May 2019

South Lamar Boulevard Corridor Environmental Resources Inventory

Riverside Drive to Ben White Boulevard/State Highway 71 Austin, Texas

Case No.: -

_____

(City use only)

Environmental Resource Inventory

For the City of Austin
Related to LDC 25-8-121, City Code 30-5-121, ECM 1.3.0 & 1.10.0

The ERI is required for projects that meet one or more of the criteria listed in LDC 25-8-121(A), City Code 30-5-121(A).

1. SITE/PROJECT NAME: South Lamar Boulevard Corridor Improvements

2. COUNTY APPRAISAL DISTRICT PROPERTY ID (#'S): Located within the City- and State-owned right-of-way (ROW) – no property ID.

3. ADDRESS/LOCATION OF PROJECT: South Lamar Boulevard from Riverside Drive to SH 71/Ben White Boulevard.

4. WATERSHED: Lady Bird Lake, West Bouldin, and Barton Creek watersheds.

5. THIS SITE IS WITHIN THE *(Check all that apply)*
   Edwards Aquifer Recharge Zone* *(See note below)*..... ☒ Yes ☐ No
   Edwards Aquifer Contributing Zone*..... ☒ Yes ☐ No
   Edwards Aquifer 1500 ft Verification Zone*..... ☒ Yes ☐ No
   Barton Spring Zone* ..... ☒ Yes ☐ No
   **(as defined by the City of Austin – LDC 25-8-2 or City Code 30-5-2)*

   Note: If the property is over the Edwards Aquifer Recharge zone, the Hydrogeologic Report and karst surveys must be completed and signed by a Professional Geoscientist Licensed in the State of Texas.

6. DOES THIS PROJECT PROPOSE FLOODPLAIN MODIFICATION?..... ☐ YES** ☒ NO
   If yes, then check all that apply:
   ☐ *(1) The floodplain modifications proposed are necessary to protect the public health and safety;*
   ☐ *(2) The floodplain modifications proposed would provide a significant, demonstrable environmental benefit, as determined by a **functional assessment** of floodplain health as prescribed by the Environmental Criteria Manual (ECM), or*
   ☐ *(3) The floodplain modifications proposed are necessary for development allowed in the critical water **quality zone under LDC 25-8-261 or 25-8-262, City Code 30-5-261 or 30-5-262.***
   ☐ *(4) The floodplain modifications proposed are outside of the Critical Water Quality zone in an area determined to be in poor or fair condition by a **functional assessment** of floodplain health.*

   **** If yes, then a functional assessment must be completed and attached to the ERI (see ECM 1.7 and Appendix X for forms and guidance) unless conditions 1 or 3 above apply.**

7. IF THE SITE IS WITHIN AN URBAN OR SUBURBAN WATERSHED, DOES THIS PROJECT PROPOSE A UTILITY LINE PARALLEL TO AND WITHIN THE CRITICAL WATER QUALITY ZONE? ..... ☐ YES*** ☒ NO

   *****If yes, then riparian restoration is required by LDC 25-8-261€ or City Code 30-5-261€ and a functional assessment must be completed and attached to the ERI (see ECM1.5 and Appendix X for forms and guidance).**

8. There is a total of **4** (#'s) Critical Environmental Feature(s)(CEFs) on or within 150 feet of the project site. If CEF(s) are present, attach a detailed **DESCRIPTION** of the CEF(s), color **PHOTOGRAPHS**, the **CEF WORKSHEET** and provide **DESCRIPTIONS** of the proposed CEF

buffer(s) and/or wetland mitigation. Provide the number of each type of CEFs on or within 150 feet of the site *(Please provide the number of CEFs)*:

_**1**_ (#'s) Spring(s)/Seep(s) _____ (#'s) Point Recharge Feature(s) _**1**___ (#'s) Bluff(s)

_**1**_ (#'s) Canyon Rimrock(s) __**1**___(#'s) Wetland(s)

Note: Standard buffers for CEFs are 150 feet, with a maximum of 300 feet for point recharge features. Except for wetlands, if the standard buffer is <u>not provided</u>, you must provide a written request for an administrative variance from LDC 25-8-281(C)(1) and provide written findings of fact to support your request. <u>Request forms for administrative variances from requirements stated in LDC 25-8-281 are available from Watershed Protection Department.</u>

Baer Engineering conducted a CEF field survey of the assessment area on August 8 and 9, 2018. The assessment area is defined as the Project Area plus a 150-ft buffer. There had been no rain recorded near the project area for 31 days prior.

Baer Engineering observed four (4) CEFs (one spring, one bluff, one rimrock, and one wetland) within the assessment area. The spring (S-1) was listed in the COA CEF database and was confirmed in the field by Baer Engineering.

Baer Engineering determined that an Ordinary High Water Mark (OHWM) was present at the tributary where the wetland was observed. Whether or not this wetland is within USACE jurisdiction is pending field delineation. Water was observed during the field survey at the wetland and spring CEFs listed below.

CEF #1: COA-recorded Spring: *(S-1)* Baer Engineering confirmed the presence of COA-recorded spring ("Treadwell Spring", brg_id 16521) at Treadwell Street between South 6th and South 7th Streets. The area around the spring is clearly developed, with paving stones and concrete surrounding the spring. An approximately 12-inch wide paved channel carries the spring flow approximately 25 feet down to West Bouldin Creek. Water was flowing at a moderate rate from the spring. Vegetation outside of the paved area was dominated by *Ludwigia octovalvis* (OBL) and *Ambrosia trifida* (FAC), with some *Ruellia simplex* (FAC). Please refer to **Photographs 1-2**.

CEF #2: Baer-Identified Bluff: *(B-1)* A bluff was identified along the west side South Lamar Boulevard, north of Bluff Street. This bluff extends for approximately 360 feet parallel to South Lamar Boulevard, and is approximately 45 feet high. Please refer to **Photographs 3-5**.

CEF #3: Baer-Identified Potential Canyon Rimrock: *(CR-1)* This canyon rimrock was observed along a tributary to West Bouldin Creek, within private property northeast of the intersection of West Mary Street and Evergreen Avenue. Baer Engineering was unable to access the feature to measure the dimensions but it appeared to be at least five feet high and 50 feet long which meets the COA definition of canyon rimrock. Please refer to **Photograph 6**.

CEF #4: Baer-Identified Wetland: *(W-1)* This wetland was observed along a tributary to West Bouldin Creek, northeast of the intersection of South Lamar Boulevard and West Mary Street. Hydrophytic vegetation was observed extending 55 feet downstream from the culvert at South Lamar Boulevard; the wetland was approximately 15 feet wide. Dominant vegetation included *Cyperus involucratus* (FACW), *Salix nigra* (FACW) saplings, and *Fraxinus* sp. (FAC) saplings. Other hydrophytic vegetation included

Cyperus ochraceus (FACW) and *Paspalum dilatatum* (FAC). Please refer to **Photographs 7-8.**

One additional spring within the assessment area is listed in the COA CEF database with brg ID 6664. The database lists the location of this spring as being on the northwest side of South Lamar Boulevard, 0.30 miles northeast of Ben White Boulevard. Baer Engineering field scientists could not locate this spring in the field. The location where the spring is shown in the database is currently under pavement in the southbound lane of South Lamar and the adjacent sidewalk. We believe that this spring is either located incorrectly in the CEF database or it no longer exists.

At this point in the preliminary design, direct impacts to these CEFs are not planned but work may be proposed within the 150-foot CEF buffers. It is a goal of the design team to minimize adverse effects to CEFs by use of appropriate best management practices. If work is proposed within the 150-foot CEF buffers, the Corridor Program Office will coordinate with Watershed Protection on mitigation.

9. The following site maps are attached at the end of this report *(Check all that apply and provide)*:

   All ERI reports must include:

   ☒ **Site Specific Geologic Map with 2-ft Topography – Figures 1.1-1.4***

   ☒ **Historic Aerial Photo of the Site – Figures 2.1-2.4**

   ☒ **Site Soil Map – Figures 3.1-3.4**

   ☒ **Critical Environmental Features and Well Location Map on current Aerial Photo with 2-ft Topography – Figure 4.1-4.4***

   **Because of the size of the Project Area, 10-foot contours were used instead of 2-foot contours.*

   Only if present on site *(Maps can be combined)*:

   ☒ **Edwards Aquifer Recharge Zone with the 1500-ft Verification Zone – Figure 5**
   (Only if site is over or within 1500 feet the recharge zone)

   ☒ **Edwards Aquifer Contributing Zone – Figures 5.1-5.4**

   ☒ **Water Quality Transition Zone (WQTZ) – Figures 5.1-5.4**

   ☒ **Critical Water Quality Zone (CWQZ) – Figures 5.1-5.4**

   ☒ **City of Austin Fully Developed Floodplains for all water courses with up to 64-acres of drainage – Figures 5.1-5.4**

10. **HYDROGEOLOGIC REPORT –** Provide a description of site soils, topography, and site-specific geology below (Attach additional sheets if needed):

    Surface Soils on the project site are summarized in the table below, using the Soil Conservation Service (SCS) Hydrologic Soil Groups*. If there is more than one soil unit on the project site, show each soil unit on the site soils map.

Soil Series Unit Names, Infiltration Characteristics & Thickness			
Soil Series Unit Name & Subgroup**	Group*	Thickness (feet)	Percentage of Site
Eddy soils and Urban land, 0 to 6 percent slopes (EuC)	D	<2	0.01%
Houston Black soils and Urban land, 0 to 8 percent slopes (HsD)	D	>6	7.1%
San Saba soils and Urban land, 0 to 2 percent slopes (SbA)	D	<4	18.5%
Tarrant soils and Urban land, 0 to 2 percent slopes (TeA)	D	<2	0.1%
Tarrant soils and Urban land, 18 to 40 percent slopes (TeF)	D	<2	0.1%
Urban land, 0 to 6 percent slopes (Ur)	D	<4	65.5%
Austin-Urban land complex, 2 to 5 percent slopes (UsC)	D	<4	0.4%
Urban land, Austin, and Whitewright soils, 1 to 8 percent slopes (UtD)	C	<4	8.2%

Soil Hydrologic Groups Definitions *(Abbreviated)

A. Soils having a high infiltration rate when thoroughly wetted.
B. Soils having a moderate infiltration rate when thoroughly wetted.
C. Soils having a slow infiltration rate when thoroughly wetted.
D. Soils having a very slow infiltration rate when thoroughly wetted.

**Subgroup Classification – See Classification of Soil Series Table in County Soil Survey.

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, the native soils mapped in the project area comprise eight soil groups, listed above. The soil series descriptions for these soils, as defined in the Travis County Soil Survey, are provided below (USDA 1974).

Eddy soils and Urban land, 0 to 6 percent slopes (EuC):
Occupies urban built-up areas and convex ridges and side slopes. It consists of about 55 percent Eddy soils, 35 percent Urban land, and 10 percent other soils. Eddy soils have a surface layer that is about three inches of grayish-brown gravelly loam that is about 70 percent chalk fragments. The underlying material is weakly cemented chalk.

