



Aquatic Resource Delineation Report

99W/South Main Street Reconstruction Project Tehama County, California

Prepared for:

Tehama County Public Works

June 2021
430-23

ENPLAN

3179 Bechelli Lane Suite 100
Redding, CA 96002

99W/South Main Street Reconstruction Project Aquatic Resource Delineation Report

Applicant/Land Owner:

Tehama County Public Works
9380 San Benito Avenue
Gerber, CA 96035
Attn: Jessica Pecha
530/385-1462

Access:

Road improvements are proposed in Tehama County along 99W from Gyle Road north to the Red Bluff city limits, and in the City of Red Bluff along South Main Street at the Interstate 5 interchange. Access to the site is gained from Main Street and 99W.

I. INTRODUCTION

Tehama County is proposing to rehabilitate the pavement along 99W from Gyle Road north to the Interstate 5 (I-5) Interchange located within the City of Red Bluff. Within the County limits, the project would also improve safety by replacing existing guardrails with new guardrails meeting currently specified guardrail standards. As the project enters the City of Red Bluff, the roadway name changes from 99W to South Main Street, and within these limits the project would widen the road to meet future traffic demands and improve safety. The project would also improve the I-5 Interchange northbound ramps to meet future traffic demands and improve safety. The objectives of the proposed project are to improve vehicle circulation and safety in order to meet the needs of a growing community and the associated increase in vehicle traffic, and to reduce the need for costly maintenance on wearing roadway surfaces.

Within the City of Red Bluff, proposed improvements would include rehabilitating and widening South Main Street, enhancements to bicyclist and pedestrian facilities, signal modifications at Sister Mary Columba Drive, and a roundabout or improved signalized intersection at the intersection of South Main Street and the I-5 northbound ramps to facilitate efficient traffic flow. South of the city limits, improvements would be limited to repairing structural roadway deficiencies, and replacing and extending select guardrails along 99W, south to Gyle Road. As shown in **Figure 1**, the ±84.9-acre study site (**Appendix A**), is located in unsectioned lands of Township 25 North, Range 3 West; Section 4 and additional unsectioned lands of Township 26 North, Range 3 West; and Sections 29, 32, and 33 of Township 27 North, Range 3 West, in the Red Bluff East and Gerber U.S. Geological Survey's (USGS) 7.5-minute quadrangles (USGS, 1950; 1951).

The site ranges in elevation from 240 to 280 feet above sea level and is part of the northern Central Valley of California. The climate of the project vicinity is considered Mediterranean and consists of hot, dry summers and mild, wet winters. Annual precipitation averages ± 23.20 inches at the Red Bluff Municipal Airport, which reasonably approximates conditions on the subject site (WRCC, 2020).

The project corridor encompasses a mix of urban and rural land uses. Current land uses in the vicinity of the South Main Street/I-5 interchange are primarily commercial, and include a hotel, gas station/mini-mart, medical offices, and a hospital. South of the City of Red Bluff, 99W extends through the unincorporated community of Proberta; low-density residential, commercial, and industrial development; agricultural lands; and undeveloped open space. Developed land uses adjacent to 99W include a Walmart distribution center, fire station, numerous small commercial and industrial businesses, churches, a mobile home park, and single-family residences. The agricultural uses consist primarily of orchards, with some irrigated grazing lands. The Union Pacific Railroad tracks parallel South Main Street/99W to the east, between the South Main Street/I-5 interchange and the community of Proberta, approximately six miles south of the interchange.

According to the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS, 2020), 27 soil units have been mapped within the study site (**Table 1**). Two soil units, Clear Lake clay and riverwash are considered hydric, while ten soil units may contain hydric inclusions. A soils map is provided in **Figures 2-4 (Appendix A)**.

Table 1
Summary of On-Site Soil Units

Map Symbol	Soil Unit Name	Hydric Soil?	Hydric Inclusions Present?	Hydric* Criteria	Hydric Landforms
AcA	Altamont clay, terrace, 0 to 3 percent slopes	N	Y	2	Swales
Au	Arbuckle gravelly fine sandy loam, 0 to 2 percent slopes	N	N	—	—
AvA	Arbuckle gravelly loam, 0 to 2 percent slopes	N	N	—	—
Aw	Arbuckle gravelly loam, clayey substratum, 0 to 3 percent slopes	N	N	—	—
Cc	Clear Lake clay, 0 to 4 percent slopes	Y	Y	3	Basin floors, Depressions

Cz	Cortina coarse sandy loam	N	Y	4	Drainageways
Czm	Cortina gravelly fine sandy loam, moderately deep	N	Y	4	Drainageways
Hga	Hillgate loam, 0 to 3 percent slopes	N	N	—	—
HI	Hillgate silt loam, 0 to 3 percent slopes	N	Y	3, 4	Depressions, Fans
KoA	Kimball gravelly loam, 0 to 3 percent slopes	N	Y	3	Depressions
KoB	Kimball gravelly loam, 3 to 8 percent slopes	N	N	—	—
KpA	Kimball loam, 0 to 3 percent slopes	N	N	—	—
KpB	Kimball loam, 3 to 8 percent slopes	N	N	—	—
Md	Maywood fine sandy loam, moderately deep, 0 to 3 percent slopes	N	Y	4	Flood plains
Mf	Maywood loam, high terrace, 0 to 3 percent slopes	N	Y	4	Flood plains
Mh	Maywood silt loam, 0 to 3 percent slopes	N	Y	4	Flood plains
Mx	Moda loam, 0 to 3 percent slopes	N	N	—	—
NrE	Newville gravelly loam, 3 to 8 percent slopes	N	N	—	—
PkB	Perkins gravelly loam, 3 to 8 percent slopes	N	N	—	—
Rb	Red Bluff loam, 0 to 3 percent slopes	N	Y	3	Terraces
RnB	Redding gravelly loam, 0 to 8 percent slopes	N	Y	3	Fan remnants
Rr	Riverwash	Y	Y	4	Drainageways
TaA	Tehama loam, 0 to 3 percent slopes	N	N	—	—
Tc	Tehama silt loam, 0 to 3 percent slopes, gravelly substratum	N	N	—	—
Wy	Wyo loam, 0 to 3 percent slopes	N	N	—	—
Yo	Yolo silt loam, very gravelly substratum, 0 to 10 percent slopes	N	N	—	—
Ys	Yolo loam, clay loam substratum	N	N	—	—

* 2 Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups

A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or

B. Show evidence that the soil meets the definition of a hydric soil

3 Soils that are frequently ponded for long or very long duration during the growing season

4 Map unit components that are frequently flooded for long duration or very long duration during the growing season

II. METHODOLOGY

Prior to undertaking the field study, National Wetlands Inventory maps (USFWS, 2020) were reviewed to determine if any waters have been previously mapped on the

study site. Seventeen features within eight Cowardin categories have been mapped on the site: Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Temporary Flooded (PSS1A); Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded (PSS1C); Palustrine, Emergent, Persistent, Seasonally Flooded (PEM1C); Palustrine, Emergent, Persistent, Semi-permanently Flooded (PEM1F); Palustrine, Forested, Broad-Leaved Deciduous, Temporary Flooded (PFO1A); Riverine, Intermittent, Streambed, Seasonally Flooded (R4SBC); Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded, Excavated (R2UBHx); and Riverine, Lower Perennial, Aquatic Bed, Floating Vascular, Permanently Flooded, Excavated (R2AB4Hx). Some of these categories have been modified based on field observations to better represent the features present in the project area. A table of Cowardin types is shown in **Appendix B**.

The field investigations were conducted on May 13, 2019; April 11, 12, and 25, 2020; September 24, 2020; and November 12, 2020. The U.S. Army Corps of Engineers' Antecedent Precipitation Tool (APT) was also used as an indicator of climatic circumstances at the time of the field delineation. Rainfall conditions for the three months prior to each of the field dates were calculated and compared to rainfall quantities during typical years. According to the APT, four of the six delineation dates were conducted during dryer than normal conditions (Deters, 2020). It is unlikely however, that these conditions were extreme enough to conflict with an accurate wetland determination. The wetlands specialist is experienced with identifying wetland indicators (i.e. hydrology, soils, and vegetation) during diverse environmental conditions. Results produced by the APT can be seen in **Appendix C**.

The limit of the Corps of Engineers' jurisdiction over streams is concurrent with the typical year flow regime. As described in the Navigable Waters Protection Rule, the typical year is defined as a year in which precipitation and other climatic variables are within the normal periodic range (e.g., seasonally, annually) for the geographic area of the applicable aquatic resource based on a rolling thirty-year period.

The limit of State jurisdiction over streams is concurrent with the extent of the ordinary high-water mark. For the purposes of jurisdiction, the State utilizes the Code of Federal Regulations Title 33: Navigation and Navigable Waters-Sec. 328.3(e), which

defines the ordinary high-water mark as the line on the shore established by fluctuations of water indicated by physical characteristics. These may include a clear/natural line on the bank, shelving, changes in soil, destruction of terrestrial vegetation, presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

The field investigation was conducted in accordance with technical methods outlined in the *Corps of Engineers Wetlands Delineation Manual* (U.S. Department of the Army, Corps of Engineers, 1987), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Department of the Army, Corps of Engineers, 2008), and the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar, 2008) (limited to determining State jurisdiction).

