

---

## **APPENDIX F**

# **JURISDICTIONAL DELINEATION**

---

# **JURISDICTIONAL DELINEATION REPORT FOR THE OC LOOP SEGMENTS O, P AND Q COYOTE CREEK BIKEWAY PROJECT**

*Prepared for:*

**Orange County Public Works**



Tim Nguyen  
601 N. Ross Street  
Santa Ana, CA 92701  
Telephone: 714.245.4503

*Prepared by:*



**UltraSystems Environmental Inc.**  
16431 Scientific Way  
Irvine, CA 92618-4355  
Telephone: 949.788.4900  
FAX: 949.788.4901  
[www.ultrasystems.com](http://www.ultrasystems.com)

**August 2020**

*This page intentionally left blank.*

## TABLE OF CONTENTS

|            |   |           |
|------------|---|-----------|
| <b>1.0</b> | <b>Introduction .....</b>                                     | <b>1</b>  |
| 1.1        | Project Location.....   | 1         |
| 1.2        | Project Background.....                                       | 1         |
| 1.3        | Project Purpose.....  | 2         |
| <b>2.0</b> | <b>Project Description.....</b>                               | <b>2</b>  |
| 2.1.1      | Summary of Segment O Improvements .....                       | 2         |
| 2.1.2      | Summary of Segment P Improvements.....                        | 3         |
| 2.1.3      | Summary of Segment Q Improvements .....                       | 5         |
| 2.2        | Project Construction.....                                     | 8         |
| 2.3        | Construction Staging .....                                    | 9         |
| <b>3.0</b> | <b>Regulatory Framework.....</b>                              | <b>9</b>  |
| 3.1        | Federal.....  | 9         |
| 3.2        | State.....  | 11        |
| <b>4.0</b> | <b>Methodology .....</b>                                      | <b>12</b> |
| <b>5.0</b> | <b>Data Review Results.....</b>                               | <b>15</b> |
| 5.1        | National Wetland Inventory Wetlands .....                     | 15        |
| 5.2        | Soils.....  | 16        |
| 5.3        | Climate and Hydrologic Data .....                             | 16        |
| 5.4        | Land Use .....  | 18        |
| <b>6.0</b> | <b>Field Investigation Results .....</b>                      | <b>18</b> |
| 6.1        | Physical Conditions in the Study Area.....                    | 18        |
| 6.2        | Sections 401 and 404 of the Clean Water Act .....             | 19        |
| 6.3        | Section 1602 of the California Fish and Game Code.....        | 19        |
| <b>7.0</b> | <b>Observed Jurisdictional Status.....</b>                    | <b>19</b> |
| <b>8.0</b> | <b>Potential Impacts to Waters of the U.S. and State.....</b> | <b>20</b> |
| <b>9.0</b> | <b>Literature Cited and References.....</b>                   | <b>22</b> |

## TABLES

|                    |  |    |
|--------------------|--|----|
| <b>Table 3.1-1</b> | - Total Maximum Daily Loads for Coyote Creek and Coyote Creek North Fork ..... | 10 |
| <b>Table 5.2-1</b> | - Soil Types Occurring Within the Project Area .....                           | 16 |
| <b>Table 5.3-1</b> | - Temperature Statistics for Anaheim Station #040192 (1989– 2016) .....        | 17 |
| <b>Table 5.3-2</b> | - Precipitation Statistics for Anaheim Station #040192 (1989– 2016).....       | 18 |
| <b>Table 8.0-1</b> | - Jurisdictional Areas and Impacts Summary Table .....                         | 21 |



## APPENDICES

**Appendix A** Figures

- Figure 1 - Project Location
- Figure 2 - USGS Topographic Map
- Figure 3 - USGS Surface Waters and Watersheds

**Appendix B** OC Loop Improvement Plan Mapbook

**Appendix C** OC Loop Project Plans

**Appendix D** OC Loop Jurisdictional Areas

**Appendix E** OC Loop Impacts to Jurisdictional Waters

**Appendix F** Representative Site Photographs

## LIST OF ABBREVIATIONS AND ACRONYMS

| Acronym/ Abbreviation | Term  |
|-----------------------|---|
| Basin Plan(s)         | water quality control plan(s)                   |
| BMP(s)                | best management practice(s)                     |
| BNSF                  | Burlington Northern-Santa Fe Railway Company    |
| BSA                   | biological study area                           |
| CDFW                  | California Department of Fish and Wildlife      |
| CWA                   | Clean Water Act                                 |
| FGC                   | California Fish and Game Code                   |
| GIS                   | Geographic Information System                   |
| GPS                   | Global Positioning System                       |
| HU                    | hydrologic unit                                 |
| HUC                   | hydrologic unit code                            |
| LACFCD                | Los Angeles County Flood Control District       |
| LACDPW                | Los Angeles County Department of Public Works   |
| MRLA(s)               | Major Land Resource Area (s)                    |
| NHD                   | National Hydrography Dataset                    |
| NOAA                  | National Oceanic and Atmospheric Administration |
| NPDES                 | National Pollutant Discharge Elimination System |
| NRCS                  | Natural Resources Conservation Service          |
| NTCHS                 | National Technical Committee for Hydric Soils   |
| NWI                   | National Wetlands Inventory                     |
| NWP                   | Nationwide Permit Program                       |
| OHWM                  | ordinary high water mark                        |
| PCN                   | Preconstruction Notification                    |
| PEM                   | Freshwater Emergent Wetland                     |
| ppt                   | parts per thousand                              |
| RCB                   | reinforced concrete box                         |
| ROW                   | right-of-way                                    |
| RWQCB                 | Regional Water Quality Control Board            |
| SDA                   | Soil Data Access                                |
| State                 | State of California                             |
| SWPPP                 | Storm Water Pollution Prevention Plan           |
| SWRCB                 | State Water Resources Control Board             |
| UltraSystems          | UltraSystems Environmental Inc.                 |
| UPRR                  | Union Pacific Railroad                          |
| U.S.                  | United States                                   |
| USACE                 | United States Army Corps of Engineers           |
| USDA                  | United States Department of Agriculture         |
| USEPA                 | United States Environmental Protection Agency   |
| USFWS                 | United States Fish and Wildlife Service         |
| USGS                  | United States Geological Survey                 |

## 1.0 Introduction

On behalf of GHD, UltraSystems Environmental Inc. (UltraSystems) conducted a delineation of waters of the United States and waters of the State of California in support of the proposed OC Loop Segments O, P and Q Coyote Creek Bikeway Project (project; see **Figure 1, Project Location**).

Due to the Novel Coronavirus (COVID-19) pandemic and ongoing State of California Stay at Home Order (Executive Order N-33-20), UltraSystems biologists were unable to visit the proposed project site to conduct the jurisdictional delineation. Therefore, on the recommendation of the USACE Los Angeles District Office (Veronica Li, personal communication) UltraSystems' Senior Biologists Michelle Tollett and Allison Carver conducted digital delineations of Coyote Creek using historic and recent aerial imagery (Google Earth, 2020).

On April 9, 2020 Ms. Tollett and Ms. Carver conducted a digital (desktop) delineation of Coyote Creek within the area of proposed project disturbance (project footprint), from approximately 500 feet south (downstream) of the confluence of Coyote Creek and Coyote Creek North Fork (i.e., La Canada Verde Creek) northeast to approximately 400 feet upstream of the La Mirada Boulevard - Coyote Creek overcrossing. The delineation included approximately 1,100 feet of Coyote Creek North Fork upstream of the confluence with Coyote Creek.

This delineation was conducted to determine the presence of potentially jurisdictional waters of the U.S. and State, including wetlands, that may be subject to regulation by the U.S. Army Corps of Engineers (USACE) under § 404 of the Clean Water Act (CWA), by the California State Water Resources Control Board (SWRCB) under § 401 CWA and by the California Department of Fish and Wildlife (CDFW) under § 1602 of the Fish and Game Code (FGC) (collectively referred to as "jurisdictional waters"). This report documents the delineation process and results.

## 1.1 Project Location

The project would be located in northwestern Orange County, on, and occasionally crossing, the Los Angeles County line; in the Cities of Cerritos, La Mirada, and Buena Park, California. The proposed alignment generally parallels Coyote Creek from 183<sup>rd</sup> Street at the southern end to South La Mirada boulevard at the northern terminus. The proposed project would be located in Township 3 South, Range 11 West, Sections 26, 27, 33, and 34 of the La Habra, Los Alamitos, and Whittier United States Geological Survey (USGS) 7.5-Minute topographic quadrangle maps (USGS, 2018a, 2018b, 2018c; **Figure 1, Project Location**, and **Figure 2, USGS Topographic Map**, located in **Appendix A, Figures**).

Land uses in the project area are primarily commercial, light industrial, and residential.

## 1.2 Project Background

Areas along the OC Loop corridor that are open for bicycle traffic are in poor condition and the bikeway surface is not marked clearly. Bicycle traffic at the junction of the Coyote Creek Bikeway and the San Gabriel River Bikeway does not continue along the Coyote Creek Bikeway. In some areas, the bikeway is improved on one bank, while in other areas it is improved on both sides. Bicyclists can find themselves at the end of a bikeway facing a heavily used arterial highway with a high speed limit. In addition, there may be no traffic signals to facilitate crossing, a raised median may prohibit crossing, and no suitable way to use the roadway bridge to ride across the creek to reach the bikeway on the opposite bank.

The proposed project involves the construction of a 2.7-mile Class I Bikeway along the Coyote Creek flood control channel in the City of Cerritos on the south through the City of La Mirada to the City of Buena Park to the north. The 2.7-mile Class I Bikeway is a component of a 66-mile regional bikeway corridor called the OC Loop.

### 1.3 Project Purpose

Once constructed, the proposed project would close an existing bikeway gap along the OC Loop with a Class I bikeway/path physically separated from vehicular traffic. As an alternative mode of transportation, the proposed project would also increase the use of active transportation travel modes, enhance safety and mobility for non-motorized users, advance efforts to achieve greenhouse gas reduction goals, improve access and maintenance to the flood control channel, and enhance public health.

In addition, the proposed project is a safety and mobility enhancement for the County of Orange, and is included in the 2008 Coyote Creek Bikeway Master Plan (Rivers and Mountains Conservancy and Trails4All), 2009 OCTA Commuter Bikeway Strategic Plan, 2012 OCTA/County of Orange Fourth District Bikeways Strategy report, 2014 County of Orange General Plan, and the 2015 OC Loop Gap Feasibility Study (OC Parks).

### 2.0 Project Description

The proposed project is divided into three Segments (O, P and Q) of the overall OC Loop (see **Appendix B, OC Loop Improvement Plans Mapbook**). From south to north, OC Loop Segment O extends northeasterly from the point of origin near the north fork of the Coyote Creek flood control channel to Artesia Boulevard. OC Loop Segment P extends northerly from Artesia Boulevard to Knott Avenue, while OC Loop Segment Q extends northerly from Knott Avenue to the terminus of the proposed project at La Mirada Boulevard. Conceptual drawings showing all of the improvements associated with the proposed project are provided herein as **Appendix C, Project Plans**. Details of crossing areas are located in **Appendix C1, 2020 Updated Crossing Plans**. The plans originate at Station 10+00.0 (Coyote Creek/North Fork) and terminate at Station 147+22.83 (La Mirada Boulevard/Malvern Avenue).

Following are summary descriptions of the main improvements planned as part of the proposed project, presented on a segment by segment basis. A number of utility crossings would be necessary to accommodate the proposed project. Existing flood control maintenance road ramps from the flood control channel to existing roadways would be improved for bicycle access as well. Chain link or cable fencing would be provided where safety dictates, on one or both sides of the bikeway.

#### 2.1.1 Summary of Segment O Improvements

##### Location

Segment O is the southernmost portion of the project area and is located within the cities of Cerritos and Buena Park. Segment O begins at the existing Coyote Creek Bikeway at the confluence of the channel's east and north forks. The segment runs east-northeast for approximately 4,800 feet, or 0.91 mile, along the east fork of the Coyote Creek Channel to Artesia Boulevard. A general plan view of the proposed improvements within OC Loop Segment O is depicted in **Appendix B, Map 1 of 3**.

### **Pedestrian/Cyclist Bridge**

At Station 10+00, at the confluence of the north and east forks of the flood control channel, a 200-foot-long and 12-foot-wide pre-fabricated truss bridge would be installed across Coyote Creek at the north fork (see **Appendix C**).

Approximately four 18-wheeled flatbed trucks would deliver the bridge in several sections and workers would bolt the bridge together onsite. The pre-fabricated bridge would be bolted together on the floor of the concrete flood control channel. It is estimated to take about two days to assemble the bridge on site. Reinforced concrete end bents would be constructed (cast in place) prior to delivery of the bridge. The bridge would be lifted and placed on the end bents by two large cranes. Only pedestrians and cyclists would use the bridge, as it would not be rated for the weight of motor vehicles. The bridge would be steel and designed to have a rust patina (“weathered steel” look), to eliminate the need for future painting. The deck of the pedestrian bridge would be wood.

Approximately 1,570 linear feet of 12- to 16-foot-wide asphalt would be placed upstream of the pre-fabricated bridge to Valley View Avenue. About 1,750 cubic feet of asphaltic concrete used for the existing maintenance road would be removed and recycled before any new asphalt paving would be placed. The new asphalt would be approximately four inches thick over six inches of crushed aggregate base. Fencing, such as a five-foot-high chain link fence or four-foot-tall cable fence with six strands of cable may be installed on one or both sides. The fencing may be installed along the entire 2.7 miles of new bikeway if necessary. The location of the fencing (either on one or both sides of the bikeway) would be determined later in the design process,

### **Valley View Avenue Undercrossing**

The next feature of Segment O would be a concrete undercrossing of Valley View Avenue that would be constructed into the side of the existing sloped bank of the concrete flood control channel. The existing concrete slope under the Valley View Bridge would be removed and steepened to near vertical to accommodate the new 12-foot-wide trail undercrossing. A tieback wall would be installed under the bridge and the construction would be located above the existing outfalls. Under-bridge communications conduit must be relocated. Upstream of the Valley View undercrossing to Artesia Boulevard, approximately 3,010 feet of 14- to 16- foot-wide asphalt paving would be placed adjacent to the flood control channel (see Appendix C1).

### **Artesia Boulevard Ramp**

The bikeway ramp up to the south side of Artesia Boulevard would generally follow the existing maintenance access road.

## **2.1.2 Summary of Segment P Improvements**

### **Location**

Segment P is located generally within the City of La Mirada in Los Angeles County and runs parallel to the north side of the Coyote Creek channel from the Artesia Boulevard undercrossing to Knott Avenue. It is approximately 3,000 feet long (equivalent to 0.57 mile) and crosses under the Interstate 5 (I-5) freeway, its frontage roads (South and North Firestone Boulevard), and the Union Pacific Railroad (UPRR) industrial lead. It includes 1,085 linear feet of new 14 to 16 foot-wide

asphalt trail. A general plan view of the proposed improvements within OC Loop Segment P is provided in **Appendix B**, Map 2 of 3; conceptual drawings are in **Appendix C**, *Project Plans*.

### **Undercrossing at Artesia Boulevard**

Segment P begins at the Artesia Boulevard undercrossing, where there is currently a six-foot-wide strip of exposed dirt under the bridge between the bridge abutment and the vertical wall of the flood control channel. Several concrete columns would be installed into the six-foot-wide strip of exposed soil between the bridge abutment wall and the concrete channel wall. The concrete columns would support a 13-foot-wide concrete deck, six to seven feet of which will cantilever over the flood control channel. Approximately two to three feet of the top of the concrete flood control wall would be removed to ensure that there would be sufficient vertical clearance between the new bikeway and the bridge soffit. The existing concrete bridge abutment wall will act as the new flood control wall. Upstream from the Artesia Boulevard undercrossing would be about 1,200 feet of new 12- to 16-foot-wide asphalt paving (see **Appendix C1**).

### **Union Pacific Railroad Box Jack (Concrete Box) Underground Tunnel**

The next feature in Segment P would be a 120-foot-long box jack construction of a reinforced concrete box culvert underground tunnel under the UPRR railroad line. The box jacking operation would take two months and involve jacking a linear 134-foot-long, 12-foot-wide and 10-foot-tall<sup>1</sup> precast reinforced concrete box. There would be 7.5 feet of earthen cover between the top of the box and the railroad tracks.

Upstream from the UPRR undercrossing to the South Firestone Boulevard undercrossing, the bikeway elevation remains below the top of the channel. Between the UPRR crossing and South Firestone Boulevard would be an open concrete U-channel to contain the new trail. The vertical U-channel walls would vary from 0 feet to about 13 feet high. This channel would slope down into the tunnel, with the wall height increasing as the depth increases, and then would slope upwards as it leaves the tunnel, with its walls decreasing in height. One method to construct this depressed cross-section is to make use of the existing channel wall and then excavate away from it toward the right-of-way line. A wall would then be needed on the opposite side to support the below-grade bikeway. It is anticipated that this wall's height most likely cannot be supported without ground anchors (or tiebacks) that extend beyond the right-of-way line. Therefore, a top-down wall without tiebacks could be constructed (such as a secant or tangent pile wall). Another method is to use shoring to excavate the "u-shape" then construct a "U-wall" similar to what is done for creek channels.

On the downstream side of this crossing are two abandoned fuel lines, a U.S. Navy jet fuel line and a Kinder Morgan oil pipeline. The project would cut, cap and remove the Kinder Morgan fuel pipeline and the Navy jet fuel line.

### **South Firestone Boulevard Undercrossing**

The project proposes an open cut of South Firestone Boulevard west of Coyote Creek and the installation of a 12-foot-wide by 9.25-foot-tall precast concrete box. The box under South Firestone Boulevard would be completed by closing the road for approximately three weeks. A detour can be provided for each direction since South Firestone Boulevard has access on both ends. There are no residences within 2,400 feet of this site (the nearest residence is approximately 2,400 feet east of the

---

1 Inside dimensions.



site at the westerly end of the Kensington Drive cul-de-sac). After the concrete box undercrossing tunnel has been installed, it would be covered with road base and paved to its original elevation.

The existing Southern California Edison pole at South Firestone Boulevard may need to be relocated as part of the proposed project. If it is relocated, it would be moved within the ROW to the north side of the box culvert.

### **I-5, South and North Firestone Boulevard Undercrossing**

The I-5, South and North Firestone Boulevard undercrossing would be located in the City of La Mirada. South Firestone requires an open cut, concrete box culvert beneath the existing roadway. The I-5 Widening Project, which is separate from the proposed project, provides sufficient width for the tunnel between two bridge abutments at both the I-5 and North Firestone Boulevard. The section under the I-5 and North Firestone Boulevard would need to be excavated to accommodate the proposed 12-foot-wide bikeway. Upstream of the I-5 and North Firestone Boulevard, the trail would continue adjacent to the top of the flood control channel. Approximately 1,550 linear feet of 14- to 16-foot-wide asphalt trail would be placed between North Firestone Boulevard and Knott Avenue.

### **2.1.3 Summary of Segment Q Improvements**

#### **Location**

Segment Q begins in the City of Buena Park, extends northwest into the City of La Mirada and ends in the City of Buena Park. More specifically, Segment Q extends from Knott Avenue to Stage Road and ends at La Mirada Boulevard in Buena Park and is approximately one mile long. It crosses beneath the Burlington Northern Santa Fe Railway Company (BNSF) industrial lead, the heavily-used BNSF Los Angeles-San Diego-San Luis Obispo (LOSSAN) Rail Corridor, and Stage Road at grade at McComber Road before ending at La Mirada Boulevard. A general plan view of the proposed improvements within OC Loop Segment P is provided in **Appendix B**, Map 3 of 3; conceptual drawings are in **Appendix C**, *Project Plans*.

#### **Knott Avenue at-Grade Crossing**

The first component of Segment Q would be a signalized at-grade crossing at Knott Avenue. Traffic signals with push-button activation and crosswalk striping would be installed. Approximately 420 linear feet of 12- to 14-foot-wide asphalt trail would be installed upstream of Knott Avenue.

#### **At-Grade Crossing of BNSF Railway Lead**

Upstream from Knott Avenue (downstream of the confluence of Coyote Creek and Brea Creek) would be an at-grade crossing of a railroad industrial lead that serves only a few customers. BNSF is evaluating if this lead can be closed to the north of this crossing. If not closed, then because of the low volume, the California Public Utilities Commission and BNSF will not require warning signals; rather, zigzag fencing will be constructed on both sides so bicyclists are made to look in both directions before crossing. Upstream of this railroad crossing would be approximately 2,900 feet of 14- to 16-foot-wide new asphalt pavement along the Coyote Creek flood control channel.

### **Undercrossing of the BNSF/Metrolink Railway Line**

The next feature in Segment Q would be a 144-foot-long bore and jack of a reinforced concrete box culvert tunnel under an existing BNSF and Metrolink railway crossing, which carries three tracks as well as a railroad turnout (i.e., railroad switch).<sup>2</sup> It is anticipated that the bridge will be widened for a fourth railroad track in a couple of years. The box jacking operation would take two months and involve jacking a linear 144-foot-long, 12-foot-wide and 10-foot-tall<sup>3</sup> precast reinforced concrete box. There would be 7.5 feet of earthen cover between the top of the box and the railroad tracks.

Various utility lines are located in this area. On the downstream side of the existing railroad crossing there is a Chevron fuel line. On the upstream side of the bridge are telecommunication lines in a concrete box girder conduit, but the fuel line and the telecommunication lines would not be in conflict with the proposed tunnel because they are above ground rather than underground. The project would cut, cap and remove the abandoned Chevron Oil fuel pipeline. A conflict with utilities would be avoided by going under the AT&T conduit (which is supported above ground).

A vacant triangular 0.5-acre parcel owned by the Los Angeles County Flood Control District is located on the downstream side of the Metrolink line and could be used for construction staging.

### **Upstream of the BNSF/Metrolink Undercrossing**

Upstream of the box section, between the BNSF/Metrolink undercrossing and Stage Road, would be an open U-channel to contain the new trail. The vertical U channel walls would vary from 0 feet to about 13 feet high. This portion of the trail would provide safe passage for pedestrian and bicyclists from the BNSF Metrolink undercrossing to the at-grade crossing of Stage Road described below.

### **At-Grade Crossing of Stage Road**

The next feature in Segment Q would be an at-grade crossing of Stage Road in Buena Park. The fully signalized intersection would be located at McComber Road approximately 500 feet west of the channel. A typical fully functional “T intersection” traffic signal and crosswalk would be installed. This option would involve restriping the existing roadway to allow for a 12-foot-wide, barrier-separated, bikeway on both sides of Stage Road between McComber Road and Coyote Creek. This Class IV bikeway would be located between McComber and the Stage Road crossing. Class II striping transition would be located along Stage Road to the east of Coyote Creek and along Stage Road to the west of the intersection of McComber Road and Stage Road, as follows: restriping Class II bikeways would occur along Stage Road between Beach Boulevard to the east and approximately 300 feet west of the intersection of McComber Road and Stage Road. Additionally, new curb ramps would be installed at McComber Road and at Coyote Creek.

### **Pedestrian/Cyclist Bridge North of Stage Road Crossing Coyote Creek**

Upstream from Stage Road would be about 560 feet of new 12- to 16-foot-wide asphalt paving along the east bank of Coyote Creek. To meet up with the already constructed OC Loop Segment R on the other side of the channel, a pre-fabricated truss bridge, similar to the one being installed at the beginning of the project, but much shorter, would be installed across Coyote Creek. The bridge would be approximately 50 feet long, no more than about five to eight feet high, and 12 feet wide.

---

2 A railroad turnout is a mechanical installation enabling railway trains to be guided from one track to another, such as at a railway junction or where a spur or siding branches off.

3 Inside dimensions.



Installation of the bridge would be completed in one day by using a large crane. Prior to the arrival of the bridge, the reinforced concrete bridge abutments would be formed and poured. Upstream from the pedestrian bridge would be 640 feet of new 12- to 16-foot-wide asphalt paving along the west bank of Coyote Creek.

### **La Mirada Boulevard Detour**

The new and existing bikeway would be connected by directing cyclists onto La Mirada Boulevard and constructing a new 10-foot wide asphalt Class I trail on both sides of La Mirada Boulevard for a distance of 280 feet (on each side) where bicyclists could cross via an existing signalized intersection at the entrance of the Los Coyotes Shopping Center. Several ornamental trees would be removed and replaced if the owner/City desires. Minor grading would be conducted to install the new Class I trail. The existing sidewalks for this 280-foot reach of La Mirada Boulevard would be included in the Class I trail.

### **Improvements at La Mirada Boulevard/Malvern Avenue**

Along the north side and south side of La Mirada Boulevard between the Coyote Creek Channel and the shopping center driveway at Village Circle Way, the contractor will “clear & grub” from the back of curb to the privacy wall on the north side and from the back/curb to the retaining wall along the south side. Any surface-evident utilities will remain in place and a 10-foot-wide combined pedestrian/Class I bikeway would be constructed on both sides. Approximately 19 feet (or less) of permanent easement is required.

### ***Landscaping***

Other than an existing 280-foot-long by about 10-foot-wide strip of landscaping on both sides of La Mirada Boulevard, no other existing landscaping would be impacted. New or replacement landscaping will be provided as part of this project if the landowners and City desire, at La Mirada Boulevard. Signage and maps would be installed along the trail to direct users.

### ***Stormwater***

A Water Quality Management Plan (WQMP) that may include constructed stormwater quality enhancements would be prepared as a part of this project. The project would add impervious area. During project design, pervious pavement or impervious pavement with bioswale will be used for the bikeway to meet Regional Water Quality Control Board requirements. If bioswales are incorporated, periodic drainage pipes will be installed to the channel. Storm drain pipes would be placed at the lowest elevation of undercrossings to allow storm water to drain into the adjacent channel. Bioswales for water quality treatment would be employed at the downstream sides of both railroad undercrossings.

### ***Lighting***

Other than for about 200 feet of bikeway under North and South Firestone Boulevard and the I-5, and the two railroad underpasses, the project does not propose any trail lighting. Additionally, light would be produced from signals (such as traffic signals) along the project alignment.

### ***Signage***

Only standard and minimal bike signage and location maps conforming to OC Parks signage codes and criteria are required.

### ***Bikeway***

Where the bikeway is at grade, the path would be asphalt and be 14 to 16 feet wide inclusive of the two-foot shoulders on each side, wherever a chain link fence or cable railing is added for safety. Where the bikeway would travel beneath grade, the bikeway surface would be concrete and 10 to 14 feet wide with no shoulders.

## **2.2 Project Construction**

### ***Scheduling***

Construction is anticipated to take between 18 months and two years and occur sometime between January 2023 and December 2024. Construction would occur in one stage, unless federal funding is provided in incremental amounts. Construction workers would be able to park within the Coyote Creek right-of-way via the street crossings (Valley View, Artesia, Firestone, Stage Road). South Firestone Boulevard would be closed for approximately three weeks to install the precast box culvert beneath the roadway for the bikeway.

Depending upon funding, project construction would occur in one, two or three phases; for example, the three segments (O, P, and Q) could be done one at a time. The project includes three contiguous gap closure segments; O, P, and Q. Because of the significant cost of the project overall and the need for state/federal grant funds to move forward, it is possible that grant funds will come in separate years for separate segments. The State has indicated that the County should simultaneously submit grant requests for the entire project and for each of the three segments separately for their next grant cycle. Therefore, the project may be done in two or three phases in different fiscal years, depending upon annual grant funding cycles. In general, construction phases could include:

- Demolition.
- Grading and excavation.
- At-grade crossing construction.
- Installing two prefabricated bridges, two roadway underpasses, walls and box jacking under both railroads.
- Placing asphalt and fencing.
- Final items (striping, signage, etc.).