Houston Black soils and Urban land, 0 to 8 percent slopes (HsD):
Occupies ridges and foot slopes and urban areas. It consists of about 56 percent Houston Black clay, 30 percent Urban land, and about 14 percent other soils, including Heiden clay and Burleson clay. The Houston Black soils have a surface layer of very dark gray clay or gravelly clay about 30 inches thick. The next layer reaches about 75 inches and consists of dark-gray clay. The underlying material is mottled clay.

San Saba soils and Urban land, 0 to 2 percent slopes (SbA):
This undifferentiated group occupies ridges and valleys. It consists of about 60 percent San Saba soils, about 25 percent Urban land, and about 15 percent other soils. The San Saba soils have a surface layer of very dark gray clay 22 inches thick. The next layer is dark-gray clay 18

inches thick that rests on gray limestone. The use of this undifferentiated group for urban development presents problems. Except for a few trees, this group lacks natural flora.

Tarrant soils and Urban land, 0 to 2 percent slopes (TeA):
This undifferentiated group occupies long, broad ridges. It consists of about 75 percent Tarrant soils, about 20 percent Urban land, and about 5 percent other soils. Undisturbed areas of Tarrant soils have an 8-inch thick surface layer of dark grayish-brown clay or clay loam. The underlying material is limestone. Stones are on the surface and in the soil. These soils are only slightly modified by urban development. Underbrush is usually removed with a bulldozer, which disturbs the uppermost few inches of soil. Loose surface stones are generally hauled way. Imported loamy or other soil materials, generally only a few inches thick, are placed on about a fourth of the surface. These additions do not materially alter the basic soil characteristics. The natural vegetation is trees.

Tarrant soils and Urban land, 18 to 40 percent slopes (TeF):
This undifferentiated group occupies hills and breaks. It consists of about 80 percent Tarrant soils, about 15 percent Urban land, and about 5 percent other soils. Tarrant soils have a surface layer of dark-brown clay or clay loam, about 6 inches thick, that overlies hard limestone. Stones are on the surface and in the soil. Extensive reshaping of this group is not practical because of the steep slopes. A foreign surface layer of imported loam is only a few inches thick in most places, but it is several feet thick in some places.

Urban Land, 0 to 6 percent slopes (Ur):
This soil occurs within the city of Austin. The majority of this unit is covered with buildings and structures. The soil features were altered during construction such that they currently do not resemble the original native soil descriptions.

Austin-Urban land complex, 2 to 5 percent slopes (UsC):
This nearly level to gently undulating undifferentiated group occupies smooth ridges and side slopes. It consists of about 60 percent Urban land, about 30 percent Austin soils, and about 10 percent other soils. The more sloping areas are cut or filled to a depth of a few inches or up to as much as 2 feet, depending on slope. Although the original soils have been altered, the basic characteristics remain essentially the same. Austin soils have a surface layer of very dark grayish-brown silty clay about 15 inches thick. The next layer, which extends to a depth of about 3 feet, is brown silty clay. The underlying material is partly weathered chalk.

Urban land, Austin, and Whitewright soils, 1 to 8 percent slopes (UtD):
Undifferentiated group that occupies narrow ridges and side slopes. More than 80 percent of the acreage has slopes greater than 2 percent. Urban land makes up about 40 percent of the acreage; Austin soils, about 30 percent; Brackett soils, about 25 percent; and other soils, about 5 percent. Austin soils have a surface layer of very dark grayish-brown silty clay about 15 inches thick. Brackett soils have a surface layer of light brownish-gray clay loam about 6 inches thick. The next layer is light yellowish-brown clay loam about 8 inches thick. The underlying material is soft limestone. About 85 percent has been altered by cutting and shaping during urban development.

Citations for this Section:

NRCS (Natural Resources Conservation Service), 2017. Web Soil Survey. Accessed online 08/20/2018. https://websoilsurvey.sc.egov.usda.gov/

USDA (United States Department of Agriculture) Soil Conservation Service, 1974. Soil Survey of Travis County. U.S. Government Printing Office. Washington D.C.

Description of Site Topography and Drainage *(Attach additional sheets if needed)*:

The following sub-sections provide site-specific summaries of existing geologic and hydrologic conditions, including topography, bedrock type, structural geology, surface water, and floodplains. Information was gathered from desktop research, site assessment, and maps. **Photographs 9 through 13** show typical sections of the Site.

According to the COA Property Profile GIS Viewer 2012 Contour Layer, the elevation within the project site ranges from approximately 455 to 705 feet above mean sea level (COA 2018). The local topography within the project limits is graded roadway and developed lots, with one area crossing the creek valley of West Bouldin Creek. The overall roadway elevation increases from north to south, with its lowest point at the southern shore of Lady Bird Lake. Topography near the project area is often level from development; some gently rolling hills and the narrow valley of West Bouldin Creek remain.

The portion of the project area southwest of approximately Goodrich Avenue is within the COA-defined Edwards Aquifer Recharge or Transition Zones. The southernmost project area, just northeast of the intersection of South Lamar Boulevard and South Capital of Texas Highway, is within the COA-defined Edwards Aquifer Contributing Zone East. The Edwards Aquifer zones are shown on **Figures 5.1 through 5.4**, attached.

The project is located in the Lady Bird Lake, West Bouldin Creek, and Barton Creek watersheds. These watersheds are classified as Barton Springs Zone or urban by the COA and drain to Lady Bird Lake. There are two sections of the project area that are located within a FEMA-defined 100-year floodplain and the COA fully developed floodplain. The portion of the project area north of Bluff Street is within the Lady Bird Lake floodplain (FEMA 2016) and the eastern terminus of Treadwell Street is in the West Bouldin Creek floodplain. The extents of the floodplains are shown in **Figures 5.1 through 5.4**, attached.

Surface water flows from predominately paved surfaces into curb inlets, vegetated swales and rarely creeks. The topographic flow for the majority of the project area is to West Bouldin Creek. Flow from project area sections is as follows, from north to south:

- Northernmost project area flows to Lady Bird Lake;
- Toomey Road to Manchaca Road flows to West Bouldin Creek;
- Manchaca Road to Westforest Drive flows to Barton Creek;
- Westforest Drive to Panther Trail flows to West Bouldin Creek; and
- Remainder of the project area flows to Barton Creek.

There are several hydrology lines in the COA database that cross the project area. Two of these, West Bouldin Creek and its tributary north of West Mary Street, are surface streams that have a CWQZ and present with an obvious channel. The hydrology lines without a CWQZ are tributaries to Barton Creek and West Bouldin Creek that flow underground within the COA stormwater system.

The current land use in the project area is as a transportation corridor and a mix of residential and commercial lots. The project limits are shown on the attached figures.

Citations for this Section:

City of Austin. 2018. Property Profile GIS Viewer, 2012 Contours. Accessed onilne 8/02/2018. http://www.austintexas.gov/gis/propertyprofile/

Brief description of site geology *(Attach additional sheets if needed)*:

According to the University of Texas at Austin, Bureau of Economic Geology (BEG), Geologic Atlas of Texas (GAT), Austin Sheet, the site is underlain by ten geological units: Austin Chalk (Kau); Buda Limestone (Kbu); Del Rio Clay (Kdr); Eagle Ford Group and Buda Limestone undivided (Keb); Eagle Ford Formation (Kef); Quaternary alluvium (Qal); Quaternary High gravel deposits (Qhg); Quaternary high terrace (Qht); Lower Colorado River (Qlcr); and Quaternary Fluviatile terrace deposits (Qt) (BEG 1974). The geologic units are described below:

Austin Chalk (Kau):
Chalk and marl; chalk mostly microgranular calcite with minor Foraminifera tests and Inoceramus prisms, averages about 85 percent calcium carbonate, ledge forming, grayish white to white; alternates with marl, bentonitic seams locally recessive, medium gray; pyrite nodules common, weathers to limonite; thickness 325-420 feet.

Buda Limestone (Kbu):
A fine grained, bioclastic, commonly glauconitic, pyritiferous, hard, massive, poorly bedded to nodular, thinner bedded and argillaceous near upper contact, light gray to pale orange; weathers dark gray to brown; burrows filled with chalky marl, abundant pelecypods; thickness up to 45 feet, locally absent to north.

Del Rio Clay (Kdr):
Calcareous and gypsiferous, becoming less calcareous and more gypsiferous upward, pyrite common, blocky, medium gray, weathers light gray to yellowish gray; some thin lenticular beds of highly calcareous siltstone; marine megafossils include abundant *Exogyra arientina* and other pelecypods; thickness 40-70 feet.

Eagle Ford Group and Buda Limestone undivided (Keb):
Eagle Ford Group: as described below.
Buda Limestone: as described above.

Eagle Ford Formation (Kef):
Shale and limestone. Upper part – shale, compact, silty, contains fossil fish teeth and bones, 10 feet or more thick. Middle part - silty limestone grading to calcareous siltstone, flaggy, medium gray, weathers pale yellowish brown, 5 feet thick. Lower part - shale, calcareous, dark gray, 7-50 feet thick. Overall thickness of Eagle Ford Group is 25-65 feet.

Quaternary alluvium (Qal):
Clay, silt, sand, and gravel - silt and clay, calcareous to surface, dark gray to dark brown; sand largely quartz; gravel, siliceous, mostly chert, quartzite, limestone, and petrified wood, along Colorado River much igneous and metamorphic rock, probably mostly reworked from terrace deposits; fluviatile morphology well preserved with point bars, oxbows, and abandoned channel segments.

Quaternary high gravel deposits (Qhg):
Gravel is commonly exposed to the surface; northwestward, composed of an upper silty clay unit which is good for crop production and a lower coarse unit that yields some water (possibly correlates with the Onion Creek Marl).

Quaternary high terrace (Qht):
Quaternary fluviatile terrace deposits. Gravel, sand, silt, and clay, gray to tan. The gravel is mostly chert and limestone with small amounts of igneous and metamorphic rock fragments from the Llano area.

Lower Colorado River (Qlcr):
Quaternary fluviatile terrace deposits. Sand, silt, clay, and gravel, yellow to orange-brown, with an average thickness of about 30 feet.

Quaternary fluviatile terrace deposits (Qt):
Terraces along streams, consisting of three or more levels which may correspond to coastal Pleistocene units; gravel, sand, silt, and clay in various proportions with gravel more prominent in the older, higher terraces; gravel along Guadalupe River, siliceous, coarse, along Colorado River, mostly dolomite, limestone, chert, quartz, and various igneous and metamorphic rocks from the Llano region and dolomite, limestone, and chert from the Edwards Plateau; sand is mostly quartz.

Citations for this Section:
Bureau of Economic Geology. 1995. Geologic Atlas of Texas, Austin Sheet; Bureau of Economic Geology. The University of Texas at Austin.
Bureau of Economic Geology. 1992, Environmental Geology of the Austin Area, Plate VII of RI 86.

Wells – Identify all recorded and unrecorded wells on site (test holes, monitoring, water, oil, unplugged, capped and/or abandoned wells, etc.):

There are **19** (#'s) wells present on the project site and the locations are shown and labeled
2 (#'s) The wells are not in use and have been properly abandoned.
0 (#'s) The wells are not in use and will be properly abandoned.
17 (#'s) The wells are in use and comply with 16 TAC Chapter 76.
There are **92** (#'s) wells that are off-site and within 150 feet of this site.