Scientific nomenclature for plants cited in this report is in accordance with *The Jepson Manual* (Baldwin et al., 2012). The indicator status of plants in this report is in accordance with the National Wetland Plant List (NWPL) (Lichvar et al., 2018).

Coordinates for wetland features were obtained using a global positioning system (GPS) unit capable of sub-meter accuracy. The GPS coordinates were downloaded into ArcMap for mapping and acreage calculations. The ordinary high-water marks of all streams were identified in the field. Ordinary high-water mark forms for each stream, and one pair of upland and wetland determination forms for a representative seasonal wetland are included in **Appendix D**.

III. RESULTS

As a result of the field delineation effort, 24 features were mapped on the site within five categories: perennial stream, intermittent stream, ephemeral stream, constructed ditch, and seasonal wetland (**Figures 5-11, Appendix A**). The features are characterized below, with Cowardin types listed in **Appendix B**, and representative photos presented in **Appendix E**.

Perennial Stream: Perennial streams are drainages with apparent bed and bank features that flow year-round. Water sources include direct precipitation, runoff from upstream channel reaches, and seepage from surrounding soils. The only on-site

perennial stream, Coyote Creek, supports freshwater emergent vegetation including tules and waterweed.

Intermittent Stream: Intermittent streams are drainages with apparent bed and bank features that flow for more than several days following precipitation events. Water sources may include direct precipitation, runoff from upstream channel reaches, and always includes at least some seepage from surrounding soils. The predominant indicators of high flows in the on-site intermittent streams were scour, destruction of terrestrial vegetation, and the presence of litter and debris.

Ephemeral Stream: Ephemeral streams are characterized by defined bed and bank features that hold water for only a short time following rain events. Sources of water are general precipitation and runoff. The two on-site ephemeral streams drain runoff from Interstate 5 to an intermittent stream within the project boundary.

Constructed Ditch: Constructed ditches are excavated features that may be located in either wetlands or uplands, and may convey water collected from sheet flow or diverted from other water bodies. The jurisdictional status of constructed ditches depends in part on these characteristics and flow duration. The on-site constructed ditches were constructed in uplands and drain roadside runoff.

Seasonal Wetland: Seasonal wetlands are saturated or inundated during the winter wet season and dry during the dry season. Seasonal wetlands can be created naturally or as a result of human activity. Representative plant species include Greene's popcorn flower (*Plagiobothrys greenei*), annual hairgrass (*Deschampsia danthonioides*), and Mediterranean barley (*Hordeum marinum*).

A total of ±0.985 acres of waters were delineated on the site, consisting of approximately 0.083 acres of perennial stream, 0.600 acres of intermittent stream, 0.018 acres of ephemeral stream, 0.084 acres of constructed ditches, and 0.200 acres of seasonal wetlands.

IV. SUMMARY AND CONCLUSION

Certain on-site waters are subject to Army Corps of Engineers and/or State Water Resources Control Board jurisdiction. The applicant elects to use an "approved jurisdictional determination" to identify the mapped waters subject to Corps jurisdiction under the Clean Water Act. Figures 5 through 11 depict wetlands and waters delineated on site. Delineated waters include one perennial stream, 14 intermittent streams, two ephemeral streams, four constructed ditches, and three seasonal wetlands.

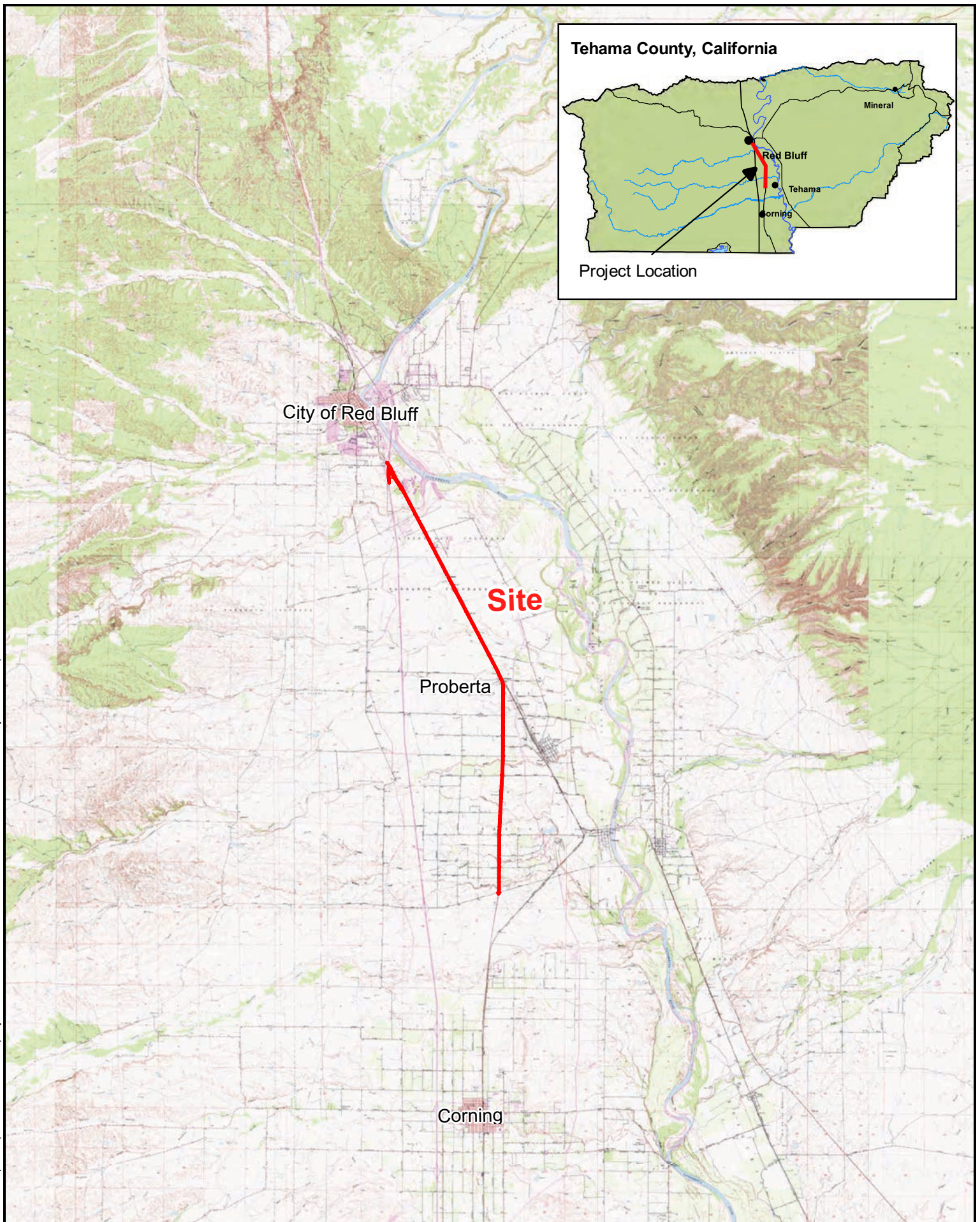
The perennial stream and all intermittent streams are expected to be subject to both state and federal jurisdiction. In accordance with the Navigable Waters Protection Rule, the ephemeral streams (1:ES and 2:ES) do not appear to be subject to Corps jurisdiction. Three of the constructed ditches (1:CD, 2:CD, and 3:CD) appear to drain very quickly and do not support hydrophytic plant species; 4:CD contained standing water into at least late April 2020, and supports hydrophytic species such as creeping spikerush (OBL), annual ryegrass (FAC), and annual hairgrass (FACW). None of the constructed ditches or seasonal wetlands is expected to be subject to federal jurisdiction, but 4:CD and all of the wetlands may be subject to state jurisdiction. The extent of federal jurisdiction will be determined by Corps staff in accordance with the Navigable Waters Protection Act. The extent of state jurisdiction will be determined by Water Board staff, in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State.