It is anticipated that an average of about 20 construction employees would be onsite over 24 months.

Several utilities would be protected in place and the abandoned fuel lines mentioned previously on the downstream sides of the two railroad undercrossings would be cut, capped and removed. AT&T conduit must be relocated beneath Valley View Boulevard. A power pole in the northwest quadrant

at South Firestone Boulevard would require relocating. This pole supports a Southern California Edison power line and communications lines that would require relocating.

### **Construction Equipment**

Proposed equipment anticipated to be used during project construction includes, but is not limited to, the following:

- Grading equipment for preparing the bikeway for paving.
- Excavation equipment (concrete saws, bulldozers, excavators, dump trucks) for going under Valley View Avenue, Artesia Boulevard, North and South Firestone Boulevard, and the I-5.
- Drilling rigs for end bents for the pedestrian bridge over the north fork of Coyote Creek, the tieback wall at Valley View Avenue, the piles for the bikeway foundation slab under Artesia Boulevard and the temporary shoring walls at both railroad undercrossings.
- Box-jacking equipment in pits for jacking the reinforced concrete box under the two railroad corridors.
- Flatbed trucks and cranes for installing the steel prefabricated pedestrian bridges.
- Asphalt paving equipment for installing the bikeway surface where the bikeway is at grade.
- Concrete trucks for pouring the end bents for the pedestrian bridge over the north fork of Coyote Creek, and concrete walls on either side of the railroad undercrossings.
- Two cranes to install the two prefabricated bridges, with a period of use of approximately two weeks for each bridge.

## **2.3 Construction Staging**

Construction staging would involve detouring traffic for the closure of South Firestone Boulevard for installation of the reinforced concrete box. Additionally, a vacant triangular 0.5-acre parcel owned by the Los Angeles County Flood Control District is located on the downstream side of the Metrolink line and could be used for construction staging (see Section 2.1.3).

## **3.0 Regulatory Framework**

### **3.1 Federal**

**Section 303(d) Clean Water Act.** Under section 303(d), Impaired Waters and Total Maximum Daily Loads (TMDLs), of the CWA, states, territories and authorized tribes, are required to develop lists of impaired (polluted) waters. These are waters for which technology-based regulations and other required controls are not stringent enough to meet the water quality standards set by states (e.g., the Basin Plan). The law requires that states establish priority rankings for waters on the lists and develop TMDLs for these waters (USEPA, 2020a).

The TMDL is a number that represents the assimilative capacity of a receiving water to absorb a pollutant. The TMDL is the sum of the individual wasteload allocations for point sources, load

allocations for nonpoint sources plus an allotment for natural background loading, with the addition of a margin of safety. TMDLs can be expressed in terms of mass per time (the traditional approach) or in other ways such as toxicity or a percentage reduction or other appropriate measure relating to a state water quality objective. A TMDL is implemented by reallocating the total allowable pollution among the different pollutant sources (through the permitting process or other regulatory means) to ensure that the water quality objectives are achieved (LARWQCB, 2020).

Waters in which a pollutant load exceeds its assigned TMDL are considered “impaired” and placed on the Section 303(d). In California, the SWRCB prepares and maintains the California 303(d) List of Water Quality Limited Segments (303[d] List), which is released as part of the Integrated Report.

Those sections of Coyote Creek and Coyote Creek North Fork that are located within the jurisdiction of the Los Angeles Regional Water Quality Control Board (LARWQCB, Region 4) are on the current 303(d) List. Coyote Creek North Fork is on the §303(d) List of Impaired Waters for fecal indicator bacteria and selenium. Coyote Creek is on the §303(d) List of Impaired Waters for fecal indicator bacteria, dissolved copper, pH, toxicity, malathion, and iron. These streams and the related water pollutants for which they are listed are presented in **Table 3.1-1**.

The majority of the proposed project (along Coyote Creek) falls under the jurisdiction of the Santa Ana RWQCB (SARWQCB, Region 8); however, Coyote Creek is not listed as an impaired waterbody by the SARWQCB (SWRCB, 2017).

**Table 3.1-1**  
**TOTAL MAXIMUM DAILY LOADS FOR COYOTE CREEK AND COYOTE CREEK NORTH FORK**

| Stream Name             | Regional Board              | Pollutant          | Pollutant Category       | Potential Sources |
|-------------------------|-----------------------------|--------------------|--------------------------|-------------------|
| Coyote Creek North Fork | Los Angeles (Region 4)      | Indicator Bacteria | Fecal Indicator Bacteria | Source Unknown    |
|                         |                             | Selenium           | Metals/Metalloids        | Source Unknown    |
| Coyote Creek            | Los Angeles (Region 4)<br>a | Copper, Dissolved  | Metals/Metalloids        | Source Unknown    |
|                         |                             | pH                 | Miscellaneous            | Source Unknown    |
|                         |                             | Toxicity           | Toxicity                 | Source Unknown    |
|                         |                             | Indicator Bacteria | Fecal Indicator Bacteria | Source Unknown    |
|                         |                             | Malathion          | Pesticides               | Source Unknown    |
|                         |                             | Iron               | Metals/Metalloids        | Source Unknown    |

Source: SWRCB 2017

**Section 401 Clean Water Act.** Pursuant to § 401 of the CWA, a water quality certification is required for § 404 activities. The U.S. Environmental Protection Agency (USEPA) has empowered the California State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs) to certify that 404 discharges comply with federal and state water quality standards and ensure that there is no net loss of wetlands through impact avoidance, minimization, and mitigation. The proposed project occurs in the jurisdictions of both the Santa Ana RWQCB (Region 8) and Los Angeles RWQCB (Region 4); therefore, the SWRCB would provide review and water quality certification services for this project.

**Section 404 Clean Water Act.** Section 404 CWA requires authorization from the Secretary of the Army, acting through the Corps of Engineers, for the discharge of dredged or fill material into all waters of the United States, including wetlands. Authorizations are conducted through the issuance

of Nationwide (or General) Permits, for activities that would cause only minimal permanent individual (between 0.1 and 0.5 acre) and cumulative impacts; through Individual (or Standard) Permits for activities that are likely to have more than a minimal permanent (greater than 0.5 acre) or cumulative impact on aquatic resources; and through Letters of Permission (LOPs) which are a type of individual permit issued through an abbreviated process that includes coordination with federal and state fish and wildlife agencies and a public interest evaluation, but without the 30-day permit notice period that is required for Individual Permits. The Los Angeles District of the USACE will provide review and permitting services for this project.

**Section 408 River and Harbors Act.** Section 14 of the Rivers and Harbors Act of 1899, as amended and codified at 33 USC 408 (Section 408), authorizes the Secretary of the Army, on the recommendation of the Chief of Engineers of the USACE, to grant permission for the alteration or occupation or use of a USACE civil works project if the Secretary determines that the activity will not be injurious to the public interest and will not impair the usefulness of the project. Public works projects include dams, basins, levees, channels, navigational channels, and any other local flood protection works constructed by the Corps. The Los Angeles District of the USACE will provide review and permitting services for this project.

### 3.2 State

**Porter-Cologne Water Quality Control Act.** The Porter-Cologne Water Quality Control Act defines “water quality objectives” as the allowable “limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisances within a specific area.” Thus, water quality objectives are intended to protect the public health and welfare, and to maintain or enhance water quality in relation to the existing and/or potential beneficial uses of the water. Water quality objectives apply to both waters of the U.S. and waters of the State. In the State of California, the Porter-Cologne Water Quality Control Act is administered in concurrence with the § 401 CWA Water Quality Certification. As with § 401 CWA, the SWRCB would provide review and water quality certification for this Act.

**Basin Plans.** The SWRCB requires its nine RWQCBs to develop Basin Plans (water quality control plans) designed to preserve and enhance water quality and protect the beneficial uses of all Regional waters. Specifically, Basin Plans designate beneficial uses for surface waters and groundwater, set narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State antidegradation policy, and describe implementation programs to protect all waters in the Regions. In addition, Basin Plans incorporate by reference all applicable State and Regional Board plans and policies, and other pertinent water quality policies and regulations. This project is regulated by the Basin Plans of the Santa Ana RWQCB and the Los Angeles RWQCB.

**California State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State.** On April 2, 2019, the SWRCB Resolution No. 2019-0015, Amendment to the Water Quality Control Plan for Ocean Waters of California and the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California to Establish a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures; subsequently approved by the Office of Administrative Law [OAL] on August 28, 2019). These Procedures went into effect on May 28, 2020.

When a discharge is proposed to waters outside of federal jurisdiction, the SWRCB or the RWQCBs regulate the discharge under Porter-Cologne through the issuance of Waste Discharge Requirements

(WDRs). The Procedures provide guidance for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities.

**Construction Stormwater Program.** The SWRCB and the nine RWQCBs implement water quality regulations under the federal CWA and California Porter-Cologne Water Quality Control Act. Existing water quality control regulations require compliance with the National Pollutant Discharge Elimination System (NPDES) for discharges of stormwater runoff associated with a construction activity.

Dischargers whose projects disturb one acre or more acres of soil are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ). Construction Activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP should contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list best management practices (BMPs) the discharger will use to protect stormwater runoff, and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program, and a chemical monitoring program (for non-visible pollutants) to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a waterbody recorded on the § 303(d) CWA List of Impaired Waterbodies as impaired for sediment.

The complete Notice of Intent package (including SWPPP) must be submitted to the SWRCB via the Storm Water Multiple Application and Report Tracking System (SMARTS) Database.

**Lake or Streambed Alteration Agreement.** Sections 1600-1616 of the California Fish and Game Code (FGC) protect the natural flow and the bed, channel, and bank of any river, stream, or lake designated by the California Department of Fish and Wildlife (CDFW) which is at any time an existing fish or wildlife resource, or from which these resources derive benefit. General project plans must be submitted to CDFW in sufficient detail to indicate the nature of the project proposed for construction, if the project would:

- Divert, obstruct, or change a streambed;
- Use material from the streambeds;
- Result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a stream.

The South Coast Region of the CDFW serves Los Angeles County and a § 1602 Lake or Streambed Alteration Agreement would be required from this Region for any project-related impacts to the streambed, banks, or channel of Coyote Creek and Coyote Creek North Fork.

## 4.0 Methodology

Prior to conducting the digital delineation, a review of readily available data relevant to the project was performed and the results were compiled from aerial imagery, USGS topographic maps, National



Wetland Inventory (NWI) maps, data from the U.S. Environmental Protection Agency's Watershed Assessment, Tracking, & Environmental Results System (WATERS), and Natural Resources Conservation Service (NRCS) soil surveys to determine areas of potential USACE, RWQCB, and CDFW jurisdiction, e.g. the location of any potential waters of the U.S. and State, including wetlands. Additionally, the Orange County and Los Angeles County Flood Control District's Storm Drain System online mapping programs were reviewed for the "as-built" limits of the concrete-lined channels.

Because Coyote Creek and Coyote Creek North Fork are concrete-lined channels throughout the project area, which is developed and urbanized, areas of potential jurisdiction to the USACE and RWQCB were evaluated and digitally delineated in accordance with the guidelines set forth in the following manuals:

- USACE 1987 *Wetland Delineation Manual (Manual)*,
- The *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Arid West Supplement; USACE, 2008)*,
- *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: a Delineation Manual (OHWM Guide; Lichvar and McColley, 2008)*
- *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (OHWM Supplement; Curtis and Lichvar, 2010)*.

Notes and photographs from an earlier biological field investigation (UltraSystems, 2020) were also used to assist with the digital jurisdictional delineation. Due to private property and ROW restrictions, only those within the project footprint and within a 150-foot buffer, which together comprised the Biological Study Area (BSA; e.g., in and along the channel, channel walls, and berms), were investigated.

The project area is comprised of concrete-lined flood control channels which serve to convey flows from the historic Coyote Creek and North Fork of Coyote Creek, both tributaries to the San Gabriel River. The concrete-lined channels were originally built by the USACE to protect property and control flows originating from northern Orange County and eastern Los Angeles County flowing towards the San Gabriel River and, ultimately, to the Pacific Ocean.

**Field Survey.** On February 21 and March 6, 2020, UltraSystems' biologists Michelle Tollett and Hugo Flores conducted a reconnaissance survey for potentially jurisdictional features within the impact area of the proposed project to the lateral extent of jurisdictional waters, and continued their survey 150 feet upstream and downstream of the project footprint (at Segment O and Segment Q). Wetlands and other waters of the U.S. and State that are located outside of this segment of the BSA and not within known or anticipated areas of project-related ground disturbance would not be affected by the project and were therefore not delineated.

Suspected jurisdictional areas were field checked for the presence of definable channels and/or wetland vegetation, soils and hydrology. It was expected that the channel was devoid of hydrophytic vegetation and hydrophytic soils within the proposed impact area, due to the concrete channel bottom and the ongoing maintenance of the channel by the Orange County Flood Control District (OCFCD). Therefore, use of the Manual (USACE, 1987) for identification and analysis of hydrophytic vegetation and hydrophytic soils was unnecessary; however, it was used to determine hydrology, as several hydrologic indicators were present. In addition to the hydrologic indicators in the Manual,

the OHWM Field Guide (Lichvar and McColley, 2008) and the OHWM Supplement (Curtis and Lichvar, 2010) were used to determine the OHWM. The OHWM is a defining element used to identify the lateral limits of non-wetland waters under Section 404 of the Clean Water Act (33 U.S.C. 1344).

Only those potentially jurisdictional features in and along the bed and banks near the project impact area and within the BSA were investigated and later delineated. During the field investigation, a 400-foot:one-inch-scale color aerial photograph and the previously-cited USGS topographic maps were used in conjunction with the hydrogeomorphic indicators and general morphology along the channel-bottom and banks to determine the locations of potential areas of USACE, RWQCB, and CDFW jurisdiction.

Per the OHWM Supplement, “in dry-land fluvial systems typical of the Arid West, a clear natural scour line impressed on the bank, recent bank erosion, destruction of native terrestrial vegetation, and the presence of litter and debris are the most commonly used physical characteristics to indicate the OHWM” (Lichvar and McColley, 2008).

Due to the channelization of this waterway, vegetative indicators of the OHWM were completely absent; therefore, hydrogeomorphic indicators including breaks in bank slope, staining of concrete, silt deposits, litter (organic debris, small twigs and leaves), and drift (organic debris, larger than twigs; Lichvar and McColley, 2008) were used to determine the OHWM. The channelization of Coyote Creek has undoubtedly resulted in increased stream velocity and slope, reduced hydraulic roughness, increased sediment transport and capacity, and transport of excess sediment to unaltered reaches downstream causing aggradation and increased flooding. Due to these characteristics of an urbanized channel, no other field indicators were available.

Safety issues prevented a complete field investigation due to steep channel banks and due to the stay-at-home order issued by Governor Gavin Newsom (California Executive Order N-33-20, March 19, 2020), whereby conducting a jurisdiction delineation with multiple coworkers was deemed unsafe. Therefore, the remainder of the delineation was performed as a desktop delineation, using field notes, photographs, and aerial photography, as described below.

**Post-Survey Desktop Delineation.** To assist with identification of the OHWM, available historic aerial photography from Google Earth were used to conduct a desktop (i.e., digital) delineation, keeping in mind the aforementioned locations of the hydrogeomorphic and geomorphic indicators [breaks in bank slope, staining of concrete, silt deposits, litter (organic debris, small twigs and leaves), and drift (organic debris, larger than twigs)] to determine the likely locations of the limits of USACE, RWQCB, and CDFW jurisdiction. Due to the channel structure, the area was devoid of any active floodplains and low terraces (Google, 2020).

The breaks in slope, staining of concrete, and some drift was visible on the historic aerials, which allowed for digitizing of the jurisdictional areas in Google Earth, which was then converted to GIS for preparation of a representative figure for the jurisdictional delineation.

The *OHWM Supplement* (Curtis and Lichvar, 2010) calls for a review of stream gage data and rainfall maps to assist in determining the recent flow regimes of a site. Because an active stream gage is not located in Coyote Creek channel, or within a nearby, topographically similar stream channel, a Bulletin 17C statistical analysis was not conducted.

Results of the delineation surveys are provided in Section 6.0 and in **Appendix D, OC Loop Jurisdictional Areas Mapbook**.



## 5.0 Data Review Results

### 5.1 National Wetland Inventory Wetlands

The NWI's objective of mapping wetlands and water habitats is to produce reconnaissance-level information on the location, type and size of these resources. The maps are prepared from the analysis of high-altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis (USFWS, 2020).

Wetlands or other mapped features may have changed since the date of the imagery and/or field work involved in creating the NWI maps. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions onsite. Additionally, federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory (USFWS, 2018).

The NWI has mapped two wetland types within the project area, as described below:

- **Freshwater Emergent Wetland (PEM):** These generally includes all nontidal wetlands characterized by erect, rooted, herbaceous hydrophytes, usually dominated by perennial plants, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. PEM wetlands also include wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 20 acres; (2) lacking active wave-formed or bedrock shoreline features; (3) water depth in the deepest part of basin less than 8.2 feet at low water; and (4) salinity due to ocean-derived salts less than 0.5 parts per thousand (ppt).

The NWI mapped a small area of PEM wetlands in Coyote Creek between Trojan Way and Knott Avenue; this mapped wetland had the qualifiers of *Persistent* (dominated by species that normally remain standing at least until the beginning of the next growing season), *Seasonally Flooded* (surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years), and *Excavated* (which identifies wetland basins or channels that were excavated by humans).

- **Riverine Wetlands (R):** Riverine wetlands include all wetlands and deepwater habitats contained within natural or artificial channels, except for wetlands dominated by trees, shrubs, persistent emergent (including mosses) and lichens, as well as habitats with water containing ocean-derived salts of 0.5 ppt or greater.

The NWI has mapped Coyote Creek and Coyote Creek North Fork (with the exception of the PEM wetland described above) as a riverine wetland with the qualifiers of *Intermittent* (channels that contain flowing water only part of the year; when the water is not flowing, it may remain in isolated pools or surface water may be absent), *Streambed* (Intermittent Riverine Systems and all channels that are completely dewatered at low tide), *Seasonally Flooded*, and *Excavated*.

Field surveys of the project alignment determined that Coyote Creek North Fork and Coyote Creek are concrete-lined flood control channels throughout the BSA and do not support wetlands, wetland soils, or hydrophytic vegetation (refer to **Appendix F, Site Photographs**)

## 5.2 Soils

Soil data from the United States Department of Agriculture (USDA) NRCS Web Soil Survey (Soil Survey Staff, 2020) was reviewed for inclusion on the Soil Data Access (SDA) Hydric Soils List (USDA NRCS, 2020). The project spans the *Los Angeles County, California, Southeastern Part; and Orange County and Part of Riverside County, California* soil survey areas. Six soil types are mapped along the project alignment and are presented in **Table 5.2-1**. None of the mapped soils are included in the current SDA list for California.

**Table 5.2-1**  
**SOIL TYPES OCCURRING WITHIN THE PROJECT AREA**

| Soil Name  | Soil Symbol  | Typical Landforms | Hydric? (Y/N) | Natural Drainage Class       | Parent Material   |
|--|--------------|-------------------|---------------|------------------------------|---|
| Chino silty loam, drained  | 140, 140oc   | Alluvial fans     | N             | Somewhat poorly drained      | Alluvium derived from sedimentary rock  |
| Urban land-Hueneme, drained-San Emigdio complex, 0 to 2 percent slopes               | 1000         | Alluvial fans     | N             | Somewhat poorly drained      | Discontinuous human-transported material over mixed alluvium derived from granite and/or sedimentary rock |
| Urban land-Metz-Pico complex, 0 to 2 percent slopes                                  | 1000LA       | Floodplains       | N             | Somewhat excessively drained | Discontinuous human-transported material over mixed alluvium derived from granite and/or sedimentary rock |
| Urban land-Biscailuz-Hueneme, drained complex, 0 to 2 percent slopes                 | 1005         | Alluvial fans     | N             | Somewhat poorly drained      | Discontinuous human-transported material over mixed alluvium derived from granite and/or sedimentary rock |
| Urban land-Ballona-Typic Xerorthents, fine substratum complex, 0 to 5 percent slopes | 1137, 1137LA | Alluvial fans     | N             | Well drained                 | Discontinuous human-transported material over young alluvium derived from sedimentary rock                |
| Urban land, frequently flooded, 0 to 5 percent slopes                                | 1261, 1261LA | Channels          | N             | Not rated                    | Not specified   |

**Source:** Soil Survey Staff 2020.

## 5.3 Climate and Hydrologic Data

*Watershed.* The pedestrian bridge at the start of Segment O is in the southern tip of the La Mirada Creek hydrologic unit (HU; Hydrologic Unit Code 180701060602, as shown in **Figure 3, USGS Surface**

*Waters and Watersheds*); however, the remainder of the project is in the Brea Creek-Coyote Creek hydrologic unit (HUC 12 180701060603). Both of these HUs are within the larger Lower San Gabriel River watershed (HUC 10 1807010606). The Brea Creek-Coyote Creek HU drains approximately 49 square miles, with the project located in the urbanized southwestern area of the HU, trending northeast (USEPA, 2020).

*Geology.* The project is located in the Southern Coastline Geomorphic Sub-Province of the Peninsular Ranges Geomorphic Province (Fuller, 2015). This sub-province runs along the western edge of the provinces of the Transverse Ranges and the Peninsular Ranges. Along the southern section, the coastal geomorphology is superimposed on the landforms of the Transverse Ranges and Peninsular Ranges geomorphic provinces. The southern coastline trends northwestwardly from San Diego to Point Conception. Due to the orientation, the southern shores are somewhat sheltered from storms that arrive from the west and northwest.

Segments O and P, and approximately 0.1 mile of Segment Q, are sited on Young Alluvial Fan Deposits (Qyf) which date from the middle Holocene to the late Pleistocene. These deposits are comprised of unconsolidated to slightly consolidated, undissected to slightly dissected clay, silt, sand, and gravel along stream valleys and alluvial flats of larger rivers (Bedrossian et. al., 2012). The remainder of Segment Q is on Very Old Alluvial Fan Deposits (Qvof), dating from the middle to early Pleistocene. These deposits are comprised of moderately to well-consolidated, highly dissected boulder, cobble, gravel, sand, and silt deposits issued from a confined valley or canyon (Bedrossian et. al., 2012).

*Temperature and Precipitation.* A Western Regional Climate Center has a co-op weather station located near Tuffree Middle School, located in Anaheim approximately 7.5 miles northeast of the end of Segment Q (Anaheim, California Station #040192; WRCC, 2020). This weather station has recorded climate records from 1989 through 2012 and provides the best available insight into the climate in the project area. As with much of southern California, the recorded data show that the region receives the most precipitation during the “wet season”, e.g. winter and spring (November – April).

Climate summaries recorded at Station #040192 for the period of record 1989 through 2012 are presented in **Table 5.3-1, Temperature Statistics for Anaheim Station #040192 (1989–2012)**, and **Table 5.3-2, Precipitation Statistics for Anaheim Station #040192 (1989–2012)**.

**Table 5.3-1**  
**TEMPERATURE STATISTICS FOR ANAHEIM STATION #040192 (1989– 2012)**

|               | Monthly Averages (°F) |      |      | Monthly Extremes (°F) |             |
|---------------|-----------------------|------|------|-----------------------|-------------|
|               | Max                   | Min  | Mean | Highest Mean          | Lowest Mean |
| <b>Annual</b> | 77.4                  | 55.4 | 66.4 | 67.7                  | 64.2        |
| <b>Winter</b> | 69.9                  | 47.6 | 58.7 | 61.2                  | 56.7        |
| <b>Spring</b> | 74.7                  | 55.5 | 58.7 | 68.6                  | 59.4        |
| <b>Summer</b> | 84.1                  | 63.0 | 73.6 | 78.6                  | 70.7        |
| <b>Fall</b>   | 81.0                  | 57.4 | 69.2 | 73.3                  | 66.2        |

**Table 5.3-2**  
**PRECIPITATION STATISTICS FOR ANAHEIM STATION #040192 (1989– 2012)**

|               | Precipitation Monthly Averages (inches) |      |       | Total Snowfall (inches) |      |
|---------------|---|------|-------|-------------------------|------|
|               | High                                    | Low  | Mean  | Mean                    | High |
| <b>Annual</b> | 41.23                                   | 4.86 | 14.09 | 0.0                     | 0.0  |
| <b>Winter</b> | 26.34                                   | 1.86 | 8.83  | 0.0                     | 0.0  |
| <b>Spring</b> | 8.37                                    | 0.00 | 3.22  | 0.0                     | 0.0  |
| <b>Summer</b> | 1.24                                    | 0.00 | 0.23  | 0.0                     | 0.0  |
| <b>Fall</b>   | 8.13                                    | 0.00 | 1.81  | 0.0                     | 0.0  |

## 5.4 Land Use

The project is located in the Southern California Coastal Plain Major Land Resource Area (MRLA; Region 19) of the California Subtropical Fruit, Truck, and Specialty Crop Region. MRLAs are geographically associated land resource units delineated by the Natural Resources Conservation Service and are the basic units for delineating statewide patterns of soils, climate, water resources, and land use by analyzing elevations, topography, and rainfall data (effective amount, timing, kind, and distribution). Nearly two-thirds of Region 19 consists of urban or built-up areas, and other land in the area is rapidly being converted to urban uses. About a third of the area is brushland used for watershed protection. The irrigated crops are subtropical fruits, deciduous fruits, grain, truck crops, grapes, hay, and pasture. Dairy farming and flower seed production are other important enterprises. Some livestock is produced on the rangeland (USDA, 2006, pp. 55-57).

The project site is bounded on all sides by commercial, light industrial, and residential uses which are located within the City of Buena Park, in Orange County, California, and the Cities of Cerritos and La Mirada in Los Angeles County, California.

## 6.0 Field Investigation Results

### 6.1 Physical Conditions in the Study Area

As discussed in Section 5.3 and shown in **Figure 3**, the project site is mainly located in the Brea Creek-Coyote Creek Hydrologic Unit (HU Code 180701060603); however, the pedestrian bridge located at station 10+00, where the flood control channel divides into the north and east fork (of Coyote Creek), is in La Mirada HU Code 18071060602.

The entirety of Coyote Creek (north fork and east fork) within the project area is channelized. The channel structure varies regularly between trapezoidal (slant-walled), wide channel bottom (slant-walled), and rectangular (vertical-walled) throughout the project area.

The channels convey nuisance runoff and storm drain flow, which comprise the current (and historic) Coyote Creek. The southernmost portion of the project area is the confluence of Coyote Creek and the North Fork of Coyote Creek, both tributaries to the San Gabriel River, ultimately terminating at the Pacific Ocean, in Long Beach, California. All flows within the channel are considered “jurisdictional” waters of the U.S. and waters of the State, protected under Sections 401/404 of the Clean Water Act

and Sections 1600-1616 the California Fish and Game Code, as described in Section 2.1, Regulatory Requirements, of this report.

The NWI has mapped Coyote Creek mainly as riverine, with an intermittent flow, with a streambed that is seasonally flooded and was excavated by humans at some point (R4SBCX); the only exception is a section that starts approximately 0.8 mile upstream of Knott Avenue and ends approximately 0.2 mile downstream of Knott Avenue and is mapped as palustrine with emergent and persistent vegetation (remains standing at least until the beginning of the next growing season), is seasonally flooded and was excavated by humans at some point (PEM1Cx)(**Figure 10**, *National Wetlands Inventory*; also see **Appendix F**, Photo 8); however, no hydrophobic vegetation was observed during the field surveys and the PEM wetland mapped by the NWI was determined to be absent. The NWI designation of R4SBCx of Coyote Creek and Coyote Creek North Fork, within the boundary of the proposed project, were determined to be accurate.

At the time of the field investigation, surface water was observed in Coyote Creek North Fork and Coyote Creek. No wetlands, or signs of wetlands, were observed within the BSA.

