

4

SITE ANALYSIS

- Form A 4.1
- Existing Easements Plan 4.2
- Waterbodies Map A 4.3
- Airport Noise Impact Map 4.4
- Soils Map A 4.5
- Boundaries Map 4.6
- Natural Features Map 4.7



4.1 Site Analysis Narrative: Form A

1. General Site Character

Briefly describe the existing location and physical character of your site. What are its most important and distinguishing features?

The Site

The Green Valley Ranch MP approved in 2008, consisted of a 2,510-acre piece of land located on either side of the E-470 Toll way between 56th Avenue on the north and 26th Avenue on the south, between Picadilly Road on the west to Powhaton Road on the east. The site is located three miles south of the Denver International Airport and one mile north of Interstate 70.

The proposed amendment to the Green Valley Ranch MP is for an 884-acre portion of the approved 2,510-acre Green Valley Ranch MP. The amendment area is located between 56th Ave to the North, and 38th Ave to the South, Picadilly road to the West and E-470 to the East. Refer to Tab 3.2 for the revised Green Valley Ranch MP map. The following analysis of the site describes the Green Valley Ranch MP. The remaining portions of the original Green Valley MP located East of E-470 are no longer part of the Green Valley Ranch MP and are now part of the neighboring Aurora Highlands MP.

Existing Land Use

Existing development within the Green Valley Ranch MP is located between 52nd Ave. to the north, 38th Ave to the south, Picadilly Road to the west and E-470 to the east. Green Valley Ranch to the south of 48th Ave consists of mainly single-family residential areas that contains a P-8 school site. North of 48th Ave the site provides Active Adult residential. Pocket parks, neighborhood parks, and open spaces are provided throughout the entire MP area with connection points and pedestrian corridors that enable access for residents throughout. This area of Green Valley Ranch is currently under construction.

Surrounding Land Uses

Surrounding land uses include Green Valley Ranch in the City and County of Denver to the west of Picadilly Rd. which encompasses single-family residences, parks, open space, a new public golf course, and a number of schools.

North of E. 56th Ave and west of Picadilly Rd., is the Painted Prairie development. Skydance and Fulenwider MP's are also located north of 56th avenue, located between Picadilly Rd. and E-470. These three Master planned areas will include a mix of development that include residential, commercial, and mixed uses. There is a fourteen acre outparcel owned by the City of Aurora, located south of 48th Avenue where there is an existing lift station and site for a future fire station. Majestic Commercenter is located south of 38th Avenue, where there is one existing distribution center. Located East of Tibet Road, south of 52nd Avenue is the Windler MP area, which will include industrial and residential development, as well as, neighborhood parks and open spaces. Located East of E-470 and south of 48th Avenue is the Aurora Highlands Master Plan, which includes mixed use, and residential development.

The Context Map and Zoning Subarea Map, Tabs 3.3 - 3.5 show existing and planned land uses, zoning, streets, parks, and open space within ½ mile of the site's perimeter.

Topography and Landform

The landform and topography consist of rolling hills, shallow drainages and grass-lined swales, and plowed fields. Elevations range between approximately 5410 ft. and 5470 ft. above mean sea level for a total relief of sixty feet.

Ten-foot contours are shown on Tab 4.3, "Waterbodies Map."

Slopes across the site are predominantly less than 4.99%. Slope analysis shows:

<u>% Site Area</u>	<u>% Slope</u>
87.0	00-4.99
10.2	05-7.99
01.8	08-11.99
01.0	12-100.0

A. Water Features

A drainage ditch runs northwesterly from the southeast portion of the property, beginning at 38th Avenue, and drains into Tributary T, an intermittent stream west of Picadilly Road that is tributary to First Creek.

Another minor drainage flows east to west, south of 48th Avenue; this drainage also carries water intermittently.

These water bodies are shown on Tab 4.3, "Waterbodies Map."

B. Floodplains

There are multiple Special Flood Hazard Areas (SFHA) on the site. Near 38th Avenue at Picadilly Road where First Creek crosses the southwest corner of T3S R66W S 24, the floodplain is classified as Zone AE - Areas of 100-year flood with Base Flow Elevation (BFE) and Zone A – Areas of 100-year flood without BFE. There is also FEMA regulated floodplain, classified as Zone AE, along Tributary T. The FEMA floodplain will be altered for First Creek. The Tributary T floodplain will be revised and enhanced through a naturalized channel design. Both floodplains are shown on the Waterbodies Map- Tab 4.3.

C. Springs

Water is drawn from an aquifer to assist with filling two wet ponds north of 48th Ave. as necessary.

D. Riparian Areas

There are no true riparian zones along the drainage. There is no flowing water or springs along the drainage, and no channels have developed.

The understory is an overgrazed pasture with no bushes or willows.

E. Water Table

The water table will be determined during further site analysis and assessment.

Natural or Geologic Hazard Areas

The following generalized soil and geologic information was obtained from the Colorado Geological Survey and is shown on Tab 4.5 entitled “Soils Map.”

A. Soils

The soils found on the site include “Low Swell Potential” found along the site’s drainages. This category includes several bedrock formations and many surficial deposits. The thickness of the surficial deposits may be variable, therefore, bedrock with a higher swell potential may locally be less than 10’ below the surface. “Windblown Sand and Silt” is found on the balance of the site. Although this category has low swell potential, the upper 6” to 12” may locally have moderate swell potential. Windblown material may be subject to severe settlement or hydro compaction when water is allowed to saturate the deposits. The thickness of windblown material may be very variable; therefore, bedrock with higher swell

potential may be locally less than 10' below the surface.

(Source: "Potentially Swelling Soil and Rock on the Front Range Urban Corridor, Colorado" Colorado Geological Survey, 1973, 1974.

B. Geology

The Geologic Map of Colorado identifies the following on the site:

1. Tkdi - Denver Formation or lower part of Dawson Arkose on the Northeastern portion of the site which includes Arkasis sandstone, shale, mudstone, conglomerate, and local coal beds.
2. Qe - Eolian deposits on the southeastern portion of the site which includes dune sand and silt and Peoria Loess.

(Source: "Geologic Map of Colorado," Colorado Geological Survey, 1979).

No geologic hazards have been identified on the site to date.

Existing Vegetation and Black Forest Trees

The Colorado Division of Wildlife provided the following generalized information regarding vegetation. This site is shown as containing Midgrass Prairie throughout the site area. This is shown on Tab 4.7, "Natural Features." (Source: "Gap Vegetation Classification for Adams, Arapahoe, and Denver Counties" Colorado Division of Wildlife, Sept. 1998).

The site is typical of Midgrass Prairie that has been farmed and grazed in the past. Trees are few and isolated in drainages. In the northwestern corner of Section 24, along the Tributary T drainage, some small Cottonwoods and Peach Willows may be found.