V. REFERENCES

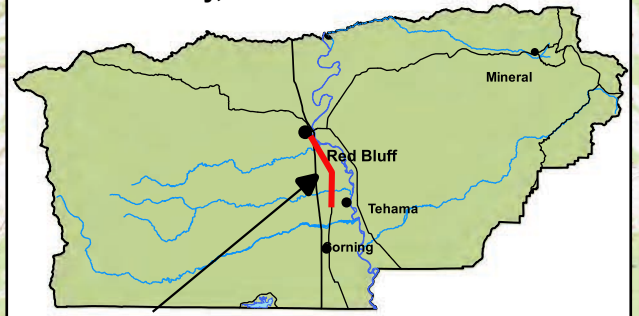
- Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. *The Jepson Manual: Vascular Plants of California*, second edition. University of California Press, Berkeley.
- Deters, J. Antecedent Precipitation Tool (APT) - v 1.0.13. U.S. Army Corps of Engineers; accessed January 2021. <<https://github.com/jDeters-USACE/Antecedent-Precipitation-Tool/releases/tag/v.1.0.13>>.
- Lichvar, R.W. and S.M. McColley. 2008. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. ERDC/CRREL TR-08-12. Hanover, New Hampshire.
- U.S. Department of the Army, Corps of Engineers. 1987. *Corps of Engineers Wetland Delineation Manual*. Technical Report Y-87-1. National Technical Information Service, Springfield, Virginia.
- _____. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. U.S. Army Engineer Research and Development Center, Vicksburg, MS.
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2020. Web Soil Survey, accessed March 2020. <<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>>.
- U.S. Army Corps of Engineers. 2018. National Wetland Plant List, version 3.4. <http://wetland-plants.usace.army.mil/nwpl_static/v34/home/home.html>.
- U.S. Fish and Wildlife Service. National Wetlands Inventory Wetlands Mapper, accessed April 2020. <<http://www.fws.gov/wetlands/Data/Mapper.html>>.
- U.S. Geological Survey. 1950. Gerber, California, 7.5-minute quadrangle sheets.
- _____. 1951. Red Bluff East and Gerber, California, 7.5-minute quadrangle sheets.
- Western Regional Climate Center. 2020. Red Bluff Municipal Airport, California (047292). <<https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7292>>.

APPENDIX A

Figures



Tehama County, California



Project Location

City of Red Bluff

Site

Proberta

Corning

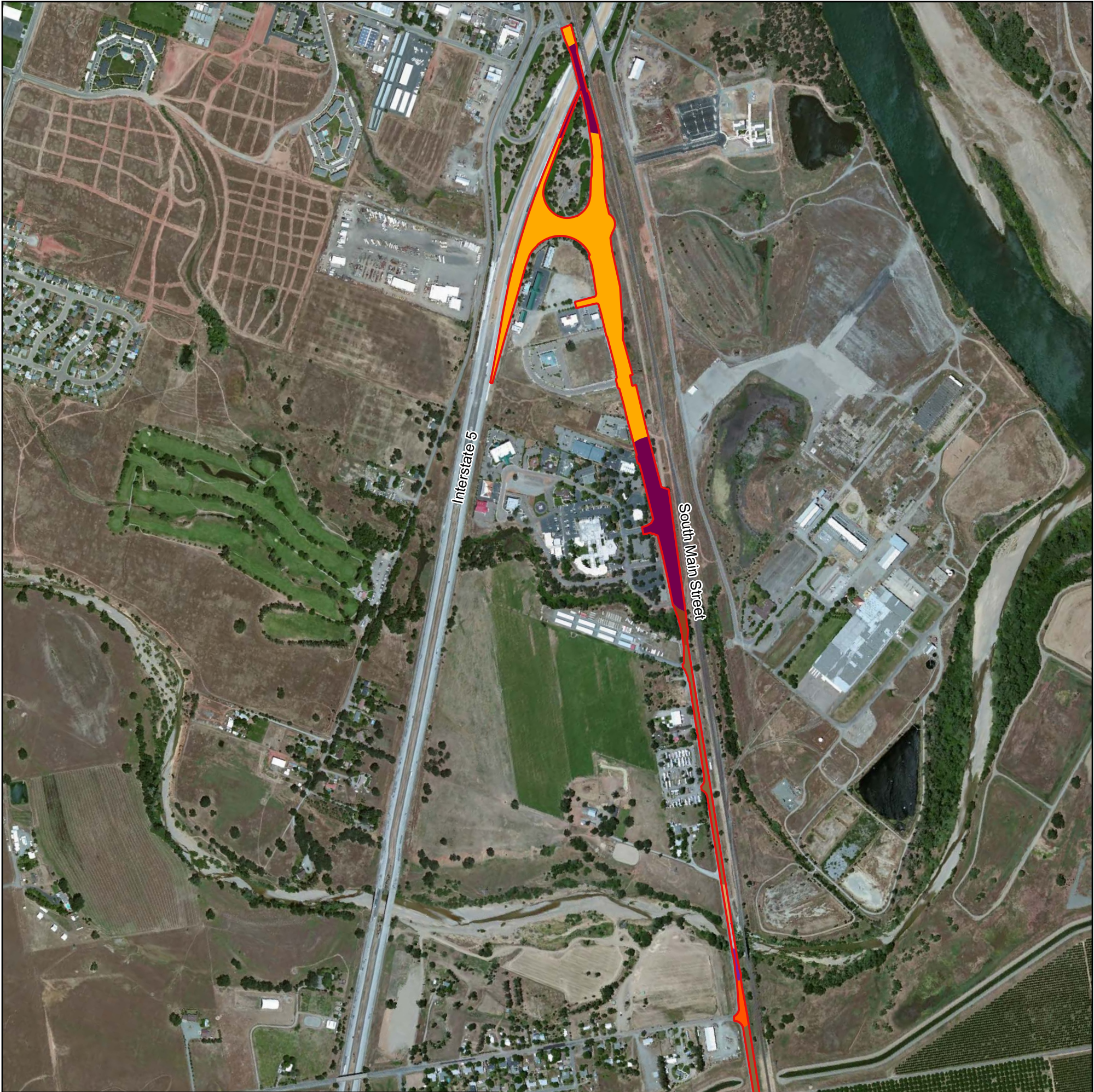
All depictions are approximate. Not a survey product.

06.01.21



0 1 2 3 mi

Figure 1
Project Vicinity



- Project Boundary
- AcA: Altamont clay, terrace, 0 to 3 percent slopes
- Au: Arbuckle gravelly fine sandy loam, 0 to 2 percent slopes
- AvA: Arbuckle gravelly loam, 0 to 2 percent slopes
- Aw: Arbuckle gravelly loam, clayey substrate, 0 to 3 percent slopes
- Cc: Clear Lake Clay, 0 to 4 percent slopes
- Cz: Cortina coarse sandy loam
- Czm: Cortina gravelly fine sandy loam, moderately deep
- HgA: Hillgate loam, 0 to 3 percent slopes
- HI: Hillgate silt loam, 0 to 3 percent slopes
- KoA: Kimball gravelly loam, 0 to 3 percent slopes
- KoB: Kimball gravelly loam, 3 to 8 percent slopes
- KpA: Kimball loam, 0v to 3 percent slopes
- KpB: Kimball loam, 3 to 8 percent slopes
- Md: Maywood fine sandy loam, moderately deep, 0 to 3 percent slopes
- Mf: Maywood loam, high terrace, 0 to 3 percent slopes
- Mh: Maywood silt loam, 0 to 3 percent slopes
- Mx: Moda loam, 0 to 3 percent slopes
- NrE: Newville gravelly loam, 10 to 40 percent slopes
- PkB: Perkins gravelly loam, 3 to 8 percent slopes
- Rb: Red Bluff loam, 0 to 3 percent slopes
- RnB: Redding gravelly loam, 0 to 8 percent slopes
- Rr: Riverwash
- TaA: Tehama loam, 0 to 3 percent slopes
- Tc: Tehama silt loam, 0 to 3 percent slopes
- Wy: Wyo loam, 0 to 3 percent slopes
- Yo: Yolo silt loam, very gravelly substratum, 0 to 10 percent slopes
- Ys: Yolo loam, clay loam substratum
- Match Line



