

# **Wetlands Impacts Technical Memorandum**

## **I-25 Improvements Through the Colorado Springs Urbanized Area Project**

CDOT Project No. IM 0252-316

Project Control No. 12210

**Colorado Department of Transportation**

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# 1.0 Project Description (Proposed Action)

The Proposed Action would widen Interstate 25 (I-25) from South Academy Boulevard (Exit 135) to State Highway 105 (Exit 161, Monument), a distance of approximately 26 miles. Within these limits, a six-lane cross-section (three through-lanes in each direction) would be built south of the U.S. Highway 24 Bypass to South Academy and north of Briargate to SH 105. Additionally, for the 12-mile central portion from the US 24 Bypass (Exit 139) to Briargate Parkway (Exit 151), the Proposed Action consists of an eight-lane cross section (four through-lanes in each direction).

In the eight-lane cross-section, the inside (left-most) lane in each direction would be open to general traffic during off-peak hours; during morning and evening peak hours, this lane would be reserved for use by carpools and buses only. To accommodate this flexible use, the high-occupancy-vehicle (HOV) lane would not be barrier-separated from the general-purpose lanes, but would be demarcated by appropriate signage and striping.

The non-barrier HOV treatment also allows for decommissioning of the lanes back to general-purpose operation in the event that the lanes do not result in adequate peak-period usage to justify HOV operations. This will depend in part upon public willingness to fund expanded transit operations that would use the HOV lanes. The HOV lanes are projected to be marginally successful without transit system expansion, but could become solidly successful if used by buses on hypothetical future routes (currently unfunded). Express bus service between Colorado Springs and Monument began in 2002 as a 3-year “demonstration project.”

In conjunction with the additional laneage, the Proposed Action includes interchange reconstruction at several locations. These include major reconstruction of existing interchanges at:

- Exit 141 – Cimarron (U.S. Highway 24)
- Exit 142 – Bijou Street
- Exit 145 – Fillmore
- Exit 147/148 – North Nevada Avenue and Rockrimmon Boulevard (consolidated)
- Exit 156 – North Gate Road, plus freeway-to-freeway ramps for Powers Boulevard
- Exit 158 – Baptist Road

For each of the interchange reconstruction projects, numerous design alternatives were considered and evaluated. These alternatives were presented for review and input at advertised public meetings.

Additionally, minor geometric changes will be made at Exit 146, Garden of the Gods Road. The existing southbound-only ramps at Exit 147 A (Corporate Centre Drive) will be closed, with access via a local street connection to the reconfigured Nevada/Rockrimmon interchange. In conjunction with freeway widening on U.S. Air Force Academy property, the Ackerman Overlook will be relocated to a safer location.

## 2.0 Existing Conditions

The study areas are located at elevations generally ranging between 5,400 and 6,900 feet, and the landscape is dominated by a series of rolling hills, drainages, and associated riparian corridors, floodplains, ravines, upland fields, and wetland meadows. The majority of the property falls within the Colorado Department of Transportation's (CDOT) right-of-way; the remainder is situated on land owned by the City of Colorado Springs, federal government (i.e., U.S. Air Force Academy, Fort Carson Military Reservation), and private owners. Existing development within the study corridor comprises commercial developments, an older mobile home park located in the vicinity of Fillmore Street, support structures associated with the drainages (e.g., bridges, culverts, etc.), an operational railroad, and the vegetated areas next to sound walls that were erected in the downtown vicinity of Colorado Springs. Federal lands that overlap the study area are undeveloped and under the stewardship of the government facilities. The majority of the privately held undeveloped property consists of upland short and mid-grass prairie and pastureland, some of which appears to be actively grazed.

Natural and man-made drainages run under the highway at periodic intervals throughout the length of the study area. Highway shoulders and existing interchanges are lined with roadside swales, and a series of isolated wetlands and wet meadows are interspersed throughout the corridor. The majority of the drainages within the study area are culverted under the highway and consist of highly eroded, man-made irrigation or natural drainage channels.

Due to the large number of wetlands and waterways occurring within the study corridor, all delineated areas were labeled with an alphabetic designation for location reference.

### 2.1 Wetland Categories

The areas delineated along the I-25 study corridor were cataloged into the following eight categories based upon wetland characteristics and attributes: natural perennial drainage, natural ephemeral drainage, stormwater channel, wet meadow, isolated wetland-herbaceous dominated, isolated wetland-woody dominated, roadside swale, and upland swale. A brief description of the defining characteristics of the categories and list of the specific wetland areas that occur within each category follows. Creek names have been added for clarity.

## 2.1.1 Natural Drainage Channel

Waters and associated wetlands in this category consist of natural, perennial waterways with defined beds and banks, and in most cases, well-developed riparian corridors. The majority of the drainages in this category are major channels (e.g., Monument Branch, Fountain Creek, Jackson and Pine Creeks) within the watershed. A few of the larger channels are intermittently concrete-lined (e.g., Pine Creek between the Briargate and Academy exits), but the majority of these channels have been left in a natural state. These drainages tend to exhibit a mature and diverse vegetative structure, particularly along the tops of the banks, many of which are lined with a continuous right-of-way of older, established trees and shrubs. These drainages tend to contain a fairly extensive transitional zone to the adjacent floodplains, where (depending upon the angle of the slope) upland grasses, forbs, and shrubs are densely interspersed with wetland vegetation.

All waterbodies and wetlands in this category are considered jurisdictional. Natural perennial drainages include:

A	(Dirty Woman Creek)	J	(Smith Creek)
AC	(Fountain Creek)	JJ	(Monument Creek)
AD	(Fountain Creek)	K	(Monument Branch)
AE	(no known name)	KK	(no known name)
AI	(no known name)	M	(Black Squirrel Creek)
AR	(Fountain Creek tributary)	MM	(no known name)
AS	(Fountain Creek)	NN	(no known name)
AX	(Monument Creek)	OO	(Douglas Creek)
AZ	(Jackson Creek)	P	(no known name)
B	(Teachout Creek)	PP	(no known name)
C	(no known name)	R	(Pine Creek)
D	(Jackson Creek)	RR	(Fountain Creek)
EE	(Jackson Creek)	S	(Pine Creek)
G	(no known name)	SS	(Cheyenne Creek)
H	(Black Forest)	ZZ	(Fountain Creek)
HH	(Pine Creek)	#11*	(Monument Creek tributary)
II	(Cottonwood Creek)		

\* The wetland delineation of this area was conducted by Global Wetlands, Denver, CO.

## 2.1.2 Ephemeral Drainage Channel

These wetlands are natural drainages that are periodically dry and generally conduct water during high flow periods (i.e., following spring runoff, heavy snowfall, and storm events). A few of these channels have been cement-lined to deter further erosion of the sandy banks and minimize sediment deposit buildups within the channel. Although there are exceptions, these drainages tend to be narrower than the perennial waterways, and steeper sided (i.e., having ravine characteristics). Hydrophytic vegetation generally does not extend past the tops of the banks and tends to be highly mixed with upland species. However, in many of these channels hydrophytic vegetation has established on deposition bars within the

channel bed and at the toe of the banks where sediment and debris have accumulated. The waters and wetlands in this category are considered jurisdictional. Ephemeral drainages consist of:

AJ	AP
AK	AQ
AL	L
AM	T
AN	#16* (Monument tributary)
AO	#31* (Monument tributary)

\* The wetland delineation of these areas was conducted by Global Wetlands, Denver, CO.

### 2.1.3 Stormwater Channel (Vegetated and Cement-lined)

Stormwater channels are man-made drainages that were historically trenched to divert stormwater away from development areas. Many of these channels eventually connect with natural creeks through a series of culverts, which conduct flows under roadways and around developments. Because the unlined channels have been in place for many years, most of the banks contain mature stands of trees and clusters of shrubs with fully developed understories and therefore can be difficult to distinguish from the natural channels.

The substrate and banks of the concrete-lined conduits are entirely lined with concrete, riprap and/or gabion basket walls. Vegetation is generally sparse and is dominated by upland grasses and forbs that are generally confined to the tops of the banks. The banks also tend to be very weedy and the presence of woody vegetation is minimal. In some of the older channels, the roots of dormant herbaceous vegetation under the old cement beds have broken through over time and formed intermittent vegetated bars along the channel bottom.

Stormwater channels have been evaluated on an individual basis to determine if they meet jurisdictional requirements (refer to Table 1). These channels include:

AG	VV
AH	WW
I	X
Q	

### 2.1.4 Wet Meadow

Wet meadows are primarily supported by groundwater, seeps, and slope or highway runoff and have no visible surface connection to natural drainages. These wetland areas are situated in open fields, depressional basins within the landscape, or in proximity to natural water bodies. They are dominated by herbaceous vegetation (cattails, rushes, sedges and bulrush), but the majority of them contain pockets of woody vegetation along the perimeters. Most commonly this vegetation is shrubby (e.g., coyote willows), although some areas also contain peach-leaf willows, crack willows, or broad-leaf cottonwoods along with the willow shrubs. Although similar in composition to the wetlands designated as isolated



wetlands, the wet meadows are larger (i.e., >0.50-acre). All wetlands in this category are considered jurisdictional.

AA (Monument Creek Median)

V (Monument Creek Median)

YY

### 2.1.5 Isolated Wetland (Herbaceous Vegetation Dominant)

Similar in appearance to wetlands within the wet meadow designation, isolated wetlands are primarily supported by side slope or highway runoff and generally do not occur in the vicinity of natural drainages. There are no inlet or outlet structures and the wetland is generally confined to the depressional area where it has formed. They are larger than wetland swales but not as expansive as wet meadows, and have a tendency to be linear due to the topography where they occur (i.e., along the toes of slopes). Isolated wetlands are dominated by cattails, rushes, sedges, and willow whips, which tend to occur in segregated clusters along the length of the wetlands. The presence of trees is sporadic and minimal, and woody vegetation tends to be restricted to pockets of coyote willows that are either interspersed with the cattails or situated at the outer edges of the wetland. Isolated wetlands have been evaluated on an individual basis to determine if they meet jurisdictional requirements (refer to Table 1). These isolated wetland areas include:

AY	(Corporate Drive)	E
BD		H
BE		LL
BF		N
BG		P
BH		TT
DD		

### 2.1.6 Isolated Wetland (Woody Vegetation Dominant)

Isolated wetlands are dominated by woody vegetation and are supported primarily by upslope runoff, or have been artificially created as a result of flooding (e.g., beaver activity). Herbaceous vegetative cover in the understory is sparse or non-existent due to the density of the woody plants and resulting expansive canopy that effectively limits sunlight penetration.

These areas have no inlet or outlet structures and the wetland is generally confined to the depressional area where it has formed. Isolated wetlands have been evaluated on an individual basis to determine if they meet jurisdictional requirements (refer to Table 1). These isolated wetland areas include:

AB	(Fountain Creek floodplain)	F
AW		

### 2.1.7 Roadside Swale (Wetland)

Roadside swale wetlands are shallow, depressional, and usually linear ditches that are situated in close proximity to paved surfaces (i.e., roads and parking lots). These swales are situated lower than and/or run parallel to the roadways and tend to collect and hold runoff from the highway or adjacent steep-sided slopes. These linear swales tend to taper off and transition abruptly to upland habitat as the ground elevation rises at either end, and they have no surface connection to natural drainages or any other water bodies. The majority of these ditches are dominated by cattails, which tend to grow up the side slopes in instances where the swale is in direct proximity to the slope. Soils in the ditches exhibit hydric characteristics but are shallow and contain a high percentage of gravel and cobbles from the highway. All wetlands in this category are considered non-jurisdictional. Roadside swale wetlands include:

AF		P	
AT		QQ	
AU		U	(Monument Creek median)
AV	(Pro-Rodeo parking lot)	UU	
BA		W	
BB		XX	
BC		Y	
CC		Z	
FF		#23*	(N. Nevada frontage road)
GG			

\* The wetland delineation of this area was conducted by Global Wetlands, Denver, CO.

### 2.1.8 Swale (Upland)

Upland swales consist of channels with defined beds and banks that are dry and are either sparsely vegetated with upland grasses and weeds, or completely unvegetated. Although there is evidence that these ditches transported water at one point in time (e.g., sediment or sandy deposits at the toe of the culvert, washed out banks, etc.), there are no indications of recent flow activity. In cases where vegetation is present, wetland species account for a nominal percentage of the areal cover, and soils sampled within the swale beds are dry and exhibit few hydric soil characteristics. Wetlands in this category are considered non-jurisdictional and include:

L	(remnant fork of unnamed channel, east side I-25)
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## 3.0 Methodology

All jurisdictional and non-jurisdictional waters of the U.S., wetlands, and riparian habitats in areas under consideration for expansion were delineated and assessed for functionality and value.

Jurisdictional waters (including wetlands) are those areas that meet the parameters (a dominance of hydrophytic vegetation, hydric soils and sustainable hydrology), and criteria (soils that are saturated for a significant period (a week or more) during the growing season) as set forth by the 1987 U.S. Army Corps of Engineers *Wetlands Delineation Manual* (Environmental Laboratory, 1987). Non-jurisdictional wetlands are defined as those areas that are missing one or more of the wetland parameters, or that are completely isolated (no natural surface or underground connection (piped or culverted) with navigable waters of the U.S.).

The Jurisdictional Delineation was conducted following the methodology described in the Corps manual. During the field inspection, representative soil borings were taken, dominant vegetation was recorded, and representative hydrologic indicators were noted in order to identify the presence of jurisdictional wetlands and waters of the U.S. within the study area. Approximately 725 acres within the I-25 study area were investigated for the presence of wetland habitat. The entire corridor, including potential interchange designs and floodplain development, was traversed by truck and on foot in order to quantify existing wetland acreage and identify specific locations of wetland habitat for consideration during the design and mitigation planning process. Wetlands associated with design of the N. Nevada and Rockrimmon interchange were delineated by Global Wetlands Group, Denver, Colorado in 2000.

Classification of wetlands and waters of the U.S. was conducted in accordance with the U.S. Fish and Wildlife Service, Classification System for Wetlands and Deepwater Habitats (Cowardin et. al., 1979). The wetland communities present within the study corridor are characterized as Riverine, Palustrine emergent, Palustrine shrub-scrub, forested needle-leaf or broad-leaf deciduous, and Lacustrine wetlands that are either periodically or permanently flooded.

### 3.1 Jurisdictional Boundary Determination

Waters of the U.S., including wetlands (jurisdictional and non-jurisdictional), were identified and delineated by Aquatic and Wetland Company (AWC) at 102 locations within the designated study area. An additional four wetland areas that are located outside of the 200-foot highway study areas but may be impacted during construction of the N. Nevada/Rockrimmon interchange have been included in the ecological assessment. These wetlands were delineated by Global Wetlands Group prior to finalization of the interchange design. Verification of the wetland boundaries delineated by AWC was issued by Mr. Van Truan of the U.S. Army Corps of Engineers on May 9, 2002. Corps verification for the wetlands delineated by the Global Wetlands Group was issued on July 24, 2002. Walsh Environmental Scientist and Engineers, LLC ultimately was responsible for overall coordination with the U.S. Army Corps of Engineers.

The total acreage of jurisdictional waters of the U.S., including wetlands, within the study areas is 96.029-acres. There are a total of 51 jurisdictional wetlands that consist of natural drainages, ephemeral drainages, wet meadows, and isolated wetlands associated with or situated in close proximity to navigable waterways. The remaining wetlands within the study area exhibit wetland characteristics but have been classified as non-jurisdictional because they are either isolated wetlands with no connection or proximity to navigable waters, man-made stormwater conduits (some of which are cement-lined channels), or roadside ditches.

## 3.2 Impact Avoidance and Minimization

In general, the proposed improvements on the existing facility would result in fewer wetland impacts than construction of a new transportation facility on a new alignment, due to the smaller impact required to widen an existing roadway versus construction of a new facility on a new alignment. Avoidance of all wetland impacts through making minor shifts in the I-25 alignment is not possible, since at most locations the wetlands are present on both sides of the roadway, and to shift the roadway would result in unacceptable right-of-way impacts.

In anticipation of unavoidable impacts to wetlands, CDOT has endeavored to minimize impacts to the fullest extent possible throughout the project's initial design phases. Roughly half of the wetland impacts in the corridor are associated with construction of the redesigned interchanges at Baptist and Northgate Roads. Early in the design process, workshops were held for the design engineers and environmental staff to discuss sensitive areas (including wetlands), and general techniques for minimizing habitat impact. Efforts to avoid and minimize impacts to wetlands during the project planning and design phases included: 1) widening the highway to the inside (median area) whenever possible to avoid impacts to wetlands on road edges; 2) raising bridge structures to obtain higher clearance and provide a better environment for revegetation success; 3) realignment or modification of roadway geometry and/or steepening of slopes; and 4) the extensive use of Best Management Practices (BMPs).

## 4.0 Impacts of No-Action Alternative

The No-Action Alternative would result in no new direct impacts to wetlands. However, runoff from the existing highway would carry additional pollutant loadings (such as sand, deicing salts, and contaminants from vehicles) as traffic continues to increase. These pollutants have the potential to degrade the quality of nearby wetlands over time.

Under the No-Action Alternative, wetland and riparian areas would experience additional loss and fragmentation of valuable habitat as a result of continued urban growth, erosion, and deposition.

# 5.0 Direct Impacts of Proposed Action

Based on conceptual design for the Proposed Action, cumulative wetland impacts associated with site development total 10.22 acres consisting of 6.79 acres of jurisdictional wetlands and 3.43 acres of non-jurisdictional wetlands. Wetland impacts are summarized in Table 1 by sub-watershed. Wetland areas within the Air Force Academy property are also shown in Table 1.

TABLE 1  
Wetland Impacts in the Project Area

Sub-watersheds	Total Wetland Areas in Study Area (Acres)	Impacted Jurisdictional Wetlands (Acres)	Impacted Non-Jurisdictional Wetlands (Acres)	Total Impacted Wetlands (Acres)
Monument Creek (North of Interquest Parkway Interchange)	49.65	4.25	2.14	6.39
Monument (South of Interquest Parkway Interchange)	22.72	1.27	0.66	1.93
Colorado Springs Composite	18.64	0.65	0.63	1.28
Fountain Creek	5.02	0.62	0.00	0.62
Total*	96.03	6.79	3.43	10.22
*Total acreage shown includes wetland areas within Air Force Academy property as follows:				
U.S. Air Force Academy Property	24.69	1.86	1.76	3.62

Refer to Table 2 for a detailed breakdown of wetland impact areas. Wetland areas are listed in the table by alpha designation in the order in which they occur sequentially from north to south.