## 6.2 Sections 401 and 404 of the Clean Water Act

The OHWMs were determined using breaks in slopes (e.g., base of channel walls) and water stains, with site photographs and historic aerials employed as references. In some areas, the low-flow channel meandered between the OHWMs and was defined by the presence of algae and water staining. The active floodplain is absent throughout the BSA due to channelization of the creeks, which resulted in the sides of the channels (levees) raised to contain the 100-year flood event (refer to **Appendix D**, *Jurisdictional Areas Mapbook*, for locations of delineated waters of the U.S.).

“Permanent impacts” to waters of the U.S. are defined as “Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not in the measurement of loss of waters of the United States” (WTI, 2017, p. 337). As shown in **Appendices B, C, and E**, project-related impacts to waters of the U.S. (e.g. scaffolding, temporary parking) will be removed and the work areas will be restored to their preconstruction contours and elevations before construction is complete; therefore, all impacts to waters of the U.S. will be temporary impacts.

## 6.3 Section 1602 of the California Fish and Game Code

The absence of riparian vegetation combined with the developed nature of the areas adjacent to channels were the overwhelming factors in making the determination that the top of the channel comprised the lateral extent of the waters of the State (CDFW; refer to **Appendix D**, *Jurisdictional Areas Mapbook*, for locations of delineated waters of the State).

## 7.0 Observed Jurisdictional Status

Using the results of the field investigation described in Section 6.0 of this document, the preliminary determination was made that Coyote Creek North Fork and Coyote Creek are waters of the U.S. and State. Both creeks are jurisdictional to the USACE under § 404 of the CWA; and to the SWRCB under § 401 of the CWA, as well as the California Porter-Cologne Water Quality Control Act, because the water flow from both channels discharge into the San Gabriel River and, ultimately, to the Pacific Ocean, a known water of the U.S.

Coyote Creek North Fork and Coyote Creek were determined to be waters of the State under the jurisdiction of the California Department of Fish and Wildlife under §§ 1602 through 1616 of the California Fish and Game Code in that:

1. All streams in the State of California are under CDFW jurisdiction under § 1602 of the Fish and Game Code; and
2. Coyote Creek North Fork and Coyote Creek, within the limits of the BSA, meet the definition of a watercourse as “a body of water that flows perennially or episodically and that is defined by the area in which water currently flows, or has flowed, over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological indicators” as provided by Brady and Vyverberg (2013, p. E-14).

Final jurisdictional status will be provided by the USACE, SWRCB, and CDFW. The mapbook in **Appendix E**, *OC Loop Impacts to Jurisdictional Waters*, depicts the jurisdictional boundaries of the waters of the U.S. and waters of the State that were delineated within the affected portion of the BSA.

Should the USACE decline jurisdiction of Coyote Creek and Coyote Creek North Fork, the SWRCB would regulate project discharges under Porter Cologne through the issuance of a WDR.

Photographs of the project area are presented in **Appendix F**.

## **8.0 Potential Impacts to Waters of the U.S. and State**

Potential impacts to areas under the jurisdiction of the USACE (under § 404 CWA), SWRCB (under § 401 CWA and the California Porter-Cologne Water Quality Control Act), and CDFW (under the jurisdiction of § 1602 FGC) were calculated by overlaying the project design, grading, and work areas on the mapped results of the digital delineation. **Refer to Appendix E**, *OC Loop Impacts to Jurisdictional Waters Mapbook*, for location details of impact areas.

Within the project boundary, construction of Segment O (approximately 5,087 linear feet) would result in temporary impacts of 0.48 acre (see **Table 8.0-1**). Within Segment P (approximately 3,540 linear feet), the project would result in approximately 0.05 acre of temporary impact; and within Segment Q (approximately 5,975 feet in length), construction would result in approximately 0.15 acre of temporary impact to waters of the U.S., as shown in **Table 8.0-1** and in **Appendix E**.

Within the project boundary, construction of Segment O would result in approximately 1.21 acres of temporary impacts to waters of the State. Construction of Segment P would result in 0.05 acre of temporary impacts, and construction of Segment Q would result in 0.22 acre of temporary impacts to waters of the State, as shown in **Table 8.0-1**.



**Table 8.0-1**  
**JURISDICTIONAL AREAS AND IMPACTS SUMMARY TABLE**

| Waters Jurisdictional Designation | Length of Segment (feet) | Temporary Impact (acres) | Permanent Impact (acres) | Total Impacts (acres) |
|-----------------------------------|--------------------------|--------------------------|--------------------------|-----------------------|
| <b>Waters of the U.S.</b>         |                          |                          |                          |                       |
| <i>Segment O</i>                  | 5,087                    | 0.48                     | 0                        | 0.48                  |
| <i>Segment P</i>                  | 3,540                    | 0.05                     | 0                        | 0.05                  |
| <i>Segment Q</i>                  | 5,975                    | 0.15                     | 0                        | 0.12                  |
| <b>Total</b>                      | <b>14,602</b>            | <b>0.69</b>              | <b>0</b>                 | <b>0.69</b>           |
| <b>Waters of the State</b>        |                          |                          |                          |                       |
| <i>Segment O</i>                  | 5,087                    | 1.21                     | 0                        | 1.20                  |
| <i>Segment P</i>                  | 3,540                    | 0.05                     | 0                        | 0.05                  |
| <i>Segment Q</i>                  | 5,975                    | 0.22                     | 0                        | 0.17                  |
| <b>Total</b>                      | <b>14,602</b>            | <b>1.48</b>              | <b>0</b>                 | <b>1.48</b>           |

As stated in the 2017 Nationwide Permit (NWP) Program (NWP 14 Linear Transportation Projects), “The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if (1) the loss of waters of the United States exceeds 1/10 acre; or (2) there is a discharge in a special aquatic site, including wetlands.” The project complies with USACE Los Angeles District Regional Conditions for the 2017 Nationwide Permits Program, and to all General Conditions. Due to the lack of permanent impacts (i.e., losses of waters of the U.S.), the project is not required to submit a Preconstruction Notification (PCN) pursuant to General Condition 32; however, in the interest of transparency, it is recommended that the project submit a PCN to the USACE, Los Angeles District.

The project will be required to submit an application for Water Quality Certification (under § 401 CWA, and in compliance with the Porter-Cologne Water Quality Control Act) to the SWRCB. The project will also be required to submit a Lake or Streambed Alteration Notification (under § 1602 FGC) to the South Coast Regional Office of CDFW.

## 9.0 Literature Cited and References

- Bedrossian, Trinda L., Peter Roffers, Cheryl A. Hayhurst, Jeremy T. Lancaster, and William R. Short. 2012. Special Report 217 (Revised): Geologic Compilation of Quaternary Surficial Deposits in Southern California. Plates 8 and 16. Prepared for the California Geological Survey. Revised in December 2012. Available at <https://www.conservation.ca.gov/cgs/publications/sr217>. Downloaded on April 17, 2020.
- Brady, Roland H. III, Kris Vyverberg. 2013. Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants. California Energy Commission. Publication Number: CEC-500-2014-013. Available at <https://www2.energy.ca.gov/2014publications/CEC-500-2014-013/>. Downloaded on July 30, 2019.
- California Executive Order N-33-20 (March 19, 2020). <https://covid19.ca.gov/stay-home-except-for-essential-needs/>.
- Curtis, K.E. and R.W. Lichvar. 2010. Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. Wetland Regulatory Assistance Program. Cold Regions Research and Engineering Laboratory. U.S. Army Engineer Research and Development Center, Hanover, New Hampshire.
- Fuller, M., 2015, Southern Coastline Geomorphic Sub-Province. Geological Gems of California, GeoGem Note 50, Fuller, M., Brown, S., Wills, C. and Short, W., editors, California Geological Survey Special Report 230 under Interagency Agreement C01718011 with California State Parks. Available at [https://www.parks.ca.gov/?page\\_id=21559](https://www.parks.ca.gov/?page_id=21559). Downloaded on April 10, 2020.
- Google Earth Pro v 7.3.2.5776. (March 5, 2019). City of La Mirada and surrounding areas, Los Angeles County, California. 34.877498° -118.016404°, eye alt. 14,579 feet. Europa Technologies 2020, Google, 2020. <https://www.google.com/earth/>. Accessed on April 15, 2020.
- LARWQCB (Los Angeles Regional Water Quality Control Board). 2020. Total Maximum Daily Loads (TMDLs). Available at [https://www.waterboards.ca.gov/losangeles/water\\_issues/programs/tmdl/](https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/). Accessed on May 22, 2020.
- 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: a Delineation Manual. ERDC/CRREL TR-08-12. Cold Regions Research and Engineering Laboratory. Cold Regions Research and Engineering Laboratory. U.S. Army Engineer Research and Development Center, Hanover, New Hampshire.
- Soil Survey Staff (Natural Resources Conservation Service, United States Department of Agriculture). 2020. Web Soil Survey. Available at <https://websoilsurvey.sc.egov.usda.gov/>. Accessed on April 6, 2020.



- SWRCB (California State Water Resources Control Board). 2017. 2014 and 2016 California Integrated Report. (Clean Water Act § 303[d]) List. Available at [https://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2014\\_2016.shtml](https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml). Downloaded on May 15, 2020.
- UltraSystems. 2020. OC Loop Segments O, P, & Q Natural Environment Study Report (Minimal Impacts). Cities of Cerritos, La Mirada and Buena Park, Orange and Los Angeles Counties, California. Prepared for the Orange County Department of Public Works and the California Department of Transportation.
- USACE (United States Army Corps of Engineers). 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station. Retrieved from: <http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf>
- USACE 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- USDA Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. Agriculture Handbook 296. Washington DC: U.S. Department of Agriculture. Available at [https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2\\_053624](https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053624). Downloaded on May 17, 2019.
- USDA NRCS (United States Department of Agriculture, Natural Resources Soil Conservation Service). 2020. Soil Data Access (SDA) Hydric Soils List. Available at [https://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcseprd1316619.html](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1316619.html). Accessed on April 29, 2020.
- USEPA (United States Environmental Protection Agency). 2020b. WATERS (Watershed Assessment, Tracking, & Environmental Results System) Data v. 1.10. Available at <https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system>. Downloaded January 24, 2020.
- USFWS (United States Fish & Wildlife Service). 2020. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Available at <https://www.fws.gov/wetlands/data/mapper.html>. Accessed on April 16, 2020.
- USFWS 2018. National Wetlands Inventory Data Limitations, Exclusions, and Precautions. Available at <https://www.fws.gov/wetlands/data/Limitations.html>. Accessed on April 16, 2020.
- USGS (U.S. Geological Survey). 2018a. La Habra Quadrangle, Los Angeles County, California (7.5-Minute Series Topographic) [map]. U.S. Topo, the National Map. Available at <https://ngmdb.usgs.gov/topoview/>. Downloaded on April 5, 2020.
- USGS. 2018b. Los Alamitos Quadrangle, Los Angeles County, California (7.5-Minute Series Topographic) [map]. U.S. Topo, the National Map. Available at <https://ngmdb.usgs.gov/topoview/>. Downloaded on April 5, 2020.

USGS (U.S. Geological Survey). 2018c. Whittier Quadrangle, Los Angeles County, California (7.5-Minute Series Topographic) [map]. U.S. Topo, the National Map. Available at <https://ngmdb.usgs.gov/topoview/>. Downloaded on April 5, 2020.

WRCC (Western Regional Climate Center). 2020. Monthly Climate Summary for Anaheim, California #040192 for the Period of Record 1989 - 2016. Available at <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca0192>. Downloaded on April 20, 2020.

WTI (Wetland Training Institute). 2017. Corps of Engineers Nationwide Permits Complete, 2017 Edition. Robert J. Pierce and Sam Collinson, editors, David A. Dearing, contributing author. Glenwood, New Mexico. 380 pages.

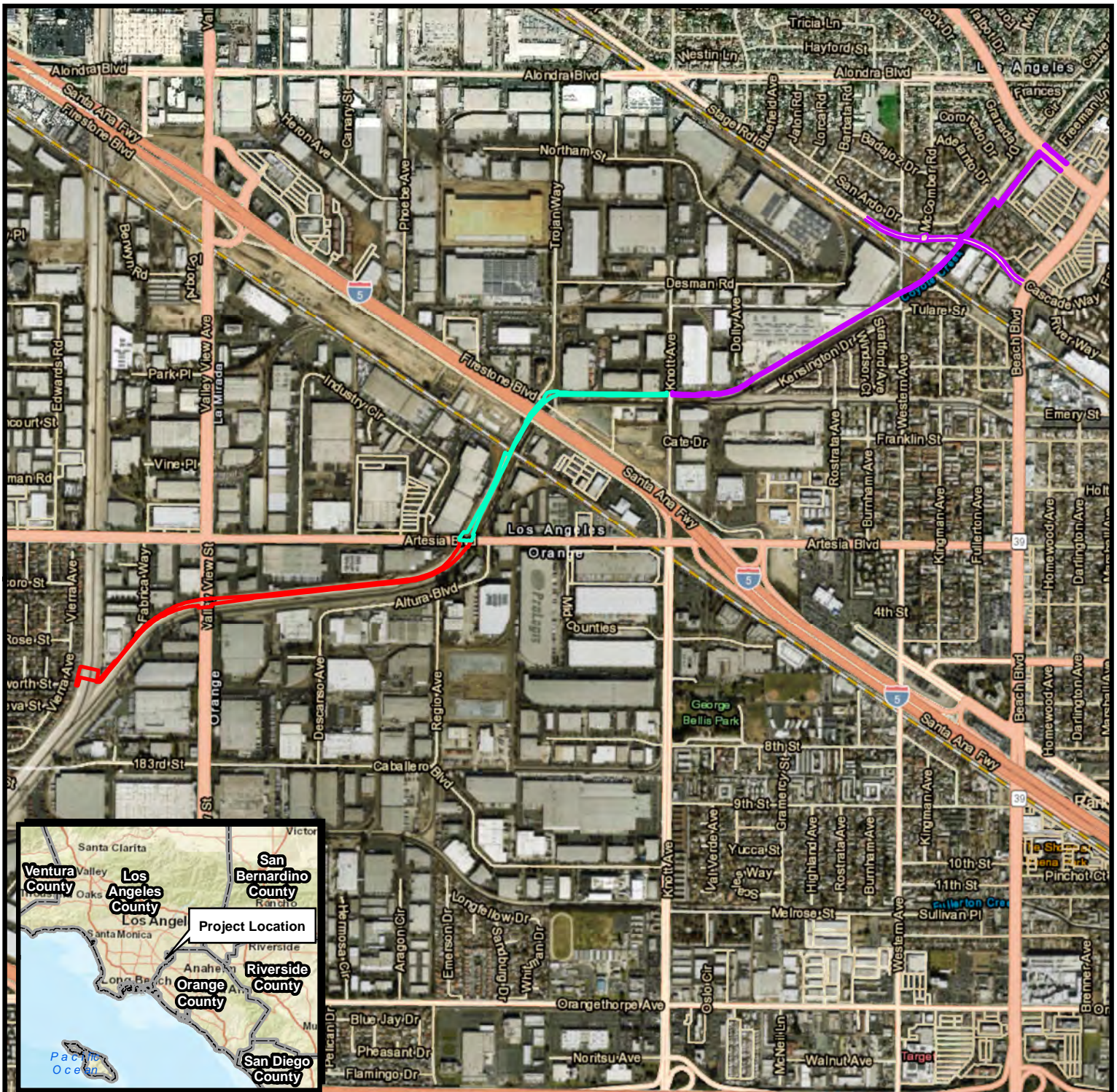
---

## **APPENDIX A**

### **FIGURES**

---





Disclaimer: Representations on this map or illustration are intended only to indicate locations of project parameters reported in the legend. Project parameter information supplied by others (see layer credits) may not have been independently verified for accuracy by UltraSystems Environmental, Inc. This map or illustration should not be used for, and does not replace, final grading plans or other documents that should be professionally certified for development purposes.

Path: \\gissvr\GIS\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_Fig3\_0\_Project Location\_2020\_05\_01.mxd  
 Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; County of Orange Public Works, 2020; UltraSystems Environmental, Inc., 2020

May 01, 2020

Scale: 1:19,200



0 800 1,600 Feet

0 200 400 Meters

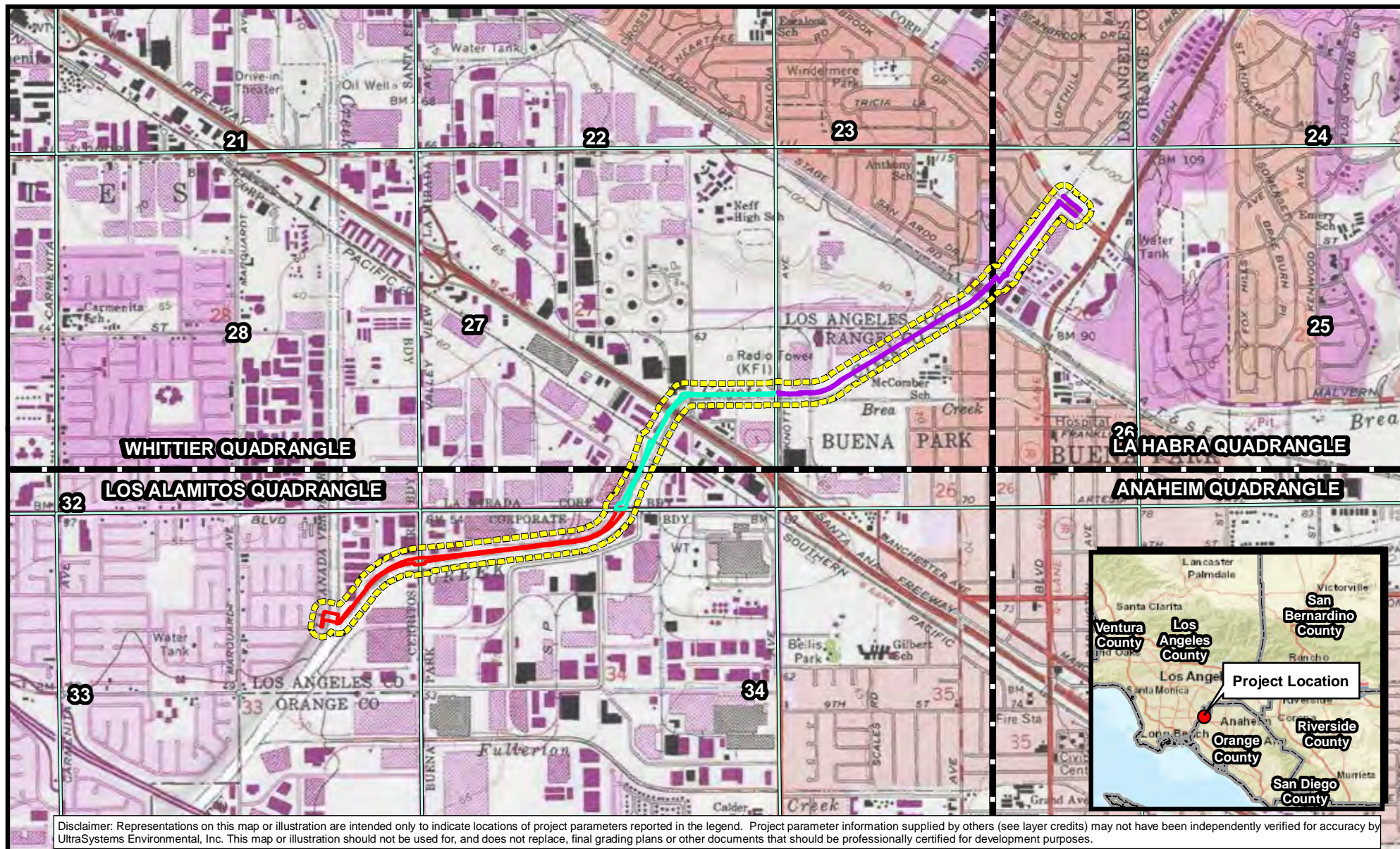
### Legend

- Segment O
- Segment P
- Segment Q

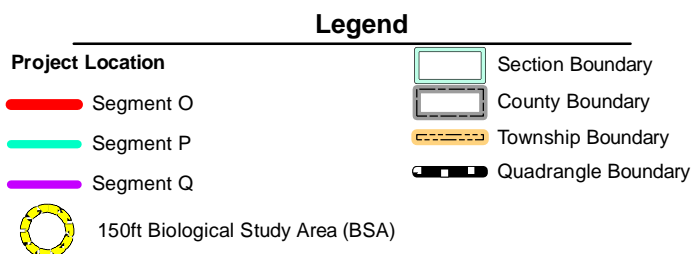
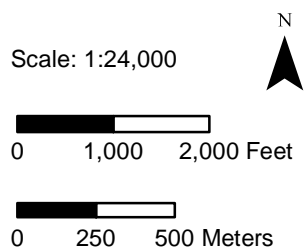
### OC Loop Segments O, P, and Q

Project Location





February 12, 2020

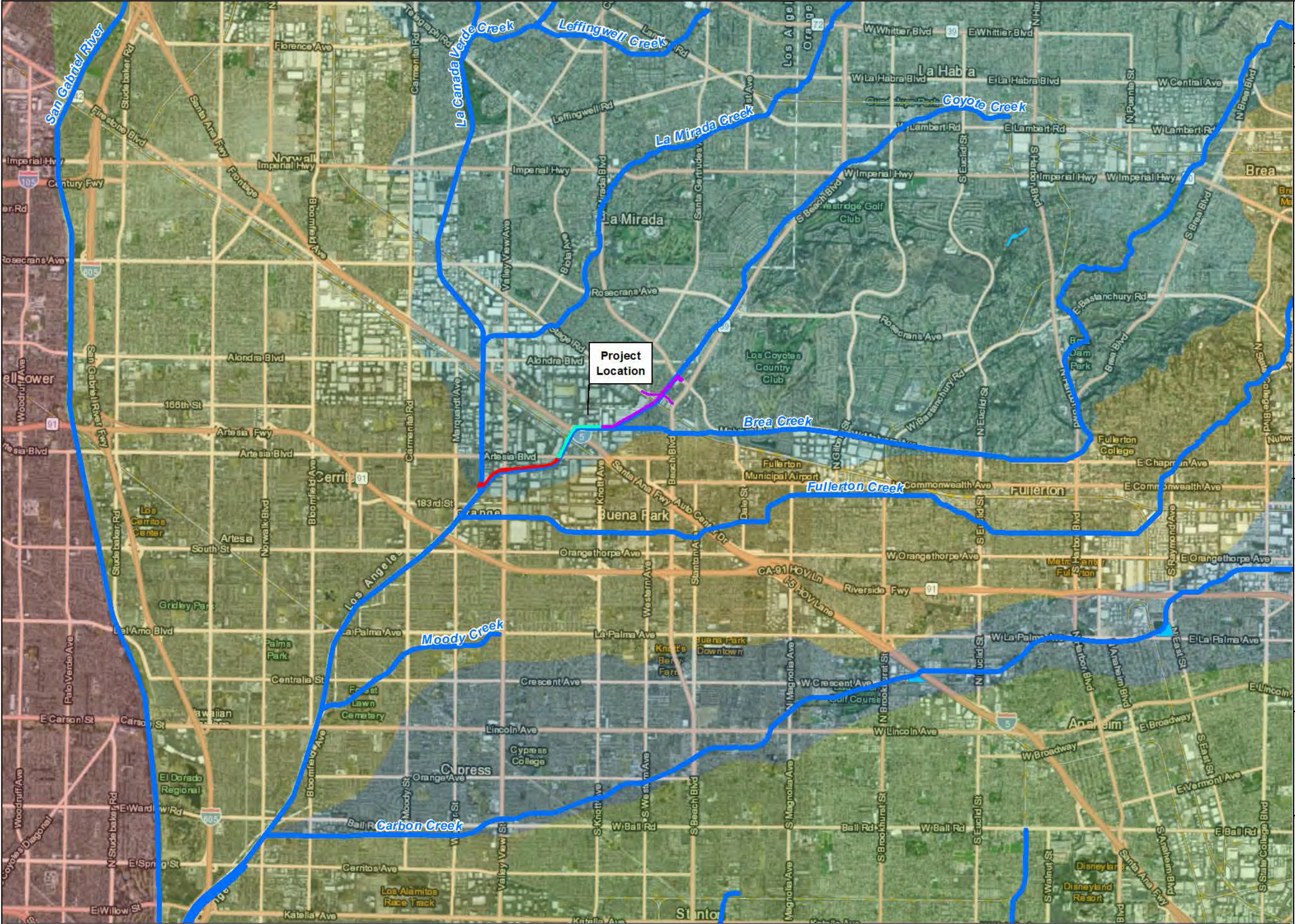


**OC Loop Segments O, P, and Q**

Topographic Map  
 USGS Quadrangle: La Habra, Los Alamitos, Whittier  
 Township: 3S Range: 11W  
 Sections 26, 27, 33, 34







### OC Loop Segments O, P, and Q

#### Legend

**Project Location**

- Segment O
- Segment P
- Segment Q
- NHDWaterbody
- NHDFlowline

**USGS HUC 12 Watersheds**

- Alamos Bay
- Anaheim Bay
- Brea Creek-Coyote Creek
- Carbon Creek
- Coyote Creek-San Gabriel River
- Fullerton Creek
- La Mirada Creek

#### Key Map

The key map shows the project location in the context of the Orange County area. It includes a scale bar (0 to 1 mile) and a north arrow. The project location is marked with a red dot in the center of the map.

#### USGS Surface Waters and Watersheds

The USGS Surface Waters and Watersheds logo is located in the bottom right corner of the map. It features the USGS logo and the text "UltraSystems Environmental Management Solutions".

Disclaimer: Representations on this map or illustration are intended only to indicate locations of project parameters reported in the legend. Project parameter information supplied by others (see layer credits) may not have been independently verified for accuracy by UltraSystems Environmental, Inc. This map or illustration should not be used for, and does not replace, final grading plans or other documents that should be professionally certified for development purposes.