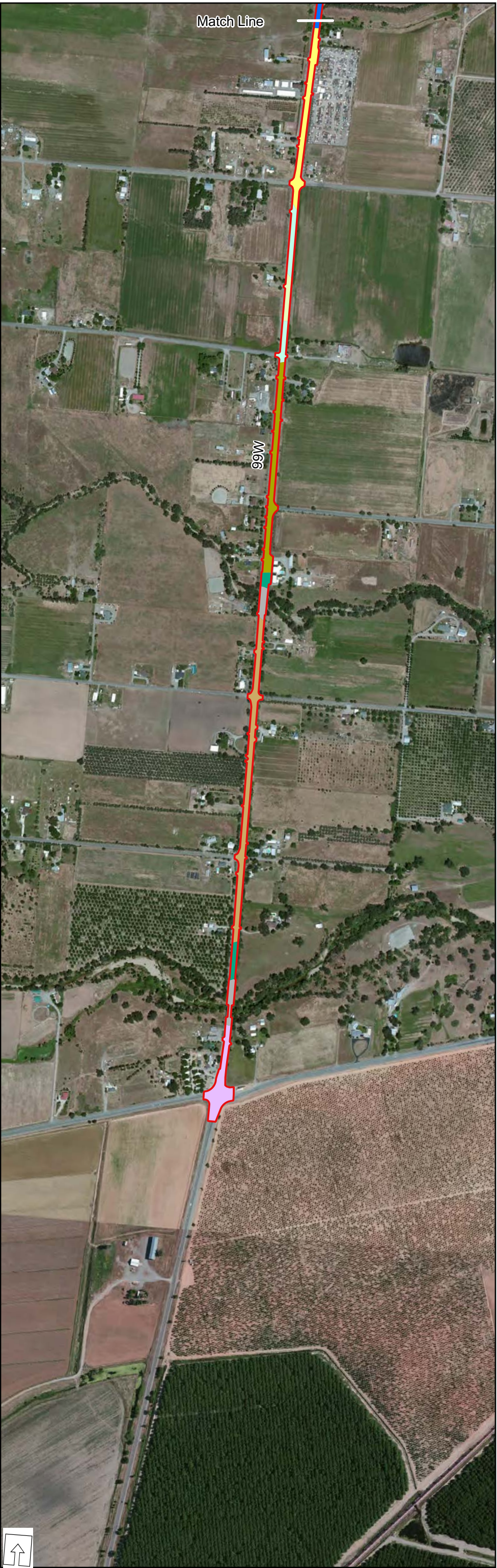
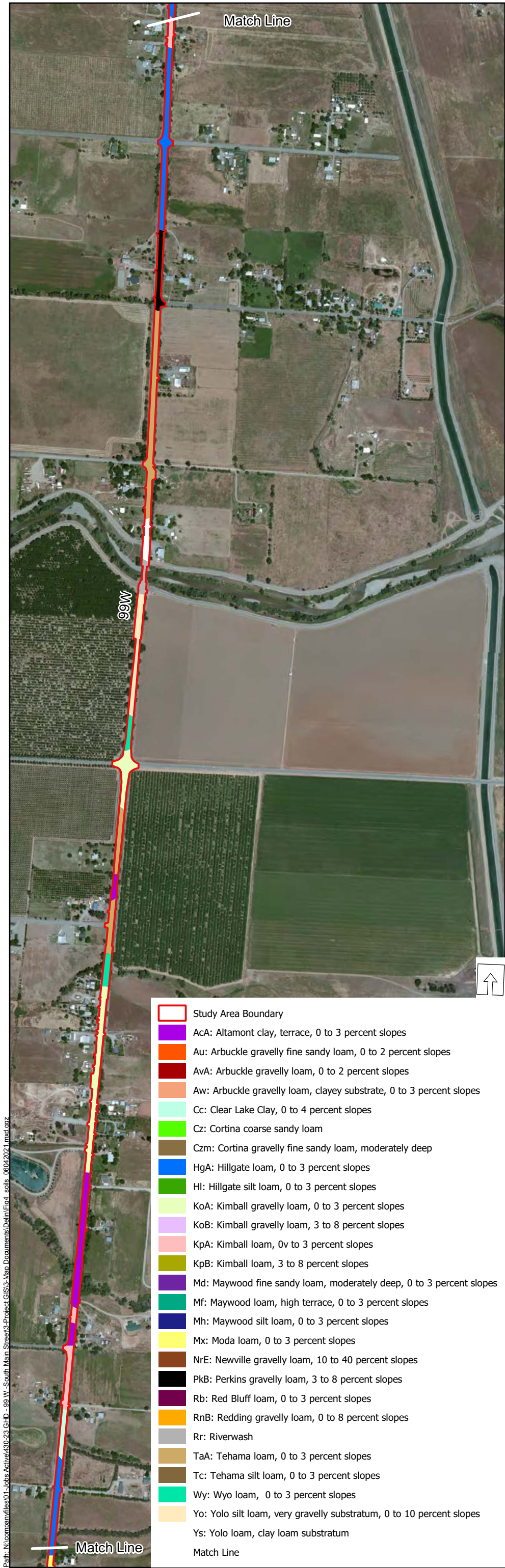
Figure 2
Project Soils

All depictions are approximate. Not a survey product. 06.07.20



Figure 3
Project Soils

All depictions are approximate. Not a survey product. 06.04.21



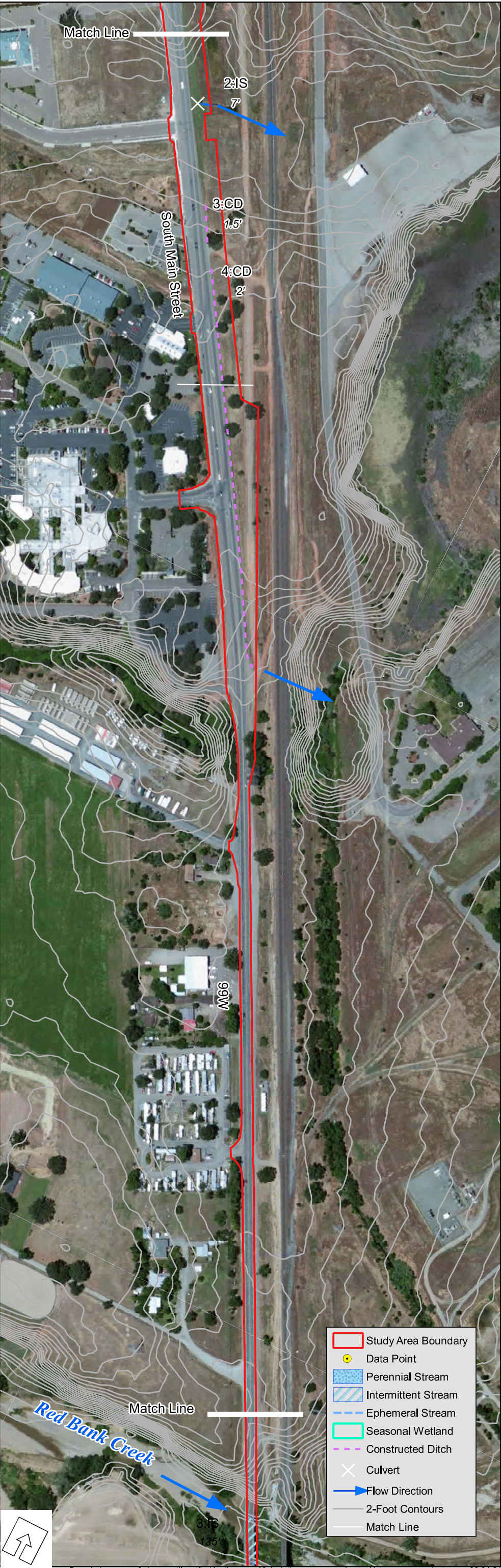
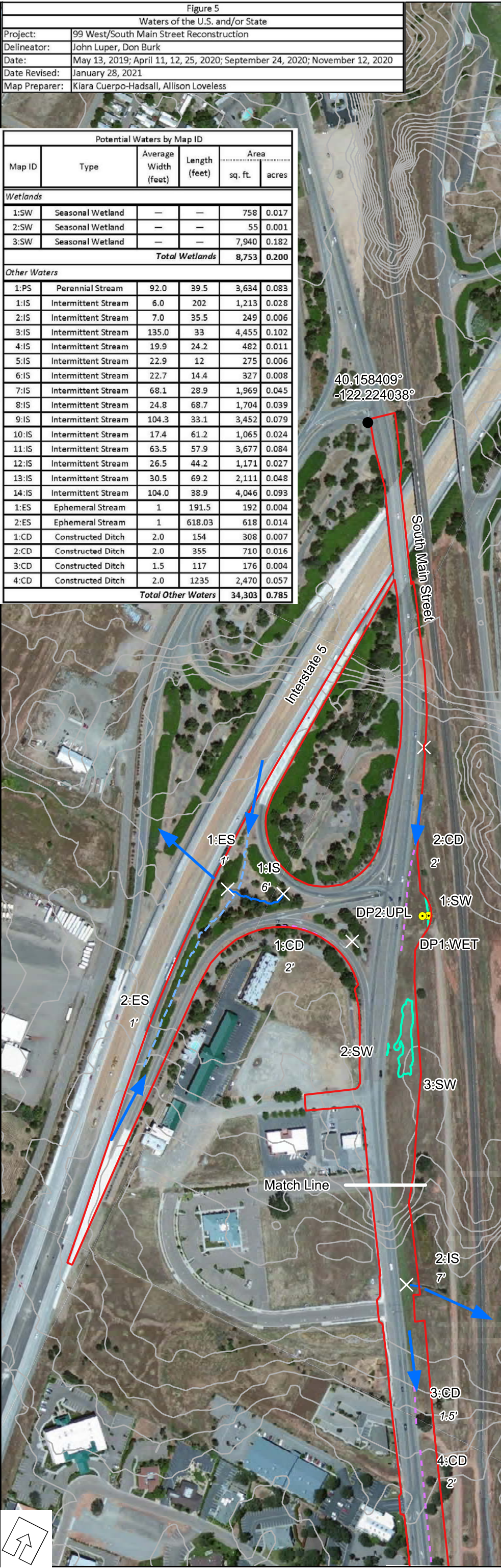
0 400 800 Feet