TABLE 2  
Wetland Impacts

Area ID	Type	Water Name	Juris	Subwatershed	Total Acres	Impacted Acres
AT	Roadside Swale	No Name	N	cscomposite	0.043	0.000
TT	Isolated Wetland	No Name	N	cscomposite	1.499	
UU	Roadside Swale	No Name	N	cscomposite	0.012	
VV	Stormwater Channel	No Name	N	cscomposite	0.782	0.119
WW	Stormwater Channel	No Name	N	cscomposite	0.453	0.213
XX	Roadside Swale	No Name	N	cscomposite	0.127	0.127
YY	Wet Meadow	No Name	N	cscomposite	0.286	0.174
<b>Subtotal Non-juris</b>					<b>3.202</b>	<b>0.633</b>
AB	Isolated Wetland	No Name	Y	cscomposite	0.141	
AD2	Perennial	Monument Creek	Y	cscomposite	5.748	0.650
AI	Perennial	No Name	Y	cscomposite	0.125	
AJ	Ephemeral	No Name	Y	cscomposite	0.035	
AK	Ephemeral	No Name	Y	cscomposite	0.031	
AL	Ephemeral	No Name	Y	cscomposite	0.009	

TABLE 2  
Wetland Impacts

Area ID	Type	Water Name	Juris	Subwatershed	Total Acres	Impacted Acres
AM	Ephemeral	No Name	Y	cscomposite	0.005	
AN	Ephemeral	No Name	Y	cscomposite	0.024	
AO	Ephemeral	No Name	Y	cscomposite	0.029	
AP	Ephemeral	No Name	Y	cscomposite	0.047	
AQ	Ephemeral	No Name	Y	cscomposite	0.037	
AR	Perennial	No Name	Y	cscomposite	0.169	
AS	Perennial	Fountain Creek	Y	cscomposite	3.055	
SS	Perennial	Cheyenne Creek	Y	cscomposite	0.515	
ZZ	Perennial	Fountain Creek	Y	cscomposite	5.468	
<b>Subtotal Juris</b>					<b>15.438</b>	<b>0.650</b>
<b>Total for Sub-watershed</b>					<b>18.640</b>	<b>1.283</b>
RR	Perennial	Fountain Creek	Y	<b>fountaincreekhead</b>	<b>5.015</b>	<b>0.618</b>
BA	Roadside Swale	No Name	N	monument1	0.004	
BB	Roadside Swale	No Name	N	monument1	1.520	0.016
BC	Roadside Swale	No Name	N	monument1	0.011	
BE	Isolated Wetland	No Name	N	monument1	0.038	
BF	Isolated Wetland	No Name	N	monument1	0.575	
BG	Isolated Wetland	No Name	N	monument1	0.004	
BH	Isolated Wetland	No Name	N	monument1	0.057	
BQ	Stormwater Channel	No Name	N	monument1	0.460	
BR	Isolated Wetland	No Name	N	monument1	0.144	
BS	Roadside Swale	No Name	N	monument1	0.114	
BT	Roadside Swale	No Name	N	monument1	0.020	
C	Perennial	No Name	N	monument1	0.256	0.171
CC	Roadside Swale	No Name	N	monument1	0.029	0.008
DD	Isolated Wetland	No Name	N	monument1	0.057	
E	Isolated Wetland	No Name	N	monument1	0.130	0.059
F	Isolated Wetland	No Name	N	monument1	0.275	0.086
Fa	Isolated Wetland	No Name	N	monument1	0.002	0.002
G	Perennial	No Name	N	monument1	0.172	0.136
H	Perennial	No Name	N	monument1	1.962	0.242
Ha	Isolated Wetland	No Name	N	monument1	0.034	0.034
I	Stormwater Channel	No Name	N	monument1	0.060	0.001
J2			N	monument1	9.992	
U/AA	Wet Meadow	No Name	N	monument1	1.498	1.046
V	Wet Meadow	No Name	N	monument1	0.819	0.160
W	Roadside Swale	No Name	N	monument1	0.148	0.148
X	Stormwater Channel	No Name	N	monument1	0.222	0.022

TABLE 2  
Wetland Impacts

Area ID	Type	Water Name	Juris	Subwatershed	Total Acres	Impacted Acres
Z	Roadside Swale	No Name	N	monument1	0.172	
<b>Subtotal Non-juris</b>					<b>18.775</b>	<b>2.131</b>
A	Perennial	Dirty Woman Creek	Y	monument1	2.605	
AZ	Perennial	Jackson Creek	Y	monument1	12.930	1.274
B	Perennial	Teachout Creek	Y	monument1	0.785	0.130
BD	Isolated Wetland	No Name	Y	monument1	0.027	
BK	Isolated Wetland	No Name	Y	monument1	0.008	
BL	Isolated Wetland	No Name	Y	monument1	0.015	
BM	Isolated Wetland	No Name	Y	monument1	0.013	
BN	Isolated Wetland	No Name	Y	monument1	0.438	
BO	Isolated Wetland	No Name	Y	monument1	0.089	0.083
BU	Perennial	Monument Creek	Y	monument1	0.596	
BV	Isolated Wetland	No Name	Y	monument1	1.048	
D	Perennial	Jackson Creek	Y	monument1	2.362	1.166
J1	Perennial	Smith Creek	Y	monument1	5.275	0.741
K	Perennial	Monument Branch	Y	monument1	2.095	0.423
L	Ephemeral	No Name	Y	monument1	0.405	0.080
L100	Ephemeral	No Name	Y	monument1	0.084	0.034
L200	Ephemeral	No Name	Y	monument1	0.110	0.013
M	Perennial	Black Squirrel Creek	Y	monument1	1.988	0.310
<b>Subtotal Juris</b>					<b>30.873</b>	<b>4.254</b>
<b>Total for Sub-watershed</b>					<b>49.648</b>	<b>6.385</b>
AF	Roadside Swale	No Name	N	monument2	0.083	0.083
AG	Stormwater Channel	No Name	N	monument2	0.120	
AH	Stormwater Channel	No Name	N	monument2	0.028	
AU	Roadside Swale	No Name	N	monument2	0.027	
AV	Roadside Swale	No Name	N	monument2	0.011	
AW	Isolated Wetland	No Name	N	monument2	0.115	0.103
AY	Isolated Wetland	No Name	N	monument2	0.011	
FF	Roadside Swale	No Name	N	monument2	0.020	0.020
GG	Roadside Swale	No Name	N	monument2	0.067	0.067
LL	Isolated Wetland	No Name	N	monument2	0.036	0.036
N	Isolated Wetland	No Name	N	monument2	0.482	0.076
P	Isolated Wetland	No Name	N	monument2	2.068	
Pa	Isolated Wetland	No Name	N	monument2	0.033	
Q	Stormwater Channel	No Name	N	monument2	0.217	
QQ	Roadside Swale	No Name	N	monument2	0.263	0.263
T	Ephemeral	No Name	N	monument2	0.049	0.014

TABLE 2  
Wetland Impacts

Area ID	Type	Water Name	Juris	Subwatershed	Total Acres	Impacted Acres
<b>Subtotal Non-juris</b>					<b>3.630</b>	<b>0.662</b>
AD1	Perennial	Monument Creek	Y	monument2	4.120	0.108
AE	Perennial	No Name	Y	monument2	0.067	0.025
AX	Perennial	Monument Creek	Y	monument2	0.022	
HH	Perennial	Pine Creek	Y	monument2	1.604	
II	Perennial	Cottonwood Creek	Y	monument2	1.503	0.091
JJ	Perennial	Monument Creek	Y	monument2	3.317	0.224
KK	Perennial	No Name	Y	monument2	0.143	0.143
MM	Perennial	No Name	Y	monument2	0.193	0.036
NN	Perennial	No Name	Y	monument2	0.039	0.022
OO	Perennial	Douglas Creek	Y	monument2	0.809	0.239
PP	Perennial	No Name	Y	monument2	0.329	0.198
R	Perennial	Pine Creek	Y	monument2	0.230	
S	Perennial	Pine Creek	Y	monument2	6.718	0.181
<b>Subtotal Juris</b>					<b>19.094</b>	<b>1.267</b>
<b>Total for Sub-watershed</b>					<b>22.724</b>	<b>1.929</b>
<b>Total Project Area</b>					<b>96.027</b>	<b>10.215</b>

Following is a summary of the impacts to wetlands and waters of the U.S. that will be incurred based upon conceptual design of the Proposed Action. Impacts are grouped by the type of construction activity that will result in an impact, and the areas are discussed sequentially as they occur from north to south.

## 5.1 Interchanges

### 5.1.1 Baptist

The wetland and riparian habitats in the vicinity of Baptist Road provide some of the highest quality and most significant wetland and wildlife habitat in the highway corridor. The current design of the interchange reflects refinements that reduce wetland impacts somewhat from the initial interchange concepts. In accordance with CDOT's wetland policy, attempts were made in the design process to avoid impacts to wetlands, then minimize impacts if avoidance was not possible. Construction of the interchange will minimize direct impacts to the high quality riparian corridor and expansive wet meadow comprising the Jackson Creek floodplain on the eastern side of I-25. Through minor grading and the addition of woody plants, a combination of wetland creation and enhancement is planned over approximately 0.30 acres of the area located at the southeast corner of I-25 and Baptist Road. Portions of this floodplain containing the highest quality habitat have been acquired by CDOT towards this goal, and this area provides one of the best mitigation opportunities for wetland creation and Preble's meadow jumping mouse (PMJM) habitat enhancement along the I-25 corridor. Road widening and modification of the Baptist Road exit ramp from



the northbound traffic lanes will impact wet meadow wetland habitat in the Jackson Creek floodplain on both sides of the highway. Although direct impacts are not extensive in this area, doubling the traffic lanes and extending the on- and off-ramps will place the highway closer to the wetland and indirect impacts will increase from the association with the road (i.e., air and noise). The widening of Baptist Road will impact wetlands along the Jackson Creek corridor that currently exist up to and under the existing two-lane roadway. However, improvements to Baptist Road will include replacement of the outdated and undersized culvert that runs under the road, which will provide opportunities for wetland vegetation and PMJM habitat enhancements in this area.

Jurisdictional wetland areas that will be impacted by construction of the conceptual design include the Jackson Creek drainage and surrounding floodplain (Areas AZ and D). Non-jurisdictional wetland impacts associated with construction of this interchange include Areas BB, CC, and E. The wetland areas that will be impacted are the Jackson Creek channel at Baptist Road, and the outer edges of a high quality and expansive meadow dominated by dense sweeps of sedges, rushes, and cattails, and bisected by linear stands of coyote willow and woods rose shrubs. Mitigation opportunities have been identified within the wet meadow for wetland habitat expansion and enhancements to PMJM habitat. Wetland impacts from the construction of this interchange will be minimized through the use of Best Management Practices to ensure that sensitive areas are protected during construction.

### 5.1.2 Northgate

Located just south of the Jackson Creek area, the wetland and riparian habitats in the vicinity of Northgate and the U.S. Air Force Academy also provide some of the highest quality and most significant wetland and wildlife habitat in the highway corridor. The scope includes the Powers Boulevard portion of the Northgate interchange up to Voyager Parkway, which increases direct and indirect impacts to wetland and wildlife habitat. Wetland habitat that will be most directly affected by construction of this interchange is the Smith Creek drainage and associated floodplain.

Jurisdictional wetland impacts associated with construction of the Northgate interchange consist of the Smith Creek channel and riparian corridor (jurisdictional areas BO and J) and non-jurisdictional impacts (Areas I, U/AA, V, W, and X). The non-jurisdictional wetland impacts are based on the proposed Powers Boulevard alignment, which is integrated into the Northgate Interchange, and consists of a non-jurisdictional wet meadow (Area V) that occurs within the Monument Branch median and spans northbound traffic lanes of I-25 to continue up the east side slope (Area U/AA). These wet meadows are sustained from a seep that appears to daylight from the side of the hill and may be associated with a remnant channel to the east. The source of hydrology for these wetlands has not been confirmed, and at this time they are considered to be supported from the side slope seep and therefore non-jurisdictional. The outer boundaries of the wet meadow contain numerous clusters of snowberry and woods rose shrubs, and there are mitigation opportunities in this area for enhancement of PMJM habitat.

### 5.1.3 N. Nevada/Rockrimmon

Wetland impacts associated with construction of this interchange are primarily associated with construction of a bridge crossing at Monument Creek and installation of a box culvert

just north of the interchange. The installation of an elevated bridge redirecting traffic to Corporate Drive from I-25 will result in temporary impacts to wetlands located within the Monument Creek floodplain during construction, but will ultimately carry traffic away from the wetlands. Replacement of the existing undersize culvert will improve bank stabilization and control sediment transport within the Monument Creek channel.

Jurisdictional wetland areas that will be impacted include the main stem of Monument Creek (Area JJ), a sparsely vegetated, intermittently cement-lined tributary to the Creek (Area KK) located at the intersection of I-25 and Rockrimmon, and a narrow vegetated tributary located just south of the interchange (Area MM). Non-jurisdictional impacts include two isolated wetland pockets (Areas AW and LL), and three roadside swales situated off the backside of the Pro Rodeo parking lot (Areas AU and AV) and on the N. Nevada frontage road. Wetland impacts associated with the highway project may need to be adjusted down as the City of Colorado Springs will be installing grade control structures (i.e., drop structures) in this area and it is possible that this structural work may overlap with the highway work. Areas that will be impacted are fragmented and of a poor-to-average quality. Mitigation opportunities are limited to the main stem of Monument Creek, where improvements are already planned in conjunction with interchange development.

#### 5.1.4 Fillmore

Wetland impacts associated with construction of the Fillmore Street interchange will be minimal, and are restricted to a roadside swale (Area QQ) that is situated adjacent to the existing southbound traffic lanes of the highway. The swale conducts runoff into a storm drain at the end of the wetland and is densely vegetated with a diversity of herbaceous and woody wetland vegetation. The wetland provides some flood attenuation and sediment retention, and vegetative cover for small mammals and birds; however, due to the wetland's isolation and proximity to the highway, wetland functions and wildlife value at this wetland are extremely limited. The eastern extents of the interchange stop at Mark Dabling Boulevard and do not encroach upon Monument Creek.

#### 5.1.5 Bijou

The Bijou Street interchange is located along an urban section of the highway that is highly developed. The presence of wetlands is limited to a small segment of Monument Creek (Area AD), which flows parallel to the eastern side of the highway and under Bijou Street as it connects to the downtown business district. The Creek is separated from the interstate by a soft-surfaced bike and pedestrian trail that is elevated above the creek and dominated by upland vegetation. The banks below the area protected by the WPA wall of Monument Creek are washed out and an abundance of boulders, debris and piles of sediment line the banks from Bijou south to the Cimarron exit. Although the bed and these banks of the Creek are classified as jurisdictional waters, wetland habitat in this area is confined to a series of intermittently spaced, bench areas that are seasonally saturated and support wetland vegetation. These banks are further degraded by heavy pedestrian use as this section of the Creek has supported a fairly large transient population in the recent past.

### 5.1.6 Cimarron

Wetlands in this area have been adversely affected through high urban and industrial use, and the natural floodplain channel has been filled in over the years to increase the amount of developable land. Beaver activity and a large transient population have caused considerable degradation to the banks and channel of Fountain Creek, and have altered the natural hydrologic regime. Riparian vegetation is minimal and dominated by exotic upland species, such as Siberian elm (*Ulmus pumila*), smooth brome (*Bromus inermis*), and weeds. Many of the banks in the vicinity of the confluence are highly unstable and have been ripped.

The City of Colorado Springs is planning a comprehensive ecosystem restoration and stabilization project for 0.71 mile of Monument Creek from Bijou Street south to the confluence with Fountain Creek at Cimarron, and along approximately 0.26 mile of Fountain Creek from Highway 24 to the confluence, and creation of a park (Confluence Park) in the same location.

Proposed improvements to the area include the installation of riffle pool drop structures, jetties, oxbow restoration, channel widening, bank stabilization, native plant revegetation, and the creation of two wetland areas.

Wetland areas impacted in this area consist of the Monument Creek corridor (Area AD) extending downstream to Fountain Creek (Area RR), and the adjacent riparian corridors. Wetland impacts along Fountain Creek from the construction of this interchange will be minimal due to the confined nature of the riparian zone between the creek and Cimarron, and the extensive use of constructed bank treatments.

## 5.2 Road Widening

With the exception of the interchanges, capacity improvements will be confined within the existing CDOT right-of-ways for I-25. A large proportion of proposed wetland impacts will occur as a result of road-widening activities, which will include the addition of traffic lanes, HOV lanes, the extension of acceleration and deceleration lanes, and the expansion of some existing support structures (e.g., box culverts) to accommodate future road expansion. Road-widening activities will occur between SH 105 and South Academy Boulevard.

Wetland areas affected by these activities include perennial drainages that flow under, or adjacent to, the interstate, including Teachout Creek (Area B), Jackson Creek (Area D), Black Squirrel Creek (Area M), Pine Creek (Areas HH and S), Cottonwood Creek (Area II), Douglas Creek (Area OO), Fountain Creek (Areas AD and RR), and several unnamed tributaries (Areas AE, C, G, H, NN, and PP). Ephemeral drainages that will be affected include Areas L-200 and T. Isolated wetlands include Areas F, FA, HA, and LL. Three stormwater drainages (Areas AG, AH and WW), one upland swale (Area L-100 series), and several roadside swales (Areas AF, FF, GG, VV and XX) will also be impacted by road-widening activities. Virtually all of these impacts will occur directly adjacent to existing traffic lanes in areas where wetland habitat is already seriously degraded from traffic, highway maintenance, erosion, exotic vegetative species and weed infestations, and pollution. Therefore, high-quality wetland areas will not be adversely affected from road-widening activities.

## 6.0 Indirect Impacts of Proposed Action

The potential effects of indirect impacts resulting from highway construction on landscapes associated with waterways and wetlands are directly interrelated to the entire ecosystem and cannot be independently analyzed. Some of the potential impacts include a minor loss and fragmentation of wetland and wildlife habitat, an increase in human/wildlife conflicts, impacts to water quality from construction runoff and stormwater, the introduction of a seedbank of invasive exotic or weedy vegetation, and damage to established native plant communities. The majority of these potential impact affects can be avoided or minimized during the construction process through the use of Best Management Practices (BMPs), proper construction scheduling, and proper land use planning. BMPs are the structural (e.g., facilities constructed to passively treat runoff before it enters a waterbody, such as the installation of silt fencing) and non-structural (e.g., pollution prevention practices, such as stockpiling excavated material away from waterbodies) methods, measures or practices implemented to prevent, reduce, or mitigate adverse water quality impacts resulting from the construction and operation of a project.

## 7.0 Mitigation

Unavoidable impacts to wetlands and waters of the U.S. will be compensated in-kind with on-site mitigation to the extent practicable. Typical mitigation ratios required by the Army Corps of Engineers range from 1:1 to 1.5:1 (mitigation acres to impact acres). In accordance with Executive Order 11990, CDOT will mitigate for all wetland impacts, both jurisdictional and non-jurisdictional wetlands.

