be able to be excavated with a shovel. The flowable fill shall extend ten feet on either side of the PSCo pipe and extend to the trench walls. The use of flowable fills is subject to approval of the local government authorities.

viii. Other backfill material not requiring additional compactive effort to obtain required dry densities of the project specifications may be utilized around the pipe. Submittal of a backfill plan and material specifications shall be presented to PSCo HP Gas Engineering and local government authorities for review before approval is granted.

ix. Permanently added fill over PSCo pipeline(s) shall not exceed a typical depth of cover of four (4) feet over the top of PSCo's pipeline(s) at final grade. Exceptions due to terrain, grading requirements and re-establishment of slopes must be reviewed with PSCo HP Gas Engineering but shall not exceed eight (8) feet of cover over the top of the PSCo pipeline(s).

b. Compaction over PSCo Pipelines

i. No heavy vibratory compaction equipment (driver operated) will be allowed over or along the length of the PSCo pipeline(s) in the area requiring compaction and for a distance of ten (10) feet on either side of the outside wall of the pipe and ten (10) feet from the ends of the pipe length at the compaction area limits if less than three (3) feet of cover is left over the pipe after sub excavation work is completed.

ii. Light vibratory compaction equipment (jumping jacks, walk behind or remote control rollers) may be utilized once the minimum one (1) foot of bedding material cover over the top of the PSCo pipeline(s) is established.

c. Facility Crossings

i. Buried Facility Crossings of the PSCo pipeline(s) will be required to go under or over the PSCo pipeline(s) with a minimum clearance of two (2) feet to the bottom or top respectively of the PSCo pipeline(s).

ii. Buried facilities installed parallel to the PSCo pipeline(s) must maintain a minimum horizontal separation of ten (10) feet from the pipeline(s). If this minimum horizontal separation cannot be maintained, the top of the facility being installed will be required to be one (1) feet below the bottom of the PSCo pipeline(s) for every foot closer than ten (10) feet to the pipeline(s).

d. Improvements/Structure/Facility Placement

i. No surface or sub-grade structures or utility facilities will be allowed within the PSCo ROW limits without plan review approval from PSCo HP Gas Engineering and Operations. Potential ignition source facilities shall be a minimum of fifteen (15) from the outside wall of the pipe

e. Landscape Installation

i. No planting of vegetation will be allowed within the PSCo ROW limits without plan review approval from PSCo HP Gas Engineering and Operations. Under no circumstances will trees be allowed to be planted over the pipeline(s) within the PSCo ROW limits and shall be no closer than fifteen (15) feet from the outside wall of the pipe.

f. Cathodic Protection

i. A copy of the Requestor Cathodic Protection (CP) System design shall be provided to PSCo for review prior to construction. .

ii. At crossing locations, Stray Current Mitigation will be required if either pipeline is cathodically protected from a rectified ground bed system. At a minimum this shall consist of a run of two # 8 wires from Public Service Company (PSCo) pipe and 2 # 8 wires up from the third party facility pipe into a common or separate test station for bonding of the two systems together if necessary. The wires could either run to the test station in a common conduit or separate conduits. In addition, four 17# or larger anodes are to be placed in each quadrant of the crossing pipes and placed vertically equidistant between the two pipelines. PSCo will provide the material for its CP test station and assist **Requestor's** contractor with installation of the test station.

iii. For parallel encroachments, at locations where third party is installing a CP Test Station, the third party will be required to expose the PSCo pipeline(s) for installation of a CP test station for monitoring of interference. PSCo will provide the material for its CP test station and assist the third party's contractor with installation of the test station.

5) Post Construction

a. Permanent Private Road Crossings

i. Permanent private access roads intended for use by vehicles with a loaded single axle rating of less than or equal to CDOT load limits, must provide and maintain a minimum of **4** feet of cover over the PSCo pipeline(s). Any party needing to cross the PSCo pipeline(s) with vehicles in excess of the CDOT Load Limits per single axel must contact PSCo for additional requirements or place bridging structures over the located pipeline(s).

ii. Permanent private access roads intended for use by vehicles with a loaded single axle rating of less than or equal to 20,000 lb per axle, must provide and maintain a minimum of **4 (four)** feet of cover over the PSCo pipeline(s).

iii. Tracked equipment crossings of the PSCo pipeline(s) must be made via tractor/lowboy transport adhering to the restrictions of section 5.a.i. and 5.a.ii. If it is desired to track the equipment over the PSCo pipeline(s), PSCo must be contacted to calculate the limits for the specific piece of equipment or provide a bridging structure over the pipeline(s) in accordance with Section 2.a.ii.1.