Figure 4
Project Soils

All depictions are approximate. Not a survey product. 06.04.21

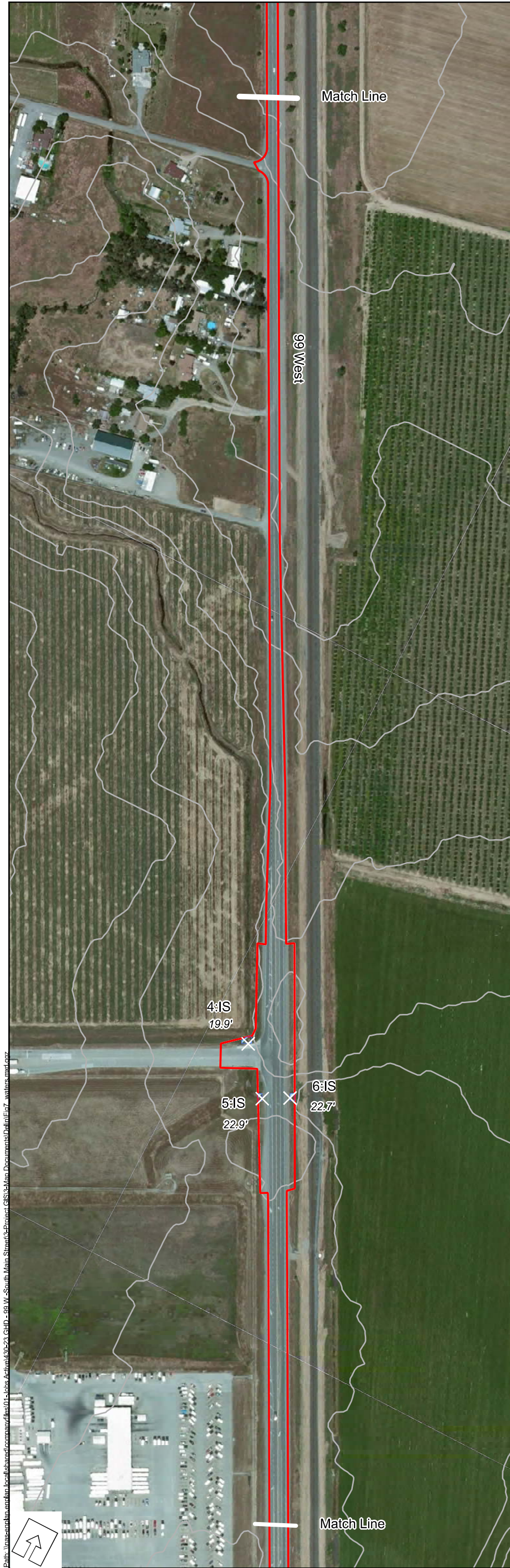
Figure 5	
Waters of the U.S. and/or State	
Project:	99 West/South Main Street Reconstruction
Delineator:	John Luper, Don Burk
Date:	May 13, 2019; April 11, 12, 25, 2020; September 24, 2020; November 12, 2020
Date Revised:	January 28, 2021
Map Preparer:	Kiara Cuerpo-Hadsall, Allison Loveless

Potential Waters by Map ID					
Map ID	Type	Average Width (feet)	Length (feet)	Area sq. ft.	acres
Wetlands					
1:SW	Seasonal Wetland	—	—	758	0.017
2:SW	Seasonal Wetland	—	—	55	0.001
3:SW	Seasonal Wetland	—	—	7,940	0.182
Total Wetlands				8,753	0.200
Other Waters					
1:PS	Perennial Stream	92.0	39.5	3,634	0.083
1:IS	Intermittent Stream	6.0	202	1,213	0.028
2:IS	Intermittent Stream	7.0	35.5	249	0.006
3:IS	Intermittent Stream	135.0	33	4,455	0.102
4:IS	Intermittent Stream	19.9	24.2	482	0.011
5:IS	Intermittent Stream	22.9	12	275	0.006
6:IS	Intermittent Stream	22.7	14.4	327	0.008
7:IS	Intermittent Stream	68.1	28.9	1,969	0.045
8:IS	Intermittent Stream	24.8	68.7	1,704	0.039
9:IS	Intermittent Stream	104.3	33.1	3,452	0.079
10:IS	Intermittent Stream	17.4	61.2	1,065	0.024
11:IS	Intermittent Stream	63.5	57.9	3,677	0.084
12:IS	Intermittent Stream	26.5	44.2	1,171	0.027
13:IS	Intermittent Stream	30.5	69.2	2,111	0.048
14:IS	Intermittent Stream	104.0	38.9	4,046	0.093
1:ES	Ephemeral Stream	1	191.5	192	0.004
2:ES	Ephemeral Stream	1	618.03	618	0.014
1:CD	Constructed Ditch	2.0	154	308	0.007
2:CD	Constructed Ditch	2.0	355	710	0.016
3:CD	Constructed Ditch	1.5	117	176	0.004
4:CD	Constructed Ditch	2.0	1235	2,470	0.057
Total Other Waters				34,303	0.785



Boundaries are preliminary until verified by the Army Corps of Engineers. All depictions are approximate. Not a survey product. 06.04.21





Path: \\nascondan\an\an\local\shred\don\an\01\01-Johns-Artival\410-20-CHID-99-W-South-Main-Street\2-Project\GIS\2-Main-Documents\Delim\Fig7-waters.mxd,qz

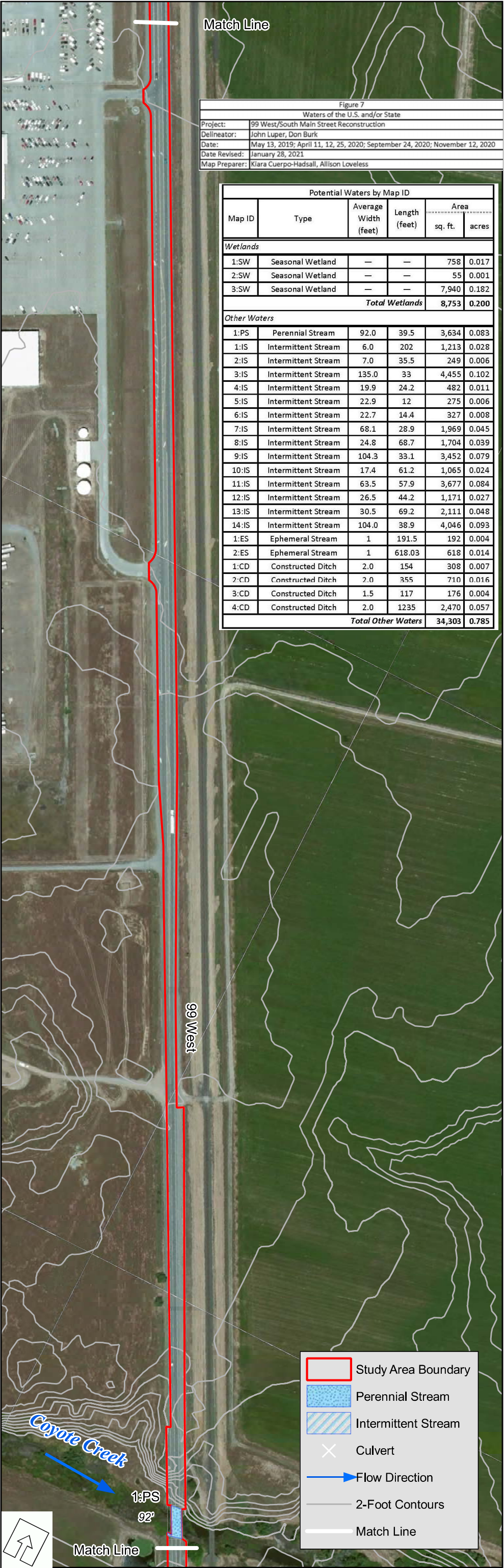


Figure 7	
Waters of the U.S. and/or State	
Project:	99 West/South Main Street Reconstruction
Delineator:	John Luper, Don Burk
Date:	May 13, 2019; April 11, 12, 25, 2020; September 24, 2020; November 12, 2020
Date Revised:	January 28, 2021
Map Preparer:	Klara Cuerpo-Hadsall, Allison Loveless

Potential Waters by Map ID					
Map ID	Type	Average Width (feet)	Length (feet)	Area sq. ft.	acres
Wetlands					
1:SW	Seasonal Wetland	—	—	758	0.017
2:SW	Seasonal Wetland	—	—	55	0.001
3:SW	Seasonal Wetland	—	—	7,940	0.182
Total Wetlands				8,753	0.200
Other Waters					
1:PS	Perennial Stream	92.0	39.5	3,634	0.083
1:IS	Intermittent Stream	6.0	202	1,213	0.028
2:IS	Intermittent Stream	7.0	35.5	249	0.006
3:IS	Intermittent Stream	135.0	33	4,455	0.102
4:IS	Intermittent Stream	19.9	24.2	482	0.011
5:IS	Intermittent Stream	22.9	12	275	0.006
6:IS	Intermittent Stream	22.7	14.4	327	0.008
7:IS	Intermittent Stream	68.1	28.9	1,969	0.045
8:IS	Intermittent Stream	24.8	68.7	1,704	0.039
9:IS	Intermittent Stream	104.3	33.1	3,452	0.079
10:IS	Intermittent Stream	17.4	61.2	1,065	0.024
11:IS	Intermittent Stream	63.5	57.9	3,677	0.084
12:IS	Intermittent Stream	26.5	44.2	1,171	0.027
13:IS	Intermittent Stream	30.5	69.2	2,111	0.048
14:IS	Intermittent Stream	104.0	38.9	4,046	0.093
1:ES	Ephemeral Stream	1	191.5	192	0.004
2:ES	Ephemeral Stream	1	618.03	618	0.014
1:CD	Constructed Ditch	2.0	154	308	0.007
2:CD	Constructed Ditch	2.0	355	710	0.016
3:CD	Constructed Ditch	1.5	117	176	0.004
4:CD	Constructed Ditch	2.0	1235	2,470	0.057
Total Other Waters				34,303	0.785