CDOT and its consultants reviewed a wide variety of mitigation opportunities located within the I-25 corridor to compensate for wetland losses. Mitigation plans are conceptual at this point as there are a number of factors that need to be resolved prior to final decisions regarding mitigation sites and approaches (e.g., land acquisition, analysis of site hydrology, completion of design plans, and coordination with Air Force Academy representatives). However, the general approach is expected to involve the expansion of existing wetlands and riparian areas. In most instances, this should result in on-site, in-kind replacement of wetland resources. Each mitigation effort will consider what is best for the aquatic resource and the possible inclusion of vegetative buffers to protect wetlands from surrounding landscapes.

Because many of the wetland impact areas overlap with critical habitat of the Preble's meadow jumping mouse, every effort will be made to mitigate wetland impacts through creation, restoration or preservation efforts in conjunction with Preble's mitigation. The following areas have been identified as ideal locations for potential wetland mitigation sites (refer to the attached Wetland Mitigation Location Maps for the specific locations of these areas).

## 7.1 Dirty Woman Creek

The Dirty Woman Creek channel flows through the property CDOT recently purchased from Pastimes/JR Homes. Existing vegetative conditions along this reach of the creek consists of a fringe of herbaceous wetland plants along the stream banks that is dominated by sedges and rushes, with a few intermittent wetland areas that extend up to 40 feet back from the channel's edge. The floodplain is relatively flat and there are ample opportunities to expand and improve wetland habitat at this site. As a conservative estimate, an additional 0.25 acre of wetland could be created in this area through the addition of willow shrubs and supplemental herbaceous species to enhance vegetative diversity along the creek.

## 7.2 Teachout Creek

In the reach of Teachout Creek that is located downstream from a historic homestead to the Monument Creek confluence, there are opportunities to create up to 2 acres of new wetland habitat within the riparian corridors. This area has been extensively grazed and many of the banks exhibit signs of instability (i.e., downcutting, bank material eroding into the channel, and damaged or sparse vegetative cover). Current vegetation consists primarily of herbaceous fringe wetlands adjacent to the channel with a few wider areas extending up to 50 feet out from the channel, scattered shrubs, and a few patches of crack willow trees. Mitigation along Teachout Creek would consist of the installation of native shrub clusters to stabilize the stream banks, and extensive planting of wetland grasses and forbs to expand and enhance wet meadow habitat.

## 7.3 Jackson Creek

At the southeast corner of I-25 and Baptist Road, a 65-acre parcel has been acquired by CDOT for protection of Preble's mouse habitat. Reconstruction of the Baptist Road Interchange will result in replacement of the undersized culvert under Baptist Road and removal of the existing I-25 frontage road, which currently divides wetland habitats within the land parcel. Through minor grading and the addition of woody plants, a combination of wetland creation and enhancement is planned over approximately 0.30 acre of the former frontage road in conjunction with Preble's mouse habitat improvements.

## 7.4 Smith Creek

The Smith Creek drainage contains an abundance of high quality wetland and wildlife habitat and has also been designated as critical habitat for the Preble's mouse. The majority of the habitat is confined to the existing channel and narrow riparian corridors.

Numerous opportunities exist for the expansion and enhancement of both wetland and Preble's mouse habitat development, but the best opportunities fall within property owned by others (i.e., the Smith Creek floodplain in the highway median and to the west of I-25 which are owned by the Air Force Academy, and the expansive cottonwood gallery and sedge field to the east of I-25 which are owned by the Museum of Mining and Industry).

Potential mitigation acreage in these areas includes 0.85 acre of wetland creation, and 0.50 acre of enhancement to existing degraded wetlands. Final mitigation ratios have not yet been determined at this drainage due to the ownership issues.

## 7.5 Upper Monument Creek

This area consists primarily of an herbaceous wetland with a much reduced shrub component that has been heavily grazed. Degraded conditions persist for almost a mile along the creek and mitigation opportunities are projected to include 2 acres of wetland creation and enhancement of 3 acres of degraded wetland habitat. CDOT is currently working with landowners to develop a restoration plan for many of these degraded areas.

## 7.6 Lower Monument Creek

The majority of the riparian corridor immediately upstream of the confluence of Jackson and Monument Creeks consists of a mixed tree/shrub riparian vegetation community with a patchy understory of herbaceous wetland grasses and forbs. Large expanses of the corridor are degraded and the majority of the existing vegetation occurs within a narrow fringe along the tops of the stream banks. Mitigation would occur along the riparian corridor and consist of 1.25 acre of wetland creation and 0.25 acre of wetland enhancement.

Additionally, within a 35-acre land parcel in the Jackson Creek floodplain on the west side of I-25, the creek is constricted by a historic railroad grade. At this location there is an opportunity to expand wetland habitat around the perimeter of a sediment-laden, sparsely vegetated pond located adjacent to the old railroad trestle and in the direct vicinity of the creek. The land around the pond is actively grazed and existing vegetation is patchy and damaged. Based on these site conditions, approximately 0.25-acre of the pond's perimeter would be available to create a diverse wetland habitat through the addition of a shrub layer and seeding with an indigenous, native herbaceous wetland mixture in the area extending out from the shoreline.

## 7.7 Monument Branch North/South Median

Two separate mitigation opportunities have been identified within the Monument Branch median. One of the sites is located on a linear bench above the southern riparian corridor of the North Branch and may provide up to 0.20-acre for wetland expansion. To the north of the drainage, a second opportunity exists through the expansion of two pre-existing wetlands situated on a side slope adjacent to the northbound traffic lanes. These wetlands originate from an ephemeral drainage on the Northgate property, which appears to underground before surfacing in a series of slope seeps just east of I-25. Up to 0.50 acre of wetland may be created around the outer edges of these slope wetlands. An active seep above a bench on the northern side of the north-lying wet meadow flows perpetually and may provide additional opportunities.

## 7.8 Pine Creek

Downstream from the confluence of Pine and Monument Creeks is a small, cattail-choked pond that is extremely degraded and structurally unsound. In conjunction with the installation of major structures to control the integrity of the pond, this area provides an opportunity to create approximately 0.50 acre of perimeter wetlands and to increase species diversity beyond the existing cattail monoculture.

## 7.9 Unnamed Drainage at North Nevada/Rockrimmon Interchange

An unnamed drainage flows under I-25 near the Nevada ramp and then parallels to I-25 on the north side. This drainage will be realigned to flow along the south side of I-25. There will be an opportunity to create approximately 0.25 acre of wetland along the new channel.

## 7.10 Monument Creek at North Nevada/Rockrimmon Interchange

Improvements proposed in the floodway fringe and floodway of Monument Creek in the vicinity of this interchange were initiated because the 100-year discharge passes below the existing I-25 mainline bridges. Plans include replacement of these bridges with two new ramp bridges that will span Monument Creek. In conjunction with these activities, there is an opportunity to create 0.25 acre of wetland habitat along a degraded and sparsely vegetated reach of Monument Creek.

## 7.11 Corporate Drive

Lateral encroachment onto Monument Creek will occur during construction of the new Corporate Drive/Nevada Avenue roadway connection. Scour protection will be required in the vicinity of the new bridges and the new roadway embankment. Specific impacts are unknown since the design and detailed hydraulic analysis for this reach are ongoing. However, the existing floodplain in this reach must be re-contoured due to channel degradation. This may provide an opportunity to improve wetland conditions on the west side of I-25 through the creation of a scrub/shrub component in an approximate 0.25 acre area at the toe of the new embankment that is currently devoid of woody vegetation.

## 7.12 Bear Creek

On the east side of I-25 this reach of Bear Creek has been filled in with concrete debris in an attempt to stabilize banks and control erosion. As a result, riparian vegetation is almost non-existent and occurs only intermittently and in segregated pockets. The upstream channel on the west side of the highway is cement-lined with sparse vegetation consisting of willows and cattails with a few pockets of sedges in the understory. Removal of the channel debris on the east side of I-25 and restoration of the stream banks and riparian corridor on both sides of the highway would result in the creation of 0.25 acre of wetland habitat.

## 7.13 Bear Creek Regional Park

The park contains a relatively flat, sparsely vegetated 40-acre meadow consisting of a mixture of upland and wetland grasses and forbs, randomly situated trees and a large population of teasel. The meadow exhibits a high ground water table as evidenced by the intermittent swaths of rushes and sedges, and the presence of standing water in low-lying areas. The County has expressed interest in developing the wetland potential of the meadow, and the installation of a boardwalk and interpretive signage to encourage the educational aspects of the park as well as to attract more wildlife and waterfowl to the area. Wetland development of the park would provide a minimum of 15 acres of wetland creation and 4 acres of enhancement to currently degraded wetland habitat. Off-site wetland mitigation credit would result in a net benefit of 15 acres of wetland creation and 4 acres of enhancement for the project.

## 7.14 Fishers Canyon

In this drainage, the canyon walls are steep and the channel is deeply incised. Riparian vegetation in the vicinity of the highway is limited. However, the current road crossing has created a backwater area and a 600-foot-wide floodplain that may provide opportunities to create approximately 0.50 acre of wetland habitat to increase bank stability.

## 7.15 Limon Wetland Bank

Jurisdictional (non-jurisdictional impacts are not eligible for credit at the Limon bank) wetland impacts occurring south of South Academy Boulevard (Exit 138) fall within the primary service area of the CDOT-owned Limon Wetland Bank and are eligible for mitigation credits. Available bank credits total 5.36 acres consisting of the following vegetation community types: 2.85 acres palustrine emergent persistent, and 2.51 acres of aquatic rooted vascular bed.

The areas discussed above were selected because they provide opportunities to mitigate for wetland impacts in conjunction with Preble's mouse mitigation or because they are either currently owned by CDOT or provide strong possibilities for viable partnerships with the property owners. Each site will be examined in more detail, especially site hydrology, in order to insure mitigation. All of these areas currently exhibit hydrologic regimes that provide sufficient hydrology to support hydrophytic vegetation. The majority of the proposed construction activities will result in impacts in the direct vicinity of the existing highway and are not expected to significantly alter the hydrologic regime. However, the specific sustaining hydrologic source for each proposed mitigation area will be examined following the completion of construction impacts.

## 7.16 Other Potential Mitigation Areas

Additional sites that have been identified for possible wetland mitigation include the following areas: Kettle Creek on the west side of the highway (Air Force Academy property); the perimeter of a degraded pond, adjacent meadow and riparian corridor of Pine



Creek just south of the Briargate Interchange that lies upstream from the cement lined segment of the creek; and the Monument Creek riparian corridor (between the pedestrian trail and the creek) from just north of the Bijou Street exit (Exit 142) and the Cimarron Street exit (Exit 141).

In combination with these activities, restoration and enhancement of the major degraded channels that flow under the highway corridor may provide opportunities for wetland or riparian mitigation, Preble's mouse habitat enhancements, and water quality improvements. This is an effective mitigation strategy if conducted in areas where improvements are already planned, such as the Cimarron Interchange; and in drainages that will be directly impacted by highway expansion or that have a major effect on downstream reaches, such as Monument Creek.

Alternative mitigation sites that meet the criteria for the establishment of in-kind wetland replacement will be identified if the areas discussed above do not provide sufficient acreage to fulfill mitigation requirements, or if any of these areas are unavailable or unsuitable as wetland mitigation. Additional information regarding mitigation techniques, water sources and contingencies will be addressed as detailed mitigation plans are developed.

## 7.17 Monitoring

Monitoring and documenting the success of mitigation efforts is an integral part of the mitigation process. As mitigation sites are finalized, mitigation plans and formal monitoring program will be developed based on the "Special Conditions" in the project 404 permit. In addition, the plan will provide viable contingencies that can be implemented in the event that any of the mitigation areas fail.

## 7.18 Best Management Practices

- Avoidance and minimization of impacts were addressed during site plan development via the advanced identification of wetlands and waters in all areas in which impacts are proposed. An initial natural resources inventory and evaluation of all wetland areas was completed to provide a basis for planning to avoid impacts to wetlands. During the refinement of design plans this identification provided the opportunity for avoidance and minimization of wetlands and waters of the U.S. and ensured compliance with the Section 404(b)(1) "best management practices" guidance of the Clean Water Act, which provides for the structural and non-structural methods, measures or practices implemented to prevent, reduce or mitigate adverse water quality impacts resulting from construction and operation of a project.
- CDOT shall require use of the following best management practices (BMPs), as applicable, and requirements of Section 107.25 of the Standard Specifications for Road and Bridge Construction (1999) to limit temporary project impacts to wetlands and other aquatic systems:

- Construction staging, including construction and waste material, fill material, equipment, fuel, etc. areas shall be located outside of the area adjacent to streams, including wetlands and riparian areas. At a minimum, such staging areas and materials shall not be located within 15 meters (50 horizontal feet) of the ordinary high water mark of any watercourse.
- Equipment refueling and servicing shall occur only within approved designated areas.
- All construction equipment shall be maintained in good working order to avoid unnecessary discharge of harmful materials used in the operation of that equipment, including petroleum products, radiator fluid, hydraulic fluid, etc.
- All practicable efforts shall be expended to avoid and minimize in-stream work. Where practical, equipment shall be operated from banks or shoulders above riparian and wetland areas. In those instances where in-stream work is required, such work shall be performed during low flows, and the use of heavy equipment in streambeds, especially in live or flowing water, shall be minimized. The equipment used shall be of such a type that will produce minimal environmental damage, including damage to the stream bottom.
- All reasonable measures shall be taken to avoid excess application and introduction of chemicals into aquatic ecosystems and adjacent riparian areas, including wetlands. The use of chemicals such as soil stabilizers, dust palliatives, herbicides, sterilants, growth inhibitors, fertilizers, deicing salts, etc., during construction and maintenance operations shall be in accordance with the manufacturer's recommended application rates, frequency, and instructions. These chemicals shall not be used, stored, or stockpiled within 15 meters (50 horizontal feet) of the ordinary high water mark of any state waters, including wetlands, except when otherwise specified in the project contract.
- Geotextile fabric shall be placed over existing wetland areas located within work areas. The fabric shall be covered with straw and topsoil for the duration of the work and then removed.
- Temporary fencing (orange) shall be installed in areas outside the project but which require additional protection from encroachment of personnel and equipment, such as wetlands, streams, etc.
- Silt fence, erosion logs, or similar erosion control products shall be installed wherever the toe of fill meets the water's edge, riparian areas, and wetlands in the work area. Temporary and permanent erosion and sediment control measures shall be installed at the earliest practicable time consistent with good construction practices. Such measures shall be properly monitored and maintained throughout the operation of the project.
- No wet concrete from placement of forms, washing of trucks or equipment, or concrete saw water will be allowed in aquatic ecosystems and riparian areas, including wetlands. Concrete washout areas shall occur only within approved designated areas.
- The stream channel bottom shall be returned to the elevation and configuration existing prior to construction. Work in live water systems shall be conducted in accordance with all applicable permits and contract conditions.

- Riprap above the ordinary high water line shall be covered with topsoil and revegetated as specified by the CDOT landscape architect. Areas under bridges do not need topsoil treatment. Where appropriate, streamside areas at the ordinary high water line should be revegetated with brush layer cuttings of native riparian shrub species.
- All practicable measures shall be taken to avoid disturbance to existing vegetation. The length of time that disturbed areas are left exposed shall be as short as practicable and the extent of such disturbed areas shall be as small as practicable. Particular attention shall be paid to protecting aquatic ecosystems, riparian areas, wetlands, and habitats for threatened and endangered species from such impacts and unnecessary disturbance. Once earthwork has begun on a section, it shall be pursued until complete. Within seven days, completed areas should be stabilized, that is, seeded and mulched according to the plans. In some situations, temporary stabilization may be appropriate.
- All disturbed areas above the ordinary high water mark shall be revegetated with appropriate native plant species to provide bank stabilization, erosion control, and habitat replacement. These activities shall be conducted according to specifications approved by the CDOT landscape architect. Temporary seeding shall be done where necessary. Only certified weed-free hay and straw shall be used.
- All practicable effort shall be expended to avoid destruction of trees and shrubs in the vicinity of streams and in riparian areas. Existing trees within the project area that are not scheduled for removal shall be cordoned off from construction activity with temporary construction fencing (orange).
- Highway runoff shall be diverted away from the stream channel to avoid siltation and other pollution problems. Where it is necessary to divert runoff directly into the stream channel, intervening water holding or siltation-filtration basins of adequate size shall be constructed

## 7.19 Miscellaneous BMPs

- Temporary fills, such as cofferdams and temporary road crossings, using imported material shall utilize clean, chemically-free fill to avoid increasing suspended solids or pollution. Fill material shall not be obtained from the live water area in the stream unless approved by DOW.
- Discharge of water directly into the stream from cofferdams or new channel construction is prohibited. Such water shall be treated prior to discharge according to the project's Clean Water Act Section 401 or 404 permit.
- Under current CDOT policies, in-stream work is limited to specific periods in order to avoid disruption of fish migration and spawning seasons. Under extraordinary circumstances, in-stream work during such periods may be allowed. Special techniques are required during such situations and shall be pursued in consultation with staff of the Colorado Division of Wildlife. The timing of such activities will be determined in consultation with CDOW.