According to the Texas Water Development Board Water Information Integration & Dissemination database, there are 19 wells and/or borings located within the project area. These wells are labeled as monitoring wells in the database. The database shows that two of these have been plugged. Our field reconnaissance discovered three as-yet unrecorded monitoring wells located at 2323 South Lamar Boulevard. See **Figures 4.1-4.4** for the well locations.

11. **THE VEGETATION REPORT** – Provide the information requested below:

Brief description of site plant communities *(Attach additional sheets if needed)*:

The project area is within two U.S. Environmental Protection Agency (USEPA)-defined ecoregions. The southern end of the project area is located in the Balcones Canyonlands ecoregion and the remainder of the project area is located in the Northern Blackland Prairie ecoregion. Below are the USEPA definitions of the ecoregions.

The Balcones Canyonlands are highly dissected through the erosion and solution of springs, streams, and rivers working both above and below ground; percolation through the porous limestone contributes to the recharge of the Edwards Aquifer. High gradient streams originating from springs in steep-sided canyons supply water for development on the Texas Blackland Prairies at the eastern base of the escarpment. This ecoregion supports a number of endemic plants and has a higher representation of deciduous woodland than elsewhere on the Edwards Plateau, with escarpment black cherry, Texas mountain-laurel, madrone, Lacey oak, bigtooth maple, and Carolina basswood. Some relicts of eastern swamp communities, such as bald cypress, American sycamore, and black willow, occur along major stream courses. It is likely that these trees have persisted as relicts of moister, cooler climates following the Pleistocene glacial epoch. Toward the west, the vegetation changes gradually as the climate becomes more arid. Plateau live oak woodland is eventually restricted to north and east facing slopes and floodplains, and dry slopes are covered with open shrublands of juniper, sumac, sotol, acacia, honey mesquite, and ceniza.

The rolling to nearly level plains of the Northern Blackland Prairie ecoregion are underlain by interbedded chalks, marls, limestones, and shales of Cretaceous age. Soils are mostly fine-textured, dark, calcareous, and productive vertisols. Historical vegetation was dominated by little bluestem, big

bluestem, yellow Indiangrass, and tall dropseed. In lowlands and more mesic sites, such as on some of the clayey vertisol soils in the higher precipitation areas to the northeast, dominant grasses were eastern gamagrass and switchgrass. Common forbs included asters, prairie bluet, prairie clovers, and black-eyed Susan. Stream bottoms were often wooded with bur oak, Shumard oak, sugar hackberry, elm, ash, eastern cottonwood, and pecan. Most of the prairie has been converted to cropland, non-native pasture, and expanding urban uses.

The project area and 150-foot assessment buffer were characterized by four distinct habitat types: **Maintained Grassland, Urban Landscaping**, **Upland Woods**, and **Wooded Riparian.**

The **Maintained Grassland** within the project area was characterized by mowed grasses and forbs, with little to no vertical structure. Dominant grass species included bermudagrass (*Cynodon dactylon*), St. Augustine (*Stenotaphrum secundatum*), silver bluestem (*Bothriochloa saccharoides*), and sideoats gramma (*Bouteloua curtipendula*). Common forbs included silverleaf nightshade (*Solanum elaeagnifolium*), erect spiderling (*Boerhavia erecta*), erect dayflower (*Commelina erecta*), straggler daisy (*Calyptocarpus vialis*), and tievine (*Ipomoea cordatotriloba*). Some areas were more heavily manicured than others, with lawn-height vegetation instead of full sized short grasses. Please refer to **Photograph 10**.

The **Urban Landscaping** habitat was similar to the Maintained Grassland habitat in that ground cover was predominately bermudagrass or St. Augustine. This habitat was observed to have significantly greater vertical structure than the Maintained Grassland habitat. The habitat canopy layer was dominated by oaks (*Quercus* sp.), pecan (*Carya illinoinensis*), crape myrtle (*Lagerstroemia indica*), redbud (*Cercis canadensis*), and desert willow (*Chilopsis linearis*). Shrubs included privet (*Ligustrum* sp.), Texas sage (*Leucophyllum frutescens*), yaupon holly (*Ilex vomitoria*), bamboo (Bambuseae sp.), and other landscaping species. Please refer to **Photograph 11**.

The **Upland Woods** habitat was restricted to undeveloped land near West Bouldin Creek and was predominately elm-oak woodland, with some grassland breaks. Canopy was mostly live oak and red oak (*Quercus fusiformis* and *Q. texana Buckley*), hackberry (*Celtis laevigata*), and cedar elm (*Ulmus crassifolia*). Groundcover and understory were predominantly wild rye (*Elymus* sp.), stretchberry (*Forestiera pubescens*), alamo vine (*Merremia dissecta*), and ragweed (*Ambrosia* sp.), with prairie broomweed (*Amphiachyris dracunculoides*) and ragweed dominating in sunny breaks. Please refer to **Photograph 12**.

The **Wooded Riparian** habitat was restricted to along Lady Bird Lake, West Bouldin Creek, and the tributary to West Bouldin Creek. The canopy was dominated by hackberry, black willow (*Salix nigra*), and privet, with bald cypress (*Taxodium distichum*) dominating at the edges of Lady Bird Lake. Giant ragweed, wild petunia (*Ruellia simplex*), boxelder (*Acer negundo*), and peppervine (*Ampelopsis arborea*) grew along the banks and as groundcover. The creekbeds had forbs growing within, including dayflower (*Commelina erecta*), umbrella papyrus (*Cyperus involucratus*), and rattlebox (*Sesbania drummondi*), as well as those in the above-described wetland (W-1, Photographs 7 and 8). Please refer to **Photograph 13**.

There is woodland community on site..... ☒ Yes ☐ No *(Check one).*
If yes, list the dominant species below:

Woodland species	
Scientific Name	Common Name
Acer negundo	Boxelder
Ambrosia sp.	Giant Ragweed
Baccharis neglecta	False Willow

Woodland species	
Scientific Name	Common Name
Bambuseae sp.	Bamboo
Broussonetia papyrifera	Paper Mulberry
Callicarpa americana	American Beautyberry
Carya illinoinensis	Pecan
Celtis laevigata	Hackberry
Cercis canadensis	Redbud
Forestiera pubescens	Stretchberry
Fraxinus sp.	Ash
Ilex vomitoria	Yaupon Holly
Malvaviscus arboreus	Turkscap
Melia azedarach	Chinaberry
Parthenocissus quinquefolia	Virginia Creeper
Platanus occidentalis	Sycamore
Populus deltoides	Eastern Cottonwood
Ptelea trifoliata	Wafer Ash
Prosopis glandulosa	Honey Mesquite
Quercus fusiformis	Live Oak
Quercus laceyi	Lacey Oak
Quercus muehlenbergii	Chinkapin Oak
Quercus stellata	Post Oak
Quercus texana Buckley	Texas Red Oak
Salix nigra	Black Willow
Sapium sebiferum	Chinese Tallow
Smilax sp.	Greenbriar
Sophora secundiflora	Texas Mountain Laurel
Taxodium distichum	Bald Cypress
Toxicodendron radicans	Poison Ivy
Ulmus americana	American Elm
Ulmus crassifolia	Cedar Elm
Ungnadia speciosa	Mexican Buckeye
Vitis sp.	Wild Grape

There is grassland/prairie/savanna on site ..... ☒ Yes ☐ No *(Check one).*
If yes, list the dominant species below:

Grassland/prairie/savanna species	
Scientific Name	Common Name
Ambrosia sp.	Ragweed
Asclepias oenotheroides	Zizotes Milkweed
Bothriochloa ischaemum	KR Bluestem
Bothriochloa laguroides	Silver Bluestem
Bouteloua curtipendula	Sideoats Gramma
Calyptocarpus vialis	Straggler Daisy
Chasmanthium latifolium	Inland Sea Oats
Chilopsis linearis	Desert Willow
Cynodon dactylon	Bermudagrass
Lagerstroemia indica	Crape myrtle
Opuntia sp.	Prickly Pear
Passiflora incarnata	Purple Passionflower
Paspalum dilatatum	Dallisgrass
Portulaca oleracea	Common Purslane

Grassland/prairie/savanna species	
Scientific Name	Common Name
Ratibida columnifera	Prairie Coneflower
Rapistrum rugosum	Bastard Cabbage
Sida abutifolia	Spreading Sida
Solanum elaeagnifolium	Silverleaf Nightshade
Solidago sp.	Goldenrod
Sorghum halepense	Johnsongrass
Stenotaphrum secundatum	St. Augustine
Torilis arvensis	Hedge Parsley

There is hydrophytic vegetation on site..... ☒ Yes ☐ No *(Check one).*
If yes, list the dominant species below:

Hydrophytic plant species		
Scientific Name	Common Name	Wetland Indicator Status
Acer negundo	Boxelder	FAC
Ampelopsis arborea	Peppervine	FAC
Chasmanthium latifolium	Inland Sea oats	FAC
Commelina erecta	Dayflower	FACU
Cyperus ochraceus	Pond Flatsedge	FACW
Fraxinus sp.	Ash species	FAC/FACW
Ludwigia octovalvis	Mexican Seedbox	OBL
Paspalum dilatatum	Dallisgrass	FAC
Paspalum pubiflorum	Hairyseed Paspalum	FACW
Paspalum urvillei	Vasey Grass	FACW
Populus deltoides	Eastern Cottonwood	FAC
Ruellia simplex	Wild Petunia	FAC
Salix nigra	Black Willow	FACW
Sesbania drummondii	Rattlebush	FACW
Sorghum halepense	Johnsongrass	FACU
Taro sp.	Elephant Ear	OBL
Taxodium distichum	Bald Cypress	OBL

A tree survey of all trees with a diameter of at least eight inches measured four and one-half feet above natural grade level has been completed on the site.
☒ YES ☐ NO *(Check one).*

12. **WASTEWATER REPORT** – Provide the information requested below.

Wastewater for the site will be treated by *(Check all that apply)*:

☐ On-site system(s)

☒ City of Austin Centralized sewage collection system

☐ Other Centralized collection system

Note: All sites that receive water or wastewater service from the Austin Water Utility must comply with City Code Chapter 15-12 and wells must be registered with the City of Austin

The site sewage collection system is designed and will be constructed to in accordance to all State, County and City standard specifications.

☒ YES ☐ NO *(Check one).*

Calculations of the size of the drain field or wastewater irrigations area(s) are attached at the end of this report or shown on the site plan.
☐ YES ☐ NO ☒ Not Applicable *(Check one).*

Wastewater lines are proposed within the Critical Water Quality Zone?
☐ YES ☒ NO *(Check one).* If yes, then provide justification below:

Is the project site over the Edwards Aquifer?
☒ YES ☐ NO *(Check one).*

If yes, then describe the wastewater disposal systems proposed for the site, its treatment level and effects on receiving watercourses or the Edwards Aquifer.

No wastewater systems are proposed to be installed or altered for this project at this time.

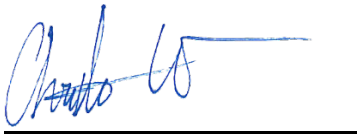
13. **One (1) hard copy and one (1) electronic copy of the completed assessment have been provided.**

Date(s) ERI Field Assessment was performed: August 8 & 9, 2018

My signature certifies that to the best of my knowledge, the responses on this form accurately reflect all information requested.