Study Area Boundary

Perennial Stream

Intermittent Stream

Culvert

Flow Direction

2-Foot Contours

Match Line



Path: \\nas-candian\andian.local\shared\comman\files\01-Jobs Active\430-23 CHD - 99 W - South Main Street\2-Project GIS\3-Map Documents\Delin\Fig8_waters.mxd,gnz

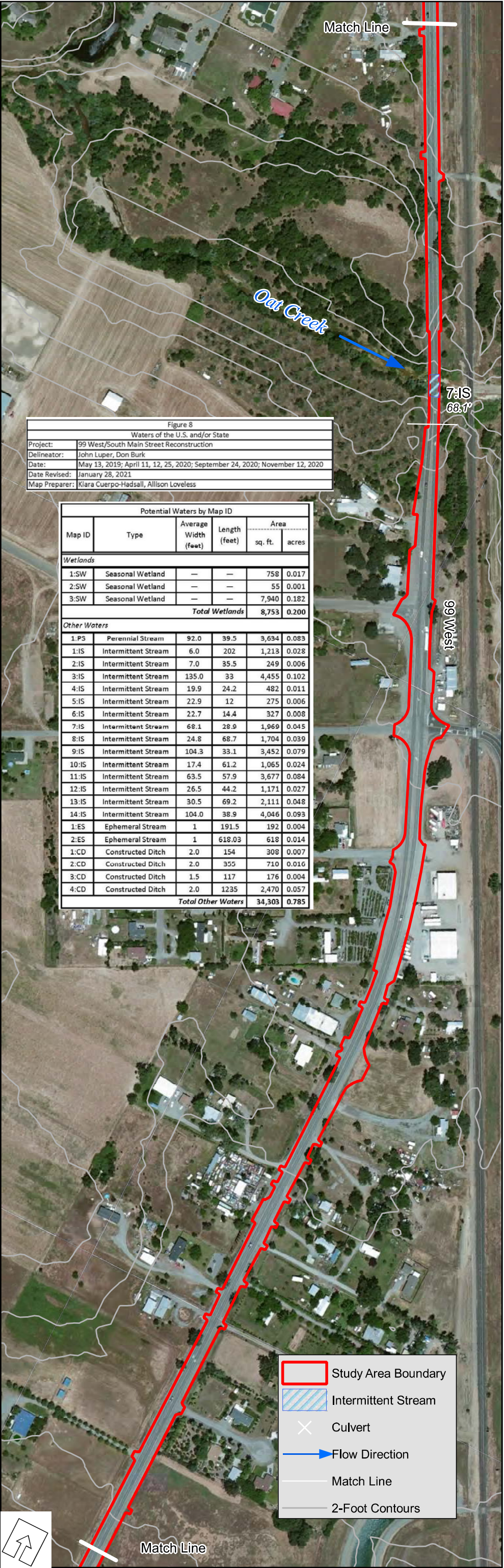


Figure 8	
Waters of the U.S. and/or State	
Project:	99 West/South Main Street Reconstruction
Delineator:	John Luper, Don Burk
Date:	May 13, 2019; April 11, 12, 25, 2020; September 24, 2020; November 12, 2020
Date Revised:	January 28, 2021
Map Preparer:	Klara Cuerpo-Hadsall, Allison Loveless

Potential Waters by Map ID					
Map ID	Type	Average Width (feet)	Length (feet)	sq. ft.	acres
Wetlands					
1:SW	Seasonal Wetland	—	—	758	0.017
2:SW	Seasonal Wetland	—	—	55	0.001
3:SW	Seasonal Wetland	—	—	7,940	0.182
Total Wetlands				8,753	0.200
Other Waters					
1:PS	Perennial Stream	92.0	39.5	3,634	0.083
1:IS	Intermittent Stream	6.0	202	1,213	0.028
2:IS	Intermittent Stream	7.0	35.5	249	0.006
3:IS	Intermittent Stream	135.0	33	4,455	0.102
4:IS	Intermittent Stream	19.9	24.2	482	0.011
5:IS	Intermittent Stream	22.9	12	275	0.006
6:IS	Intermittent Stream	22.7	14.4	327	0.008
7:IS	Intermittent Stream	68.1	28.9	1,969	0.045
8:IS	Intermittent Stream	24.8	68.7	1,704	0.039
9:IS	Intermittent Stream	104.3	33.1	3,452	0.079
10:IS	Intermittent Stream	17.4	61.2	1,065	0.024
11:IS	Intermittent Stream	63.5	57.9	3,677	0.084
12:IS	Intermittent Stream	26.5	44.2	1,171	0.027
13:IS	Intermittent Stream	30.5	69.2	2,111	0.048
14:IS	Intermittent Stream	104.0	38.9	4,046	0.093
1:ES	Ephemeral Stream	1	191.5	192	0.004
2:ES	Ephemeral Stream	1	618.03	618	0.014
1:CD	Constructed Ditch	2.0	154	308	0.007
2:CD	Constructed Ditch	2.0	355	710	0.016
3:CD	Constructed Ditch	1.5	117	176	0.004
4:CD	Constructed Ditch	2.0	1235	2,470	0.057
Total Other Waters				34,303	0.785

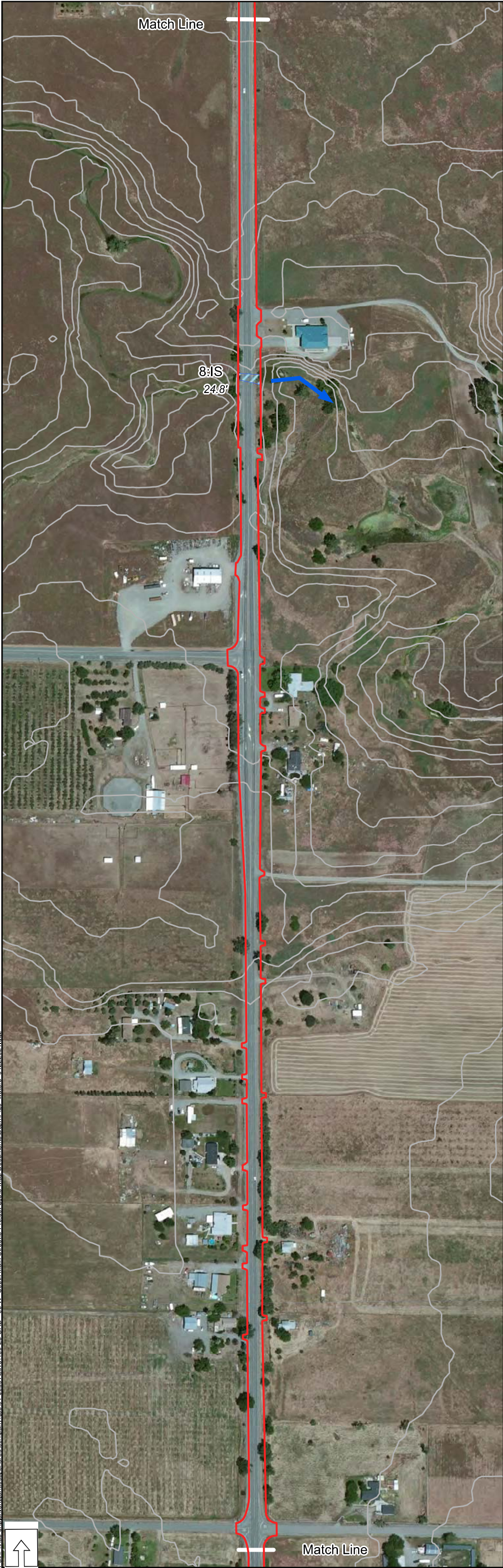
- Study Area Boundary
- Intermittent Stream
- Culvert
- Flow Direction
- Match Line
- 2-Foot Contours

NAVD 1988

Boundaries are preliminary until verified by the Army Corps of Engineers.