There are no understory plants and grasses are sparse. The site receives little moisture. No Ponderosa Pines, regulated by the Black Forest Tree Preservation Ordinance, exist on this site as it is north of the Black Forest limits, which is along Smoky Hill Road.

Existing Utilities

An Alta Survey has been prepared and is included in Tab 14 which identifies existing easements on the site. Also See Tab 4.2 for more information.

Airport Overlay District

The entire site is outside of the 60 LDN Noise Contour Line as shown on the E-470 Corridor Land Use Study. The active adult portion located from 48th Ave to 56th Ave, falls within the Airport Influence District and Noise Impact Boundary Area established for the Denver International Airport by the City of Aurora. This would require air conditioning and noise insulation for 25dba for all residential uses. These boundaries are shown on Tab 4.6. This will also require compliance with height restrictions which do not intrude into the Federal Aviation Administration Part 77 Surfaces as well as conveyance of an aviation and hazard easement to the City and Airport for right-of-way for unobstructed passage of aircraft above the property which will waive any right or cause of action against the City and the airport arising from noise, vibrations, fumes, dust, fuel particles and other effects caused by aircraft and airport operations. The applicant will also be required to provide notice to prospective purchasers of being within the Airport Influence District.

Significant Views

An on-site analysis was conducted to identify significant views. No significant views are located within the Master Plan boundary.

Vegetation / Drainage

The topography gradually slopes down to the west from multiple high points that are located east along the Green Valley Ranch property boundary. These highpoints and slope directions are better shown on Tab 4.3. The slopes move from the south and east (higher) to the northwest (lower), eventually collecting into a main drainage known as Tributary T, an intermittent stream west of Picadilly Road that is tributary to First Creek. Past ditch and water control grading for farming has altered the natural drainage patterns on the property. The drainage areas from the plains to the east of the properties are not large enough to provide for water flow in the drainage ways, therefore, there are no defined channels or water flows except after a major storm. Most of the drainages are flat, and the slow water flow leaves no discernible channel. The sites do not have enough surface water flow to maintain wetlands along the drainage and on flatter bottom areas.



Southeast corner of E. 38th Ave. and E-470 looking west towards Front Range

Existing Structures:

The Active Adult Clubhouse in Green Valley Ranch East located near Picadilly Road and 48th Ave is the only significant community structure that has been constructed. Individual homes have been constructed across the Green Valley Ranch MP along Picadilly Road between 38th Ave and 52nd Ave.

Wildlife:

The site was historically farmed and grazed so there is limited habitat for wildlife; however, the following generalized wildlife habitat information was obtained from the Colorado Division of Wildlife:

The entire site is the overall range for goose, duck, pronghorn antelope, and mule deer and within the winter range for geese. The southeastern part of the site is also within the foraging range for geese. This information is shown on Tab 4.7 entitled "Natural Features."

(Source: "Natural Diversity Information Source - Significant Wildlife Habitat Maps - Adams, Arapahoe, and Denver Counties, Colorado." Colorado Division of Wildlife, September 1998).

Wildlife Species:

Common wildlife species observed or expected on the property are typical open plains species. Raptors (northern harrier, red-tailed hawk, American kestrel) were observed on the site, but no active nests were observed or noted. No deer or pronghorn were observed and were not expected due to the open agricultural fields, lack of cover, and the barrier to migration from E-470. We evaluated the area up-gradient from Picadilly Road along

Tributary T for potential federal or state listed sensitive species habitat. No potential habitat exists on the properties for the Preble's meadow jumping mouse (*Zapus hudsonius preblei*), currently listed as threatened under the Endangered Species Act. Preble's jumping mouse requires habitat with perennial streams and a good cover of shrubs. As already stated, this type of habitat is not present on these properties. Also, no habitat for the Ute ladies-tresses orchid (*Spiranthes diluvialis*) was observed on the property. Farming practices have removed the native vegetation and wet meadow habitat normally associated with the orchid. We are recommending that no surveys for these species are needed due to lack of habitat.

The Colorado Division of Wildlife has mapped western portions of this property as Midgrass Prairie. This was probably one of the former types of vegetation present; however no native undisturbed midgrass or shortgrass prairie remains due to current and former land use. Some of the lower drainage swales could have supported midgrass prairie, however the upland slopes and broad ridges were most likely shortgrass prairie dominated by blue grama (*Bouteloua gracilis*), buffalo grass (*Buchloe dactyloides*), and other short grasses, and dryland forbs. We observed no undisturbed native prairie on any portion of the property.

There is the potential for restoration of midgrass and shortgrass prairie in some areas of the property, however most prairie soils have been disturbed and would require planting and maintenance.

The Colorado Division of Wildlife has mapped wildlife habitat for goose, duck pronghorn antelope (*Antilocapra americana*), and mule deer (*Odocoileus hemionus*) in portions of Section 13 and 24 west of E-470. At the present time there is a little goose and duck habitat due to lack of water and suitable vegetation. There is a lack of cover and forage for mule deer, and use of this property as habitat is limited. Pronghorn may have occupied some of the area in the past, but roads and increasing traffic also limit their current use of the property as habitat. Mule deer are still common on the Rocky Mountain Arsenal to the west and have been observed on the Green Valley Ranch Golf Course west of Picadilly Road.

Proposed Land Uses

The proposed MP area west of E-470 between 52nd Avenue and 38th Avenue is within the R-2 (Medium Density Residential) zone district. The area north of 52nd Ave and south of 56th Ave is currently zoned mixed-use MU-A (Mixed-Use Airport) and MU-R (Mixed-Use Regional). A Zone Map Amendment is proposed with this MP Amendment to rezone 78.8 acres from MU-A to R-2 and 28.3 acres of MU-R to MU-A.

2. Site Assets

Based on your site analysis, what are your site's most important physical assets and potential amenities? Consider location, relationship to existing and proposed transportation networks, scenic beauty, recreation potential, special natural resources, etc.

- There are several, low-flow drainages that cross the site; these flow from the south and east to the northwest into Tributary T, an intermittent stream west of Picadilly Road.
- The landform and topography consist of rolling hills; there are no major ridge lines or major swales.
- The site has very few natural features, other than swales.

Historical/Archeological

- The Colorado Historical Society Office of Archaeology and Historic Preservation conducted a search of the Colorado Inventory of Cultural Resources; several items have been inventoried on the site, but none were found have significant historic or archaeological value. The Colorado Historical Society search of the "Inventory of Cultural Resources" indicated this property was not eligible for designation as a historic site because of the severely dilapidated condition of the buildings and lack of unique architectural qualities.