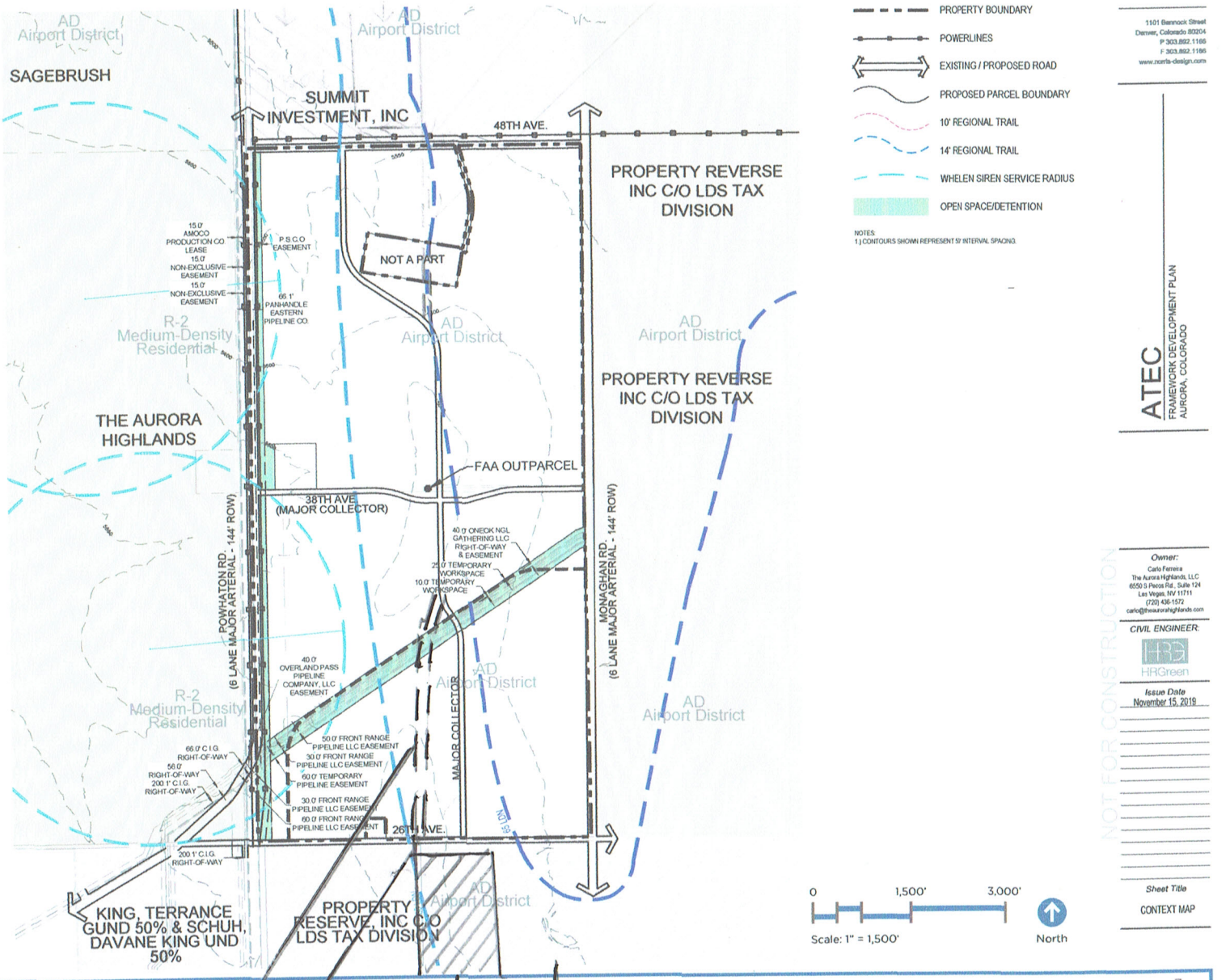
b. Four wheel all terrain sport and utility vehicles and dirt bikes are exempt from this section's restrictions. A minimum cover of twelve (12") inches of dirt over the pipe must be present before these vehicles can cross over the pipe.
c. It is recommended that Requestor install and maintain load limit signage at all road crossings of the PSCo pipeline(s).
d. PSCo will place pipeline markers at all permanent road crossings that are to remain at the conclusion of the installation of the Requestor pipeline.

Bickmire, Deborah

From: Richard Schmidt <crsrls@msn.com>
Sent: Tuesday, January 21, 2020 11:41 AM
To: Bickmire, Deborah
Subject: CCF01212020_0001.pdf
Attachments: CCF01212020_0001.pdf

Deborah,
Please see attached revised site collector realignment connection to 26th Ave.
Thank you Richard Schmidt Venture 2011 303-589-2223

Sent from Mail for Windows 10



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ATEC
FRAMEWORK DEVELOPMENT PLAN
AURORA, COLORADO

Owner:
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CIVIL ENGINEER:
HRGreen

NOT FOR CONSTRUCTION

Issue Date
November 15, 2019

Sheet Title
CONTEXT MAP

Richard Schmidt Comments
Venture 2011

PROPOSED COLLECTOR REALIGNMENT TO FUTURE COLLECTOR SOUTH OF 26TH AVE

45'x485' LEG TO 26th AVE

VENTURE 2011 85 ACRES

ROCK & RAIL AGGREGATES