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## 9.0 Attachments

- Attachment A - I-25 Expansion Project Wetland Mitigation Opportunities
- Attachment B - Wetland Reference Maps
- Attachment C - Wetland Impacts

ATTACHMENT A

# I-25 Expansion Project Wetland Mitigation Opportunities

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## I-25 EXPANSION PROJECT WETLAND MITIGATION OPPORTUNITIES

Creek Name/Location	Vegetation Type*	Wetland Creation (acres)	Wetland Enhancement (acres)	Enhancement Credits (2:1)	Total Wetland Credits (acres)
<b>ON-SITE AREAS</b>					
<b>Dirty Woman Creek</b>					
Pastimes/JR Homes	PEP/PENP	0.25			0.25
<b>Teachout Creek</b>					
Willow Springs Ranch (includes: historic homestead, riparian restoration at Teachout/Monument confluence & area just west of RR line)	PEP/PENP	2.00			2.0
<b>Jackson Creek</b>					
Remove frontage road	PENP	0.30			0.30
<b>Smith Creek</b>					
Median wetland expansion	PEP/PSS/PF	0.60			0.60
Mining museum property		0.25	0.50	0.25	0.50
<b>Upper Monument Creek</b>					
Riparian restoration at Beaver, Hay and Monument Creeks	PEP/PSS	2.00	3.00	1.50	3.50
<b>Lower Monument Creek</b>					
Riparian corridors along Monument & Jackson Creeks	PSS/PF	1.25	0.25	0.12	1.37
Degraded pond vicinity of RR trestle		0.25			0.25
<b>Monument Branch (North and South)</b>					
Expansion of two existing wetlands w/i highway median	PEP/PENP/PSS	0.50			0.50
South bank bench above North Monument Branch		0.20			0.20
<b>Pine Creek</b>					
Degraded pond downstream from confluence of Pine & Monument Creeks	PEP	0.50	0.20	0.10	0.60
<b>Un-named Drainage at N. Nevada</b>					
<b>Rockrimmon Interchange</b>					
Monument Creek stream corridor	PENP/PSS	0.25			0.25
<b>Corporate Drive</b>					
E. side of I-25	PENP	0.25			0.25
<b>Bear Creek</b>					
Riparian corridor east and west sides of I-25	PENP/PSS	0.25			0.25
<b>Fishers Canyon</b>					
Approx. ½ mile north of South Academy	PEP/PSS	0.50			0.50

Creek Name/Location	Vegetation Type*	Wetland Creation (acres)	Wetland Enhancement (acres)	Enhancement Credits (2:1)	Total Wetland Credits (acres)
<b>OFF-SITE AREAS</b>					
<b>Limon Wetland Bank</b>	PEP/AVB (credits available for these vegetation types)				<b>5.36</b>
<b>Bear Creek Regional Park</b>					
Wetland development within expansive park meadows	PENP	15.0	4.00	7.5 + 2.0	9.5
<b>Total On-Site Mitigation Acres</b>					11.32
<b>Total Off-Site Mitigation Acres</b>					9.5 + bank

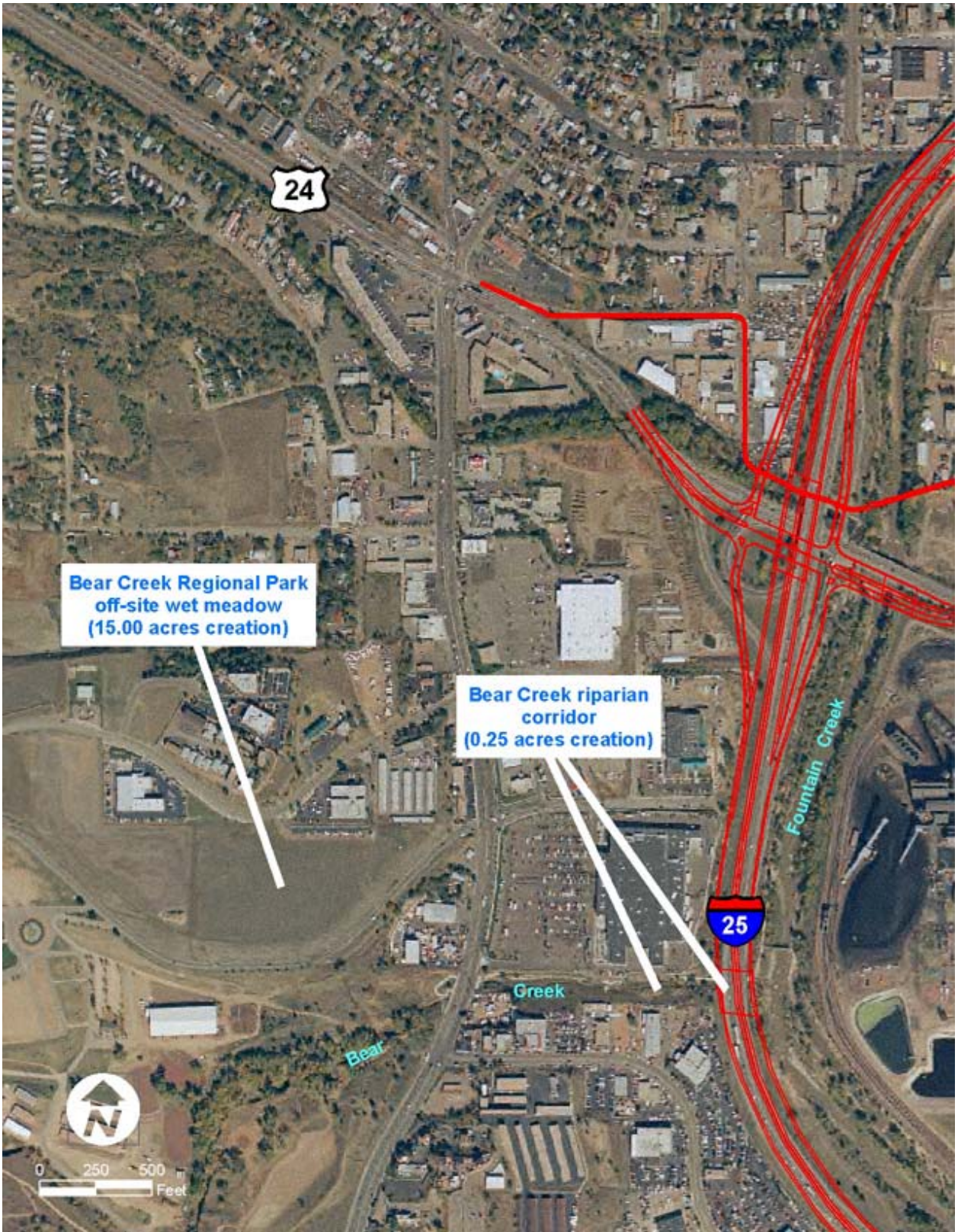
\*Vegetation Types (per Cowardin, 1979): PEP – Palustrine emergent persistent, PENP – Palustrine emergent non-persistent, PSS – Palustrine scrub/shrub, PF – Palustrine forested, AVB – aquatic, rooted vascular bed

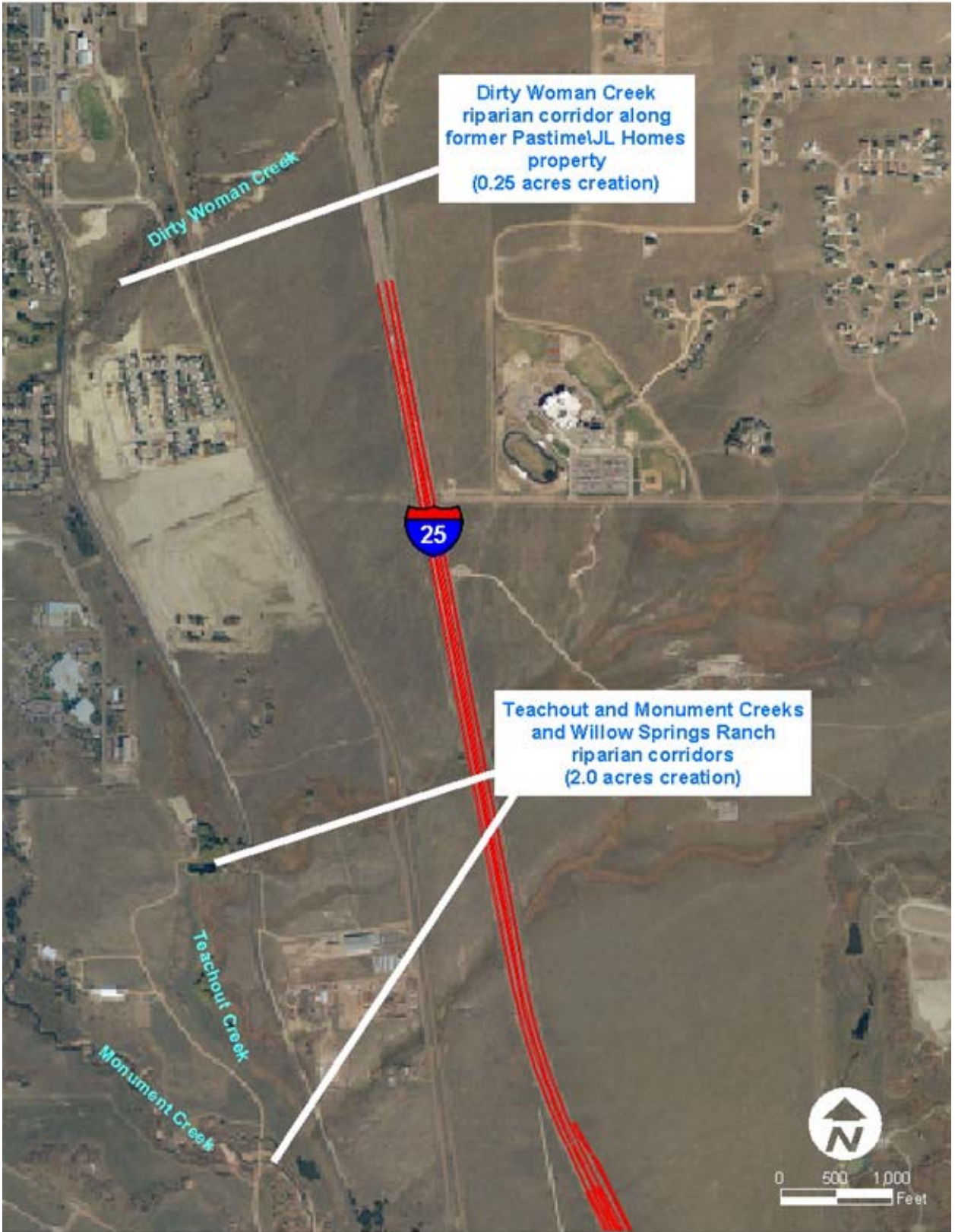
Notes:

1. The Proposed Action would have 10.22 acres of wetland impacts. CDOT has identified available mitigation sites to mitigate for 20.82 acres.
2. Wetland impacts occurring south of Cottonwood Creek fall within the Limon Wetland Banks primary service area and will be eligible for the use of mitigation credits from the bank.
3. The project study area encompasses over 600 acres, and there are numerous opportunities within the corridor that can be explored for mitigation potential. Given the wide range of opportunities available, CDOT will mitigate for all wetland losses.









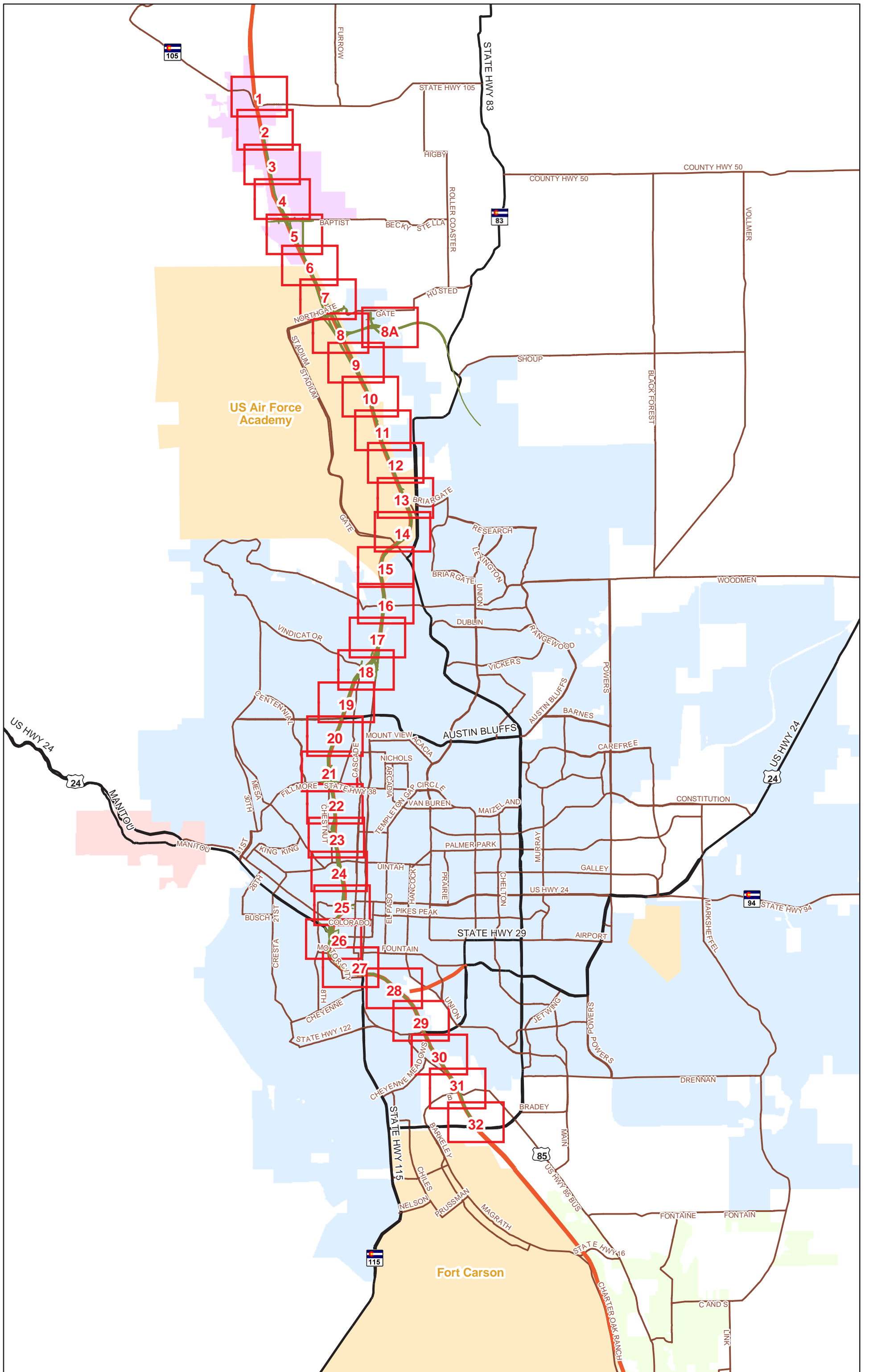


ATTACHMENT B

# Wetland Reference Maps

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





**Exit 161**

**State Highway 105**

**A (Dirty Woman Creek)**

	Limit of Disturbance 10/30/02
	Roadway 10/30/02
	Wetlands

Scale: 1" = 500'

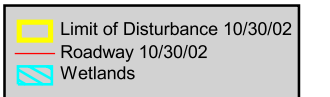




EXIT 161

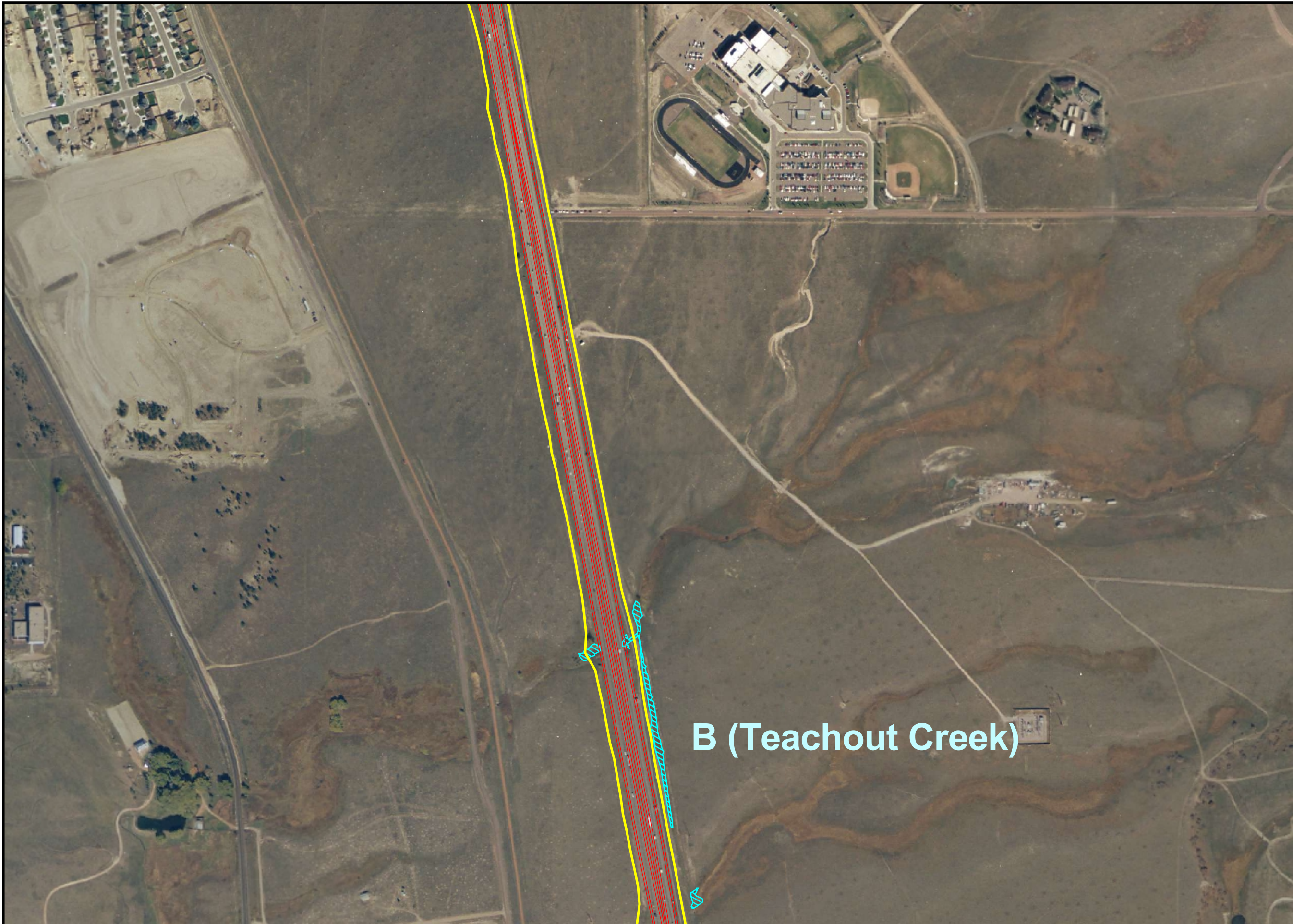
A (Dirty Woman Creek)

2



Scale: 1" = 500'





B (Teachout Creek)

- Limit of Disturbance 10/30/02
- Roadway 10/30/02
- Wetlands

Scale: 1" = 500'