Christen Warkoczewski
Print Name

512-453-3733
Telephone



Signature

cwarkoczewski@baereng.com
Email address

Baer Engineering and Environmental Consulting, Inc.
Name of Company

5/28/2019
Date

For project sites within the Edwards Aquifer Recharge Zone, my signature and seal also certifies that I am licensed Professional Geoscientist in the State of Texas as defined by ECM 1.12.4(A).

Michael Macicak, P.G. (TX4181)
Print Name

512-453-3733
Telephone

Signature

mmacicak@baereng.com
Email address

Baer Engineering and Environmental Consulting, Inc.
Name of Company

5/28/2019
Date

P.G. Seal

1	Project Name:	South Lamar Boulevard
2	Project Address:	Riverside Drive to SH 71 / Ben White Boulevard
3	Site Visit Date:	August 8 and 9, 2018
4	Environmental Resource Inventory Date:	May 28, 2018

5	Primary Contact Name:	Jennifer Lueckemeyer
6	Phone Number:	512-453-3733
7	Prepared By:	Christen Warkoczewski
8	Email Address:	JLueckemeyer@baereng.com

9	FEATURE TYPE {Wetland, Rimrock, Bluffs, Recharge Feature, Spring}	FEATURE ID (eg S-1)	FEATURE LONGITUDE (WGS 1984 in Meters)		FEATURE LATITUDE (WGS 1984 in Meters)		WETLAND DIMENSIONS (ft)		RIMROCK/BLUFF DIMENSIONS (ft)		RECHARGE FEATURE DIMENSIONS				Springs Est. Discharge
			Coordinate	notation	Coordinate	notation	X	Y	Length	Avg Height	x	y	z	Trend	cfs
	Spring	S-1	97°45'33.32"W	DMS	30°15'17.97"N	DMS									
	Bluff	B-1	97°45'33.58"W	DMS	30°15'33.91"N	DMS			360	45					
	Canyon Rimrock	CR-1	97°45'55.73"W	DMS	30°14'58.03"N	DMS			50	5					
	Wetland	W-1	97°45'59.47"W	DMS	30°14'59.21"N	DMS	55	15							

City of Austin Use Only CASE NUMBER:	

For rimrock, locate the midpoint of the segment that describes the feature.

For wetlands, locate the approximate centroid of the feature and the estimated area.

For a spring or seep, locate the source of groundwater that feeds a pool or stream.

Please state the method of coordinate data collection and the approximate precision and accuracy of the points and the unit of measurement.

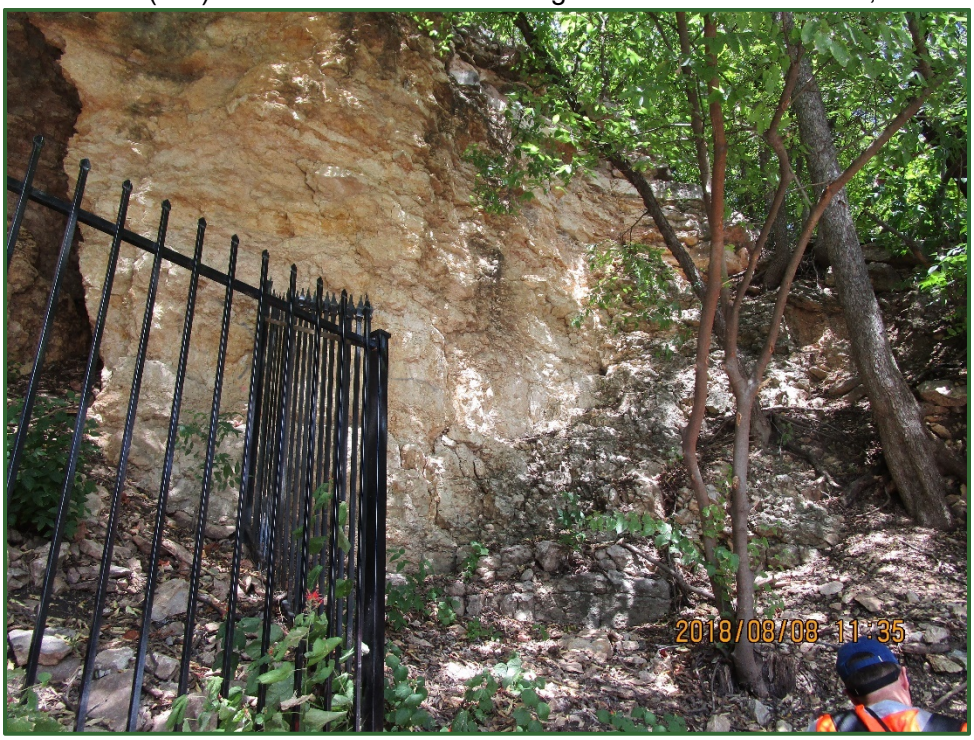
Method		Accuracy	
GPS	☒	sub-meter	☐
Surveyed	☐	meter	☒
Other	☐	>meter	☐

Professional Geologists apply seal below

Photograph 1: CEF 1 (S-1) – Paving surrounding spring headwaters at COA-recorded Treadwell Spring (S-1). Water was clear and flowing.

Photograph 2: CEF 1 (S-1) – Paved channel carries water from COA-recorded Treadwell Spring (S-1) to West Bouldin Creek, approximately 25 feet away. West Bouldin Creek can be seen in the foreground. *Ludwigia octovalvis* and *Ambrosia* species dominate.

Photograph 3: CEF 2 (B-1) - Northern end of bluff along South Lamar Boulevard, near Bluff Street.



Photograph 4: CEF 2 (B-1) –View of the middle of the bluff along South Lamar Boulevard.

Photograph 5: CEF 2 (B-1) – Southern end of bluff along South Lamar Boulevard, just north of Bluff Street.

Photograph 6: CEF 3 (CR-1) – Canyon Rimrock on private property along tributary to West Bouldin Creek. Baer Engineering field scientists were unable to verify the measurements of the rimrock, circled in red and continuing along the tributary (blue arrow).

Photograph 7: CEF 4 (W-1) – View of wetland on West Bouldin Creek tributary. Photo taken from pedestrian bridge over stormwater culvert. *Salix nigra* and *Cyperus involucratus* can be seen along and within the tributary channel. *Ampelopsis arborea* dominates the right bank.

Photograph 8: CEF 4 (W-1) – Portion of wetland underneath pedestrian bridge. *Cyperus ochraceus* and *Paspalum dilatatum* dominate this upstream groundcover.

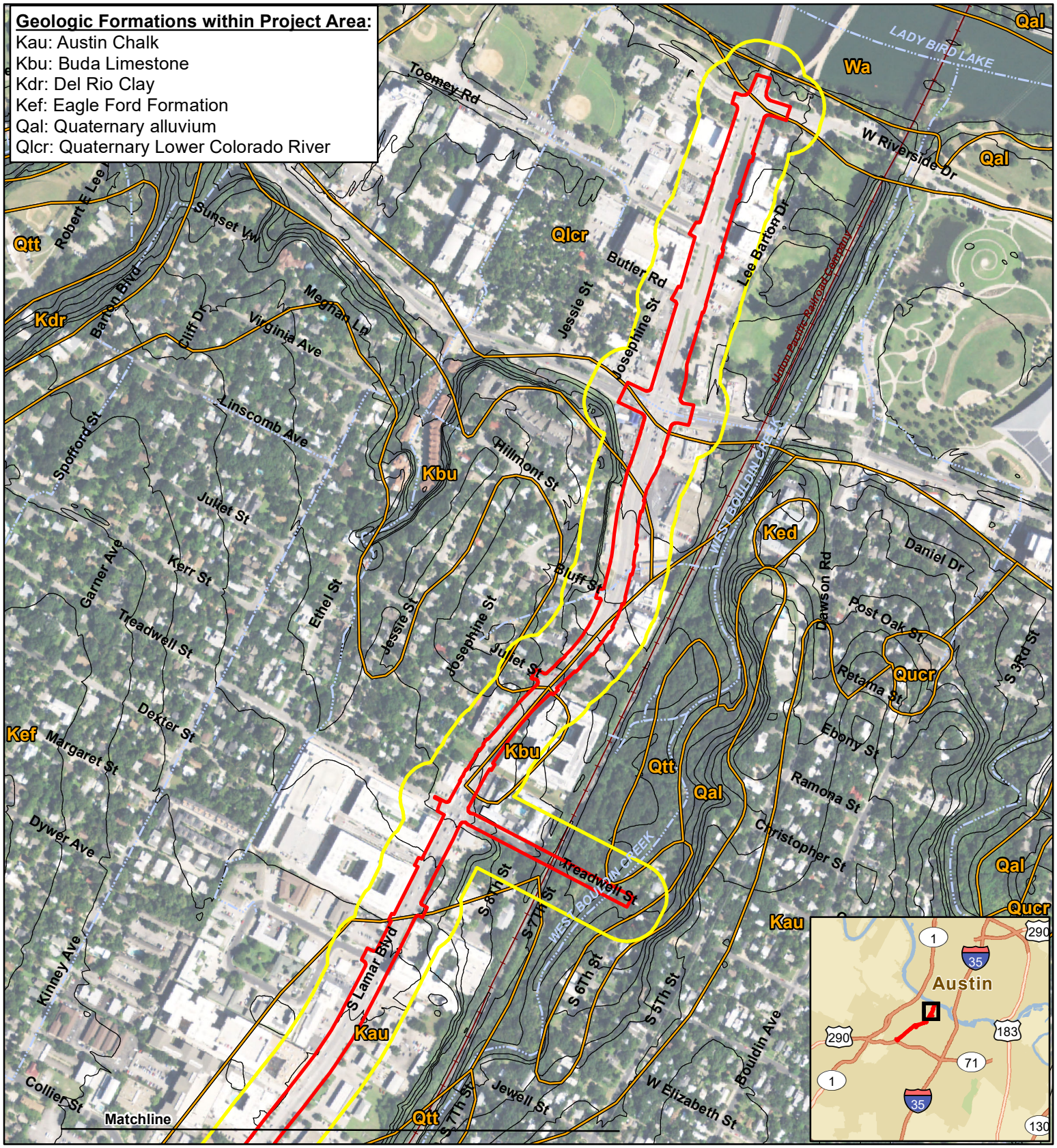
Photograph 9: Typical area of urban ROW in project area. Typical vegetation includes mowed grasses, pecan and oak trees, and other landscaping.

Photograph 10: Example of Maintained Grassland habitat. Grasses were mowed and trees were sparse.

Photograph 11: Typical example of Urban Landscaping Habitat - crape myrtle and mowed bermudagrass.

Photograph 12: A sunny break within the Upland Woods Habitat. Ragweed dominates the groundcover in this view; live oaks and hackberry provide canopy in the background.

Photograph 13: Example of Wooded Riparian Habitat along West Bouldin Creek. Rattlebox and dayflower are growing within the gravel creek bed.



COA Elevation Contour (10-ft)

COA Creeks

Geologic Formation Boundary (BEG 2018)

Project Area

Assessment Area (150-ft)

N

W E

S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 1.1
Site Specific Geology with 10-ft Topography

South Lamar Boulevard Corridor
Riverside Drive to Ben White Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.