Existing Utilities

- A high pressure gas line exists within the CIG easement which will limit development within that area. Refer to Master Utility Report section titles Existing Water and Sanitary Sewer infrastructure for more information on existing utilities surrounding the development.

3. Site Restrictions

Based on your site analysis, what are the physical restrictions and site characteristics that may pose a challenge to development? Consider location, nature of surrounding conditions, environmental pollution, lack of existing infrastructure, steep slopes, etc.

- As indicated above, the site has few physical constraints, other than the existence of E- 470, the proposed and existing arterials, low-flow drainages across the site and various PSCO easements surrounding the

property. The site is predominantly developable.

- Road and utilities infrastructure will need to be extended to serve the site from the southwest at 52nd Avenue and Picadilly to the northeast at 56th Avenue and to the site boundary near E-470 as the project progresses in a phased manner. 52nd Avenue will need to be constructed first to fluidly continue the project progression.
- Tibet Road will be constructed in a phased manner to connect Tibet Road from 38th Avenue to 56th Avenue.

Existing/Planned Streets

- The E-470 Tollway is complete to the east of the site and includes an interchange at 56th Avenue, with additional interchanges planned at 48th Avenue, and 38th Avenue. Picadilly Road consists of a paved two-lane roadway but will ultimately be a 6-lane arterial. 56th Avenue and 48th Avenue, are proposed six lane arterials, and 38th Avenue, a proposed four lane arterial, are in various stages of construction between Picadilly Road and Tibet Road. Consistent with the City of Aurora Northeast Area Transportation Study. The arterials will require improvements to City standards with development phasing as applied in accordance with this MP.
- 52nd Avenue is being planned as three-lane collector. Tibet Road is being planned as a three-lane collector between 38th Ave. and 48th Ave., then a 4-lane minor arterial between 48th Ave and 56th Ave. 42nd Avenue is constructed as a two-lane collector.

4. Design Response to Site Assets

How does your proposed development plan take advantage of all the site assets identified by your analysis?

- The Green Valley Ranch MP Amendment Land Use Plan was designed using the natural features and terrain as its foundation; it contains open space corridors along the primary natural features and drainages.
- The intermittent stream corridors/drainages will be preserved within an open space corridor and will be dedicated to the City of Aurora as Open Space. Numerous parks are planned along these open space corridors which connect to off-site open space areas South of 38th Avenue and east of Picadilly Road at First Creek and Tributary T.

5. Design Response to Site Challenges

How does your development plan deal with the site's development constraints as identified above? Have you considered alternate strategies to deal with these problems? If so, why did you select the particular approach shown on your development plan?

- As noted above, the plan was designed to preserve the natural features in Green Valley Ranch to the greatest extent possible.

Highway and Airport Noise

Setbacks per code will be utilized along the edges of the E-470 Corridor. In residential areas, where acoustical studies indicate the need for noise mitigation, a fence, wall, or berm or combination thereof will be installed consistent with the City of Aurora requirements. As previously discussed, all development within the Noise Impact Boundary will be required to achieve an interior noise level reduction of twenty-five db in A-weighted levels. Noise reduction measures shall include central air conditioning or the equivalent.

Grading

Grading will follow the natural contours to the extent possible and will be limited to the extent possible in the stream/drainage areas as any kind of structures will not be allowed over gas easements to keep these areas at a minimum for grading.

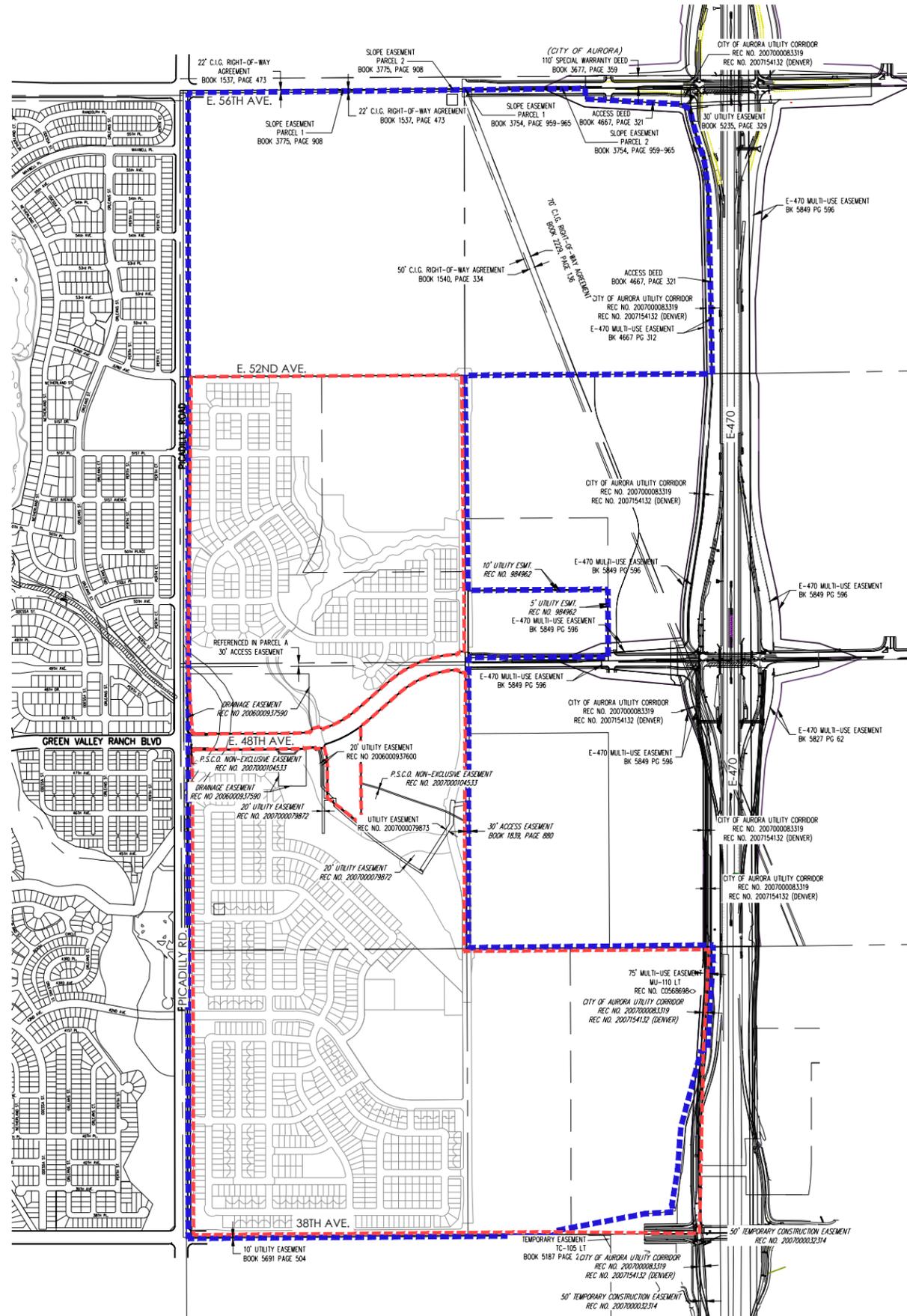
6. Development Impacts on Existing Site Conditions

What are the impacts of your project on the existing character of the site and its immediate surroundings? What improvements will your development make? How have any impacts been mitigated? Consider impacts on environmental quality, aesthetic appearance, existing open space and natural features, physical infrastructure, etc.