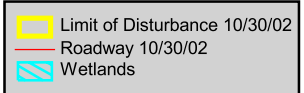
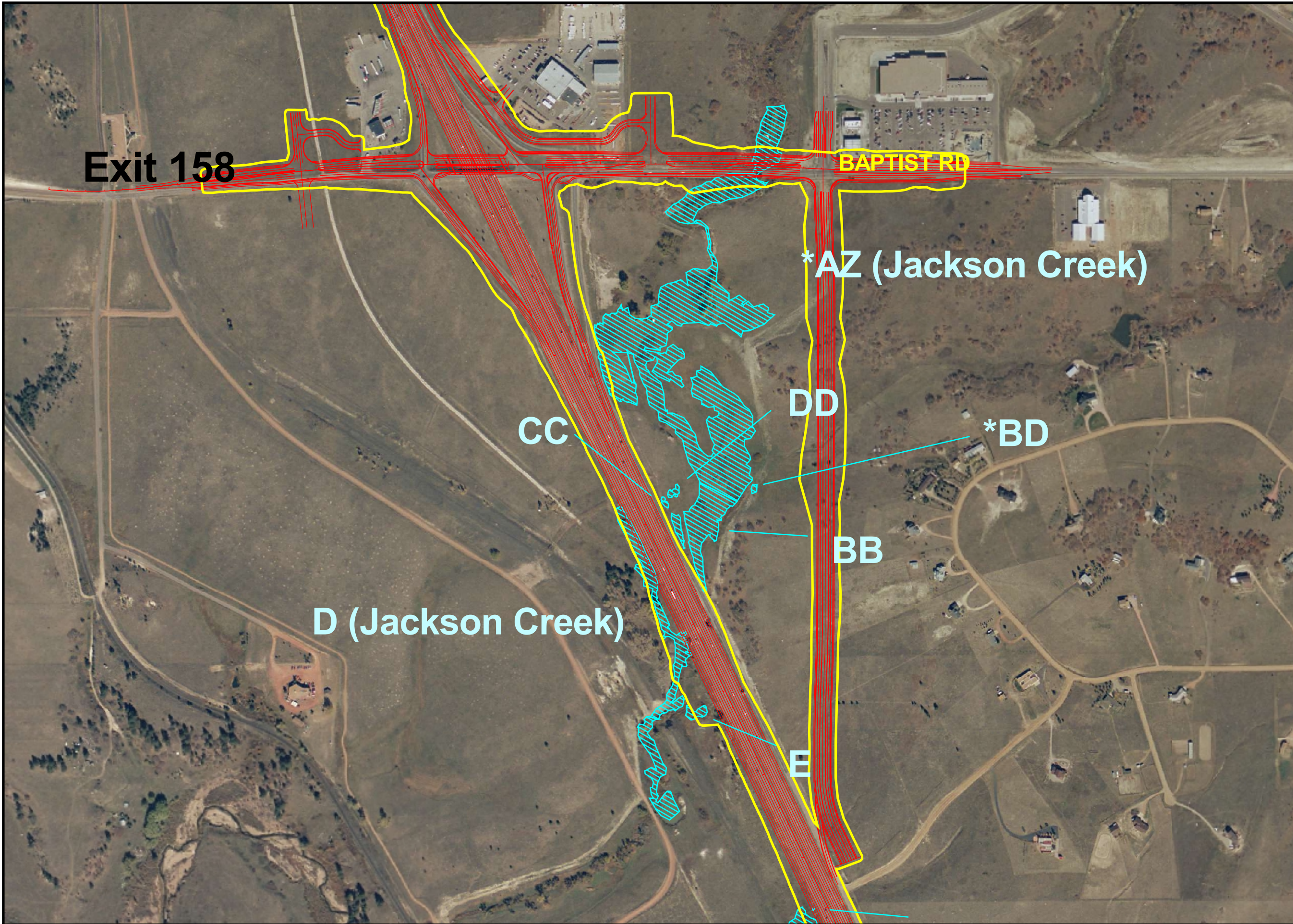




Limit of Disturbance 10/30/02  
Roadway 10/30/02  
Wetlands

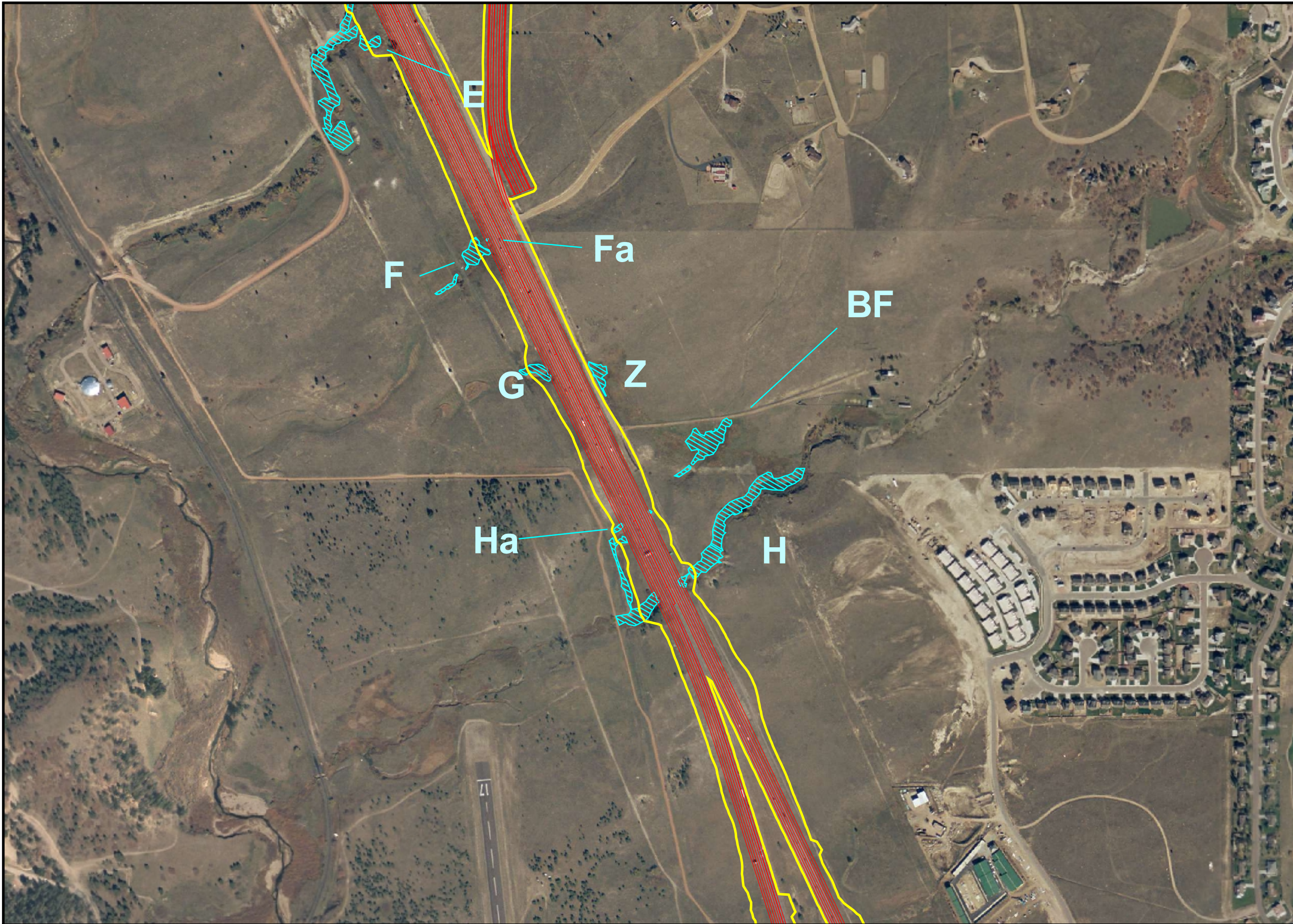
Scale: 1" = 500'








Scale: 1" = 500'

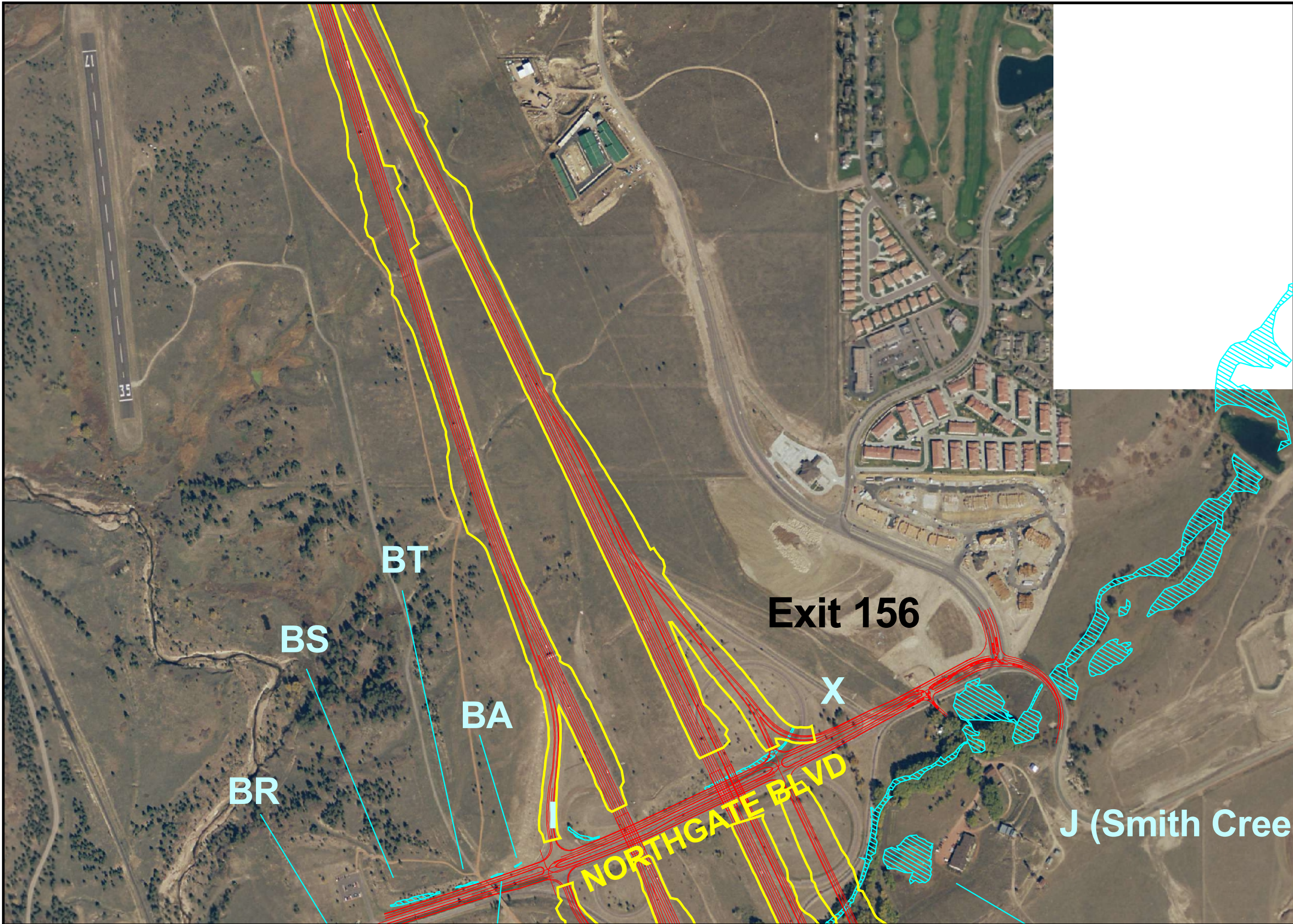




	Limit of Disturbance 10/30/02
	Roadway 10/30/02
	Wetlands

Scale: 1" = 500'



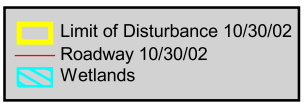
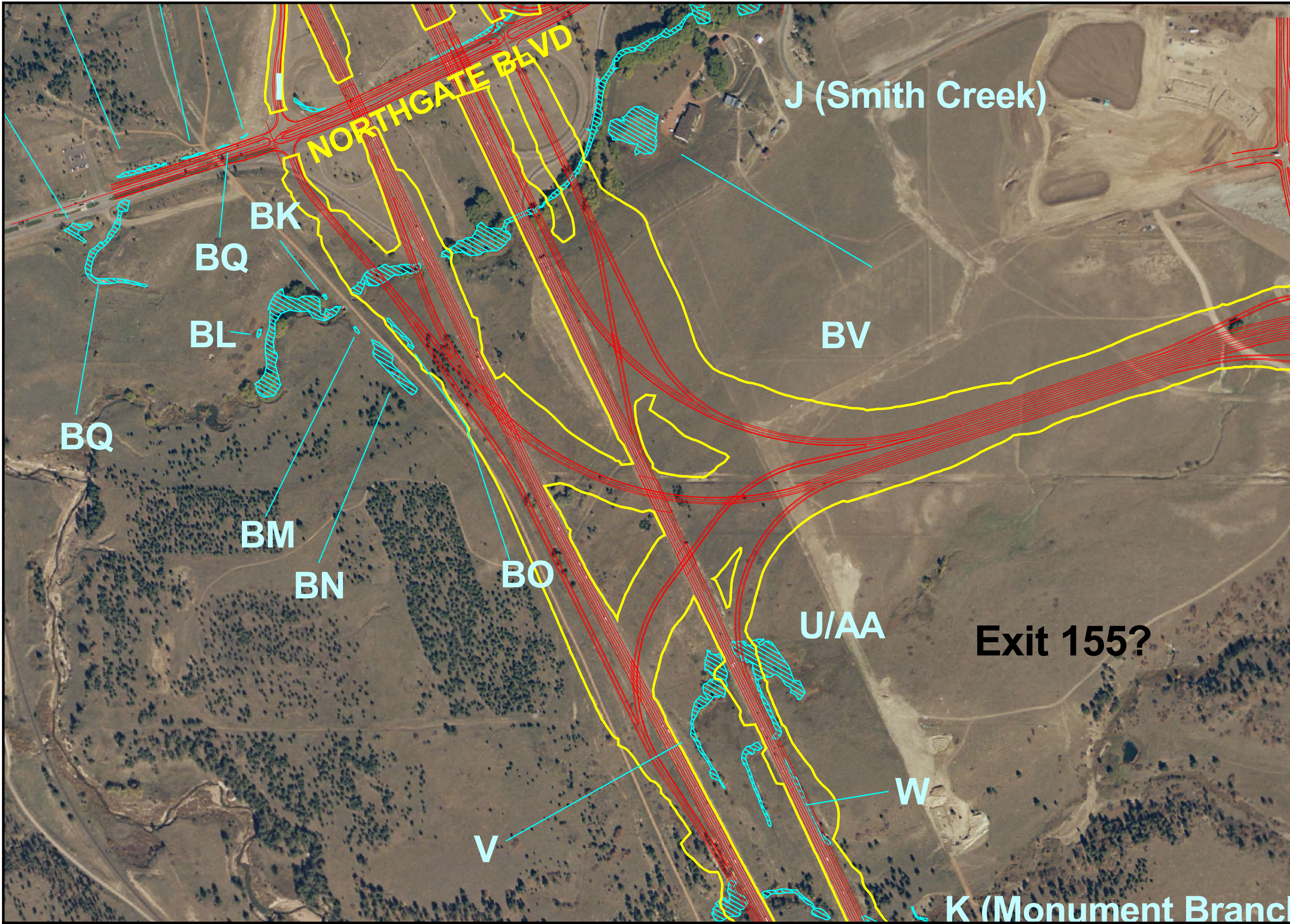


Legend:

- Limit of Disturbance 10/30/02
- Roadway 10/30/02
- Wetlands

Scale: 1" = 500'





Scale: 1" = 500'



Exit 155?

J (Smith Creek)

K (Monument Branch)

NORTHGATE BLVD

EXIT 155?

9

V

W

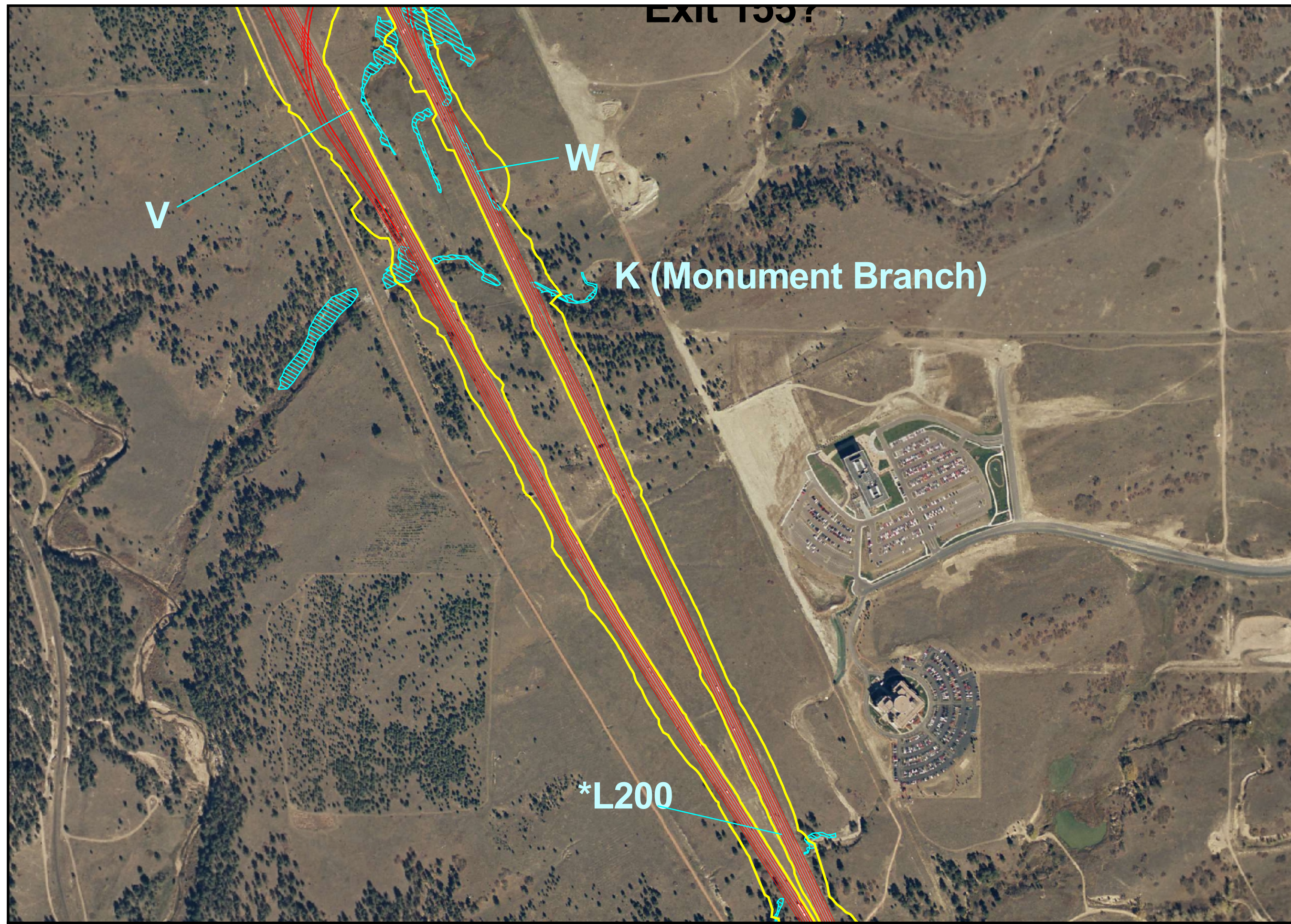
K (Monument Branch)