---

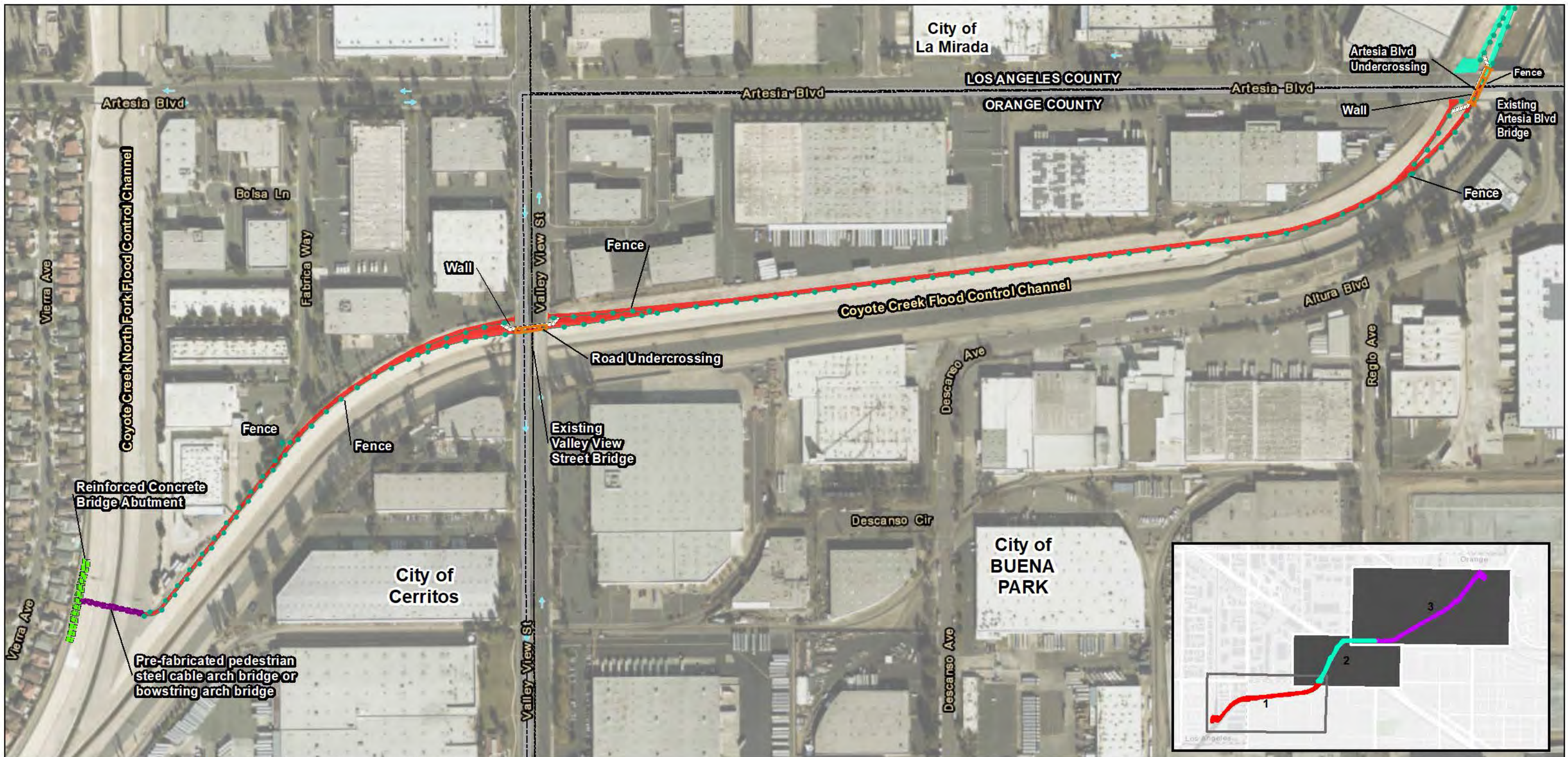
**APPENDIX B**

**OC LOOP IMPROVEMENT PLAN**

**MAPBOOK**

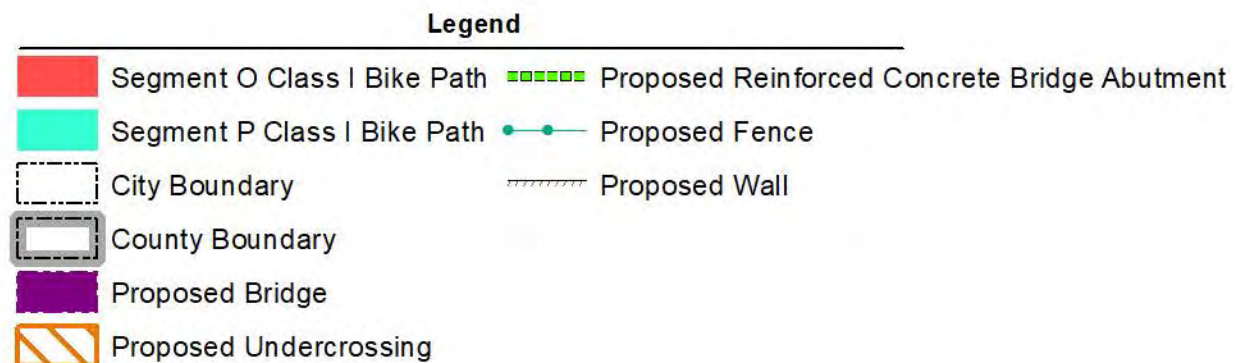
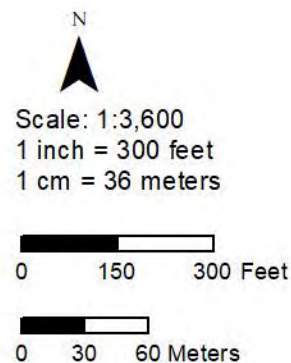
---





Path: \\GIS\GIS\Projects\7034\_OC\_Loop\MXDs\7034\_OC\_Loop\_SegmentOPQ\_Improvement\_Plan\_11x17\_2020\_04\_25.mxd  
 Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, Esri, HERE, Garmin, (c) OpenStreetMap contributors, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Los Angeles County, 2018; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

April 25, 2020



## OC Loop Segments O, P, and Q

### Segment O Improvement Plan

Map 1 of 3

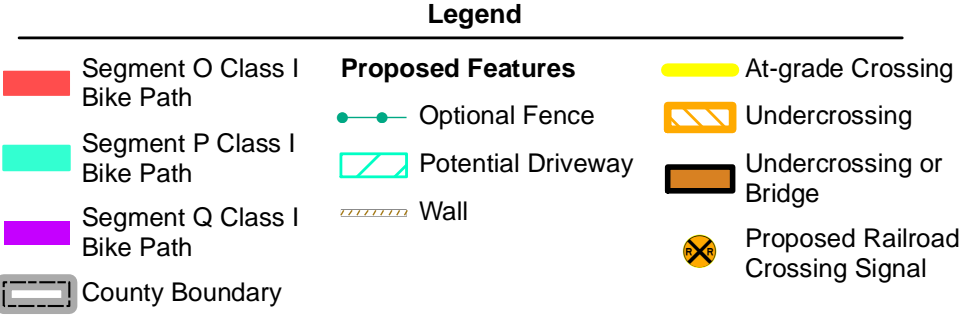
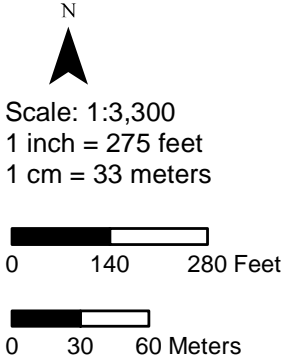






Path: \\gissvr\GIS\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_SegmentOPQ\_Improvement\_Plan\_11x17\_2020\_09\_03.mxd  
Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community; Los Angeles County, 2018; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

September 04, 2020



### OC Loop Segments O, P, and Q

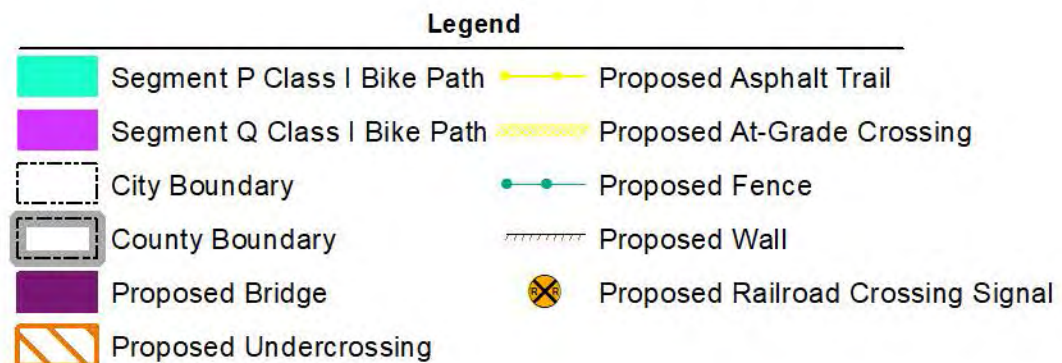
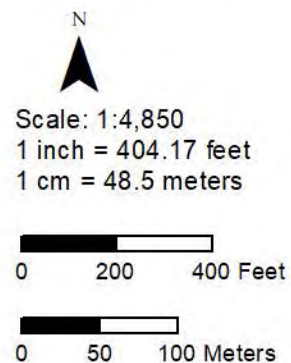
Segment P





Path: \\gissvr\GIS\Projects\7034\_OC\_Loop\MXDs\7034\_OC\_Loop\_SegmentOPQ\_Improvement\_Plan\_11x17\_2020\_05\_01.mxd  
 Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, Esri, HERE, Garmin, (c) OpenStreetMap contributors, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Los Angeles County, 2018; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 01, 2020



## OC Loop Segments O, P, and Q

Segment Q Improvement Plan

Map 3 of 3

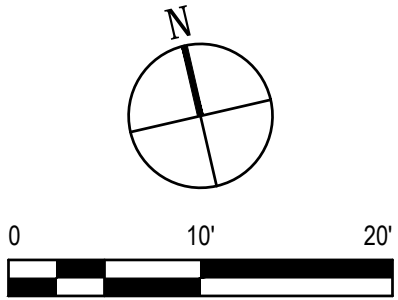





---

**APPENDIX C1**  
**2020 UPDATED CROSSING PLANS**

---





DIAL TOLL FREE  
811  
AT LEAST TWO DAYS  
BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

SEGMENTS O, P, Q  
STA 10+00 TO STA 12+50

1-PEDBRIDGE

SHEET

C-101

1 OF 15

County of Orange  
OC Public Works

PREPARED BY:  
GHD Inc.  
320 Goddard Way Suite 200  
Irvine California 92618 USA  
T 949 646 5298  
F 949 646 5298  
W www.ghd.com

DESIGNED BY: \_\_\_\_\_

DRAWN BY: \_\_\_\_\_

DRAWING NO:  
C-101

FILE NAME:  
11206772-C-101-PedBridge.dwg

PLOT DATE:  
4/10/2020 4:30 PM

SCALE:  
AS SHOWN

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

DATE



| MARK | DESCRIPTION | DATE | APPR. |
|------|-------------|------|-------|
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |





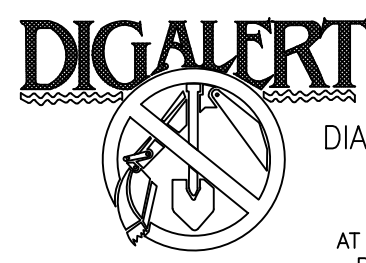
[illegible]

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

|  |   |  |
|--|---|--|
| <div style="text-align: center;">  </div>                   | DESIGNED BY:  |  |
|  | DRAWN BY:   |  |
|  | CHECKED BY:   |  |
|  |   |  |
|  | DRAWING NO:   |  |
|  |   |  |
| PREPARED BY:<br>GHD Inc.<br>3000 Wilshire Blvd Suite 200<br>Irvine California 92618 USA<br>T 1 949 948 5200<br>F 1 949 948 5299<br>W www.ghd.com | <br><br>FILE NAME:<br><br>PLOT DATE:      SCALE: |  |



**PREPARED BY:**  
**GHD Inc.**  
 320 Goddard Way Suite 200  
 Irvine California 92618 USA  
**T** 1 949 648 5200  
**F** 1 949 648 5299  
**W** [www.ghd.com](http://www.ghd.com)



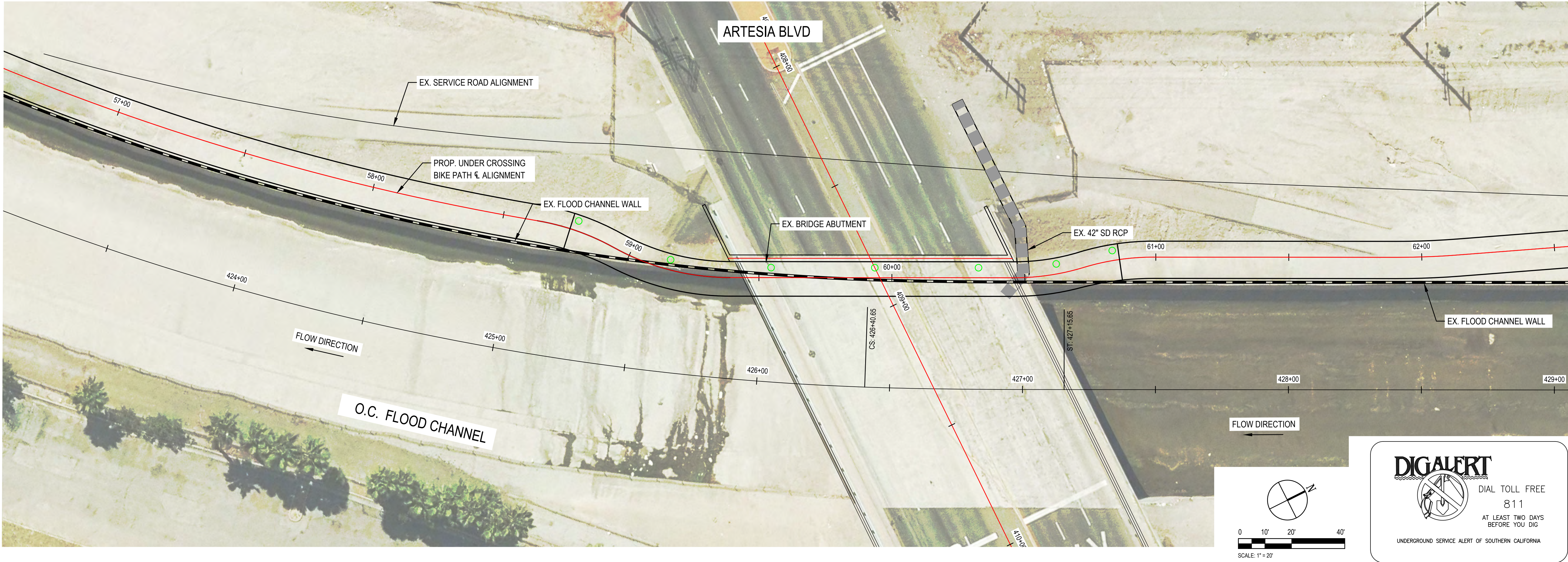
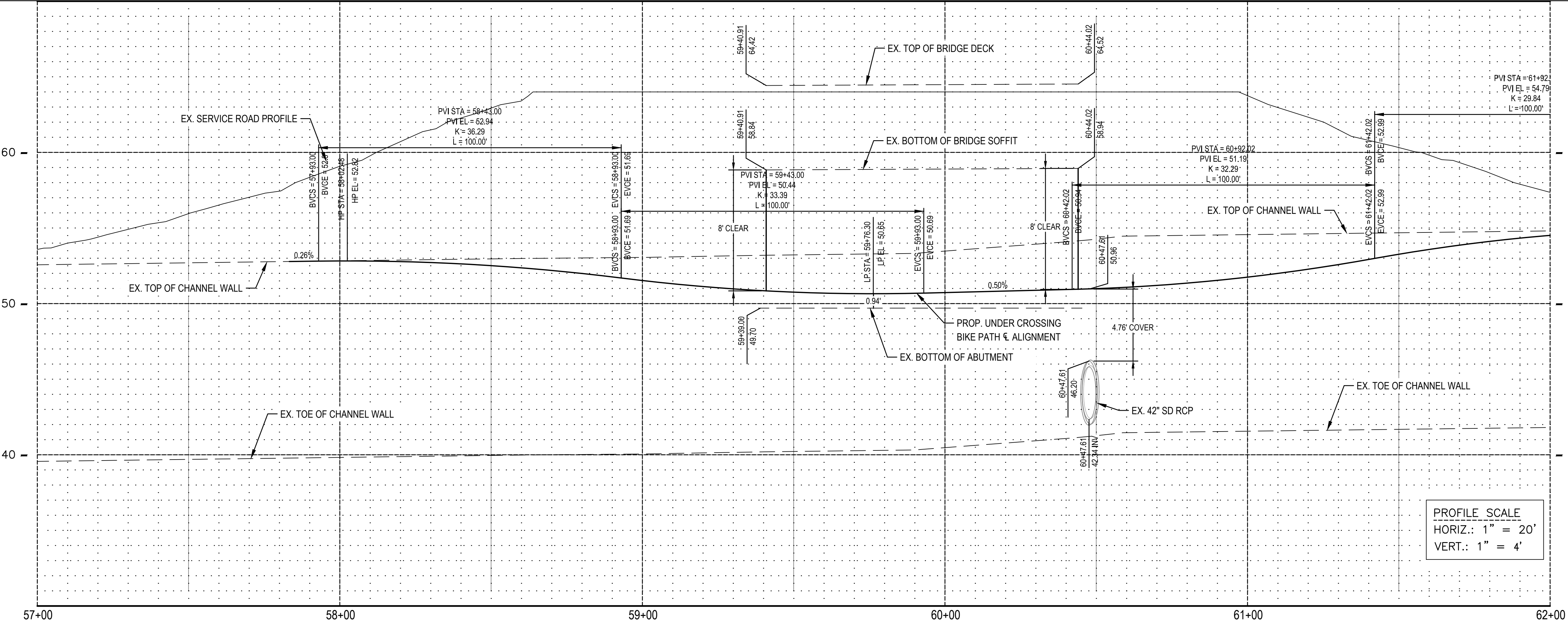
 DIAL TOLL FREE  
811  
AT LEAST TWO DAYS  
BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

SHEET

OF





| MARK | DESCRIPTION | DATE | APPR |
|------|-------------|------|------|
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

DATE

DESIGNED BY:

DRAWN BY:

CHECKED BY:

DRAWING NO:

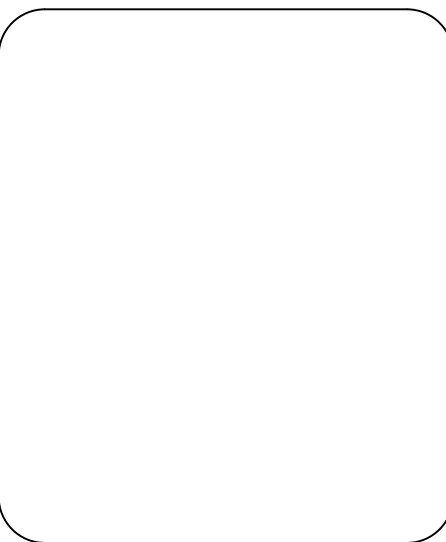
FILE NAME:

PLOT DATE:

SCALE:

County of Orange  
OC Public Works

PREPARED BY:  
GHD Inc.  
320 Goddard Way Suite 200  
Irvine California 92618 USA  
T 949 848 5200  
F 949 848 5201  
W www.ghd.com

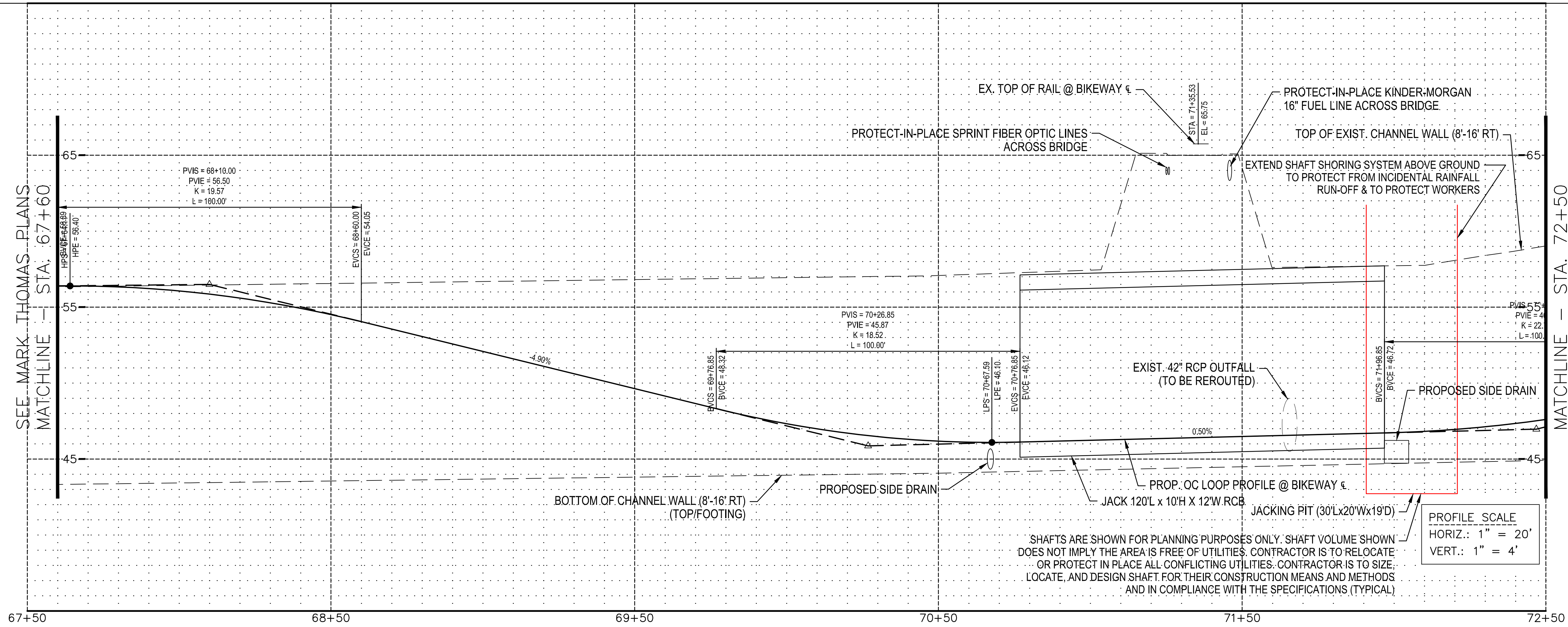


SHEET

OF

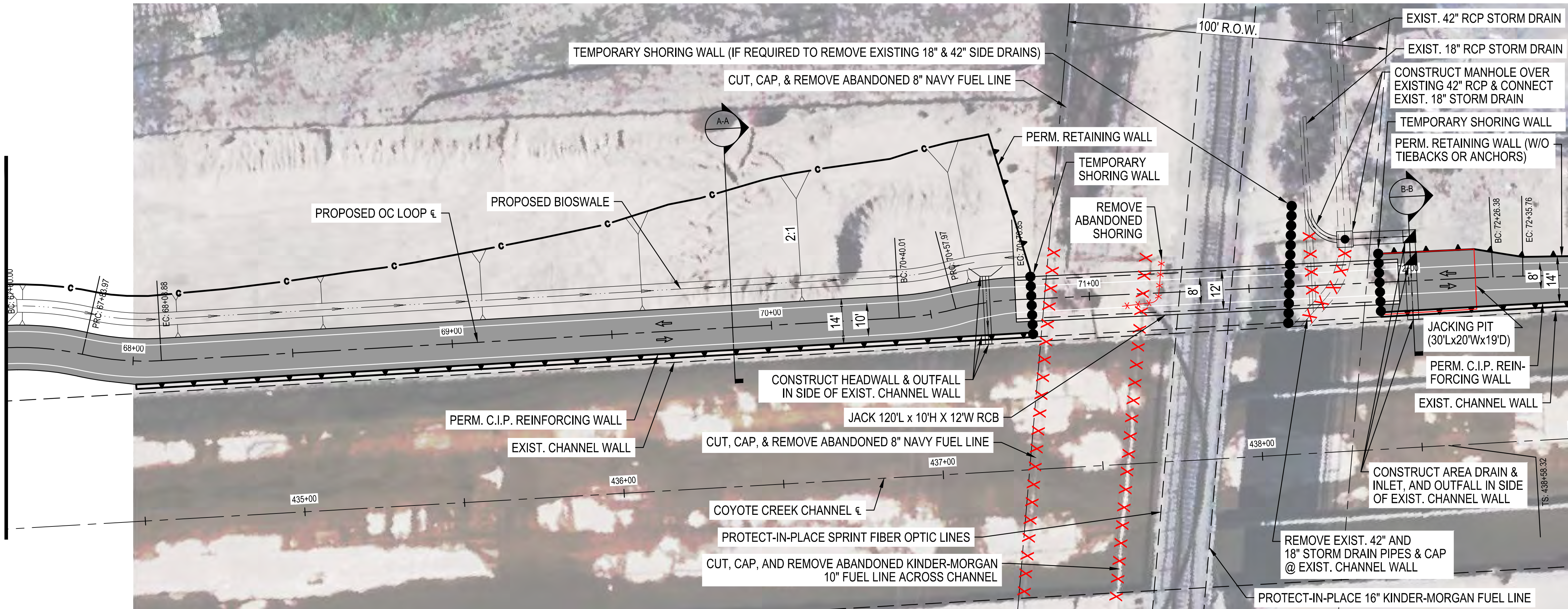


SEE MARK THOMAS PLANS  
MATCHLINE - STA. 67+60

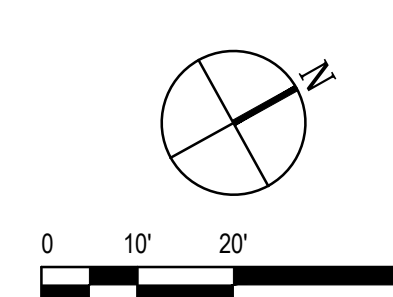


MATCHLINE - STA. 72+50  
SEE SHEET NO. 7

SEE MARK THOMAS PLANS  
MATCHLINE - STA. 67+60



MATCHLINE - STA. 72+50  
SEE SHEET NO. 7



**DIGALERT**  
DIAL TOLL FREE  
811  
AT LEAST TWO DAYS  
BEFORE YOU DIG  
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA



| MARK | DESCRIPTION | DATE | APPR |
|------|-------------|------|------|
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

DATE

DESIGNED BY: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_

DRAWING NO: C-106  
FILE NAME: 1206772-OC-Loop-Firestone-15.dwg  
PLOT DATE: ###  
SCALE: AS SHOWN

County of Orange  
OC Public Works

PREPARED BY:  
GHD Inc.  
320 Goddard Way Suite 200  
Irvine California 92618 USA  
T 949 848 5200  
F 949 848 5201  
W www.ghd.com