- The construction of the Green Valley Ranch MP will change the existing rural/agricultural character of the land to that of a master planned community. The impacts of this change will be mitigated by the preservation of a generous amount of open space, parks, and trails, and the design of the community as a pedestrian-friendly development that has a combination of housing, park, and recreational uses.
- The development of the Green Valley Ranch MP, which lies within the City of Aurora Water Zones 3 and 4, will occur in phases to meet housing demand as the economy fluctuates. Water utilities will be looped to service each phase of the project by connecting to the adjacent, existing water mains within 38th Avenue, in Picadilly Road, 56th Avenue,

and 48th Avenue. Storm and sanitary networks will be extended within the community to service the phases and will connect to the existing infrastructure

- The Site is located within three separate tributaries as identified within the Green Valley Ranch East Master Utility Report. That Report identified three basins to correspond with those tributaries, as follows: Basin 310-1 which is tributary to the Second Creek Lift Station approximately two miles downstream of the Site. Basin 310-2 which is tributary to the Painted Prairie Development, and Basins 310-3 and 310-4, which are tributary to the First Creek lift station within the Green Valley Ranch East subdivision. Due to serviceability issues within the Painted Prairie Development, Aurora Water has required downstream development within Sky Dance, Fulenwider, and High Point to accommodate the effluent from the 310-2 basin. It is understood that those downstream developments are aware of this requirement and will accommodate the proposed Green Valley Ranch MP Amendment effluent. Please refer to the Appendix for correspondence within Aurora Water on this topic. Consistent with this direction, Fulenwider has designed Phase 1 of the 20-inch sanitary trunk main from the Second Creek lift station north of Possum Gully running south towards E-470. Phase I is under construction at the time of this report. Phase 2 of this trunk main which extends from the terminus of Phase 1 west to the future intersection of 60th Avenue and Tibet Road is being processed with the city at the time of this report. Future Phases of this trunk main will be extended west under E-470 and along the 60th Avenue and Tibet Road alignments to the Tibet Road and 56th Avenue intersection. This extension(s) will occur by others as a portion of downstream development or Oakwood will endeavor to make this extension to service the proposed Green Valley Ranch MP parcel and will implement a reimbursement agreement or private development agreement to share the costs with those that benefit. Please see the additional discussion within the Sanitary System Plan section.



- ▬ GREEN VALLEY AMENDMENT 1 BOUNDARY
- ▬ GREEN VALLEY AMENDMENT 2 BOUNDARY



Sheet Title:

EXISTING EASEMENTS PLAN

Site Analysis
Master Plan

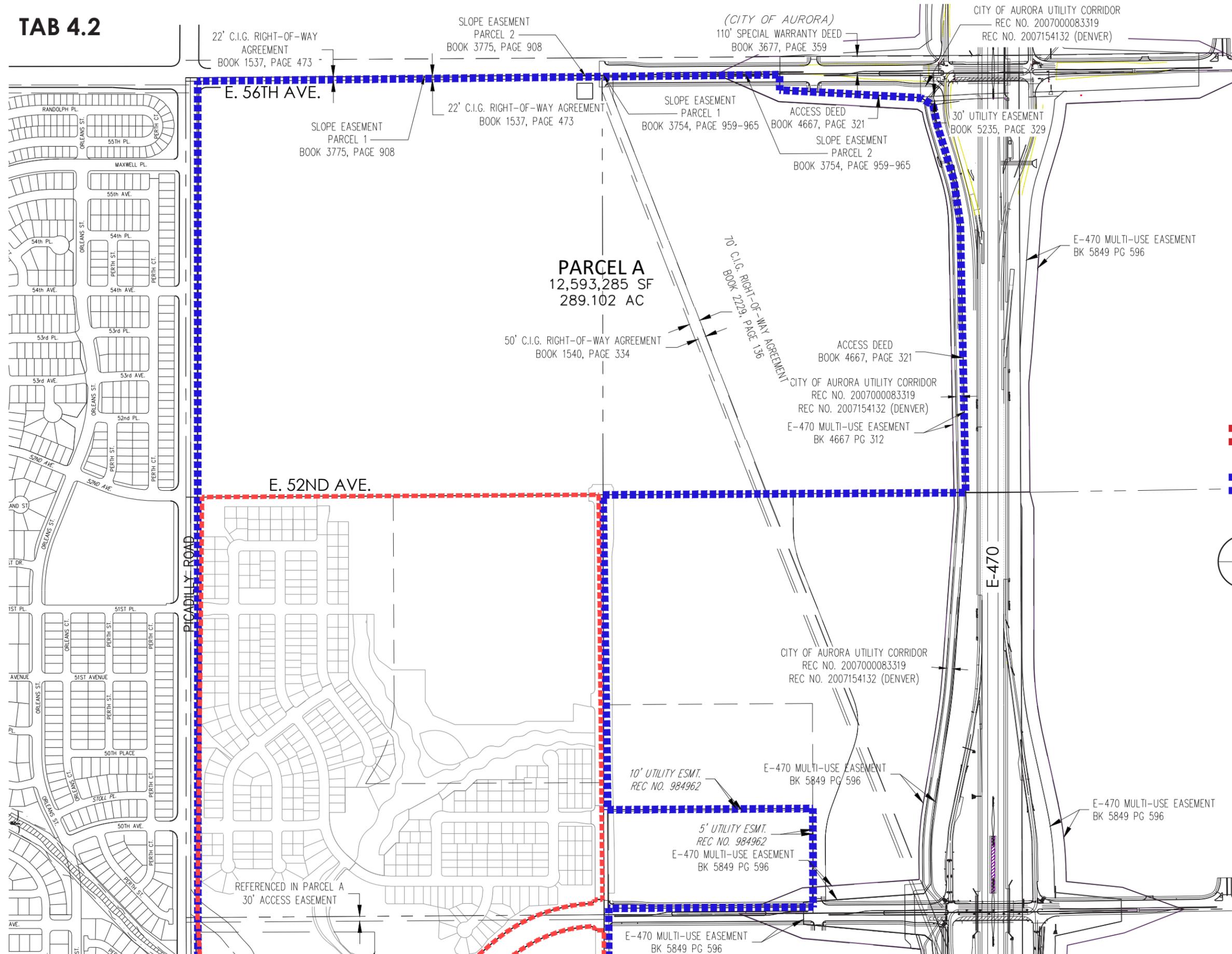
Project Title:

Green Valley Ranch Master Plan Amendment 2

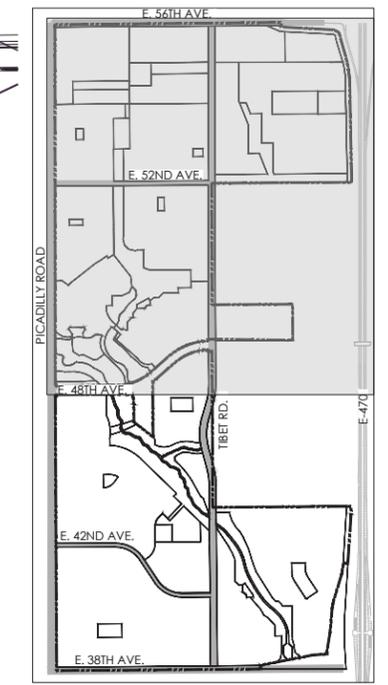
Aurora, Colorado

GREEN VALLEY RANCH

TAB 4.2



KEY MAP



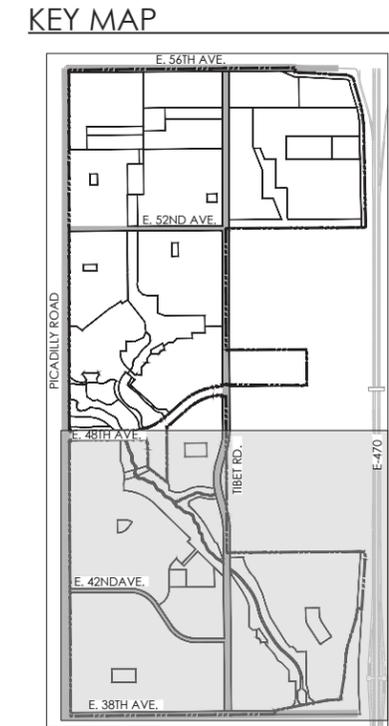
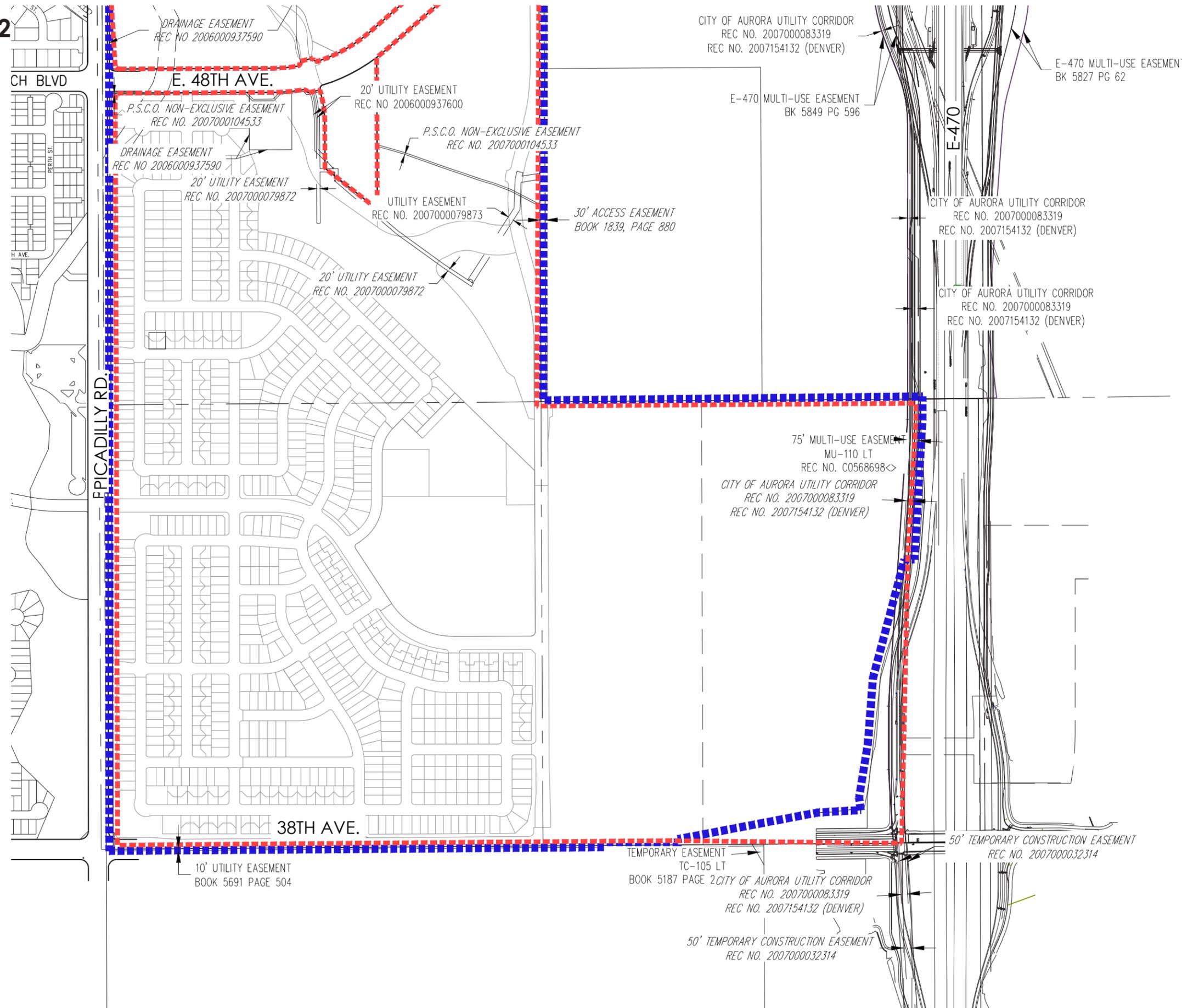
- - - GREEN VALLEY AMENDMENT 1 BOUNDARY
- - - GREEN VALLEY AMENDMENT 2 BOUNDARY