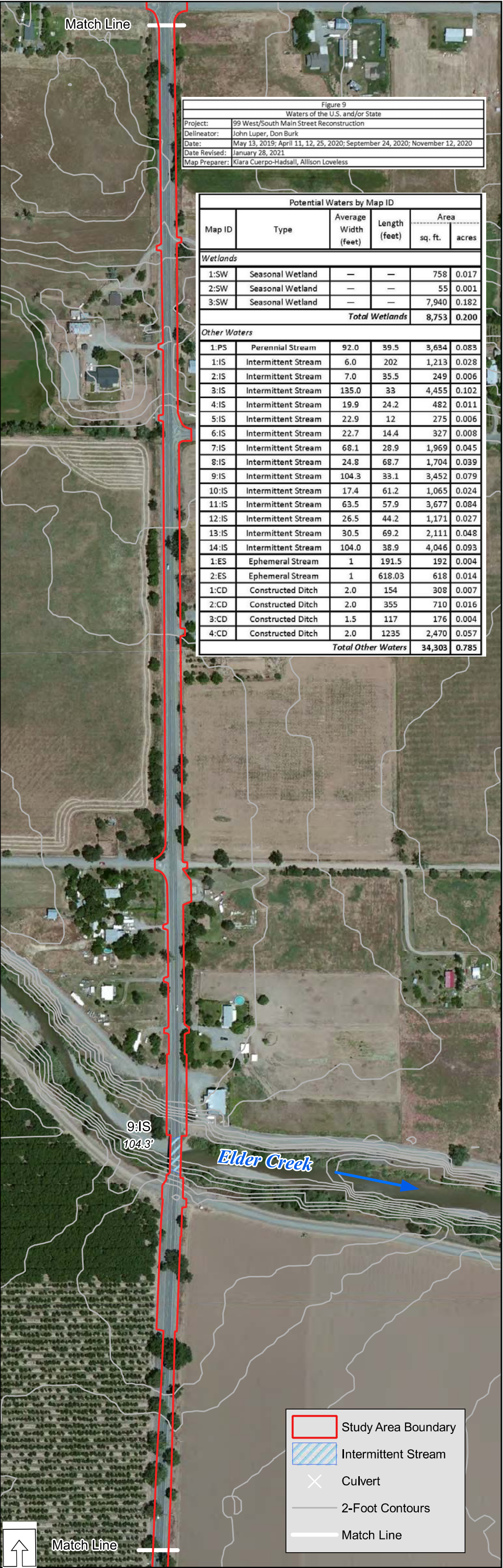
All depictions are approximate. Not a survey product.

06.04.21



1:3,600
0 150 300 Feet

Path: \\nas-candian\enplan\local\shared\comman\d\as\04-Jobs Active\430-203 GH-D-99 W-South Main Street\2-Project GIS\3-Map Documents\Delin\Fig9_waters_04222021.korx



NAVD 1988

Boundaries are preliminary until verified by the Army Corps of Engineers.

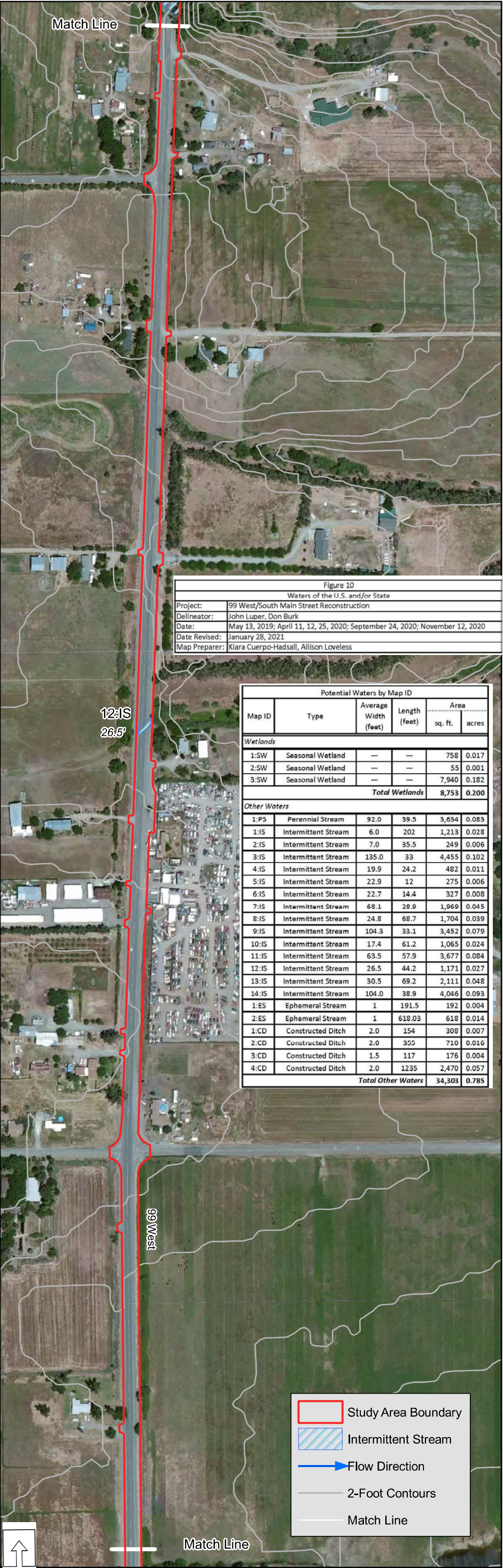
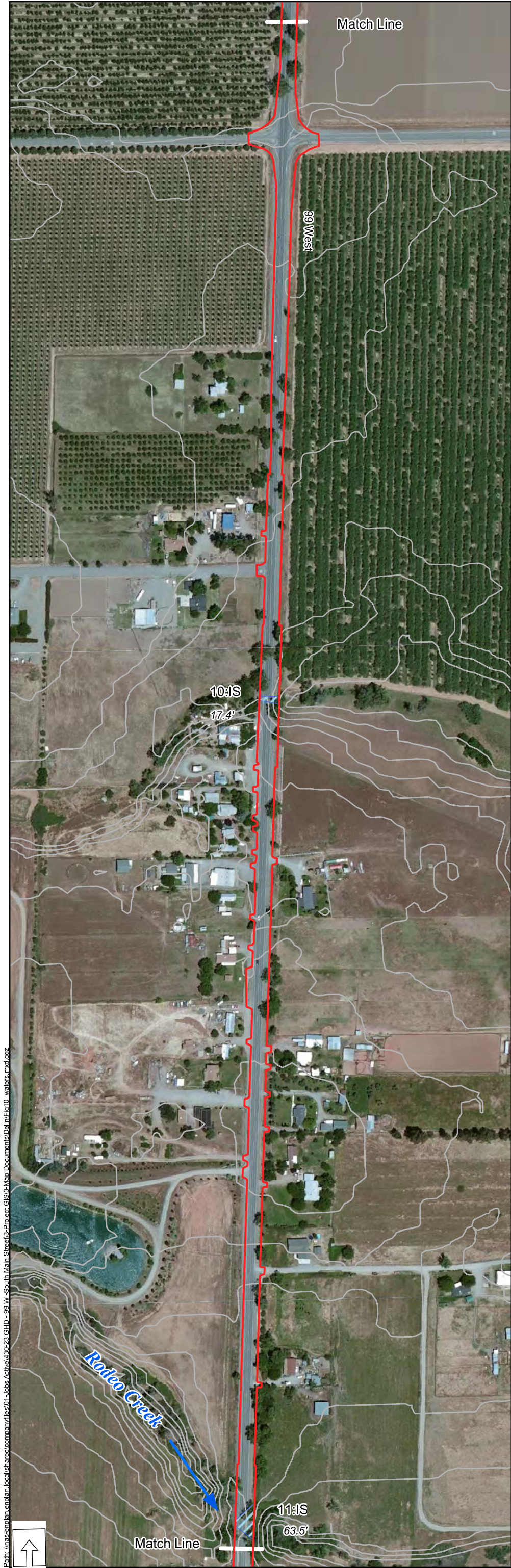
All depictions are approximate. Not a survey product.