COA Elevation Contour (10-ft)

COA Creeks

Geologic Formation Boundary (BEG 2018)

Project Area

Assessment Area (150-ft)

N
W E
S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

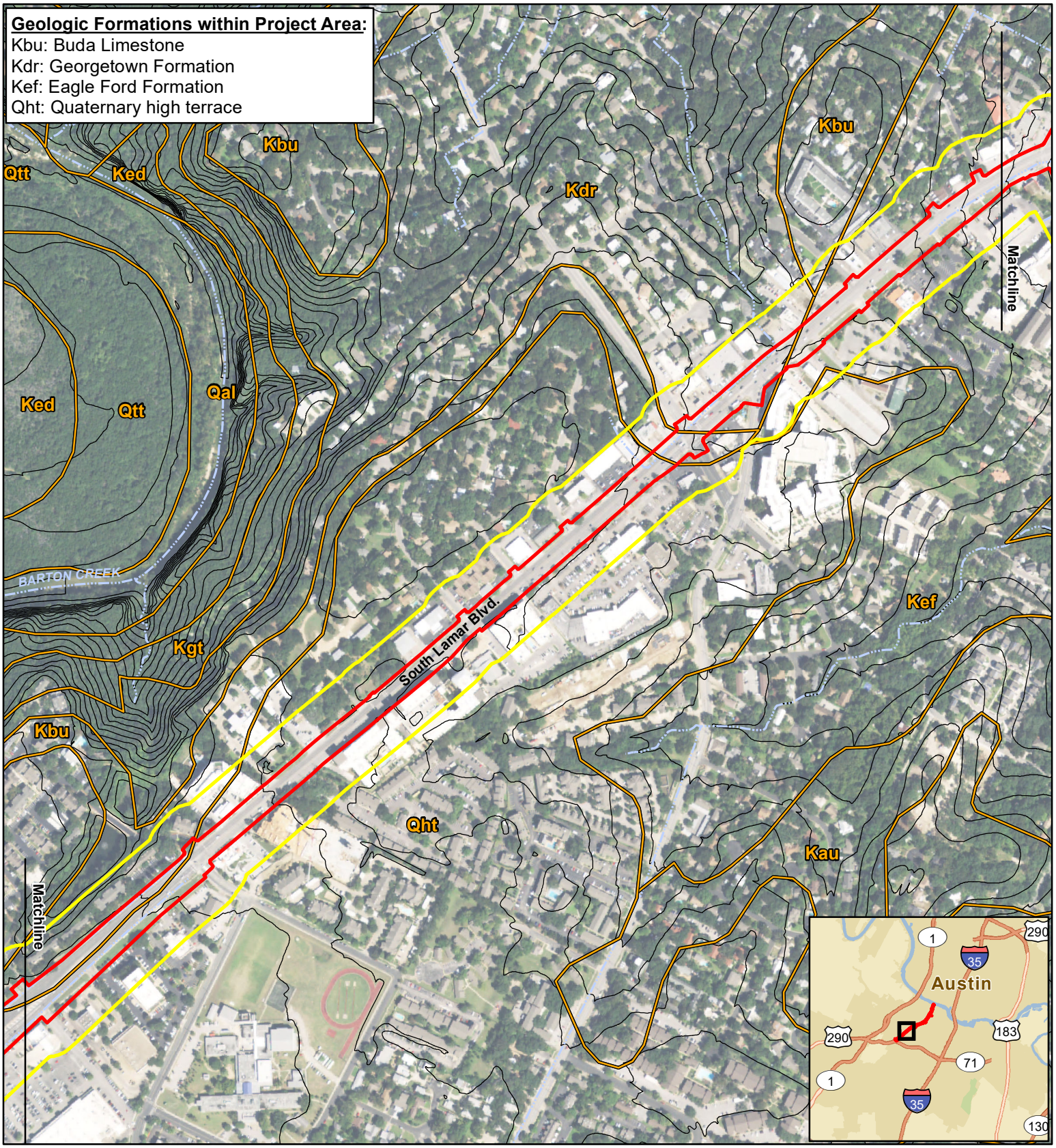
TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 1.2
Site Specific Geology with 10-ft Topography

South Lamar Boulevard Corridor
Riverside Drive to Ben White Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.



COA Elevation Contour (10-ft)

COA Creeks

Geologic Formation Boundary (BEG 2018)

Project Area

Assessment Area (150-ft)

N W E S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

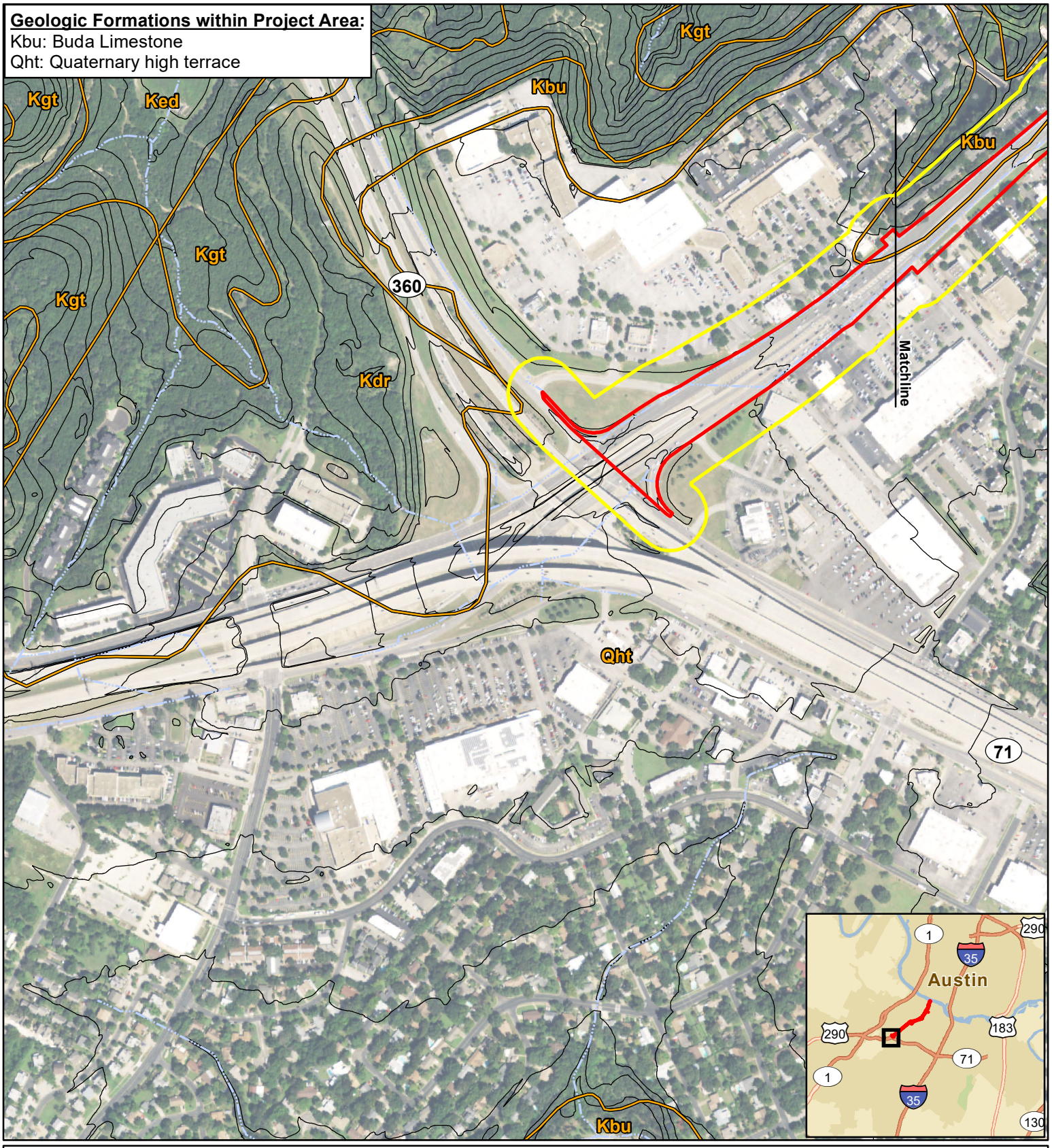
TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 1.3
Site Specific Geology with 10-ft Topography

South Lamar Boulevard Corridor
Riverside Drive to Ben White Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.



COA Elevation Contour (10-ft)

COA Creeks

Geologic Formation Boundary (BEG 2018)

Project Area

Assessment Area (150-ft)

N
W E
S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 1.4
Site Specific Geology with 10-ft Topography

South Lamar Boulevard Corridor
Riverside Drive to Ben White Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.

COA Creeks

Project Area

Assessment Area (150-ft)

N W E S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: Texas Orthoimagery Program

Figure 2.1
1996 Historic
Aerial Photograph

South Lamar Boulevard Corridor
Riverside Drive to Ben White
Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.

COA Creeks

Project Area

Assessment Area (150-ft)

N

W E

S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: Texas Orthoimagery Program

Figure 2.2
1996 Historic
Aerial Photograph

South Lamar Boulevard Corridor
Riverside Drive to Ben White
Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.

COA Creeks

Project Area

Assessment Area (150-ft)

N

W E

S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: Texas Orthoimagery Program

Figure 2.3
1996 Historic
Aerial Photograph

South Lamar Boulevard Corridor
Riverside Drive to Ben White
Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.

COA Creeks

Project Area

Assessment Area (150-ft)

N W E S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

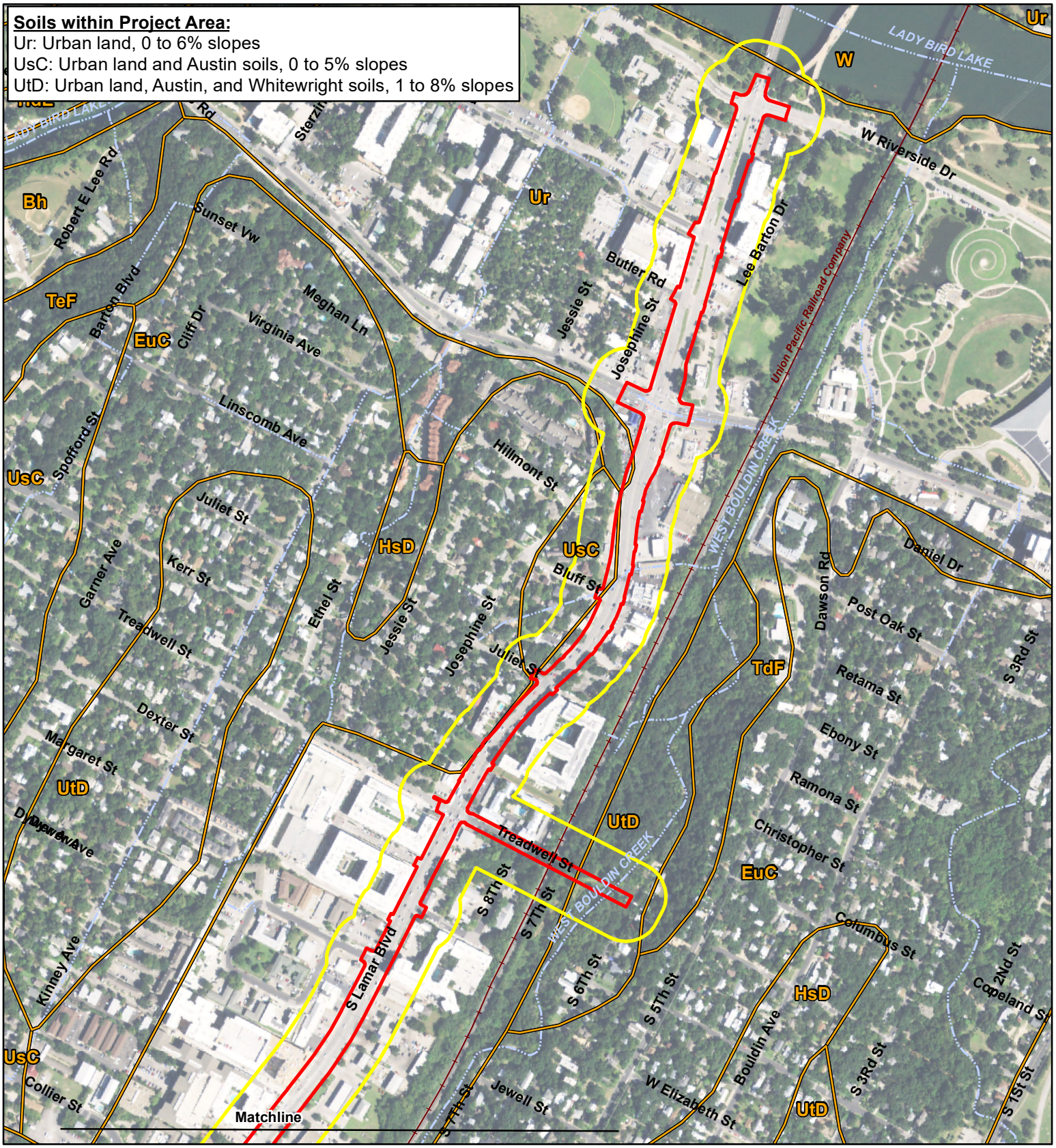
TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: Texas Orthoimagery Program