\*L200

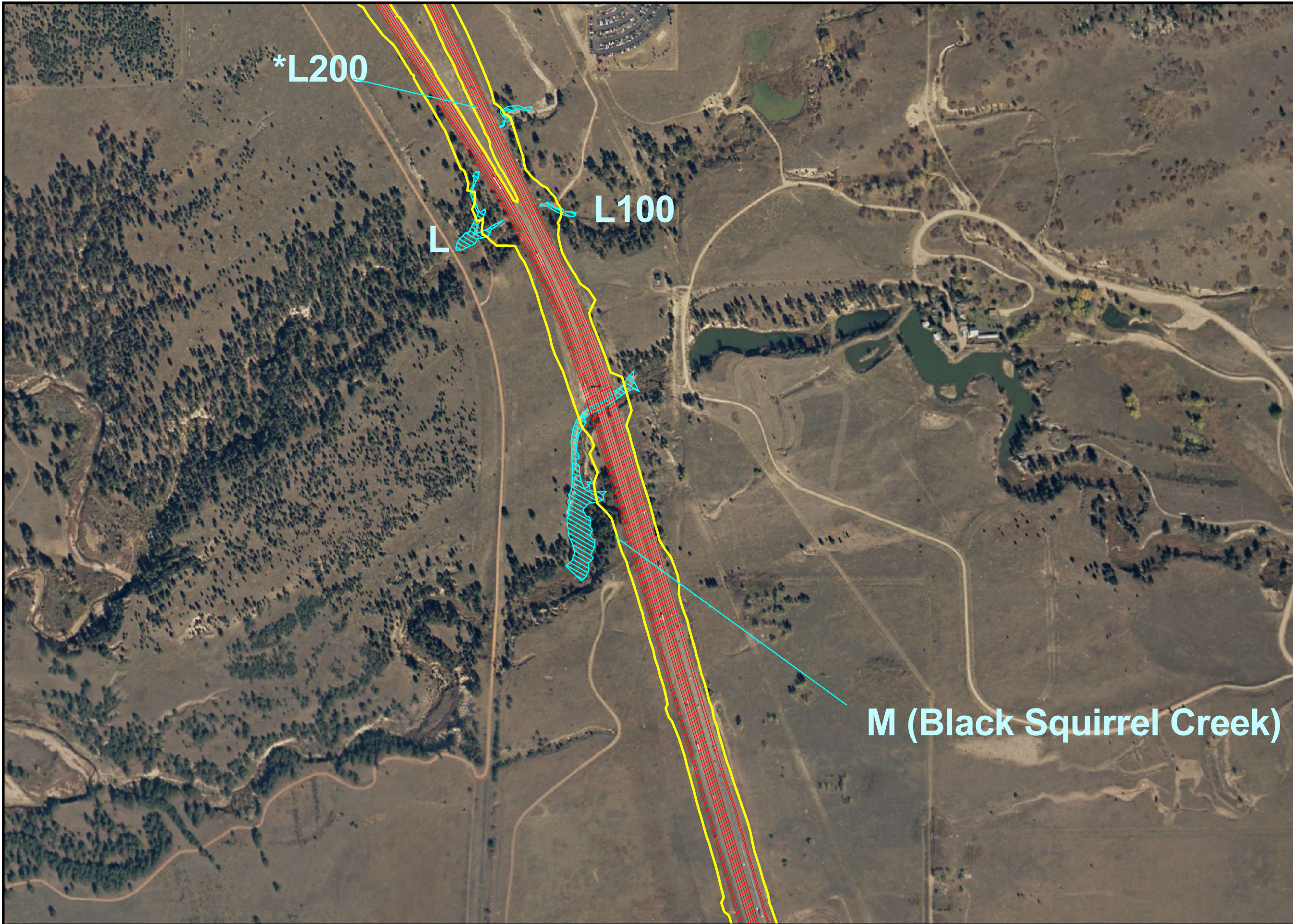
Legend:

- Limit of Disturbance 10/30/02
- Roadway 10/30/02
- Wetlands

Scale: 1" = 500'










\*L200

L

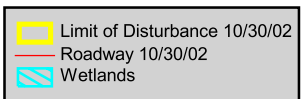
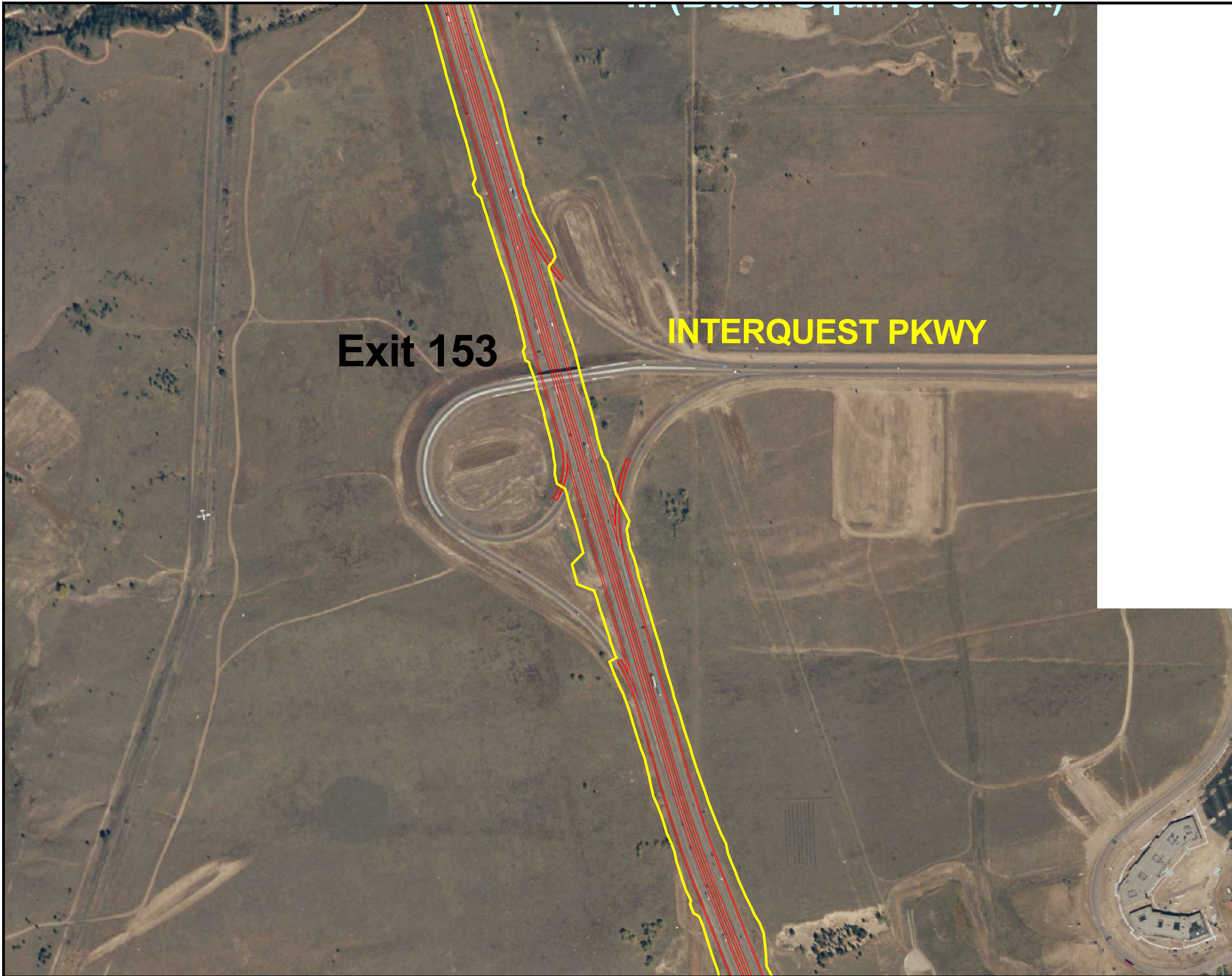
L100

M (Black Squirrel Creek)

	Limit of Disturbance 10/30/02
	Roadway 10/30/02
	Wetlands

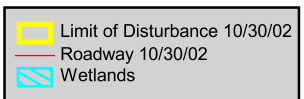
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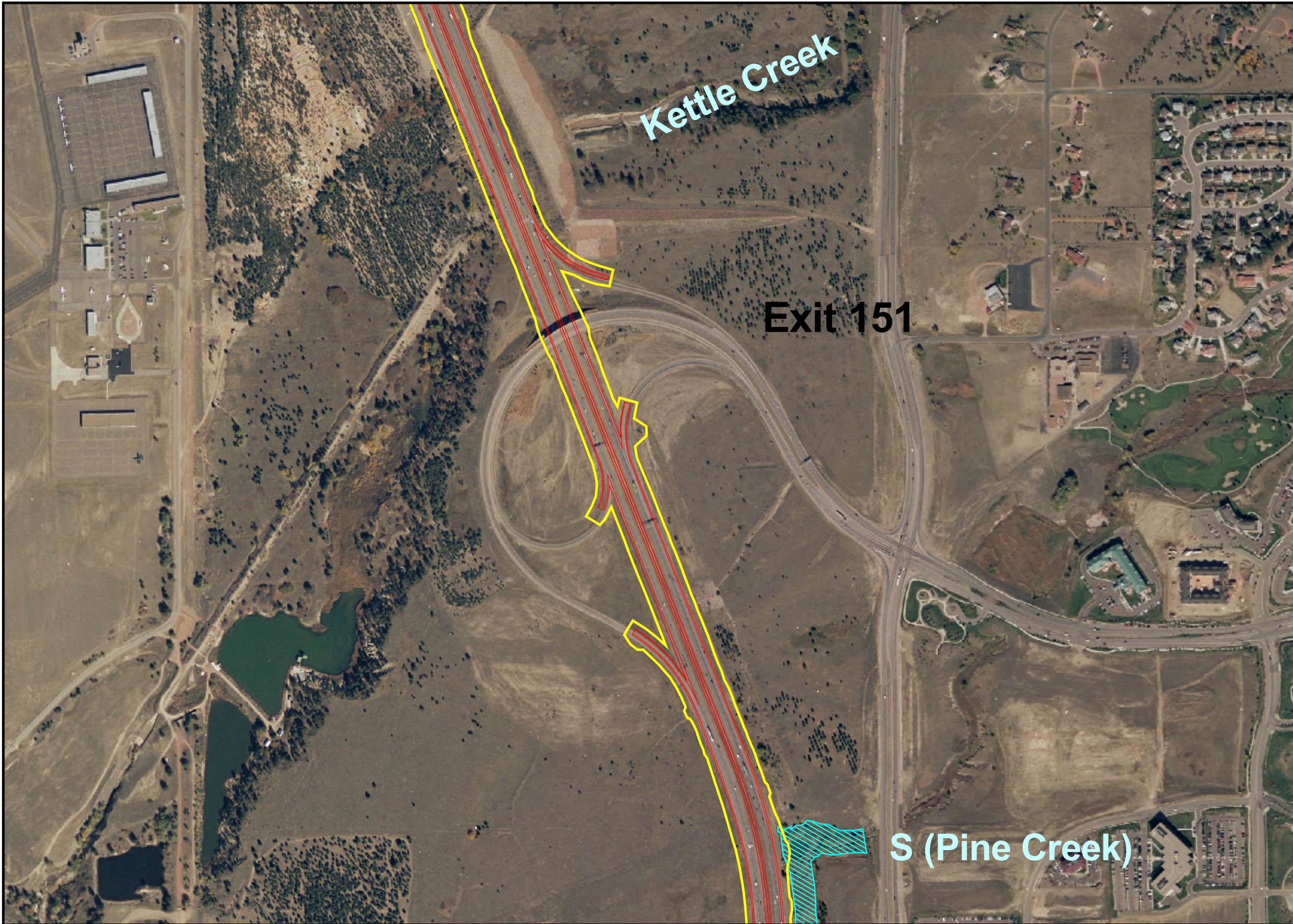
Scale: 1" = 500'





Scale: 1" = 500'








Kettle Creek

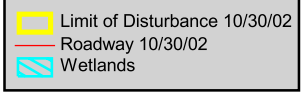
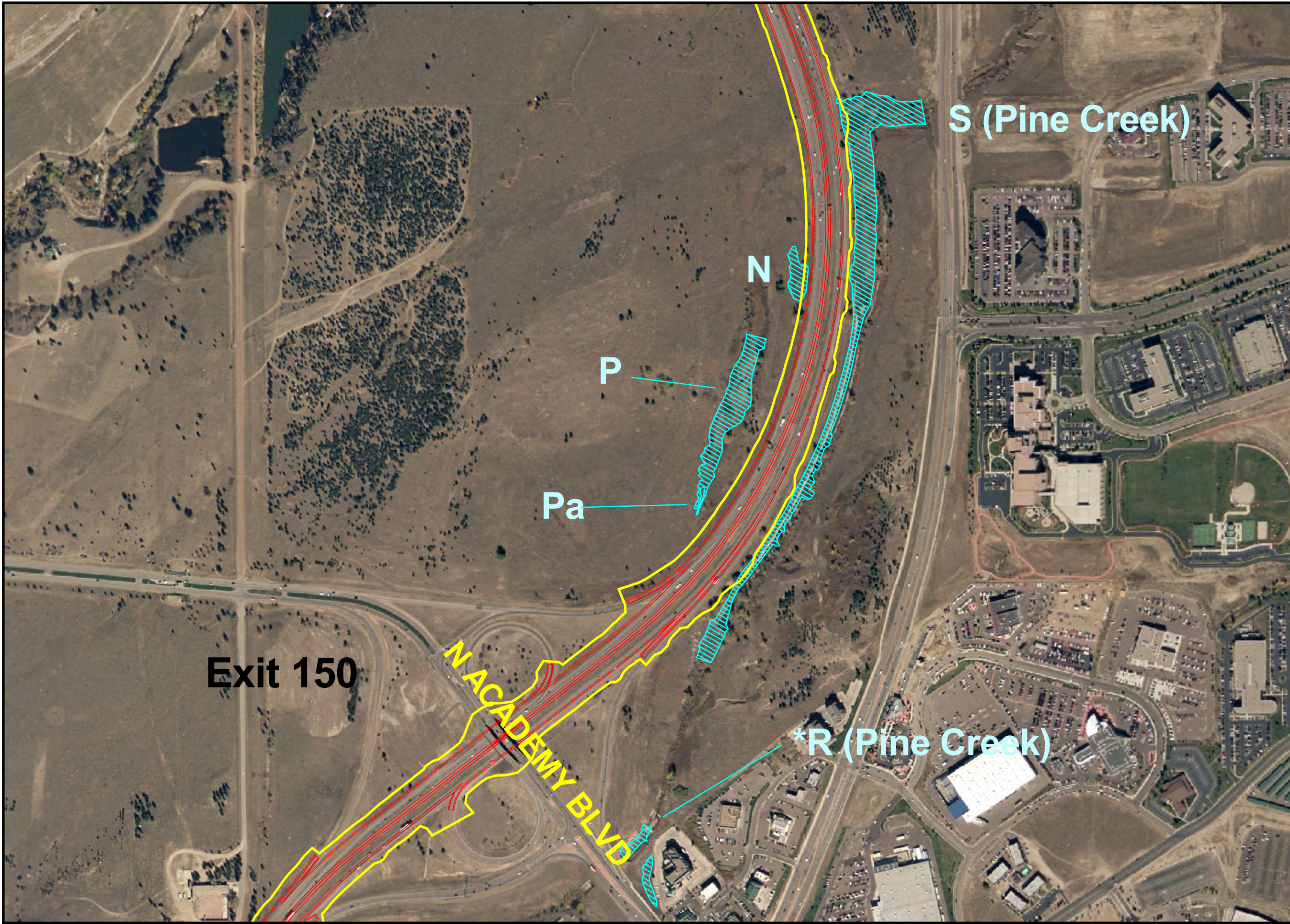
Exit 151

S (Pine Creek)

	Limit of Disturbance 10/30/02
	Roadway 10/30/02
	Wetlands

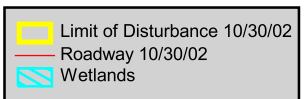
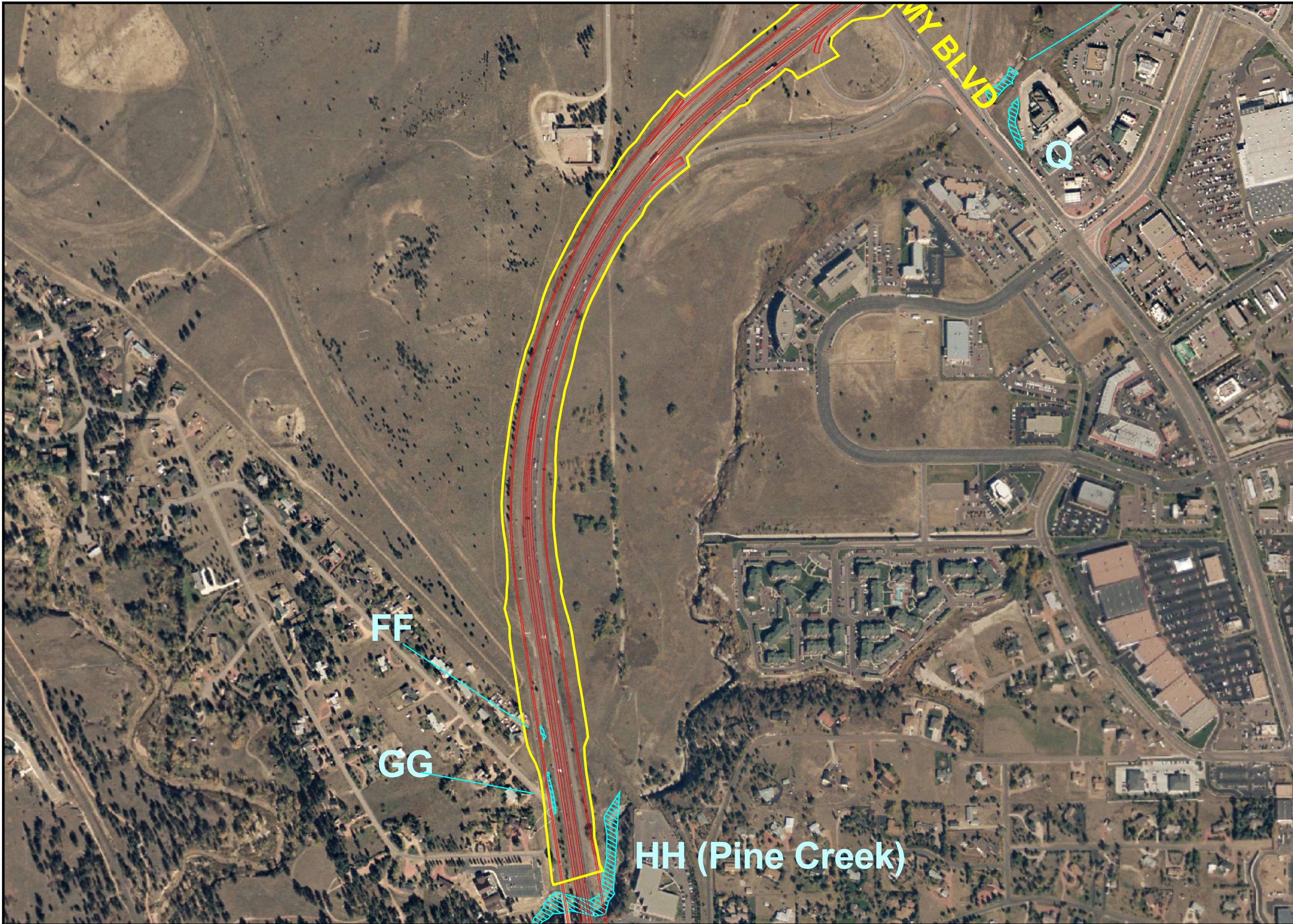
Scale: 1" = 500'