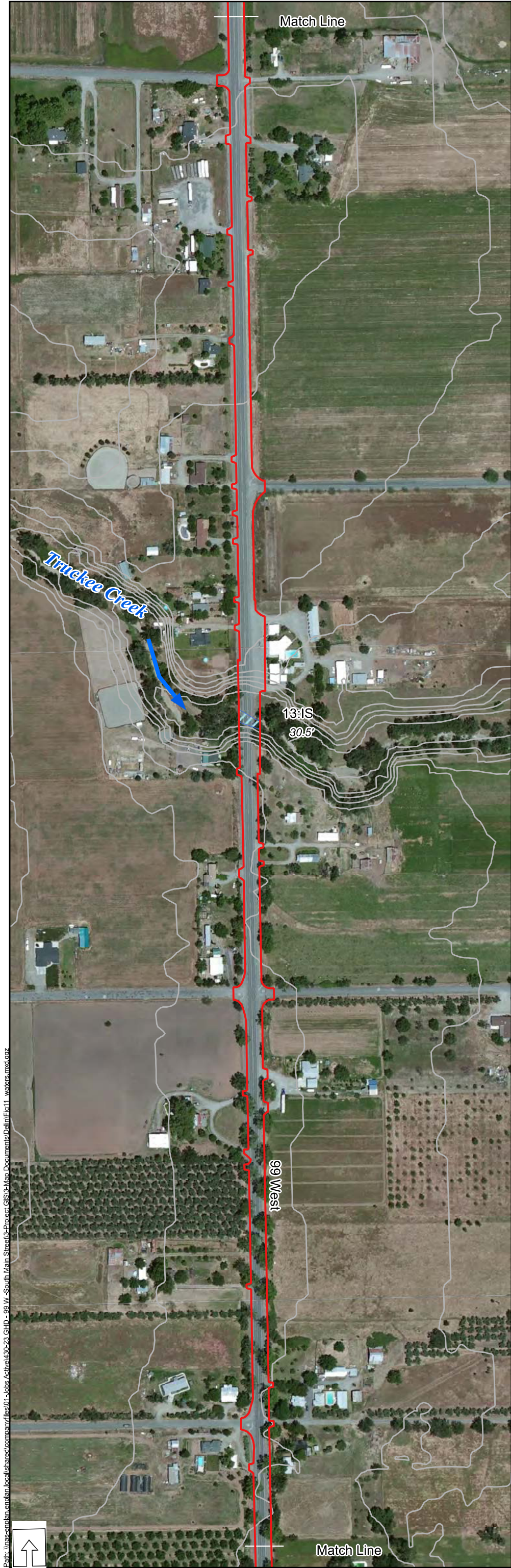
06.04.21

Figure 9	
Waters of the U.S. and/or State	
Project:	99 West/South Main Street Reconstruction
Delineator:	John Luper, Don Burk
Date:	May 13, 2019; April 11, 12, 25, 2020; September 24, 2020; November 12, 2020
Date Revised:	January 28, 2021
Map Preparer:	Kiara Cuerpo-Hadsall, Allison Loveless

Potential Waters by Map ID					
Map ID	Type	Average Width (feet)	Length (feet)	Area sq. ft.	acres
Wetlands					
1:SW	Seasonal Wetland	—	—	758	0.017
2:SW	Seasonal Wetland	—	—	55	0.001
3:SW	Seasonal Wetland	—	—	7,940	0.182
Total Wetlands				8,753	0.200
Other Waters					
1:PS	Perennial Stream	92.0	39.5	3,634	0.083
1:IS	Intermittent Stream	6.0	202	1,213	0.028
2:IS	Intermittent Stream	7.0	35.5	249	0.006
3:IS	Intermittent Stream	135.0	33	4,455	0.102
4:IS	Intermittent Stream	19.9	24.2	482	0.011
5:IS	Intermittent Stream	22.9	12	275	0.006
6:IS	Intermittent Stream	22.7	14.4	327	0.008
7:IS	Intermittent Stream	68.1	28.9	1,969	0.045
8:IS	Intermittent Stream	24.8	68.7	1,704	0.039
9:IS	Intermittent Stream	104.3	33.1	3,452	0.079
10:IS	Intermittent Stream	17.4	61.2	1,065	0.024
11:IS	Intermittent Stream	63.5	57.9	3,677	0.084
12:IS	Intermittent Stream	26.5	44.2	1,171	0.027
13:IS	Intermittent Stream	30.5	69.2	2,111	0.048
14:IS	Intermittent Stream	104.0	38.9	4,046	0.093
1:ES	Ephemeral Stream	1	191.5	192	0.004
2:ES	Ephemeral Stream	1	618.03	618	0.014
1:CD	Constructed Ditch	2.0	154	308	0.007
2:CD	Constructed Ditch	2.0	355	710	0.016
3:CD	Constructed Ditch	1.5	117	176	0.004
4:CD	Constructed Ditch	2.0	1235	2,470	0.057
Total Other Waters				34,303	0.785

	Study Area Boundary
	Intermittent Stream
	Culvert
	2-Foot Contours
	Match Line





Path: \\nas-candian.amn.kia.local\shared\comman\files\01-Jobs Active\43023 99 W - South Main Street\3-Project GIS\3-Map Documents\Delin\Fig11_waters.mxd

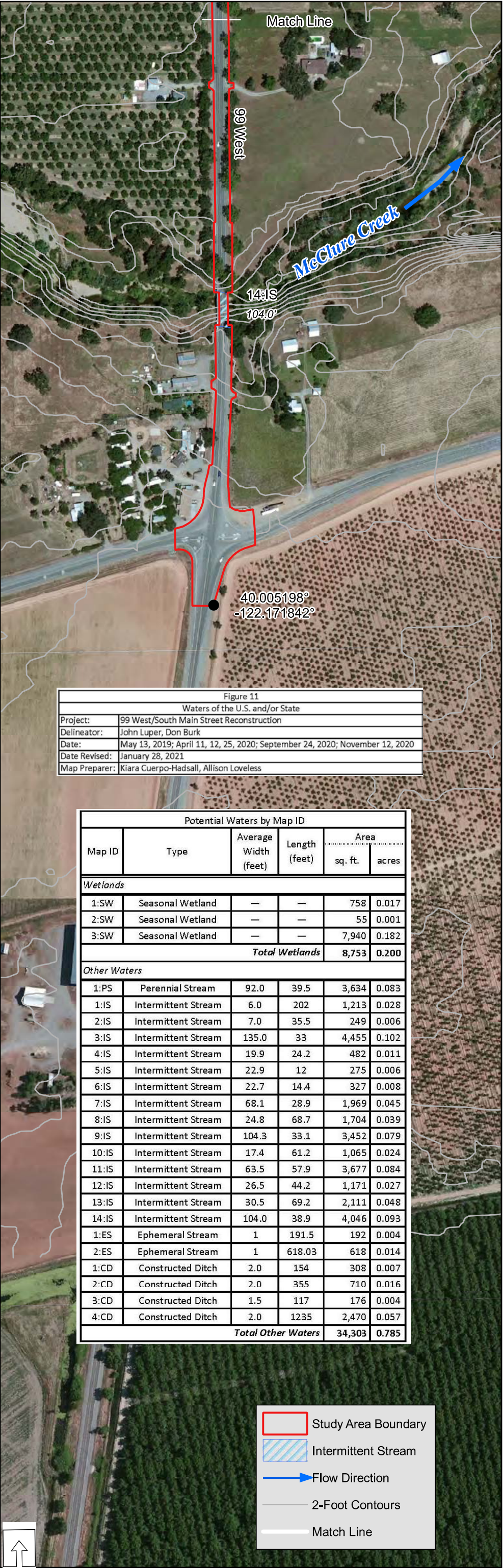


Figure 11	
Waters of the U.S. and/or State	
Project:	99 West/South Main Street Reconstruction
Delineator:	John Luper, Don Burk
Date:	May 13, 2019; April 11, 12, 25, 2020; September 24, 2020; November 12, 2020
Date Revised:	January 28, 2021
Map Preparer:	Klara Cuerpo-Hadsall, Allison Loveless

Potential Waters by Map ID					
Map ID	Type	Average Width (feet)	Length (feet)	Area sq. ft.	acres
<i>Wetlands</i>					
1:SW	Seasonal Wetland	—	—	758	0.017
2:SW	Seasonal Wetland	—	—	55	0.001
3:SW	Seasonal Wetland	—	—	7,940	0.182
<i>Total Wetlands</i>				8,753	0.200
<i>Other Waters</i>					
1:PS	Perennial Stream	92.0	39.5	3,634	0.083
1:IS	Intermittent Stream	6.0	202	1,213	0.028
2:IS	Intermittent Stream	7.0	35.5	249	0.006
3:IS	Intermittent Stream	135.0	33	4,455	0.102
4:IS	Intermittent Stream	19.9	24.2	482	0.011
5:IS	Intermittent Stream	22.9	12	275	0.006
6:IS	Intermittent Stream	22.7	14.4	327	0.008
7:IS	Intermittent Stream	68.1	28.9	1,969	0.045
8:IS	Intermittent Stream	24.8	68.7	1,704	0.039
9:IS	Intermittent Stream	104.3	33.1	3,452	0.079
10:IS	Intermittent Stream	17.4	61.2	1,065	0.024
11:IS	Intermittent Stream	63.5	57.9	3,677	0.084
12:IS	Intermittent Stream	26.5	44.2	1,171	0.027
13:IS	Intermittent Stream	30.5	69.2	2,111	0.048
14:IS	Intermittent Stream	104.0	38.9	4,046	0.093
1:ES	Ephemeral Stream	1	191.5	192	0.004
2:ES	Ephemeral Stream	1	618.03	618	0.014
1:CD	Constructed Ditch	2.0	154	308	0.007
2:CD	Constructed Ditch	2.0	355	710	0.016
3:CD	Constructed Ditch	1.5	117	176	0.004
4:CD	Constructed Ditch	2.0	1235	2,470	0.057
<i>Total Other Waters</i>				34,303	0.785

Study Area Boundary

Intermittent Stream

Flow Direction

2-Foot Contours

Match Line

APPENDIX E

Representative Photos



Perennial Stream; 1:PS



Intermittent Stream; 1:IS



Intermittent Stream; 2:IS



Red Bank Creek; 3:IS



Intermittent Stream; 5:IS



Truckee Creek; 13:IS



Ephemeral Stream; 1:ES



Constructed Ditch; 2:CD



Seasonal wetland; 1:SW



Upland pair point for seasonal wetland; DP2