Figure 2.4
1996 Historic
Aerial Photograph

South Lamar Boulevard Corridor
Riverside Drive to Ben White
Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.



COA Creeks

Travis County Soils (NRCS)

Project Area

Assessment Area (150-ft)

N W E S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 3.1
Travis County Soils

South Lamar Boulevard Corridor
Riverside Drive to Ben White
Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.

COA Creeks

Travis County Soils (NRCS)

Project Area

Assessment Area (150-ft)

N
W E
S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

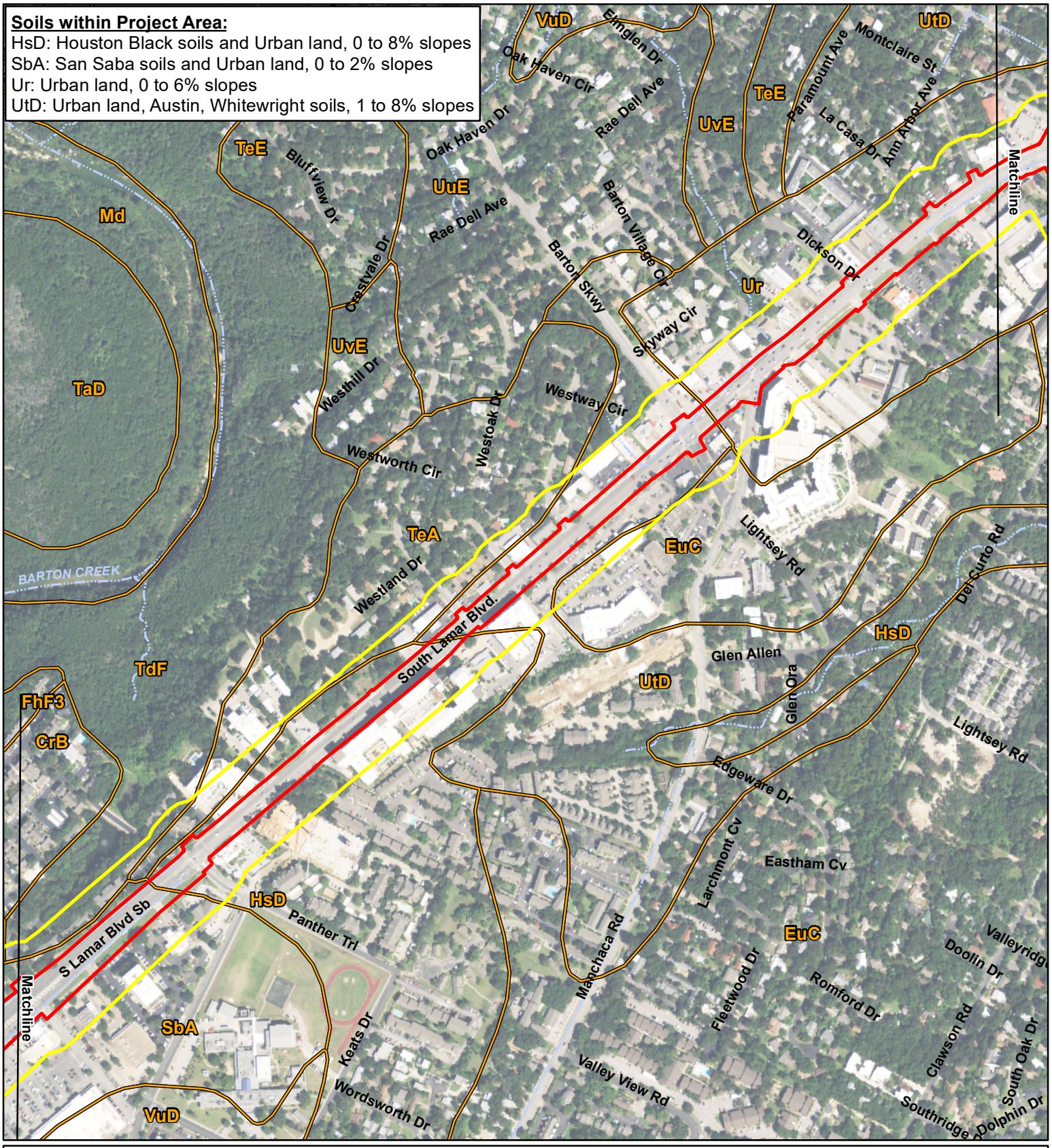
TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 3.2
Travis County Soils

South Lamar Boulevard Corridor
Riverside Drive to Ben White
Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.



COA Creeks

Travis County Soils (NRCS)

Project Area

Assessment Area (150-ft)

N W E S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

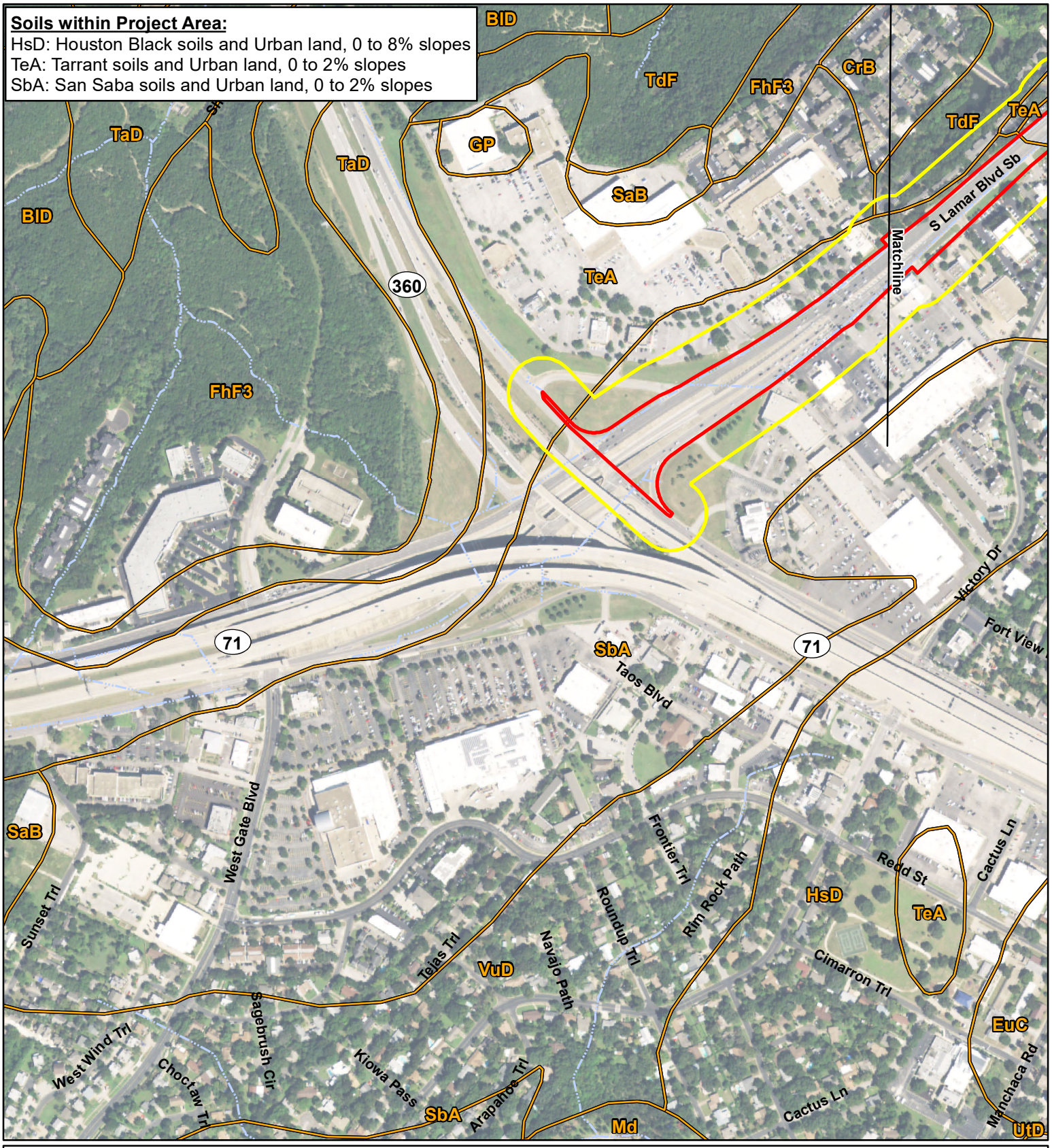
TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 3.3
Travis County Soils

South Lamar Boulevard Corridor
Riverside Drive to Ben White
Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.



COA Creeks

Travis County Soils (NRCS)

Project Area

Assessment Area (150-ft)

N W E S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 3.4
Travis County Soils

South Lamar Boulevard Corridor
Riverside Drive to Ben White
Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.

Texas Water Development Board Well (Well #)

COA Seeps and Springs CEF (brg_id#)

COA Creeks

Baer-identified Bluff CEF (B-#)

COA Elevation Contour (10-ft)

Project Area

Assessment Area (150-ft)

N W E S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 4.1
Critical Environmental Features and Well Location Map with 10-ft Topography

South Lamar Boulevard Corridor
Riverside Drive to Ben White Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.