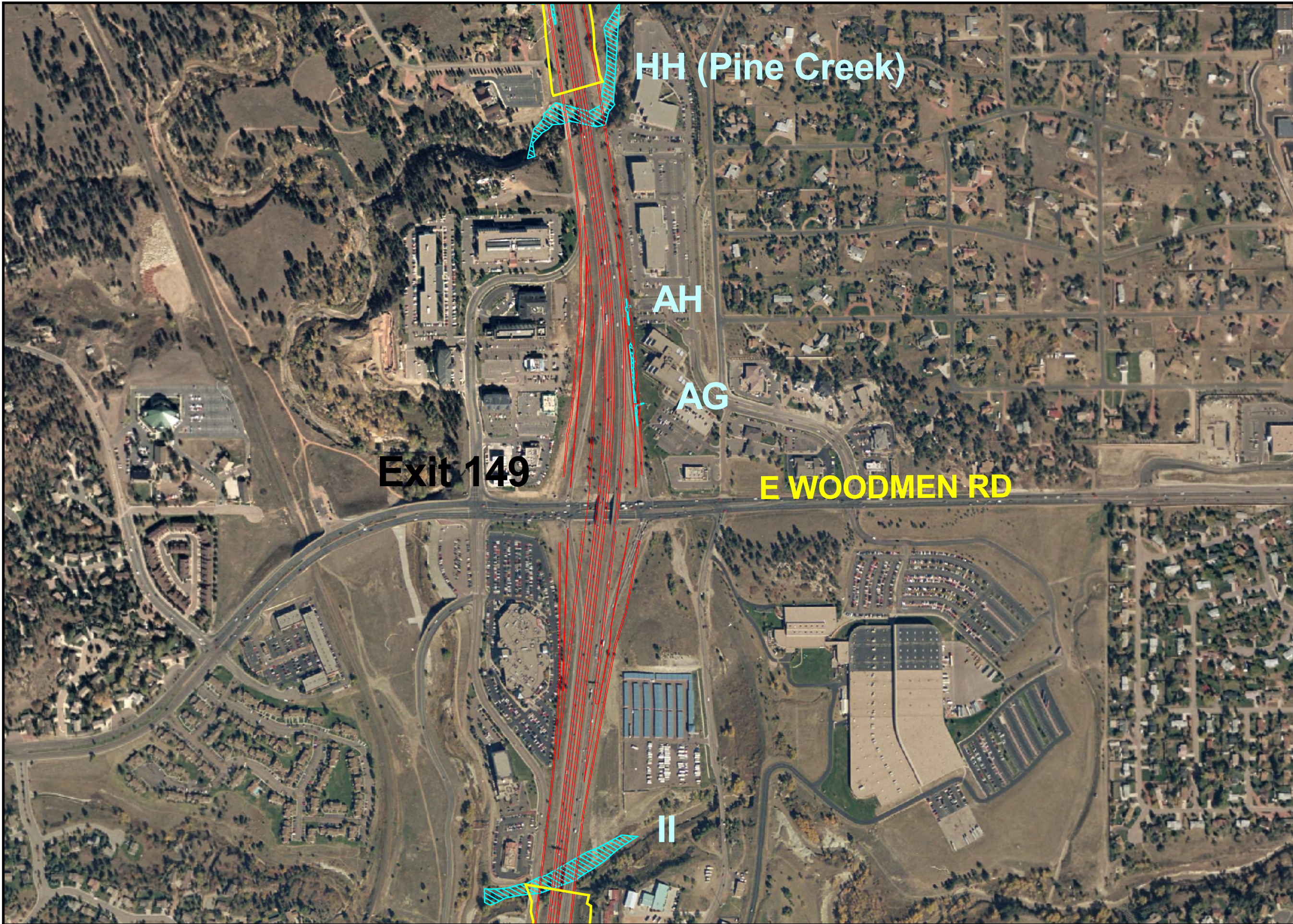
Scale: 1" = 500'





Scale: 1" = 500'





HH (Pine Creek)

AH

AG

Exit 149

E WOODMEN RD

||

Legend:

- Limit of Disturbance 10/30/02
- Roadway 10/30/02
- Wetlands

Scale: 1" = 500'



Cottonwood Creek

AF

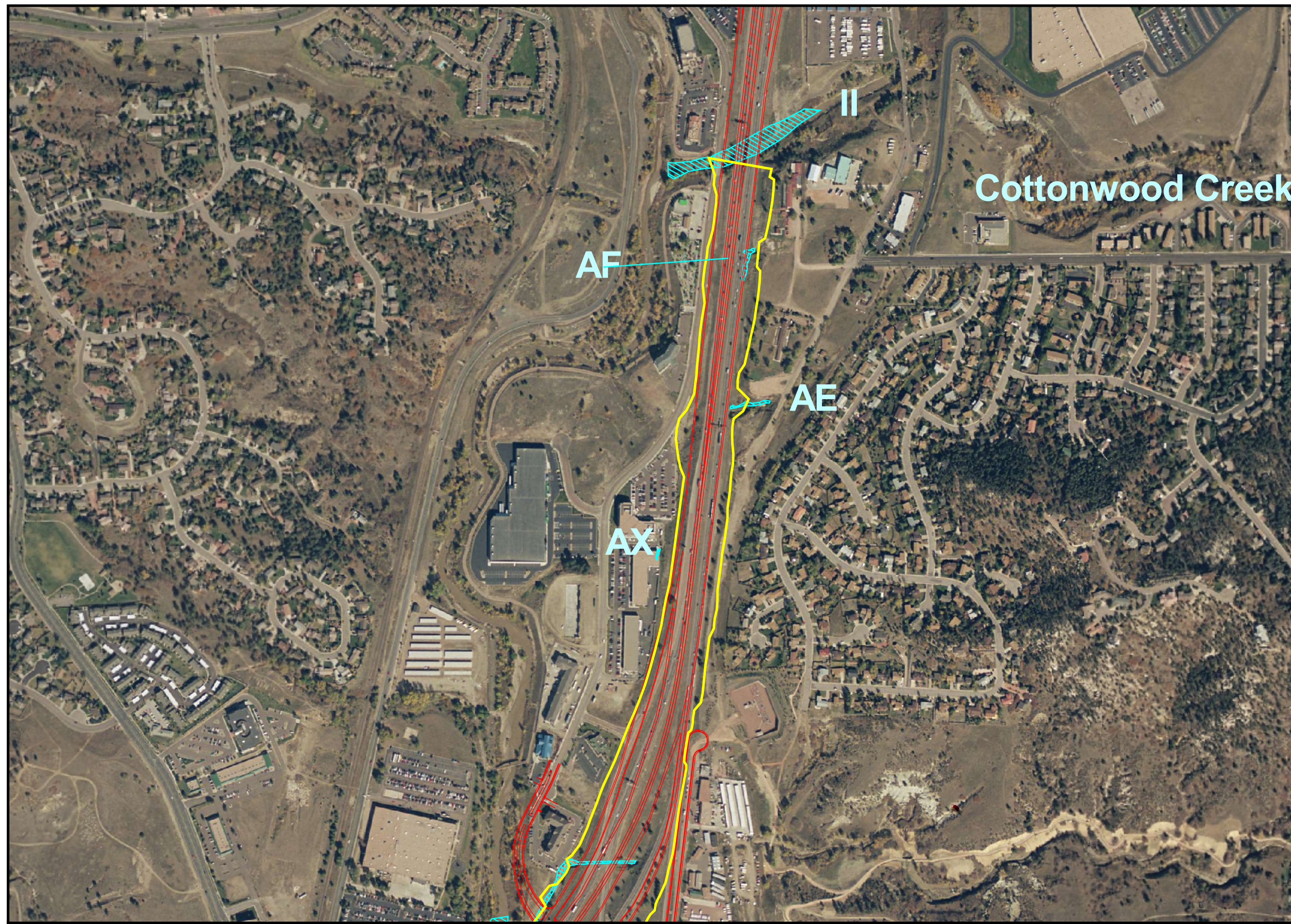
AE

AX

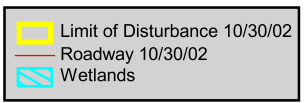
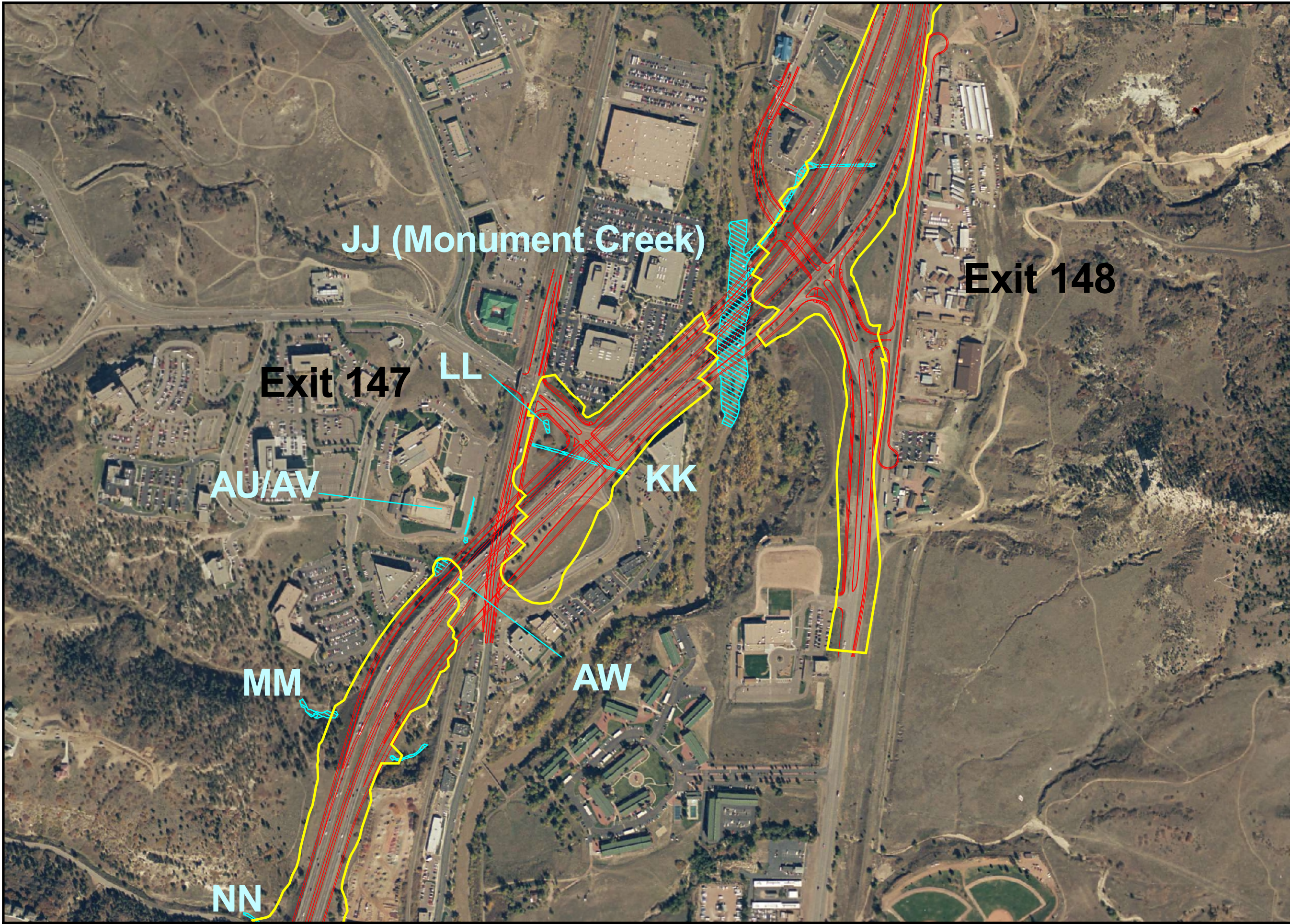
||

Legend:  
- Limit of Disturbance 10/30/02 (Yellow outline)  
- Roadway 10/30/02 (Red lines)  
- Wetlands (Blue hatched area)

Scale: 1" = 500'

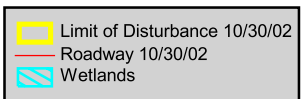
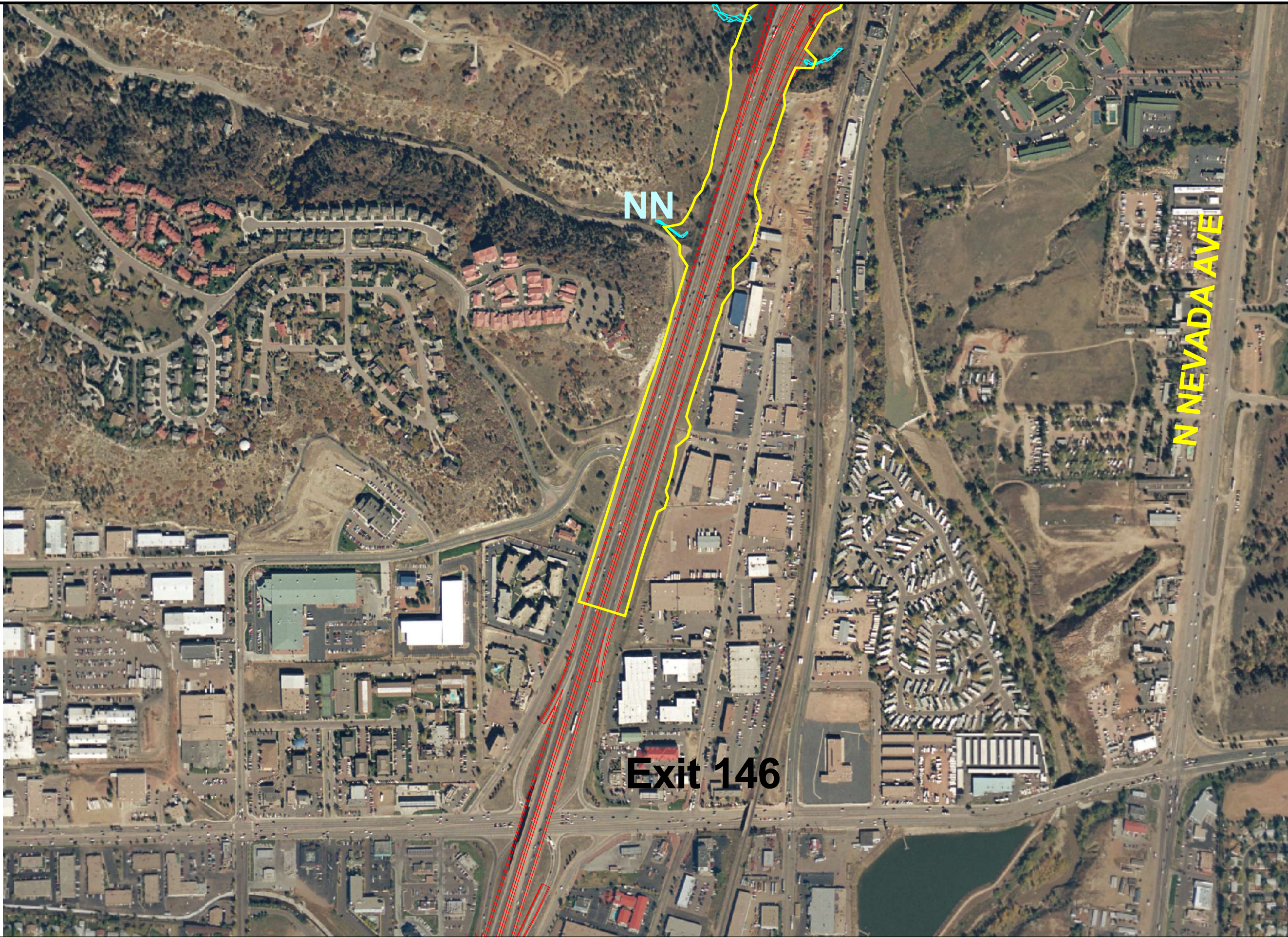






Scale: 1" = 500'





Scale: 1" = 500'






**GARDEN OF THE GODS RD**

**Exit 146**

**20**

**OO (Douglas Creek)**

	Limit of Disturbance 10/30/02
	Roadway 10/30/02
	Wetlands

Scale: 1" = 500'