Sheet Title:
EXISTING EASEMENTS PLAN
 Site Analysis Master Plan

Project Title:
Green Valley Ranch Master Plan Amendment 2
 Aurora, Colorado

GREEN VALLEY RANCH



- GREEN VALLEY AMENDMENT 1 BOUNDARY
- GREEN VALLEY AMENDMENT 2 BOUNDARY



Sheet Title:
EXISTING EASEMENTS PLAN
 Site Analysis Master Plan

Project Title:
Green Valley Ranch Master Plan Amendment 2
 Aurora, Colorado

GREEN VALLEY RANCH



- LEGEND**
-  INTERMITTENT STREAMS
 -  FLOODPLAIN
 -  FLOODWAY
 -  + HP HIGH POINT
 -  PROPERTY BOUNDARY
 -  SLOPE DIRECTION



Sheet Title:

WATERBODIES MAP

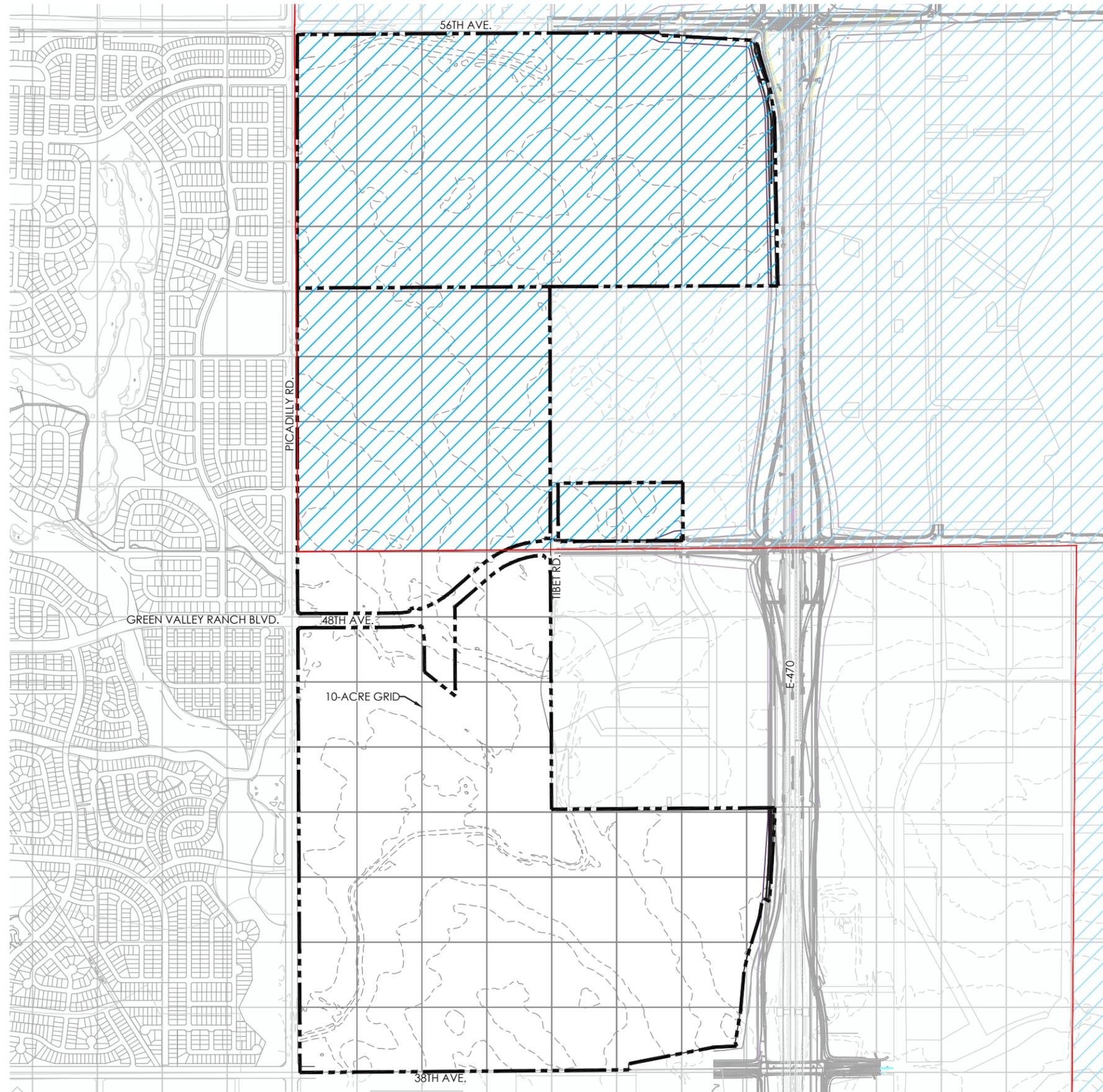
Site Analysis
Master Plan

Project Title:

Green Valley Ranch Master Plan Amendment 2

Aurora, Colorado

GREEN VALLEY
RANCH



LEGEND

-  AIRPORT INFLUENCE AREA
-  PROPERTY BOUNDARY

*Denver International Airport and Front Range Airport, Noise Exposure Contours, City of Aurora



SCALE



Sheet Title:

AIRPORT NOISE IMPACT MAP

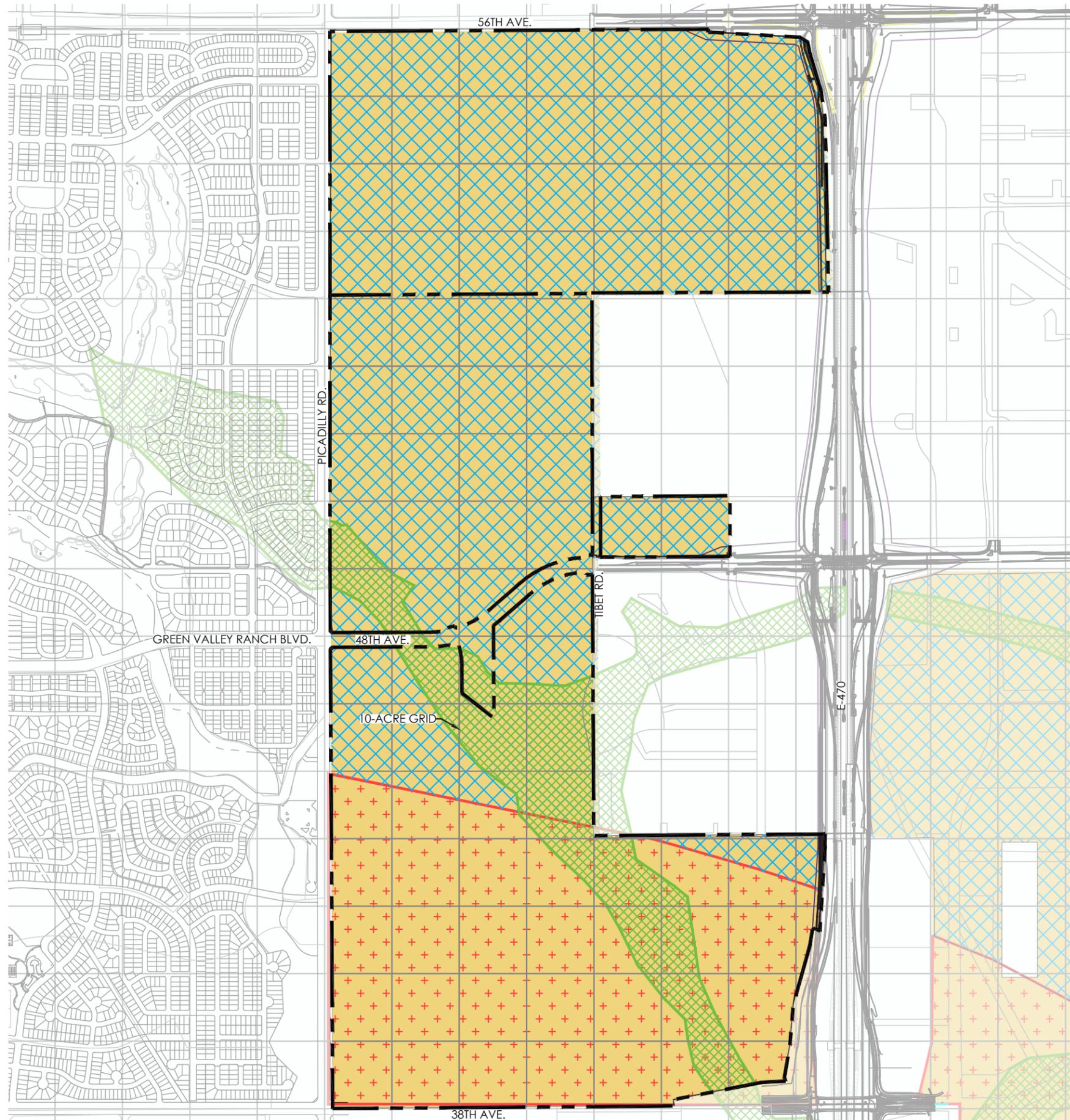
Site Analysis
Master Plan

Project Title:

Green Valley Ranch Master Plan Amendment 2

Aurora, Colorado

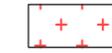
GREEN VALLEY
RANCH



LEGEND



TKdi - DENVER FORMATION OR LOWER PART OF DAWSON ARKOSE -
 ARKOSIC SANDSTONE, SHALE, MUDSTONE, CONGLOMERATE, AND LOCAL COAL BEDS.



Qe - ELOIAN DEPOSITS - INCLUDES DUNE SAND AND SILT AND PEORIA LOESS



LOW SWELL POTENTIAL - THIS CATEGORY INCLUDES SEVERAL BEDROCK FORMATIONS AND MANY SURFICIAL DEPOSITS. THE THICKNESS OF THE SURFICIAL DEPOSITS MAY BE VARIABLE, THEREFORE, BEDROCK WITH A HIGHER SWELL POTENTIAL MAY LOCALLY BE LESS THAN 10' BELOW THE SURFACE.



WINDBLOWN SAND OR SILT -
 Although this material generally has low swell potential, the upper 6" to 12" may locally have moderate swell potential. Windblown material may be subject to severe settlement or hydrocompaction when water is allowed to saturate the deposits. The thickness of windblown material may be very variable, therefore bedrock with higher swell potential may be locally less than 10' below the surface.

SOURCE: GEOLOGIC MAP OF COLORADO, 1979 POTENTIALLY SWELLING SOIL AND ROCK IN THE FRONT RANGE URBAN CORRIDOR, COLORADO, 1973, 1974 COLORADO GEOLOGICAL SURVEY

NOTE: LOCATIONS OF GEOLOGIC HAZARDS ARE APPROXIMATE DUE TO THE VERY GENERAL NATURE OF THE SURVEYS. DETAILED, ON-SITE STUDIES WILL BE NECESSARY TO DETERMINE MORE ACCURATE HAZARD LOCATIONS.



SCALE



Sheet Title:

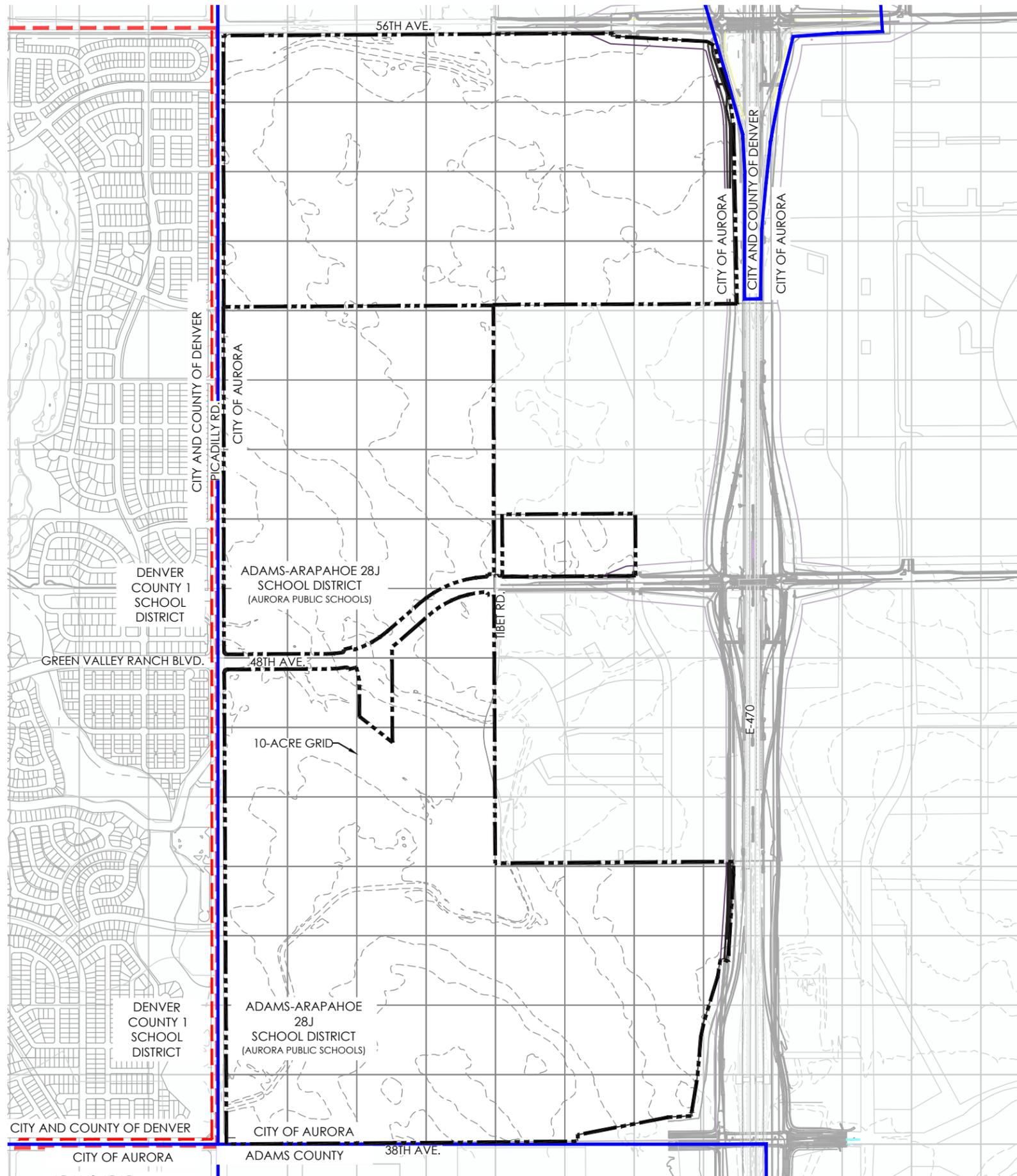
SOILS MAP

Site Analysis
 Master Plan

Project Title:

Green Valley Ranch Master Plan Amendment 2
 Aurora, Colorado

GREEN VALLEY RANCH



LEGEND

- SCHOOL DISTRICT BOUNDARY
- JURISDICTIONAL BOUNDARY
- PROPERTY BOUNDARY



Sheet Title:

BOUNDARIES MAP

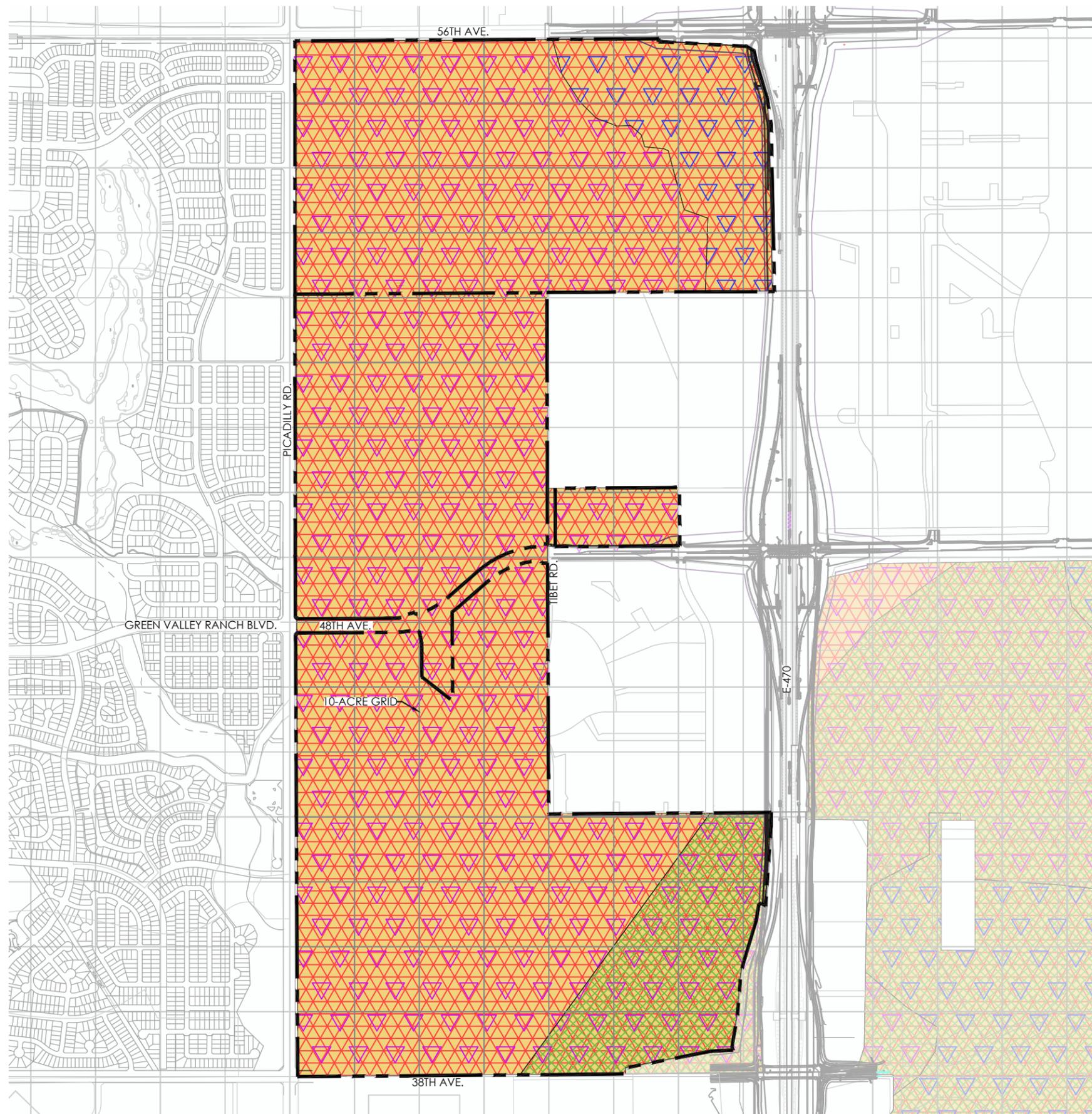
Site Analysis
Master Plan

Project Title:

Green Valley Ranch Master Plan Amendment 2

Aurora, Colorado

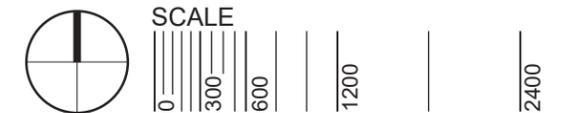
GREEN VALLEY RANCH



LEGEND

-  **OVERALL RANGE:**
Goose, Duck, Pronghorn Antelope and Mule Deer distribution
-  **WINTER RANGE:**
Goose
-  **FORAGING RANGE:**
Goose
-  **DRYLAND AGRICULTURE**
-  **MIDGRASS PRAIRIE**
-  **SIGNIFICANT VIEWS TO FRONT RANGE** (NONE)

SOURCE: Natural Diversity information
 SOURCE - SIGNIFICANT WILDLIFE HABITAT MAPS - ADAMS, ARAPAHOE, AND DENVER COUNTIES, CO. COLORADO DIVISION OF WILDLIFE, SEPT. 1998



Sheet Title:

NATURAL FEATURES

Site Analysis
Master Plan

Project Title:

Green Valley Ranch Master Plan Amendment 2

Aurora, Colorado

GREEN VALLEY RANCH