Texas Water Development Board Well (Well #)

COA Creeks

Baer-identified Rimrock CEF (CR-#)

Baer-identified Wetland CEF (W-#)

COA Elevation Contour (10-ft)

Project Area

Assessment Area (150-ft)

N
W E
S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

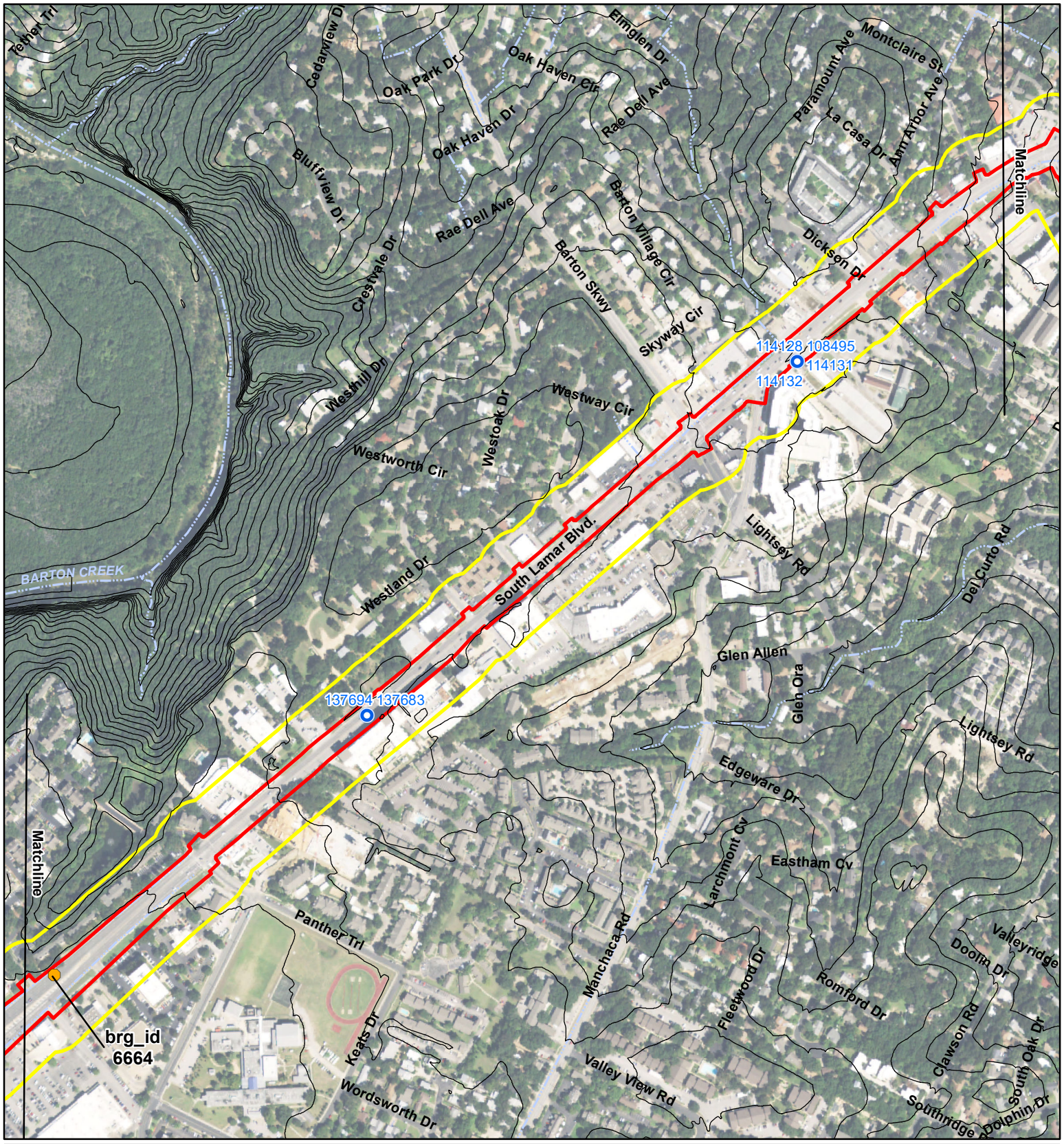
TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 4.2
Critical Environmental Features and Well Location Map with 10-ft Topography

South Lamar Boulevard Corridor
Riverside Drive to Ben White Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.



Texas Water Development Board Well (Well #)

COA Seeps and Springs CEF (brg_id#)

COA Creeks

COA Elevation Contour (10-ft)

Project Area

Assessment Area (150-ft)

N W E S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

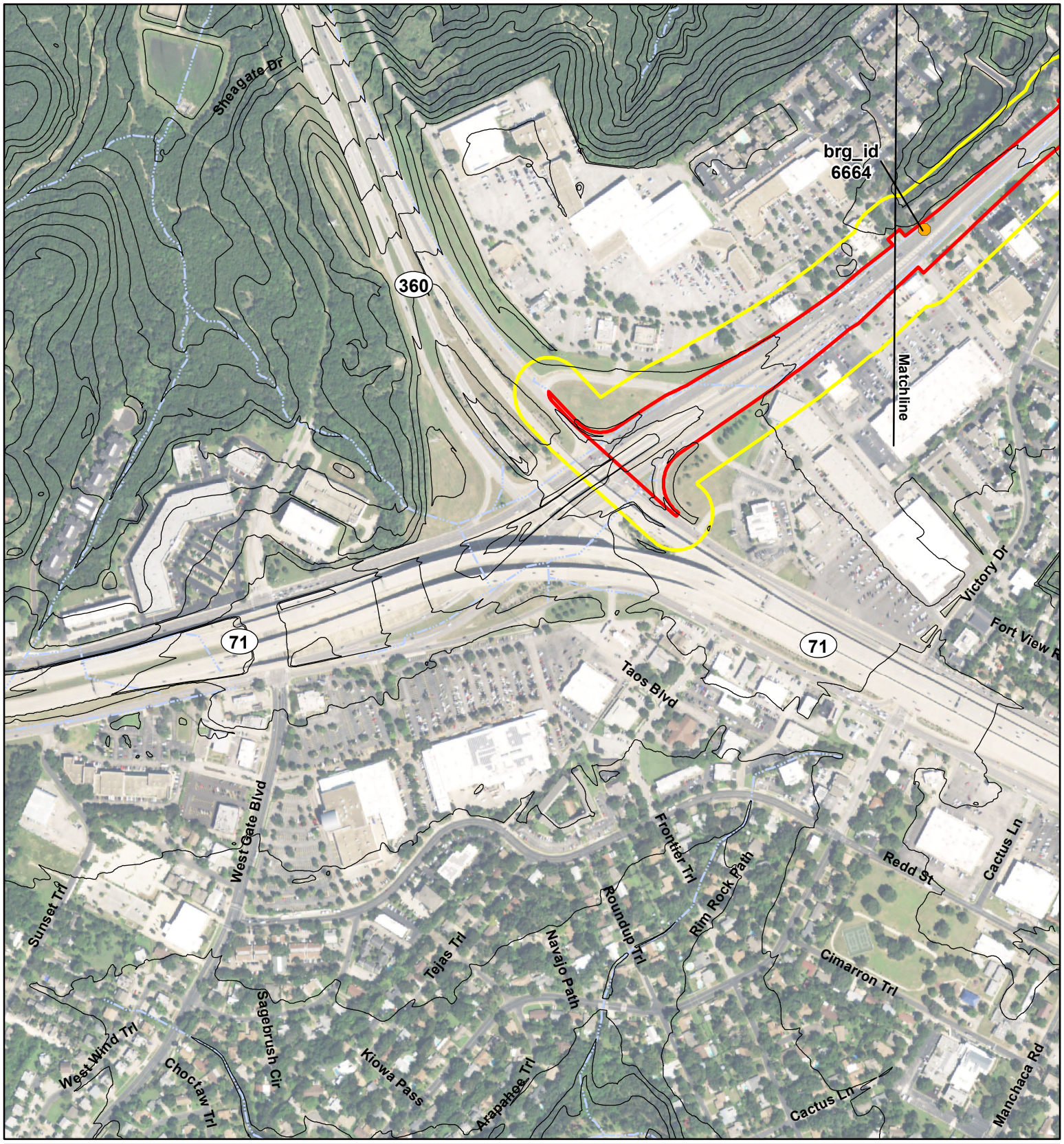
TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 4.3
Critical Environmental Features and Well Location Map with 10-ft Topography

South Lamar Boulevard Corridor
Riverside Drive to Ben White Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.



COA Seeps and Springs CEF (brg_id#)

COA Creeks

COA Elevation Contour (10-ft)

Project Area

Assessment Area (150-ft)

N
W E
S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

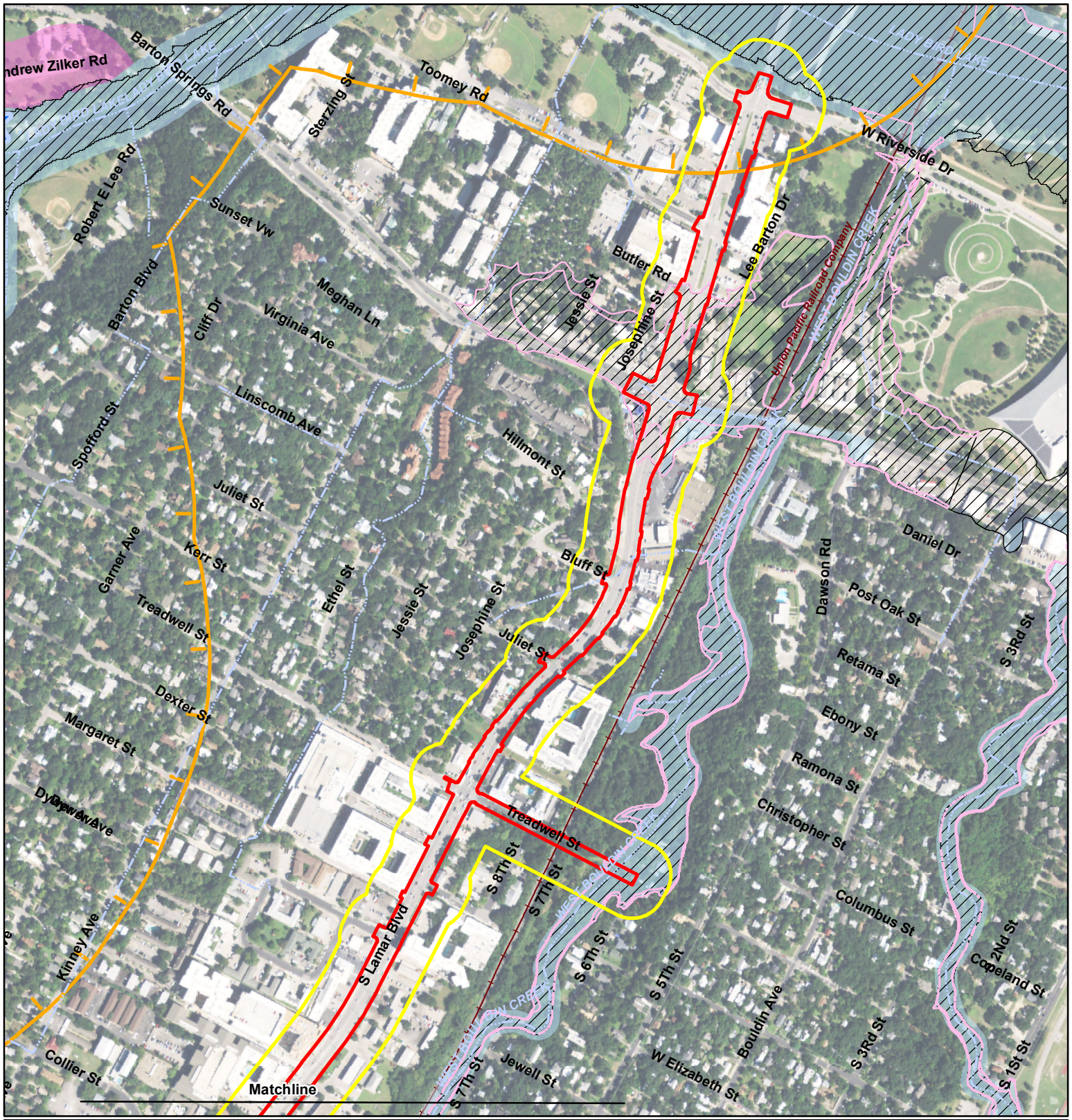
TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 4.4
Critical Environmental Features and Well Location Map with 10-ft Topography

South Lamar Boulevard Corridor
Riverside Drive to Ben White Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.