CENTENNIAL BLVD

PP

QQ

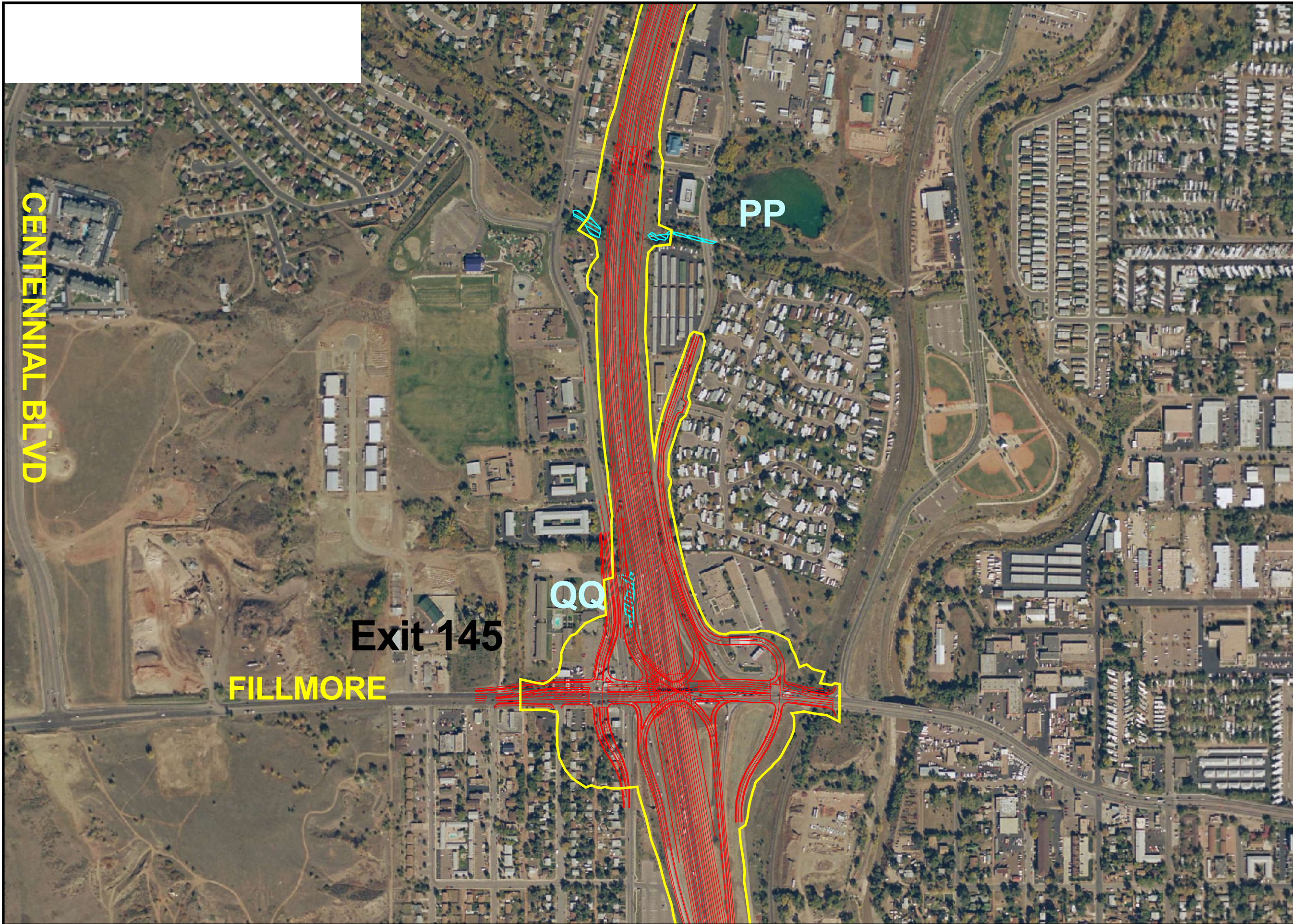
Exit 145

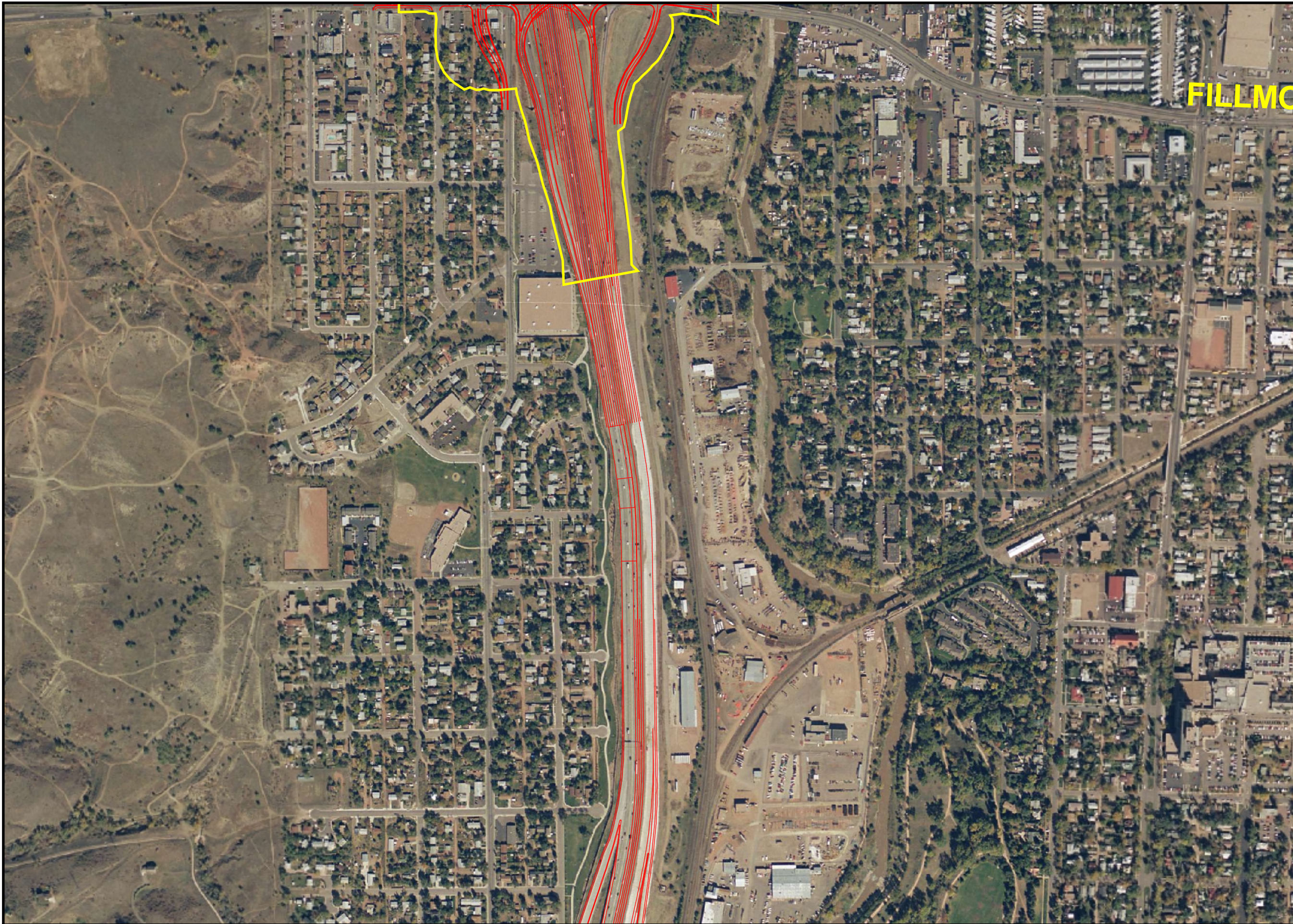
FILLMORE




Legend:

- Limit of Disturbance 10/30/02
- Roadway 10/30/02
- Wetlands

Scale: 1" = 500'





	Limit of Disturbance 10/30/02
	Roadway 10/30/02
	Wetlands

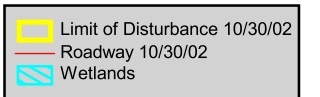
Scale: 1" = 500'



FONTANERO ST

Exit 144

Exit 143



Scale: 1" = 500'



Exit 143

UINTAH ST

CACHE LA POUUDRE ST

Legend:

- Limit of Disturbance 10/30/02
- Roadway 10/30/02
- Wetlands

Scale: 1" = 500'





Exit 142

BIJOU

CASCADE AVE

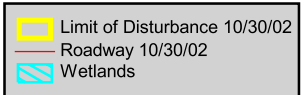
COLORADO

- Limit of Disturbance 10/30/02
- Roadway 10/30/02
- Wetlands

Scale: 1" = 500'

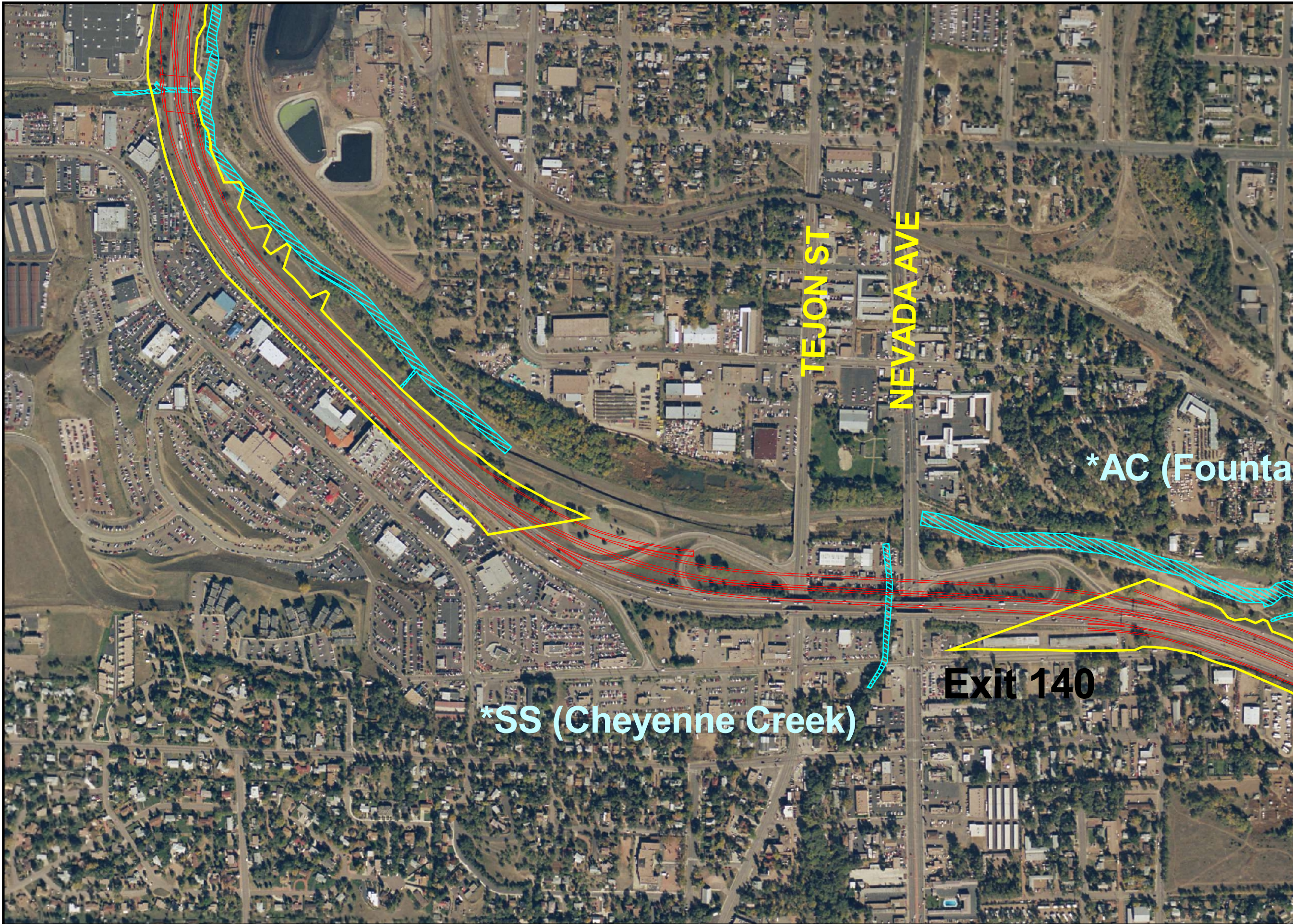






Scale: 1" = 500'








\*AC (Founta

\*SS (Cheyenne Creek)

Exit 140

TEJON ST

NEVADA AVE

	Limit of Disturbance 10/30/02
	Roadway 10/30/02
	Wetlands

Scale: 1" = 500'



\*AC (Fountain Creek)

ZZ (Fountain Creek)

Exit 140

\*AB

Exit 139

TT

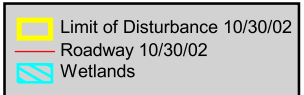
UU

YY

- Limit of Disturbance 10/30/02
- Roadway 10/30/02
- Wetlands

Scale: 1" = 500'

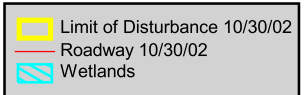




Scale: 1" = 500'



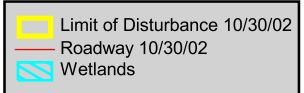
# 30



Scale: 1" = 500'



# 31

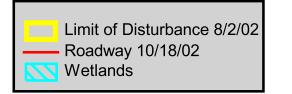


Scale: 1" = 500'





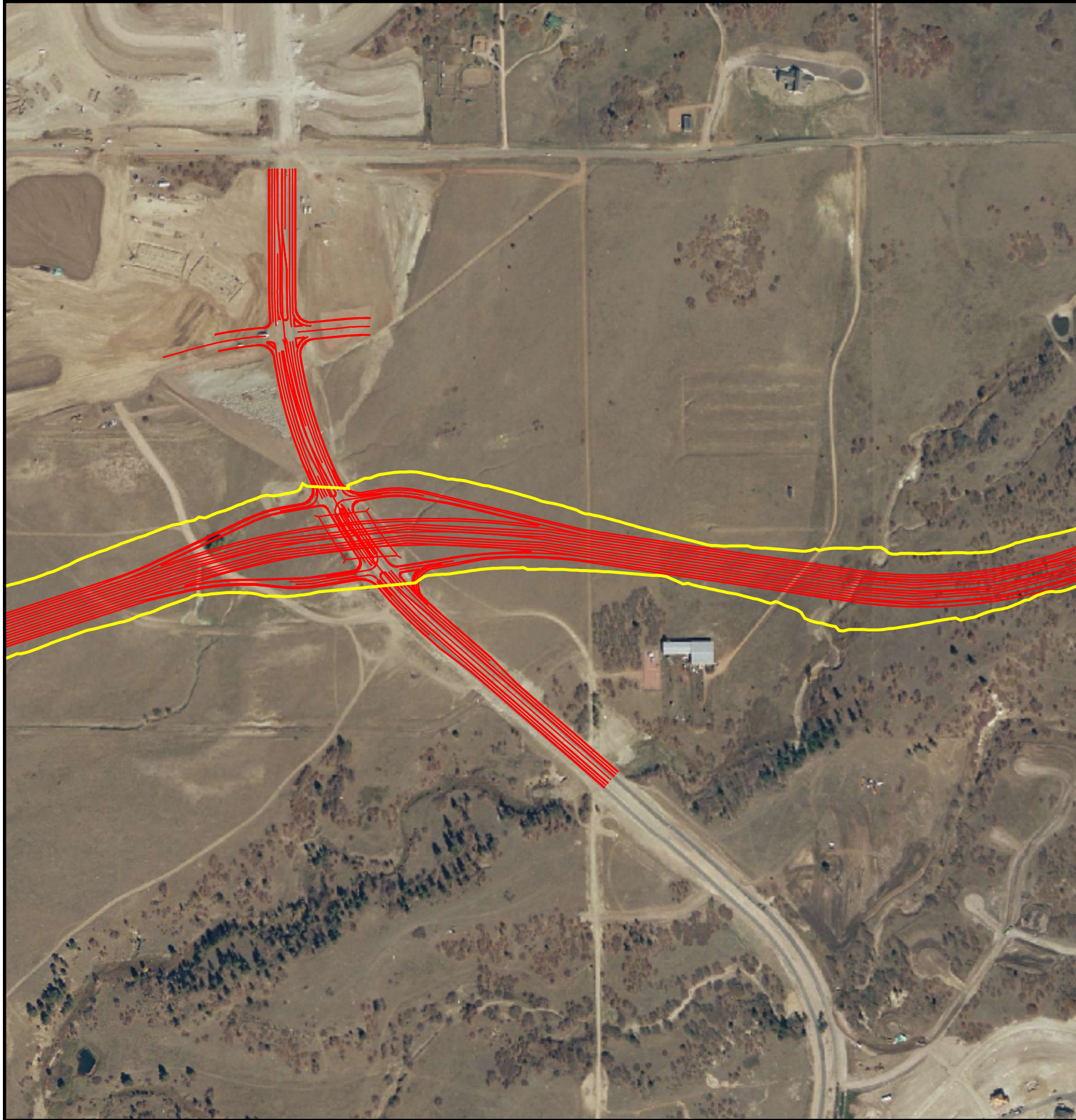
**Note:**  
No improvements  
are proposed south of  
S. Academy Blvd.



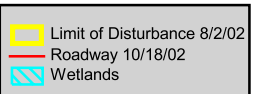
Scale: 1" = 500'



# 8A



**Note:**  
No improvements  
are proposed east of  
Voyager Parkway.



Scale: 1" = 500'





ATTACHMENT C

# Wetland Impacts

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## Wetland Impacts

Wetland Reference	Wetland Classification	Impact Activity	Jurisdictional Wetland Impacts	Non-Jurisdictional Wetland Impacts	Wetland Acreage	Drainage Association
B	Perennial	Road Widening	0.1300		0.7847	Teachout
C	Perennial	Road Widening		0.1710	0.2557	No Name
AZ & D	Perennial	Baptist	2.4400		15.2917	Jackson
BB, CC, E	Swale/Isolated	Interchange		0.0820		Jackson
BO, J, K	Isolated/Perennial	Northgate	1.6660		2.4421	Smith
I, U/AA, V W, X	Isolated/Swale & Stormwater	Interchange		1.3770		Smith
11, 16, 31 23	Perennial/Ephemeral Roadside Swale	Nevada/Rockrim. Interchange	0.0421		0.1620	Fountain
AW	Isolated			0.0400	0.0400	
QQ	Roadside Swale	Fillmore Interchg		0.1030	0.1149	N/A
AD	Perennial	Bijou Rd Widen	0.0860	0.2630	0.2630	N/A
AD, RR	Perennial	Cimarron Intrchg	0.9910		9.8678	Monument
AE	Perennial	Road Widening	0.0250		5.0148	Fountain
AF	Roadside Swale	Road Widening		0.0830	0.0669	No Name
AQ	Ephemeral	Road Widening	0.0040		0.0827	N/A
AT	Roadside Swale	Interchange		0.0000	0.0365	No Name
E	Isolated Wetland	Road Widening		0.0730	0.0432	N/A
EE	Perennial	Interchange	0.0010		0.1298	Jackson
F	Isolated Wetland	Road Widening		0.0035	0.0035	Jackson
FF	Roadside Swale	Road Widening		0.1420	0.2748	N/A
Fa	Isolated Wetland	Road Widening		0.0200	0.0200	N/A
G	Perennial	Road Widening		0.0020	0.0022	N/A
GG	Roadside Swale	Road Widening		0.1660	0.1717	No Name
H	Perennial	Road Widening		0.0670	0.0670	N/A
Ha	Isolated Wetland	Road Widening		0.3870	1.9622	Black Forest
II	Perennial	Road Widening	0.0910	0.0340	0.0340	Black Forest
JJ	Perennial	Interchange	0.2230		1.5030	Cottonwood
KK	Perennial	Interchange	0.1430		3.3175	Monument
L	Ephemeral	Road Widening	0.1480		0.1427	No Name
L100	Ephemeral	Road Widening	0.0440		0.4051	No Name
L200	Ephemeral	Road Widening	0.0400		0.0837	No Name
LL	Isolated Wetland	Interchange		0.0360	0.1103	No Name
M	Perennial	Road Widening	0.3100		0.0359	N/A
MM	Perennial	Interchange	0.0360		1.9880	Black Squirrel
N	Isolated Wetland	Interchange		0.0760	0.1928	No Name
NN	Perennial	Road Widening	0.0220		0.4817	N/A
OO	Perennial	Road Widening	0.2390		0.0388	No Name
PP	Perennial	Road Widening	0.1980		0.8088	Douglas
S	Perennial	Road Widening	0.1810		0.3286	No Name
T	Ephemeral	Road Widening		0.0140	6.7184	Pine Creek
U/AA	Wet Meadow	Interchange		0.0495	0.0495	No Name
V	Wet Meadow	Interchange		0.5140	1.4982	Monument
VV	Stormwater	Interchange		0.1190	0.8186	Monument
W	Roadside Swale	Interchange		0.1190	0.7818	No Name
WW	Stormwater	Road Widening		0.1480	0.1483	No Name
X	Stormwater	Interchange		0.2130	0.4534	No Name
XX	Roadside Swale	Road Widening		0.0160	0.2223	Smith
YY	Wet Meadow	Interchange		0.1270	0.1271	N/A
				0.1740	0.2856	No Name