- COA Creeks
- COA Edwards Aquifer Verification Zone
- Critical Water Quality Zone
- Water Quality Transition Zone
- COA Fully Developed Floodplain
- FEMA 100-year Floodplain
- Project Area
- Assessment Area (150-ft)

Feet
0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 5.1
Critical Water Quality Zone, Edwards Aquifer, and COA Fully Developed Floodplain

South Lamar Boulevard Corridor
Riverside Drive to Ben White Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.

COA Creeks
COA Edwards Aquifer Recharge Zone
COA Edwards Aquifer Verification Zone
COA Edwards Aquifer Contributing Zone
Critical Water Quality Zone
COA Fully Developed Floodplain

FEMA 100-year Floodplain
Project Area
Assessment Area (150-ft)

N
W E
S

Feet
0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

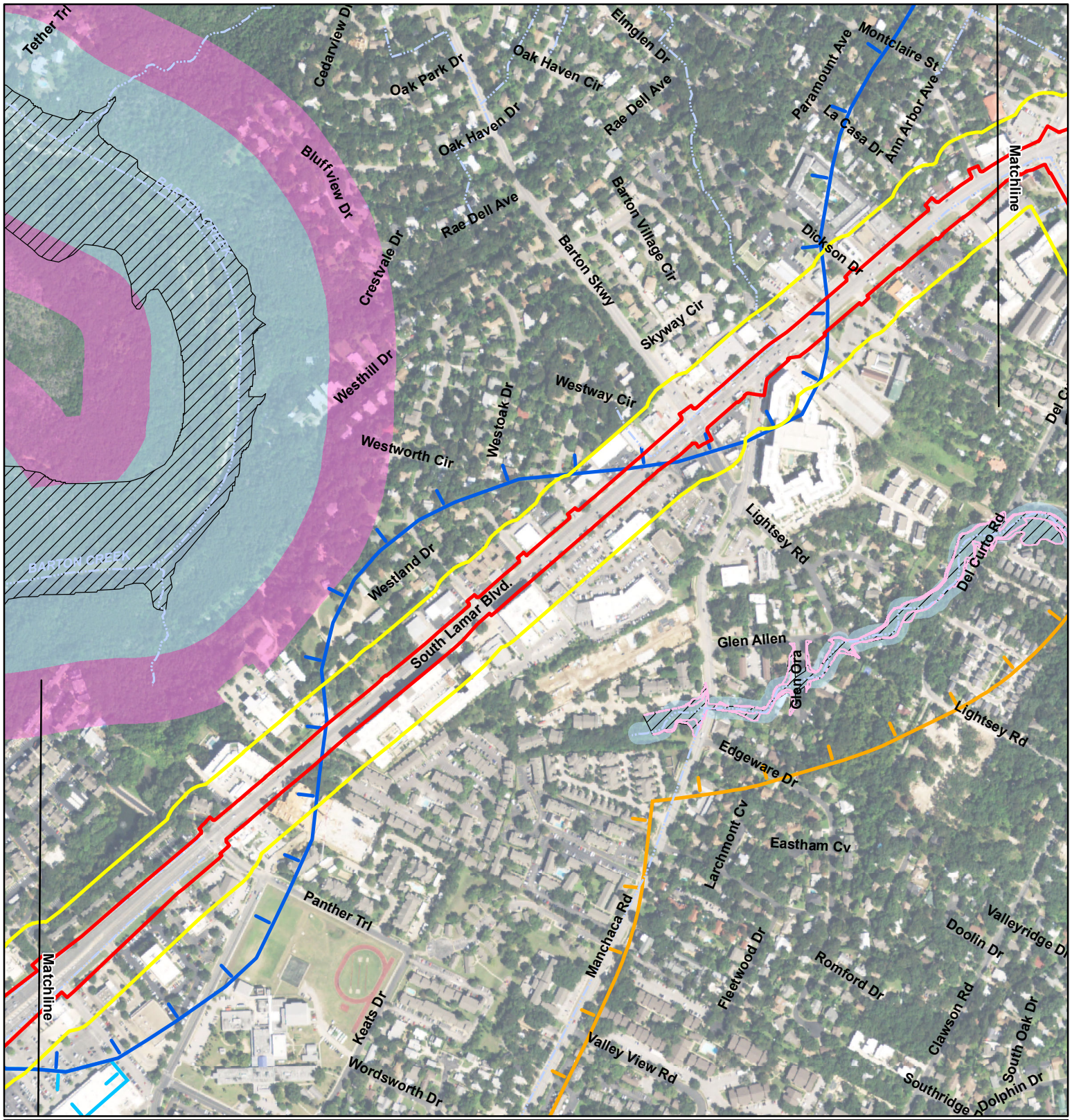
TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 5.2
Critical Water Quality Zone, Edwards Aquifer, and COA Fully Developed Floodplain

South Lamar Boulevard Corridor
Riverside Drive to Ben White Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.



- COA Creeks
- COA Edwards Aquifer Recharge Zone
- COA Edwards Aquifer Verification Zone
- COA Edwards Aquifer Contributing Zone
- Critical Water Quality Zone
- Water Quality Transition Zone
- COA Fully Developed Floodplain
- FEMA 100-year Floodplain
- Project Area
- Assessment Area (150-ft)

N W E S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

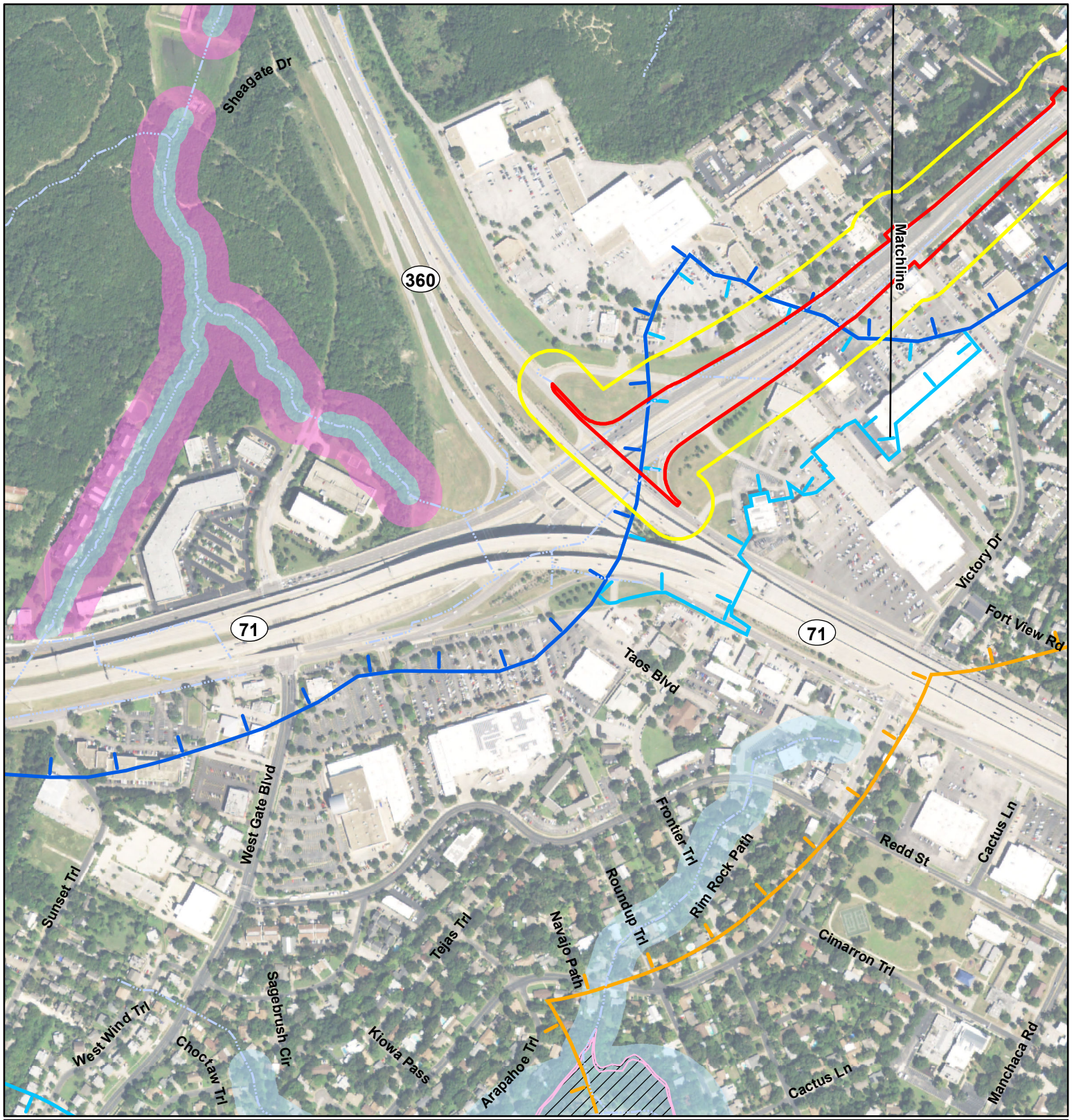
TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 5.3
Critical Water Quality Zone, Edwards Aquifer, and COA Fully Developed Floodplain

South Lamar Boulevard Corridor
Riverside Drive to Ben White Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.



- COA Creeks
- COA Edwards Aquifer Recharge Zone
- COA Edwards Aquifer Verification Zone
- COA Edwards Aquifer Contributing Zone
- Critical Water Quality Zone
- Water Quality Transition Zone
- COA Fully Developed Floodplain
- FEMA 100-year Floodplain
- Project Area
- Assessment Area (150-ft)

N W E S

Feet

0 300 600

Baer Project No. 182030-8i.010
Date: May 24, 2019

TBPE Firm No. F-3181 TBPG Firm No. 50030

Base Map: NAIP Aerial Imagery, 2016

Figure 5.4
Critical Water Quality Zone, Edwards Aquifer, and COA Fully Developed Floodplain

South Lamar Boulevard Corridor
Riverside Drive to Ben White Boulevard/State Highway 71

Baer Engineering
and Environmental Consulting, Inc.