OC LOOP  
SEGMENTS O, P, Q  
STA 68+50 TO STA 73+50

UPRR BOX-JACK  
UNDERCROSSING

SHEET

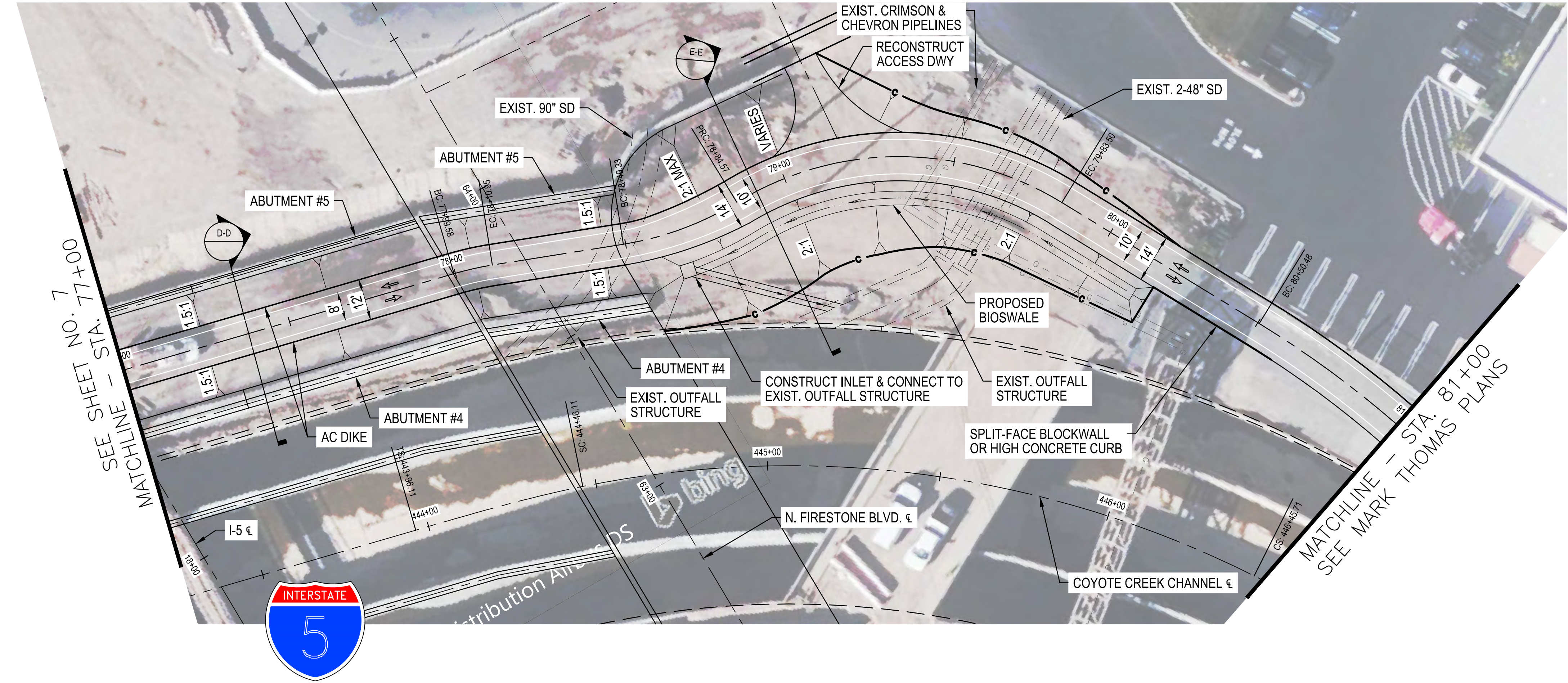
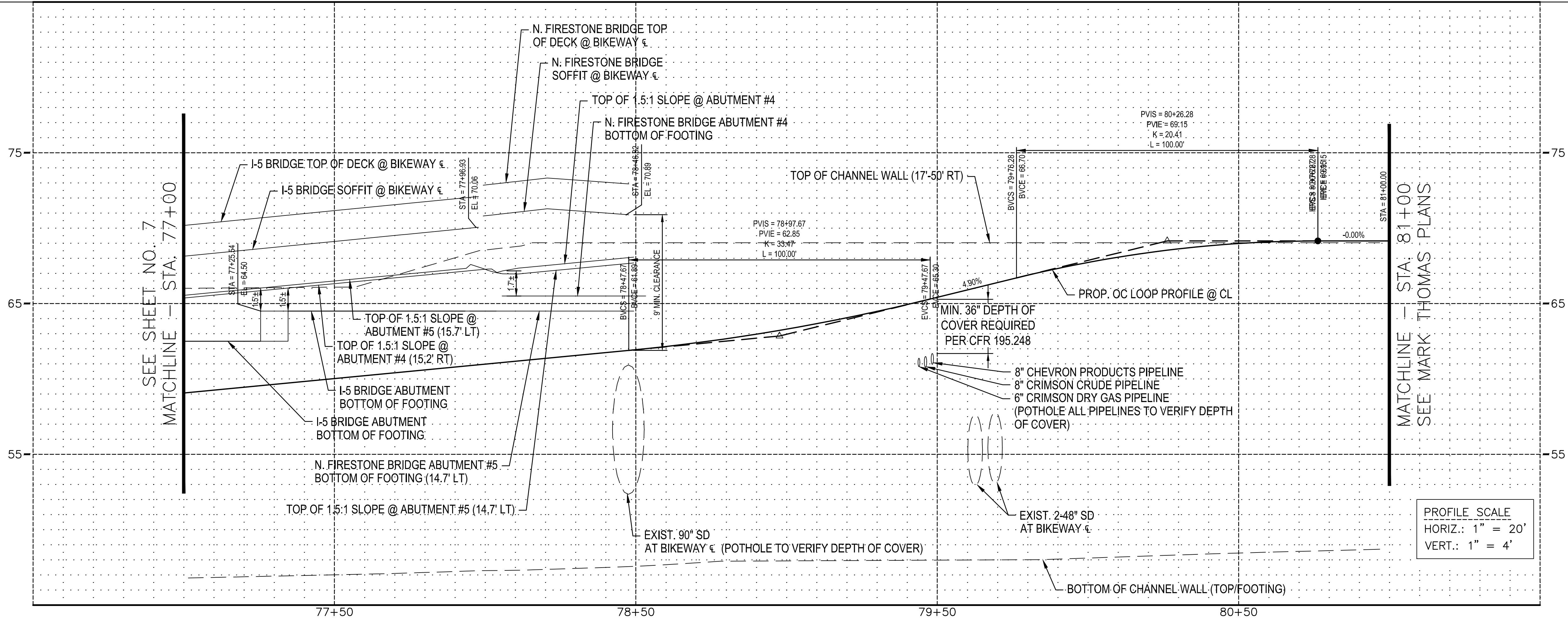
**C-106**


6 OF 15





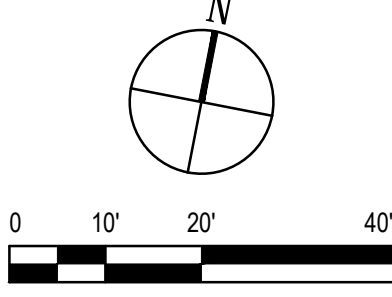






**DIAL TOLL FREE**  
811  
AT LEAST TWO DAYS  
BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA



0 10' 20' 40'



| MARK | DESCRIPTION | DATE | APPR |
|------|-------------|------|------|
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |
|      |             |      |      |

PREPARED UNDER THE RESPONSIBLE CHARGE OF:


DATE

DESIGNED BY:

DRAWN BY:

CHECKED BY:

County of Orange  
OC Public Works



PREPARED BY:  
GHD Inc.  
320 Goddard Way Suite 200  
Irvine California 92618 USA  
T 949 848 5200  
F 949 848 5201  
W www.ghd.com

DRAWING NO:  
C-108

FILE NAME:  
1206772-OC-Corr-UP-Firestone-15.dwg

PLOT DATE:  
###

SCALE:  
AS SHOWN

OC LOOP  
SEGMENTS O, P, Q  
STA 78+00 TO STA 82+00

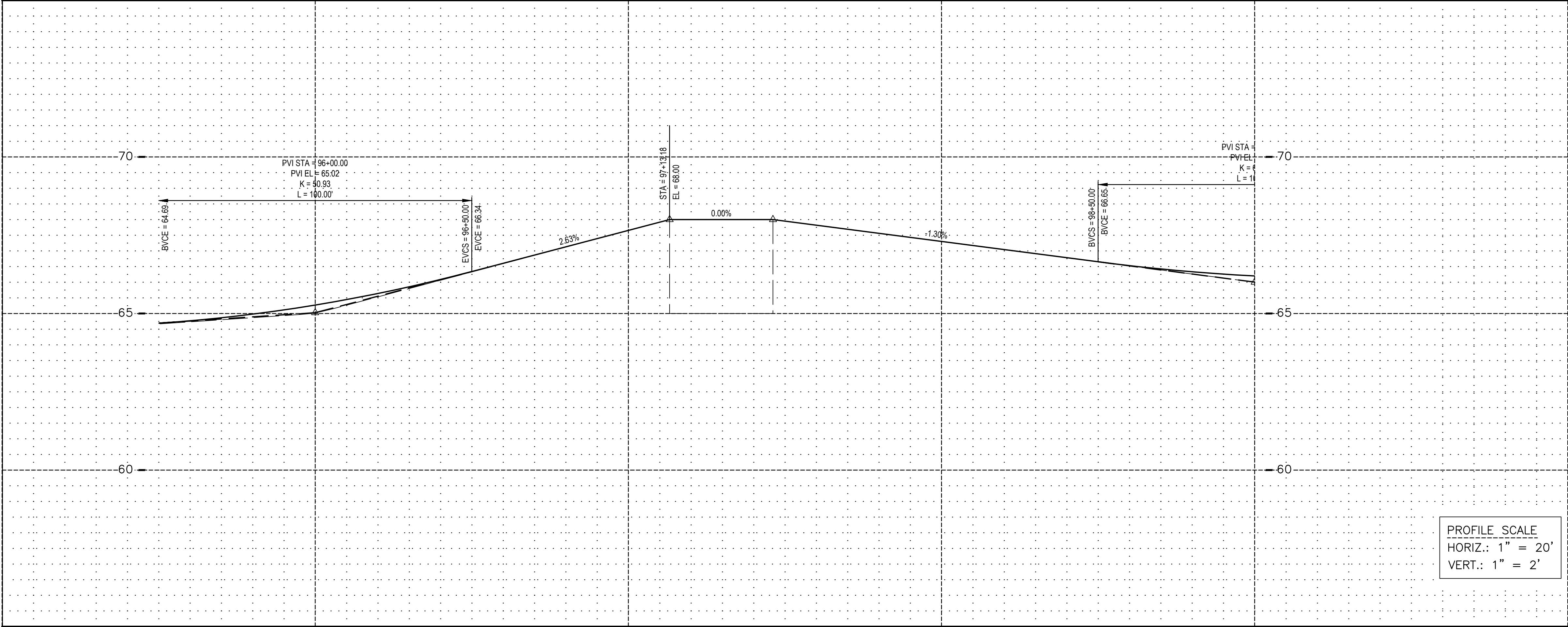
**I-5 & N. FIRESTONE  
CROSSING**

SHEET

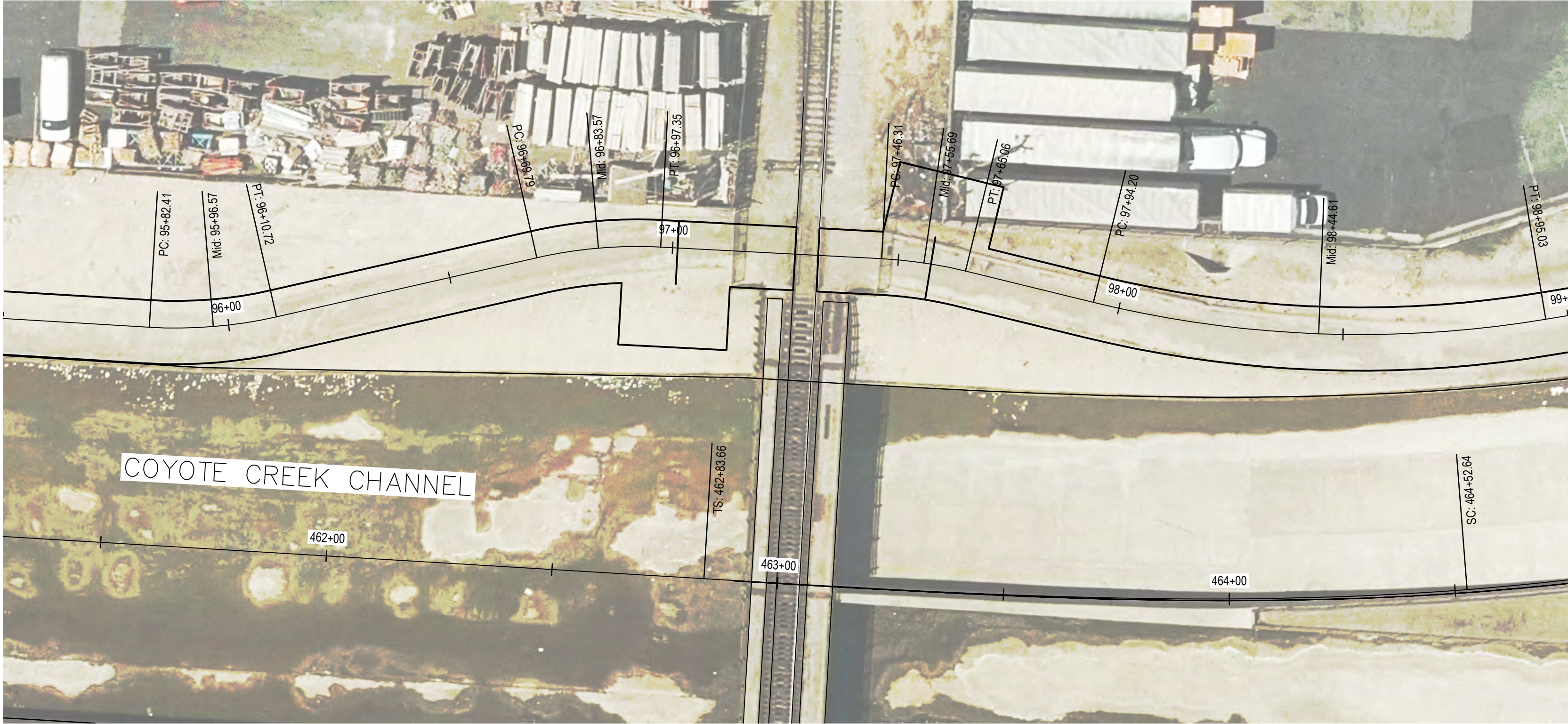
**C-108**

8 OF 15





B.N.S.F. INDUSTRIAL LEAD TRACK



**DIGALERT**  
DIAL TOLL FREE  
811  
AT LEAST TWO DAYS  
BEFORE YOU DIG  
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

0 10' 20' 40'

N



| MARK | DESCRIPTION | DATE | APPR. |
|------|-------------|------|-------|
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

DATE

DESIGNED BY: \_\_\_\_\_

DRAWN BY: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_

PREPARED BY: \_\_\_\_\_

DRAWING NO: C-110

FILE NAME: 11206772-C-110-BNSFIndLead.dwg

PLOT DATE: \_\_\_\_\_

SCALE: AS SHOWN

County of Orange  
OC Public Works

GHD Inc.  
320 Goddard Way Suite 200  
Irvine California 92618 USA  
T 949 646 5298  
F 949 646 5298  
W www.ghd.com

SEGMENTS O, P, Q  
STA 96+50 TO STA 99+00

**BNSF INDUSTRIAL  
LEAD AT-GRADE  
CROSSING**

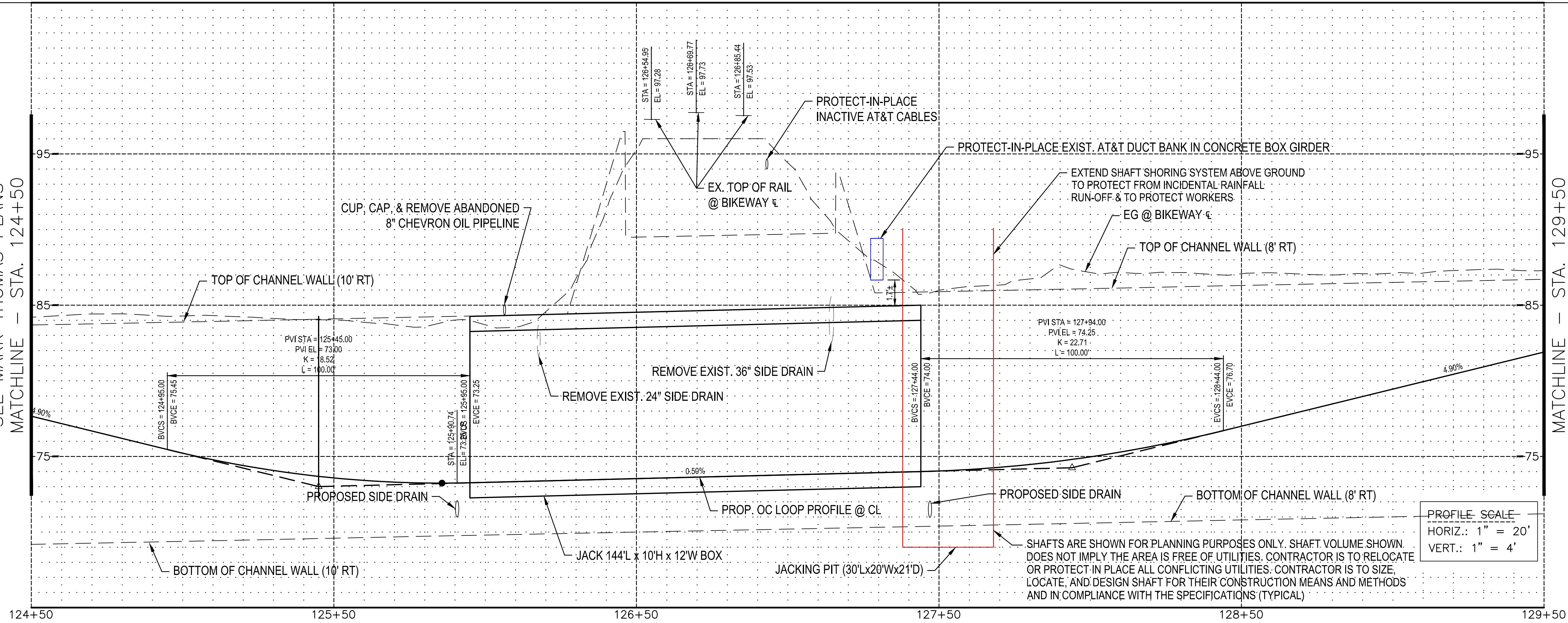
SHEET

**C-110**

10 OF 15

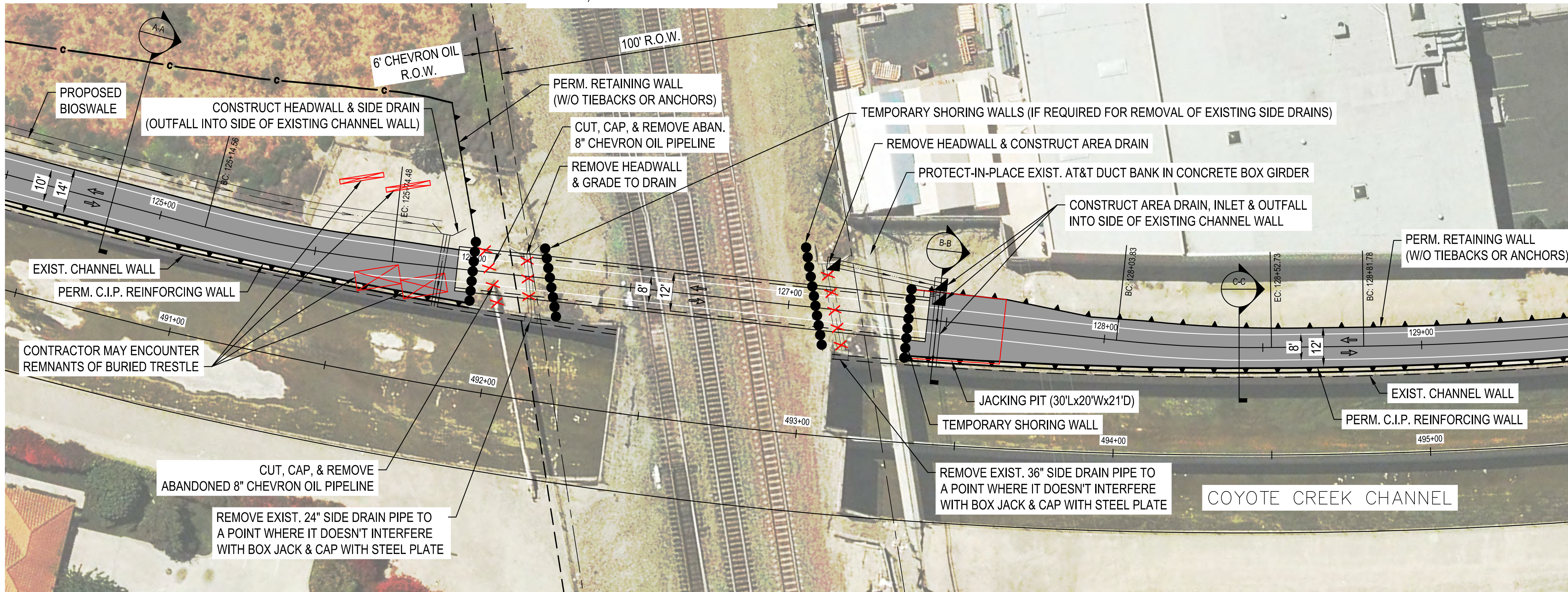


SEE MARK THOMAS PLANS  
MATCHLINE - STA. 124+50

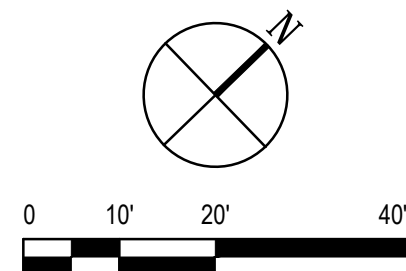


MATCHLINE - STA. 129+50  
SEE SHEET NO. 12

BNSF/METRO RAILROAD



MATCHLINE - STA. 129+50  
SEE SHEET NO. 12



DIAL TOLL FREE  
811  
AT LEAST TWO DAYS  
BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA



| MARK | DESCRIPTION | DATE | APPR. |
|------|-------------|------|-------|
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

DESIGNED BY:

County of Orange  
OC Public Works

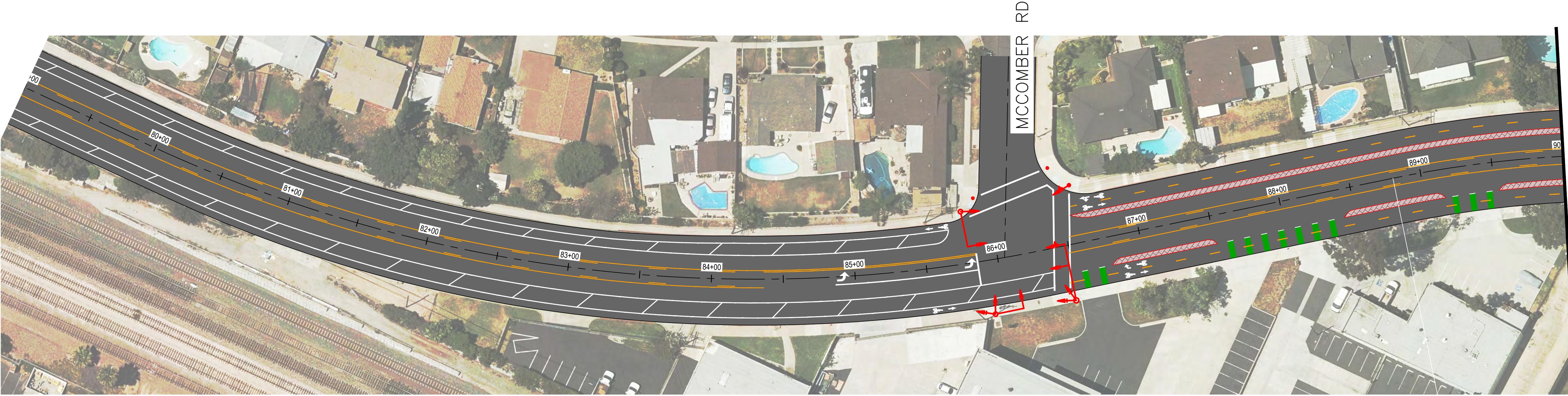
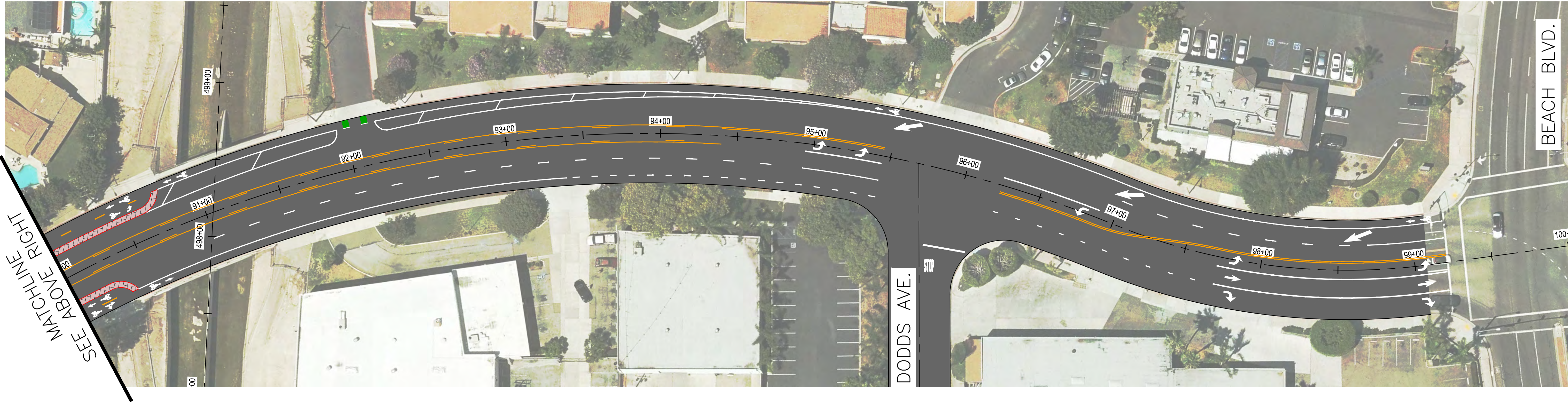
PREPARED BY:  
GHD Inc.  
320 Goddard Way Suite 200  
Irvine California 92618 USA  
T 949 646 5298  
F 949 646 5298  
W www.ghd.com

DRAWN BY:  
CHECKED BY:  
DRAWING NO:  
C-111  
FILE NAME:  
11206772-DC-Contr-BNSF.dwg  
PLOT DATE:  
###  
SCALE:  
AS SHOWN

OC LOOP  
SEGMENTS O, P, Q  
STA 124+50 TO STA 129+50  
BNSF/METROLINK  
BOX-JACK  
UNDERCROSSING

SHEET  
**C-111**  
11 OF 15





DIAL TOLL FREE  
811  
AT LEAST TWO DAYS  
BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA



| MARK | DESCRIPTION | DATE | APPR. |
|------|-------------|------|-------|
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |
|      |             |      |       |

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

DATE

|                             |                                  |
|-----------------------------|----------------------------------|
| DESIGNED BY:                | CHECKED BY:                      |
| DRAWN BY:                   | FILE NAME:                       |
| DRAWING NO:                 | 11206772-Fig-StagerRd-Prelim.dwg |
| PREPARED BY:                | SCALE:                           |
| GHD Inc.                    | AS SHOWN                         |
| 320 Goddard Way Suite 200   |                                  |
| Irvine California 92618 USA |                                  |
| T 949 646 5298              |                                  |
| F 949 646 5298              |                                  |
| W www.ghd.com               |                                  |

County of Orange  
OC Public Works



OC LOOP  
SEGMENTS O, P, Q  
STAGE RD. CROSSING

ALTERNATIVE 2

SHEET

2

2 OF 2



---

**APPENDIX D**

**OC LOOP JURISDICTIONAL AREAS**

**MAPBOOK**

---

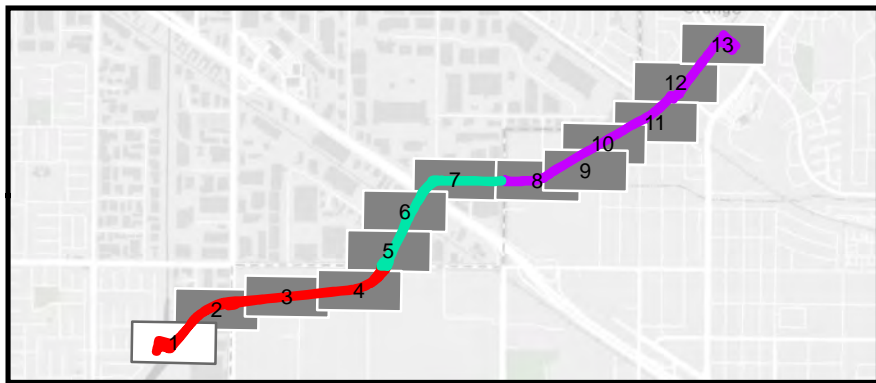
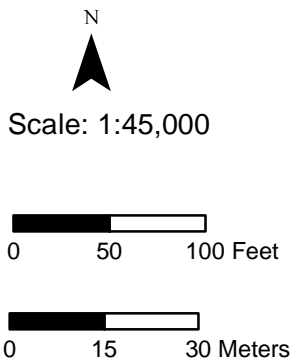




Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Areas\_MapBook\_11x17\_2020\_04\_29.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



#### Legend

- Segment O
- 150ft Biological Study Area (BSA)
- County Boundary
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)

#### OC Loop Segments O, P, and Q

Jurisdictional Areas

Appendix D

Map 1 of 13



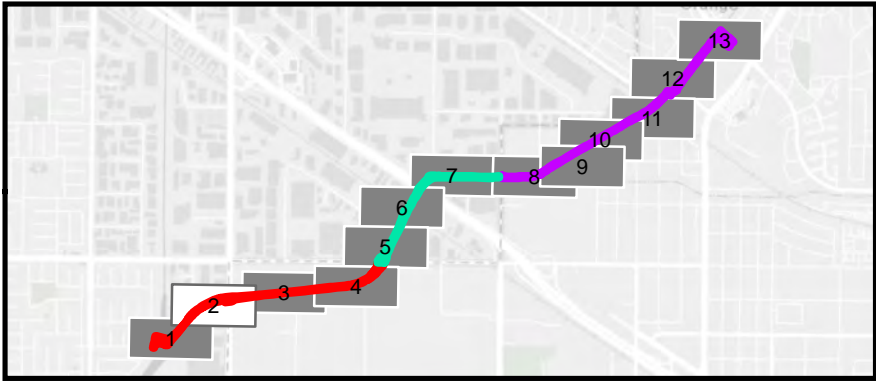
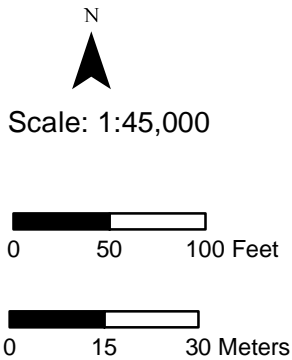




Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXDs\BIO\7034\_OC\_Loop\_JD\_Areas\_MapBook\_11x17\_2020\_04\_29.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



**Legend**

- Segment O
- 150ft Biological Study Area (BSA)
- County Boundary
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)

**OC Loop  
Segments O, P, and Q**

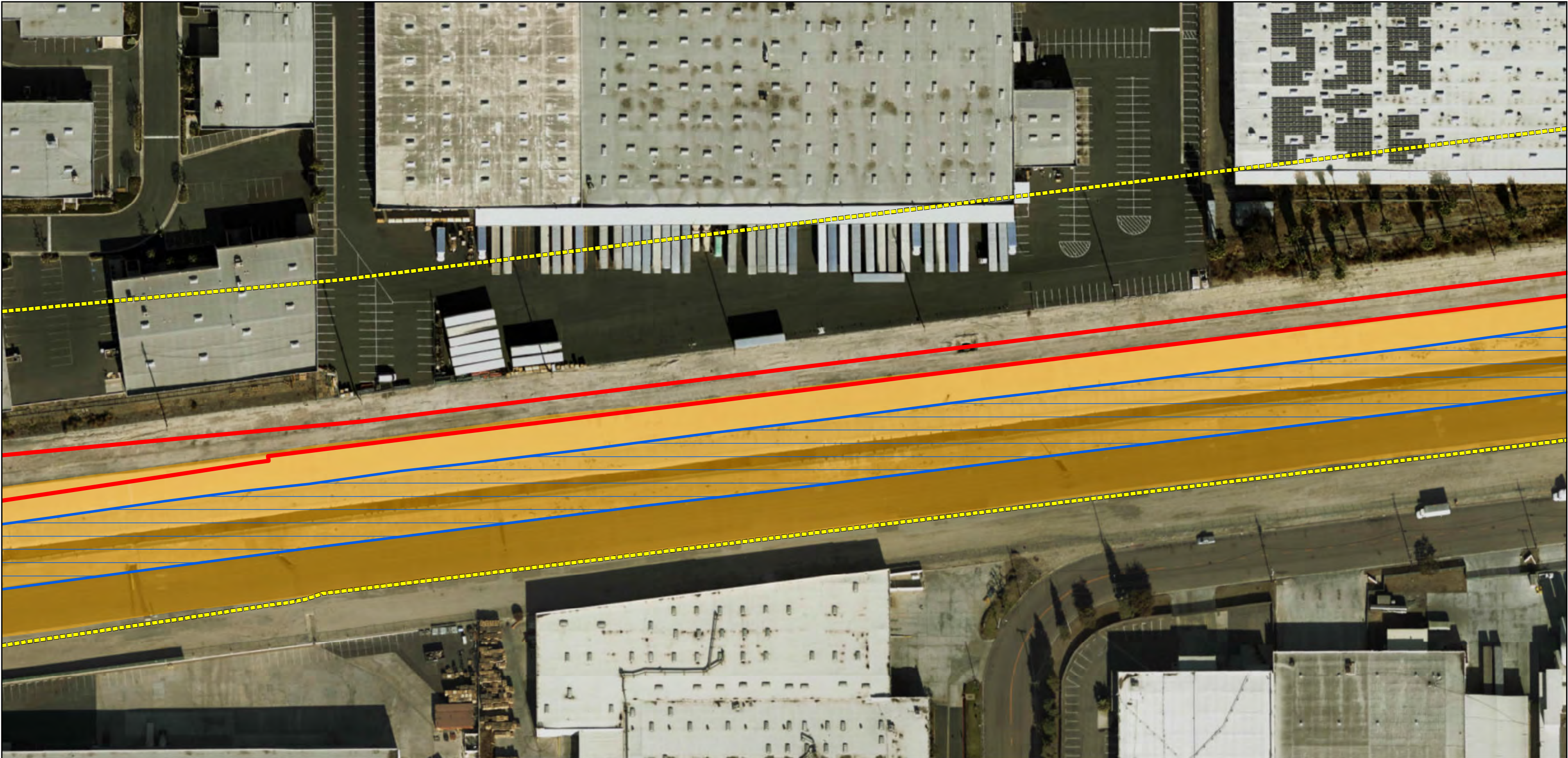
Jurisdictional Areas

Appendix D

Map 2 of 13

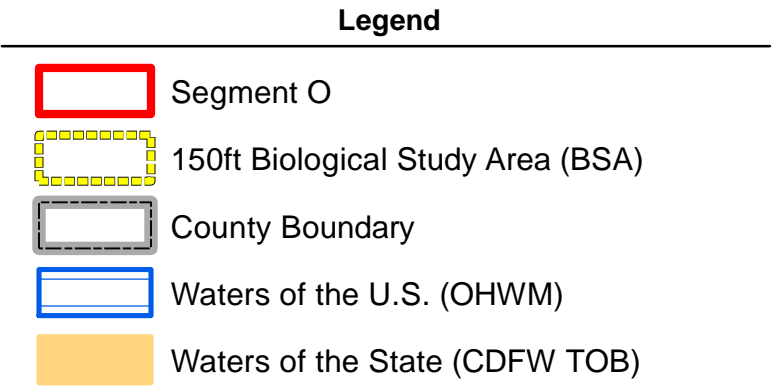
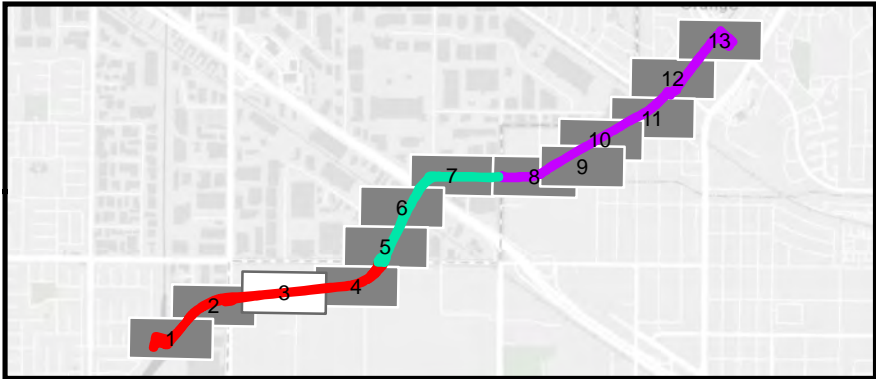
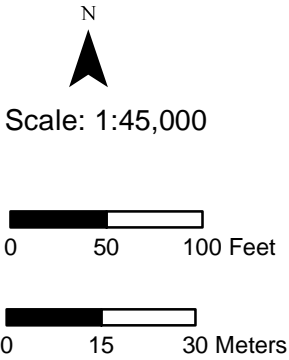






Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\BIO\7034\_OC\_Loop\_JD\_Areas\_MapBook\_11x17\_2020\_04\_29.mxd  
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



**OC Loop  
Segments O, P, and Q**

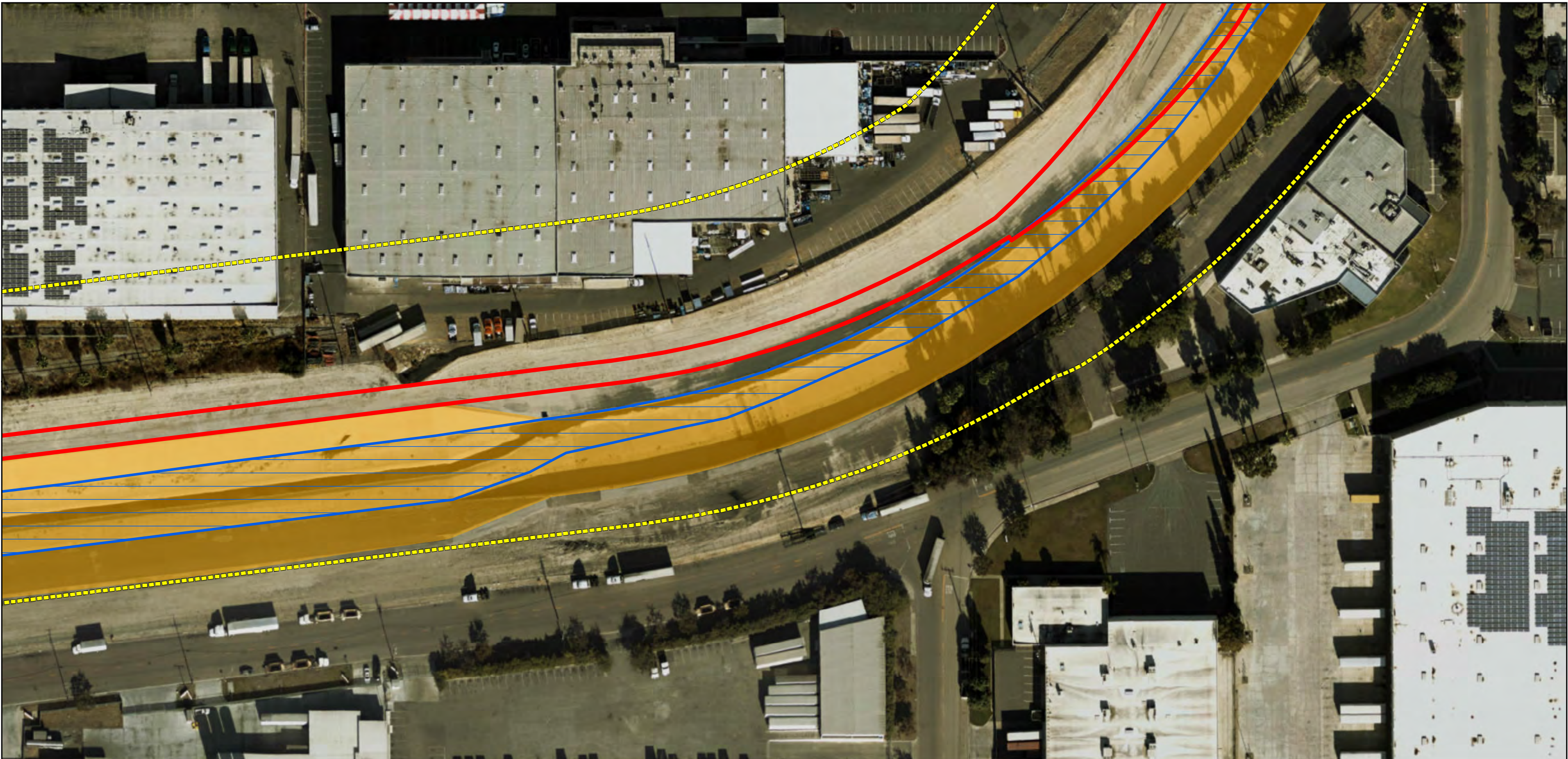
Jurisdictional Areas

Appendix D

Map 3 of 13



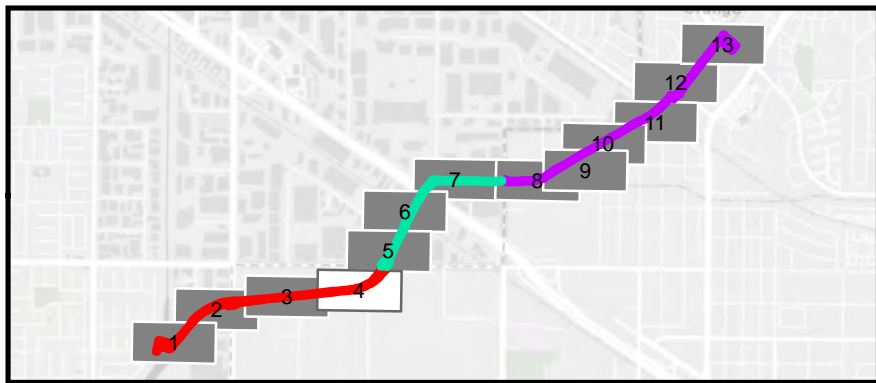
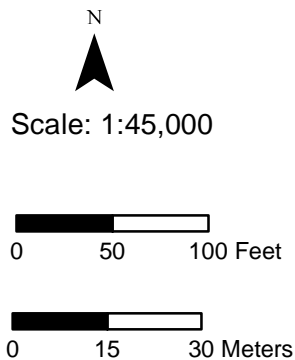




Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\BIO\7034\_OC\_Loop\_JD\_Areas\_MapBook\_11x17\_2020\_04\_29.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



#### Legend

- Segment O
- 150ft Biological Study Area (BSA)
- County Boundary
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)

#### OC Loop Segments O, P, and Q

Jurisdictional Areas

Appendix D

Map 4 of 13



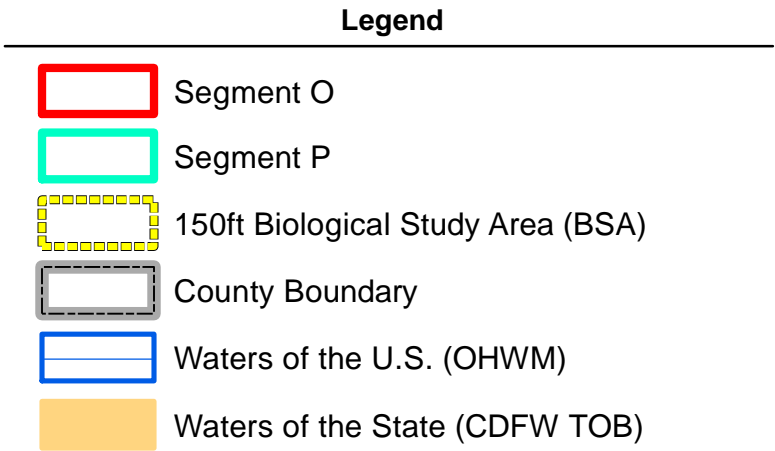
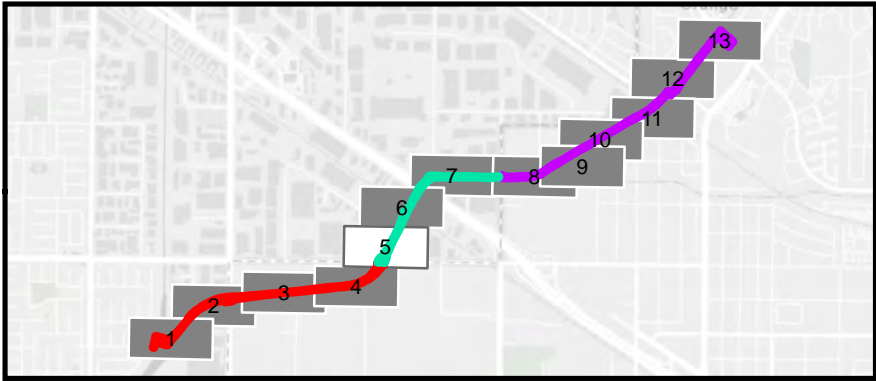
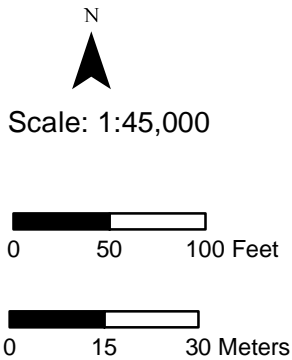




Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\BIO\7034\_OC\_Loop\_JD\_Areas\_MapBook\_11x17\_2020\_04\_29.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



**OC Loop  
Segments O, P, and Q**

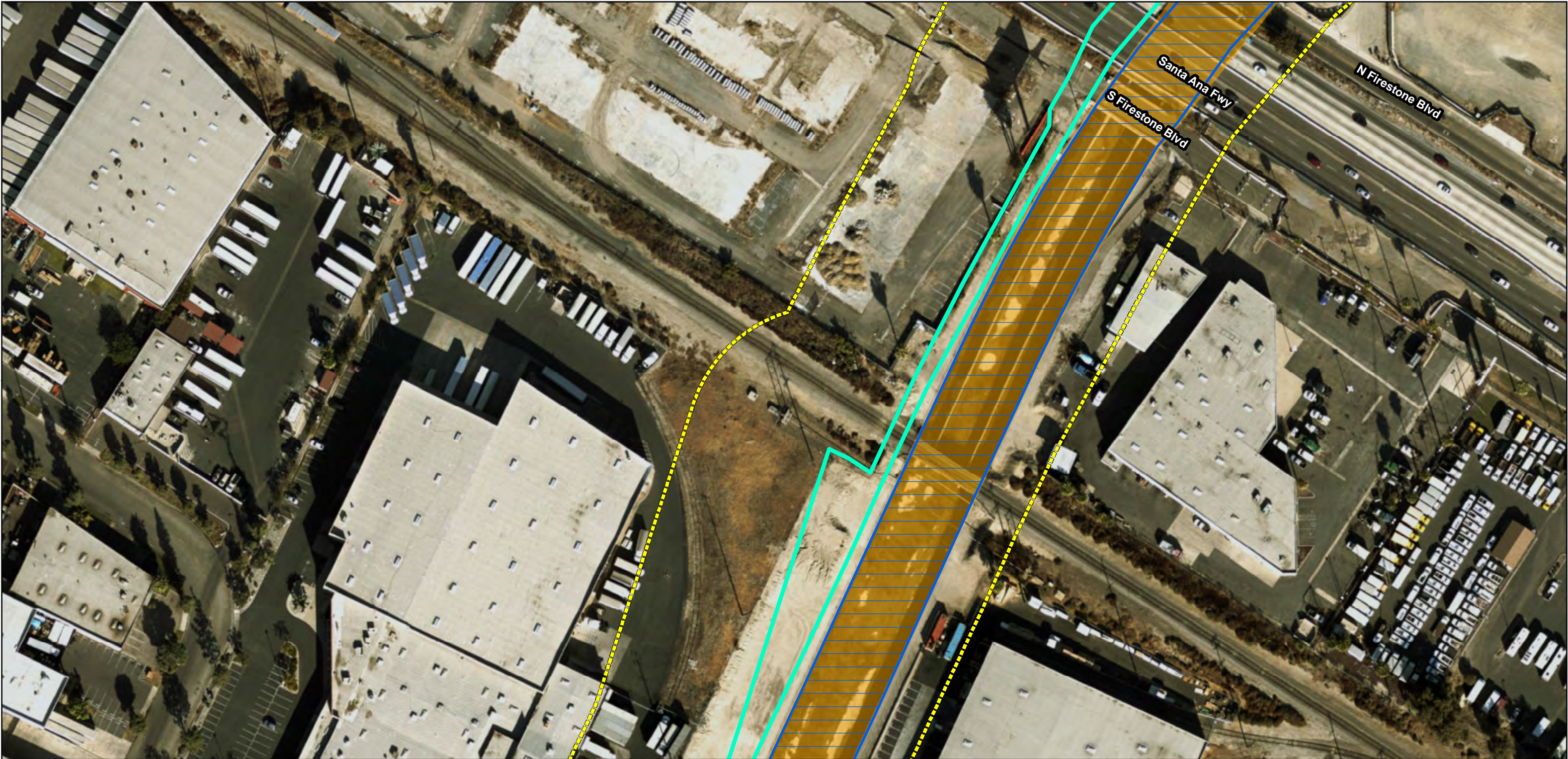
Jurisdictional Areas

Appendix D

Map 5 of 13



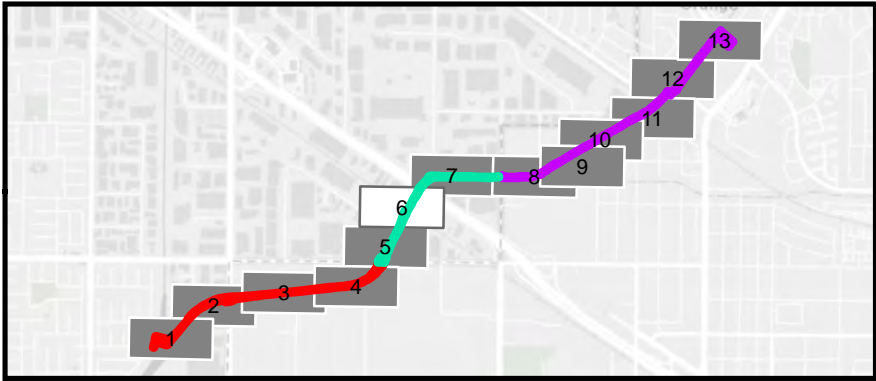
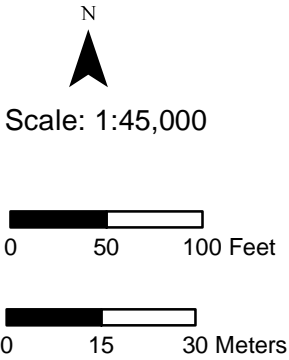




Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\BIO\7034\_OC\_Loop\_JD\_Areas\_MapBook\_11x17\_2020\_04\_29.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



### Legend

- Segment P
- 150ft Biological Study Area (BSA)
- County Boundary
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)

### OC Loop Segments O, P, and Q

Jurisdictional Areas

Appendix D

Map 6 of 13



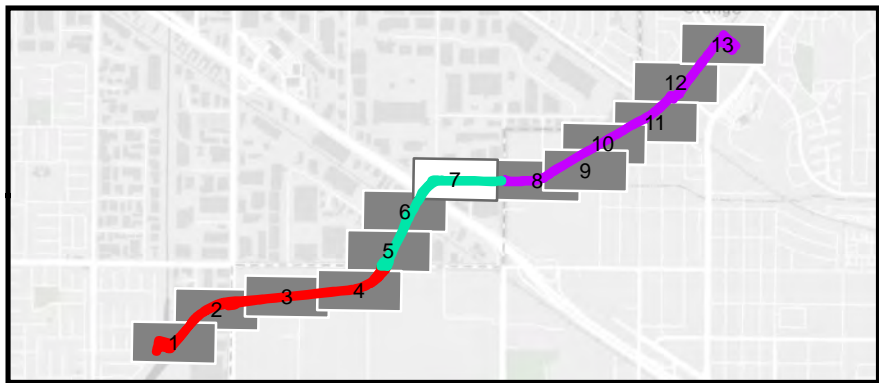
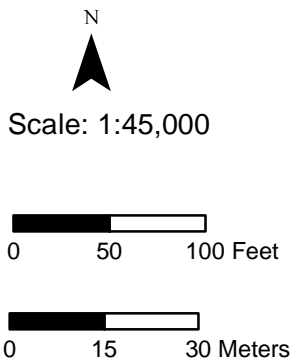









Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\BIO\7034\_OC\_Loop\_JD\_Areas\_MapBook\_11x17\_2020\_04\_29.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



### Legend

-  Segment P
-  150ft Biological Study Area (BSA)
-  County Boundary
-  Waters of the U.S. (OHWM)
-  Waters of the State (CDFW TOB)

### OC Loop Segments O, P, and Q

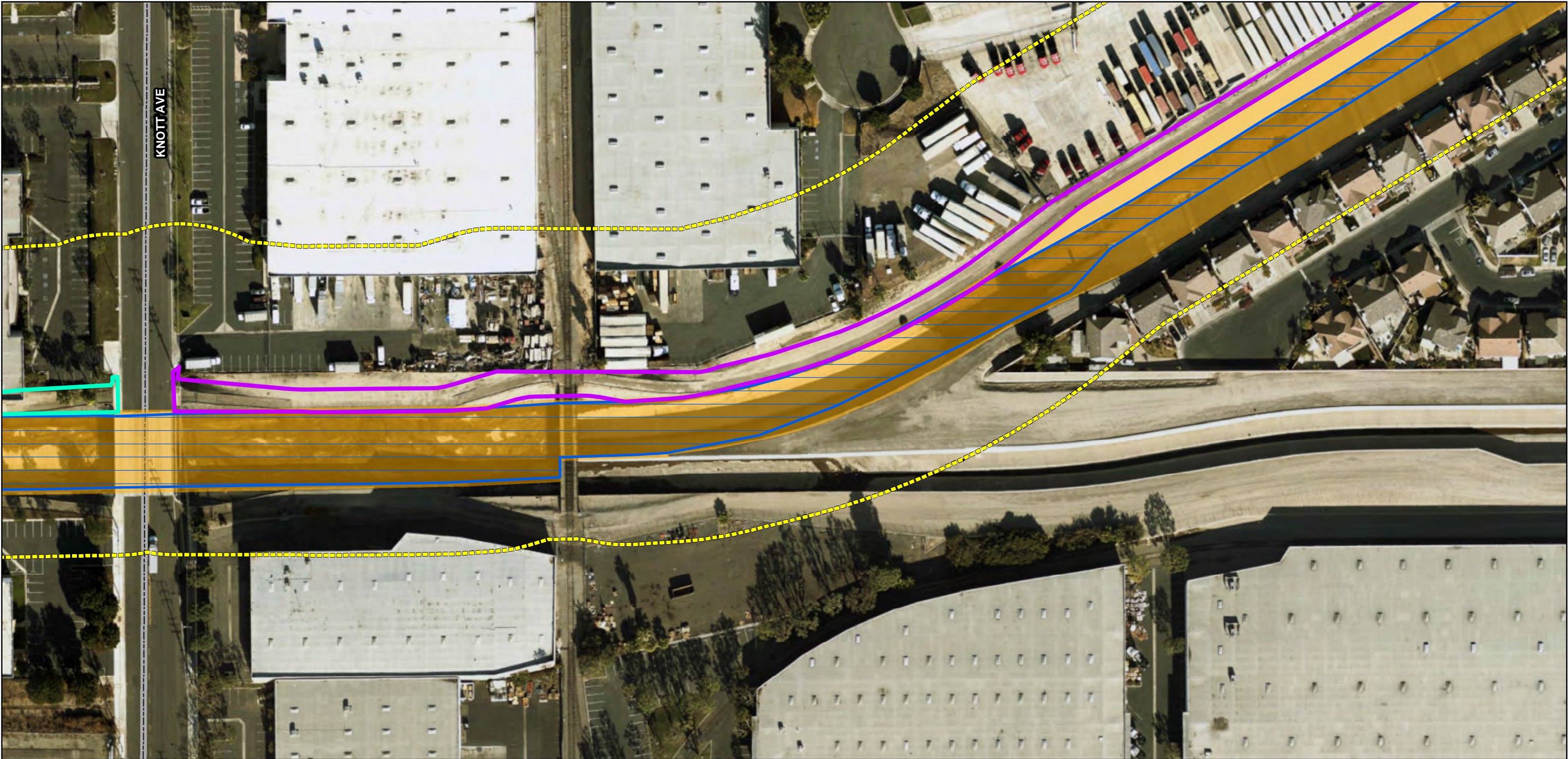
Jurisdictional Areas

Appendix D

Map 7 of 13

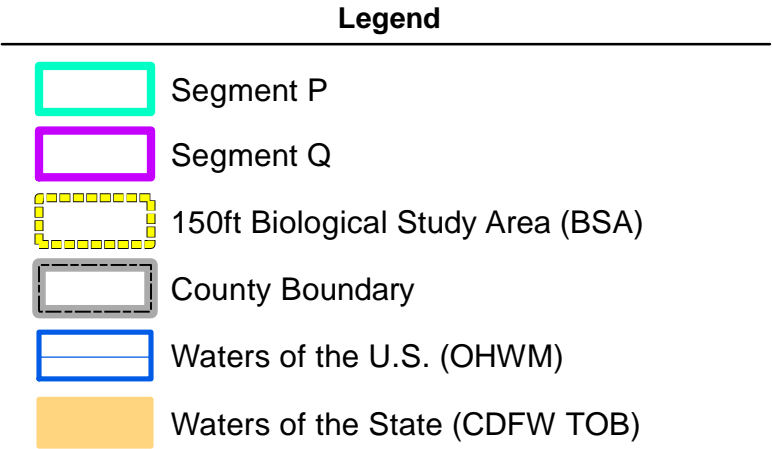
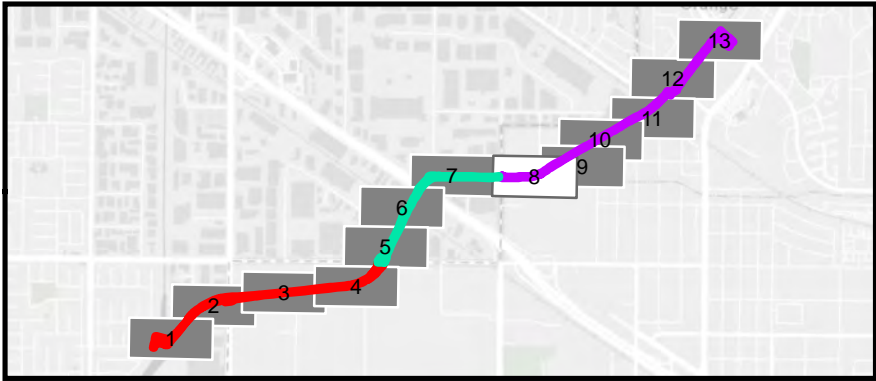
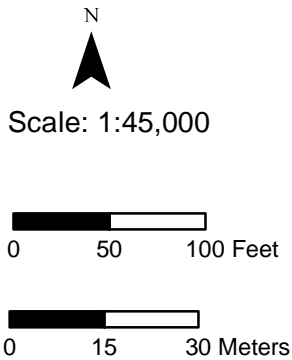






Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\BIO\7034\_OC\_Loop\_JD\_Areas\_MapBook\_11x17\_2020\_04\_29.mxd  
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



**OC Loop  
Segments O, P, and Q**

Jurisdictional Areas

Appendix D

Map 8 of 13



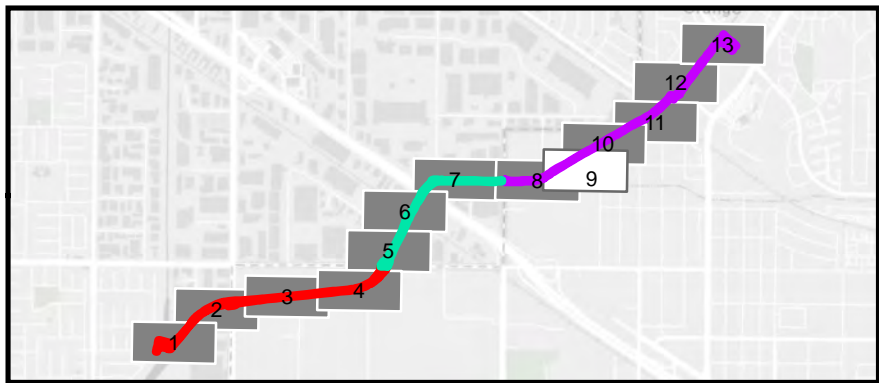
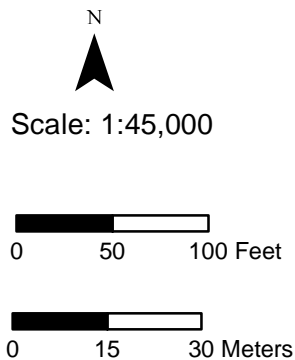




Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\BIO\7034\_OC\_Loop\_JD\_Areas\_MapBook\_11x17\_2020\_04\_29.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



### Legend

- Segment Q
- 150ft Biological Study Area (BSA)
- County Boundary
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)

### OC Loop Segments O, P, and Q

Jurisdictional Areas

Appendix D

Map 9 of 13



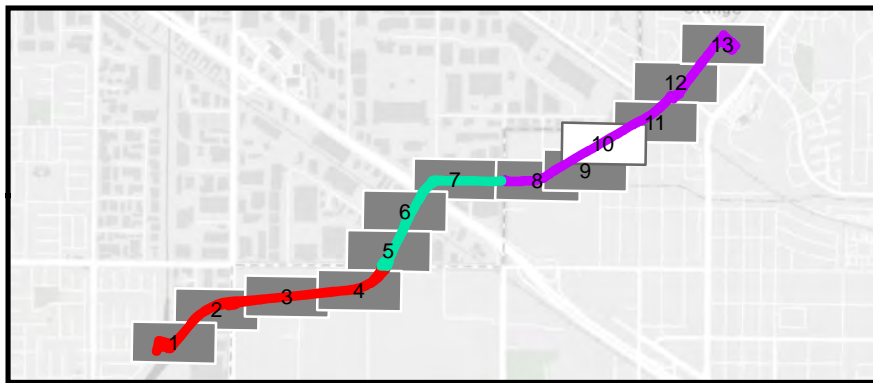
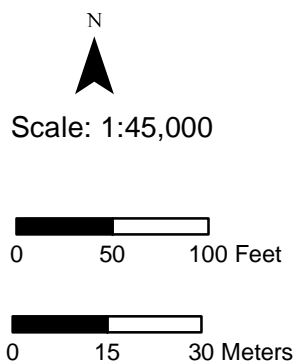




Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\BIO\7034\_OC\_Loop\_JD\_Areas\_MapBook\_11x17\_2020\_04\_29.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



### Legend

- Segment Q
- 150ft Biological Study Area (BSA)
- County Boundary
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)

### OC Loop Segments O, P, and Q

Jurisdictional Areas

Appendix D

Map 10 of 13



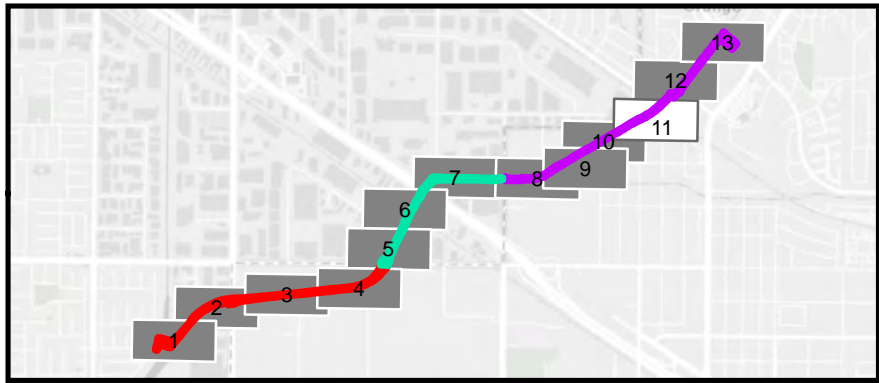
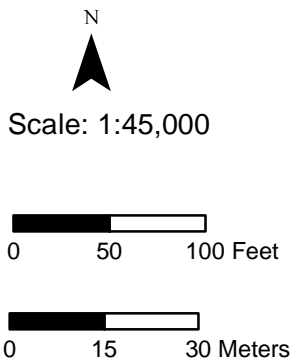




Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\BIO\7034\_OC\_Loop\_JD\_Areas\_MapBook\_11x17\_2020\_04\_29.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



### Legend

- Segment Q
- 150ft Biological Study Area (BSA)
- County Boundary
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)

### OC Loop Segments O, P, and Q

Jurisdictional Areas

Appendix D

Map 11 of 13



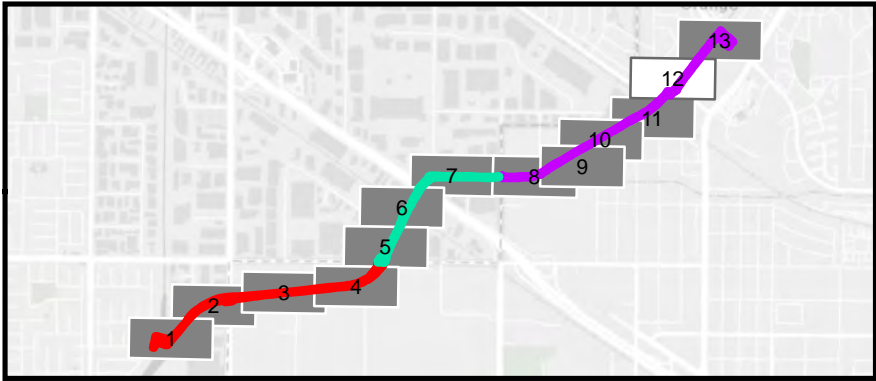
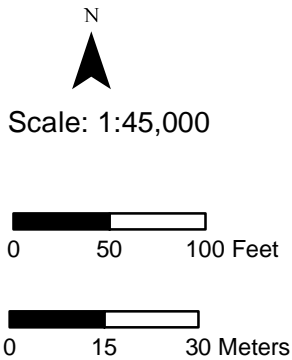




Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\BIO\7034\_OC\_Loop\_JD\_Areas\_MapBook\_11x17\_2020\_04\_29.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



**Legend**

- Segment Q
- 150ft Biological Study Area (BSA)
- County Boundary
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)

**OC Loop  
Segments O, P, and Q**

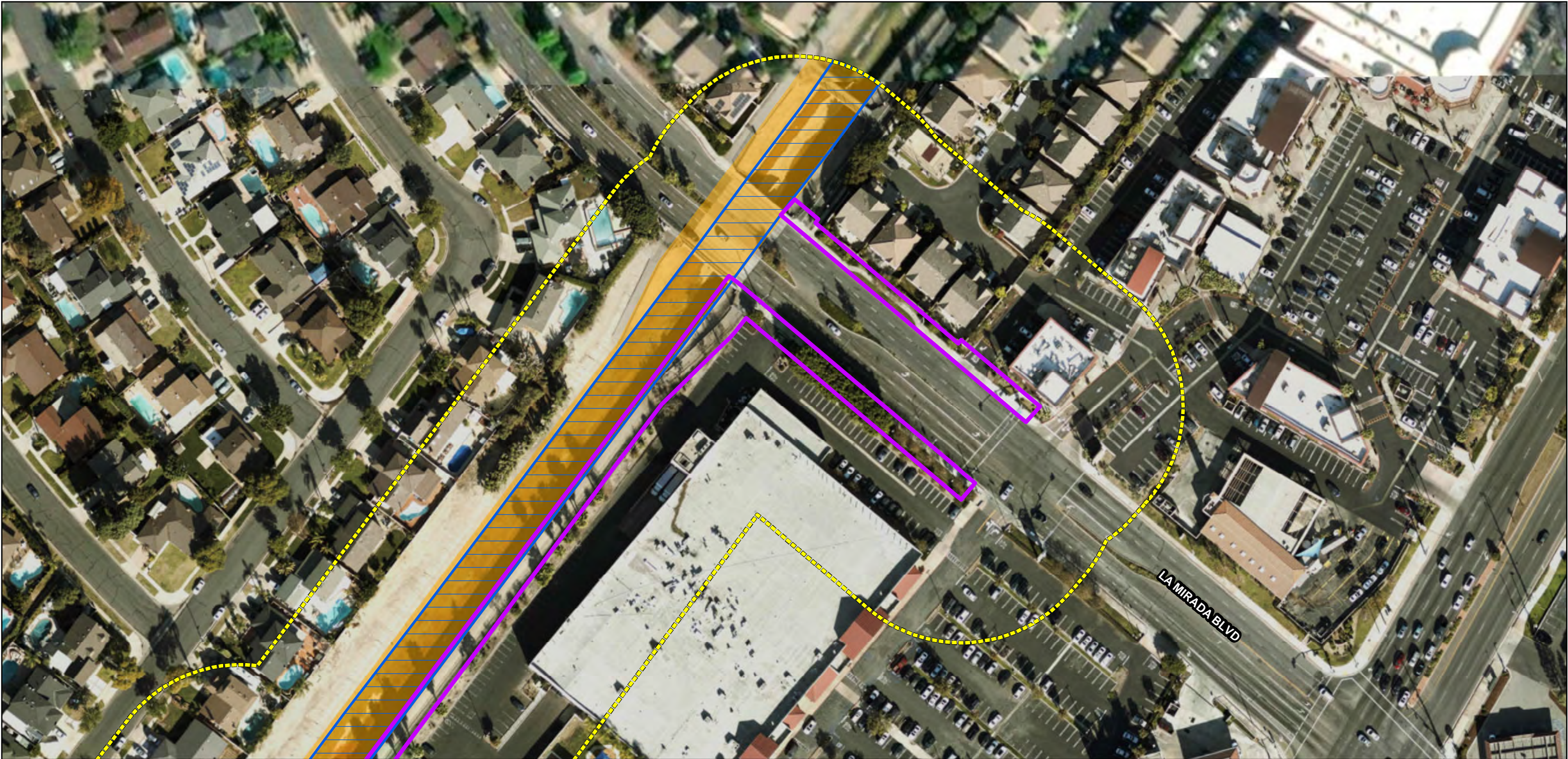
Jurisdictional Areas

Appendix D

Map 12 of 13



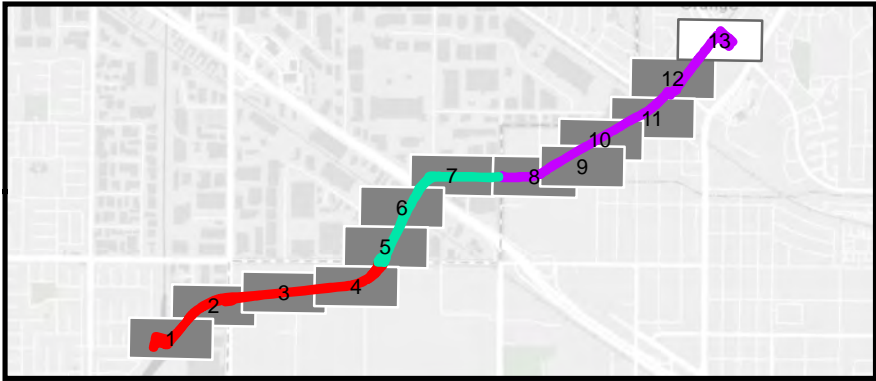
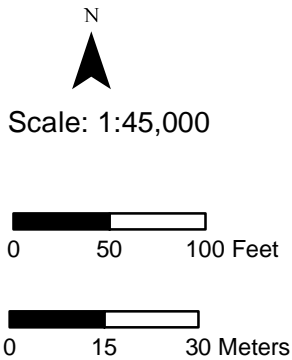




Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\BIO\7034\_OC\_Loop\_JD\_Areas\_MapBook\_11x17\_2020\_04\_29.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



### Legend

- Segment Q
- 150ft Biological Study Area (BSA)
- County Boundary
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)

### OC Loop Segments O, P, and Q

Jurisdictional Areas

Appendix D

Map 13 of 13





---

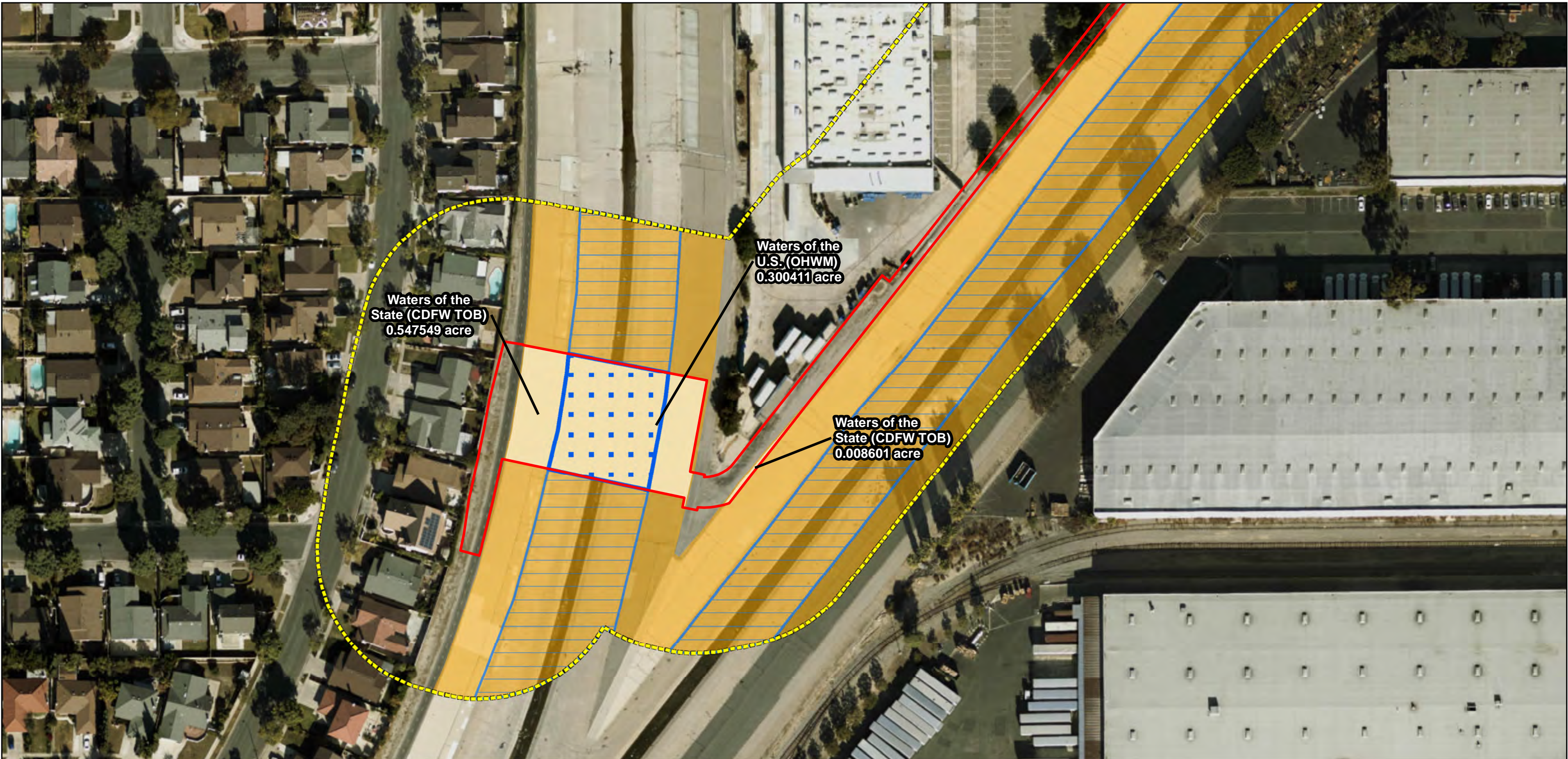
**APPENDIX E**

**OC LOOP IMPACTS TO JURISDICTIONAL WATERS**

**MAPBOOK**

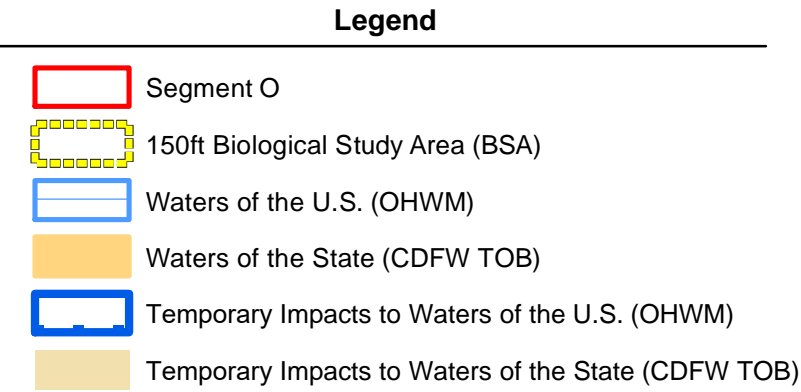
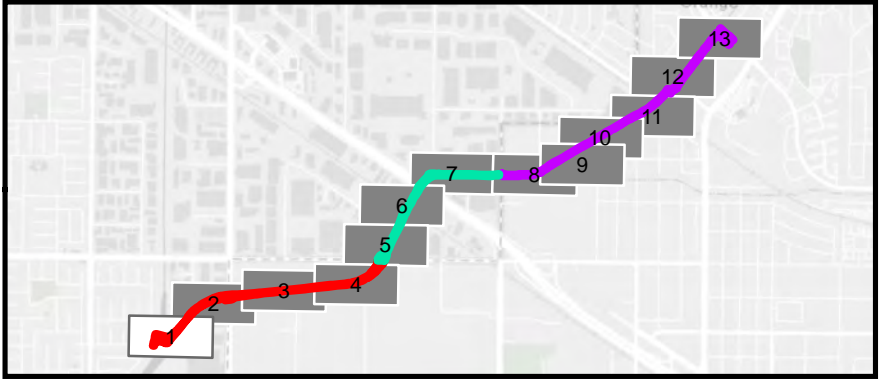
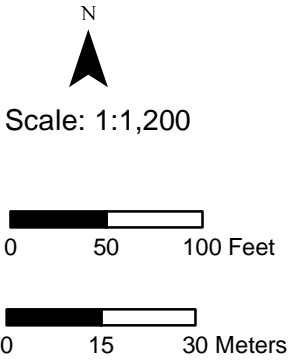
---



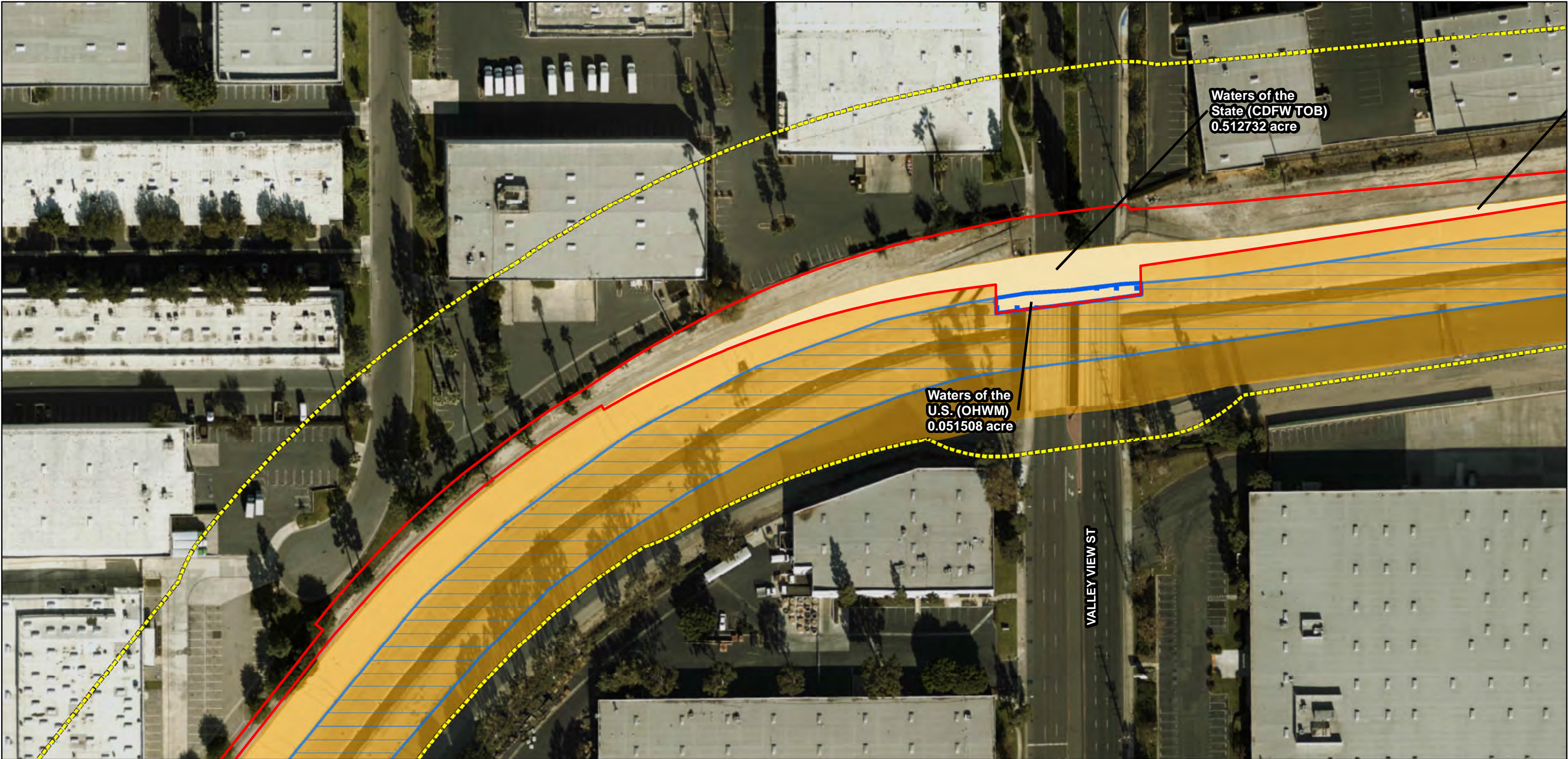


Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Impacts\_ALL\_MapBook\_11x17\_2020\_05\_04.mxd  
 Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020

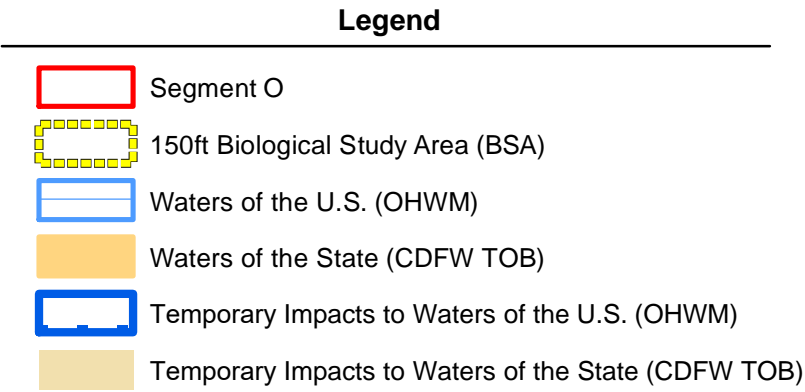
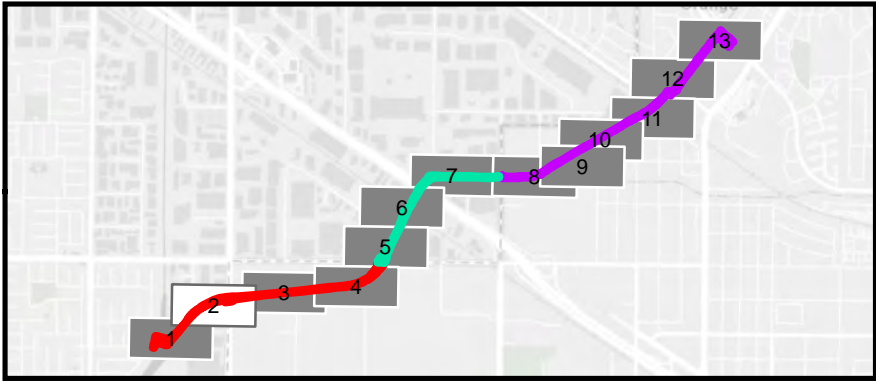
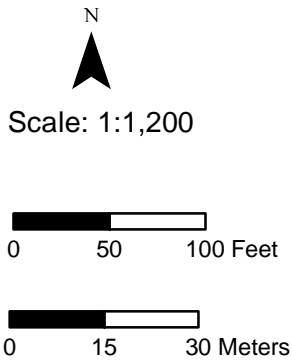






Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Impacts\_ALL\_MapBook\_11x17\_2020\_05\_04.mxd  
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



**OC Loop  
Segments O, P, and Q**

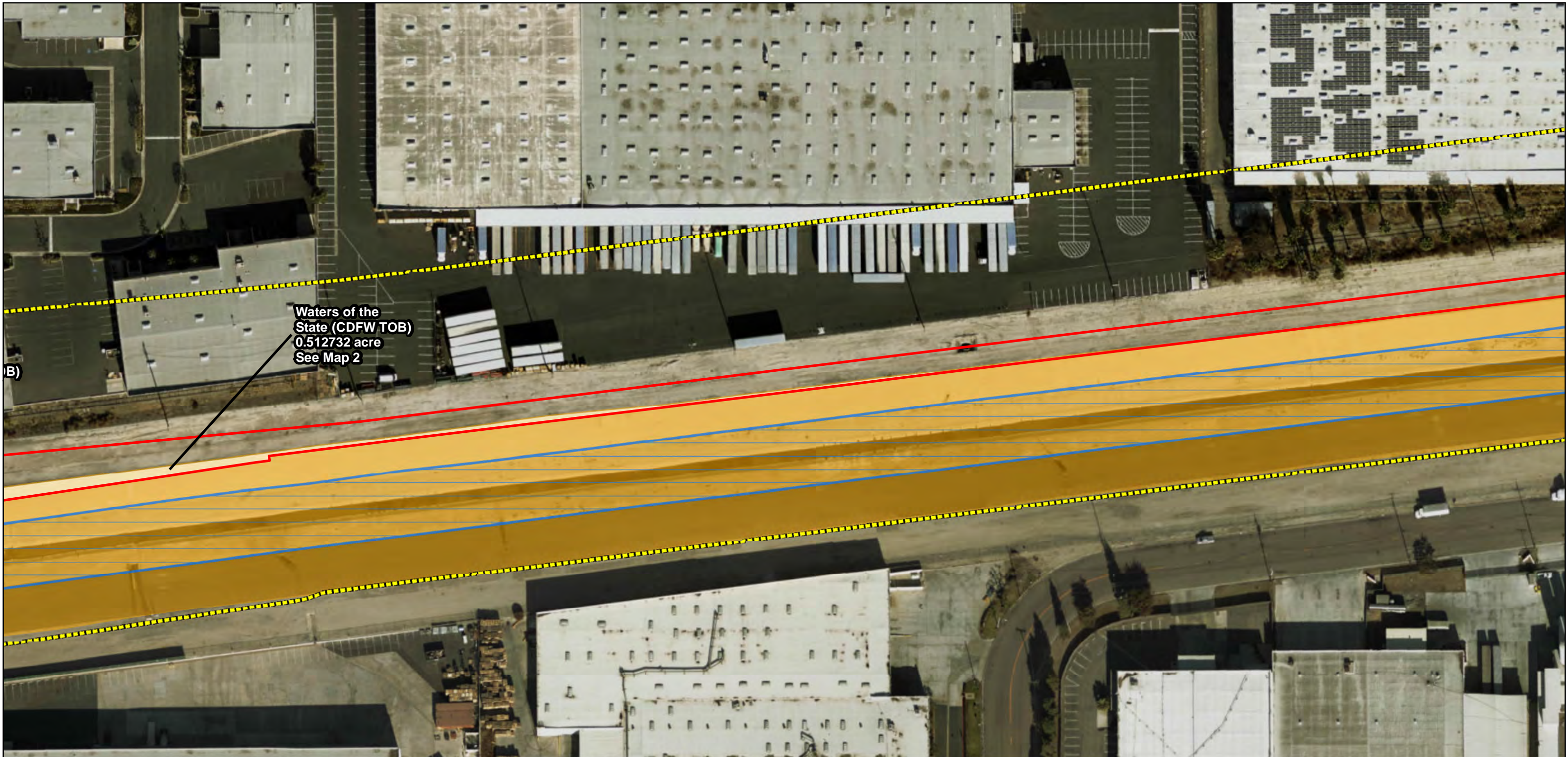
Impacts to  
Jurisdictional Waters

Appendix E

Map 2 of 13



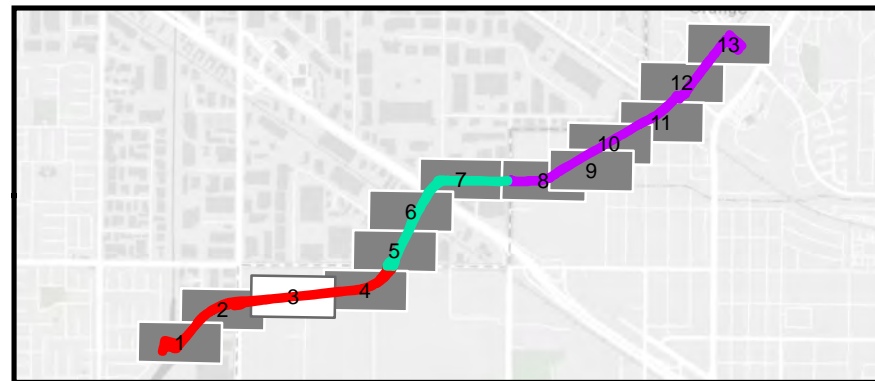
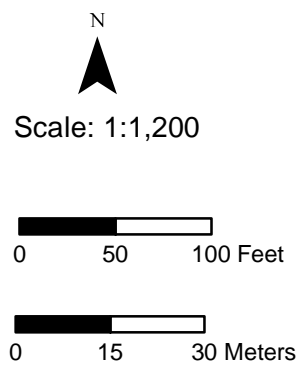




Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Impacts\_ALL\_MapBook\_11x17\_2020\_05\_04.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



### Legend

- Segment O
- 150ft Biological Study Area (BSA)
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)
- Temporary Impacts to Waters of the State (CDFW TOB)

### OC Loop Segments O, P, and Q

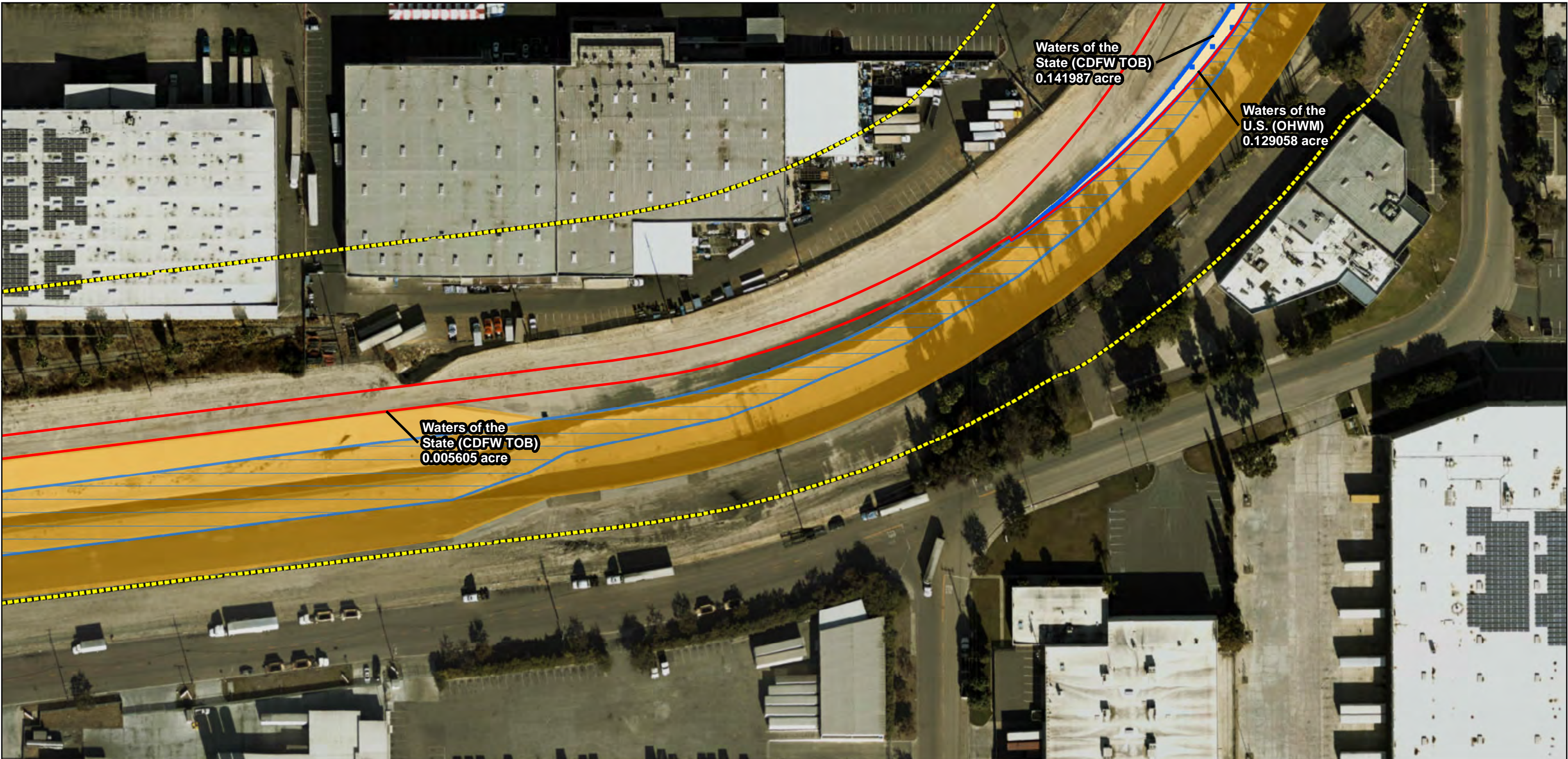
Impacts to  
Jurisdictional Waters

Appendix E

Map 3 of 13

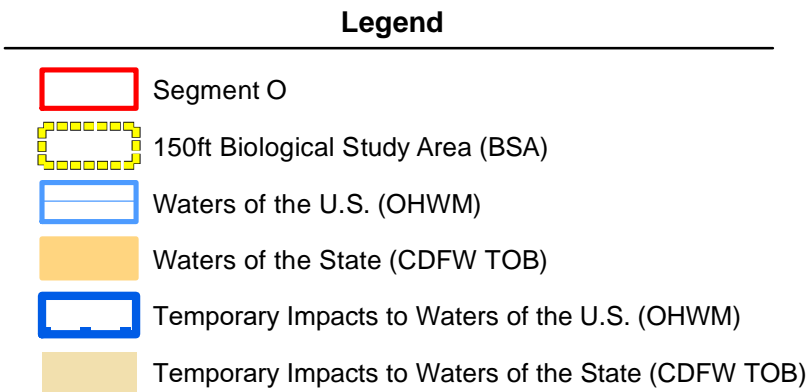
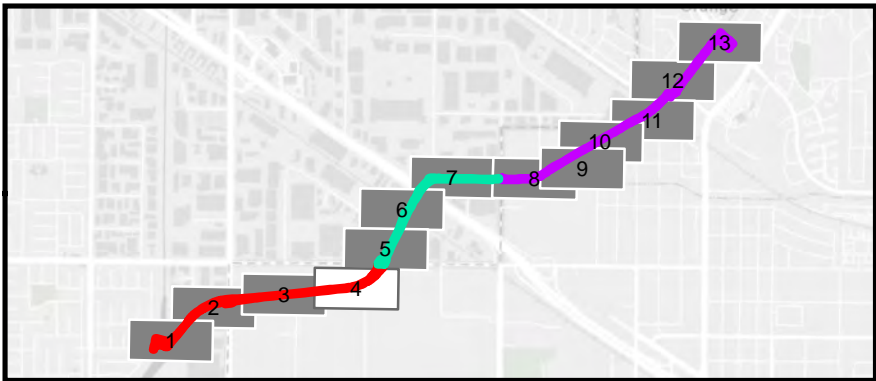
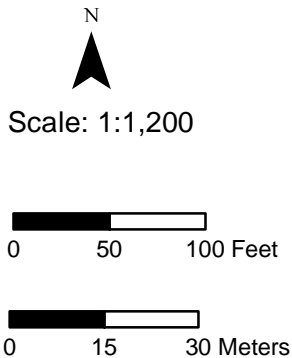






Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Impacts\_ALL\_MapBook\_11x17\_2020\_05\_04.mxd  
 Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



## OC Loop Segments O, P, and Q

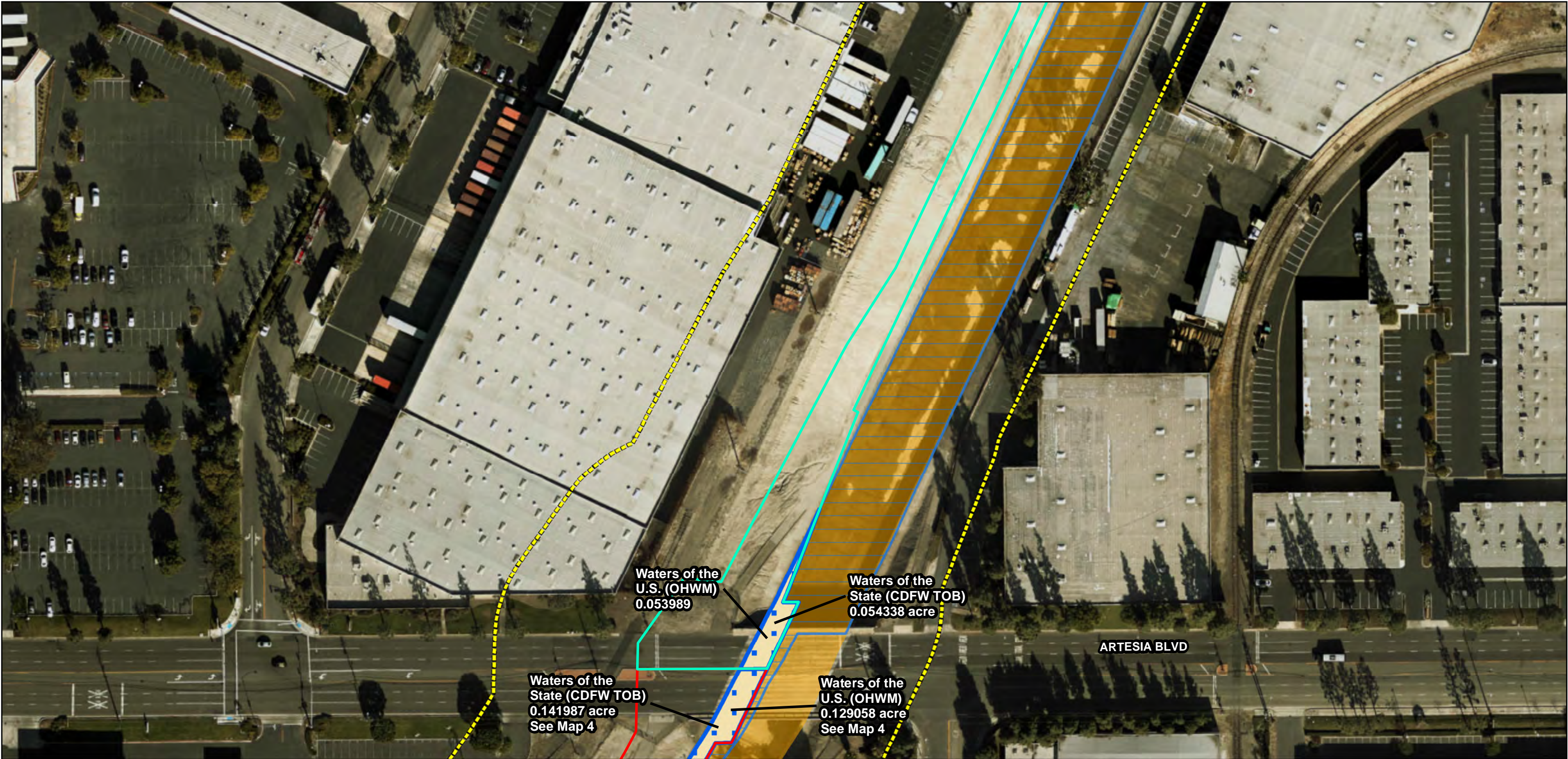
Impacts to  
Jurisdictional Waters

Appendix E

Map 4 of 13

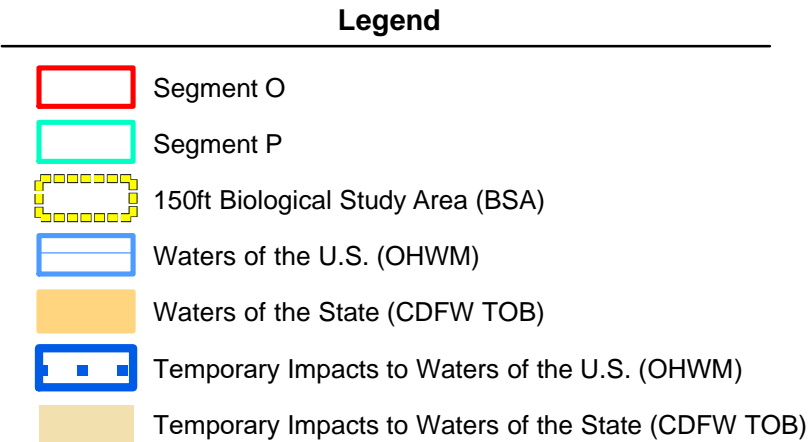
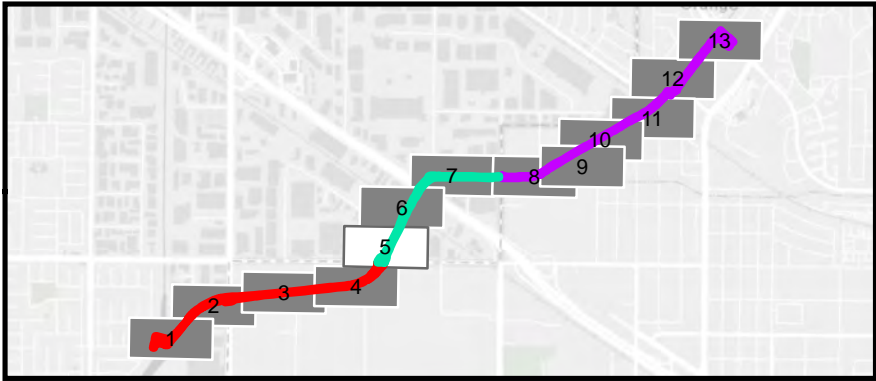
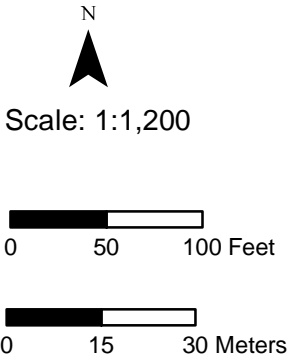






Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Impacts\_ALL\_MapBook\_11x17\_2020\_05\_04.mxd  
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



**OC Loop  
Segments O, P, and Q**

Impacts to  
Jurisdictional Waters

Appendix E

Map 5 of 13

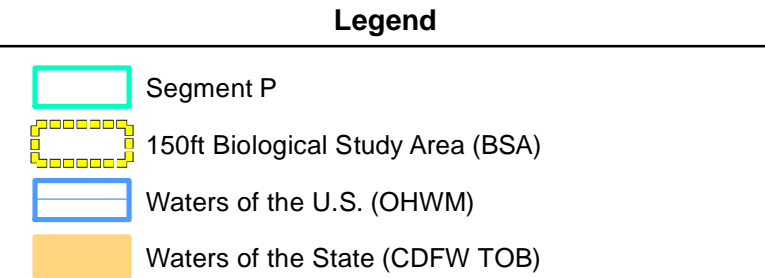
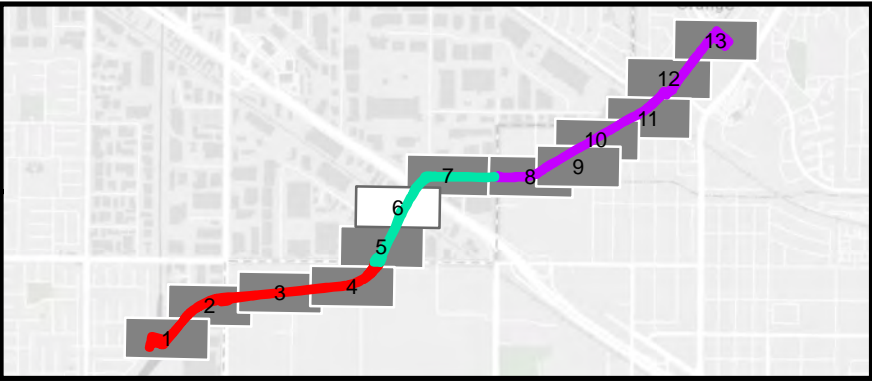
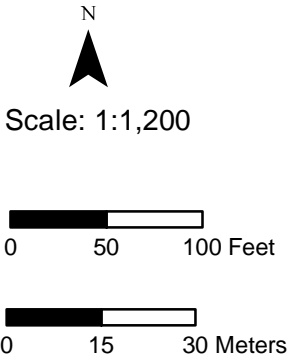






Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Impacts\_ALL\_MapBook\_11x17\_2020\_05\_04.mxd  
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



**OC Loop  
Segments O, P, and Q**

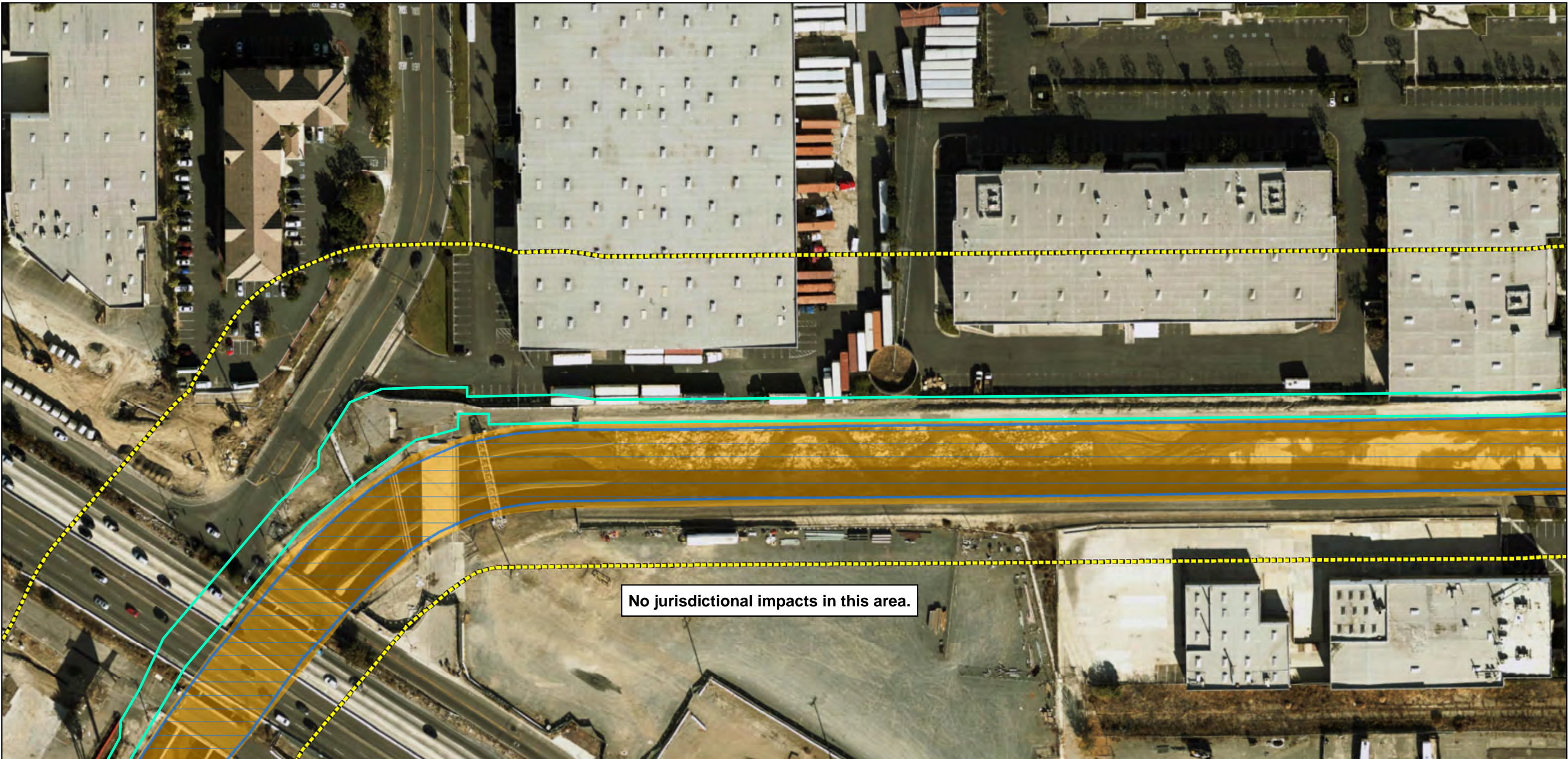
Impacts to  
Jurisdictional Waters

Appendix E

Map 6 of 13



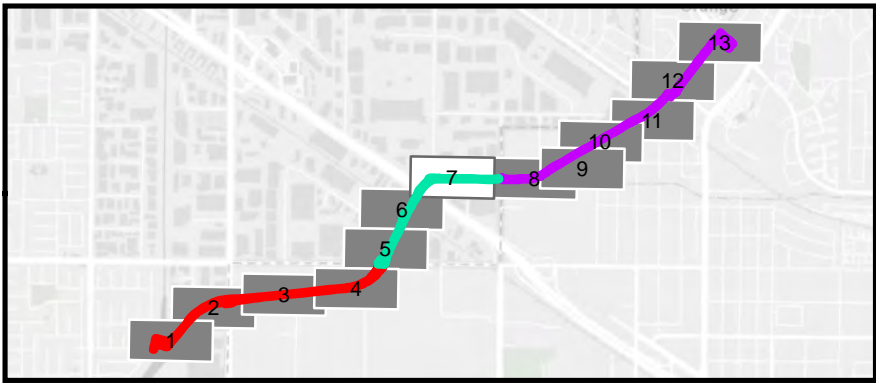
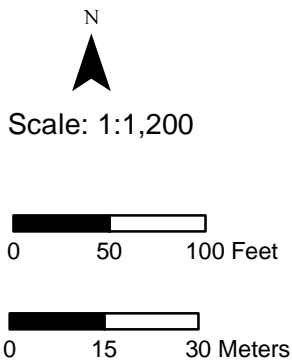




Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Impacts\_ALL\_MapBook\_11x17\_2020\_05\_04.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



### Legend

- Segment P
- 150ft Biological Study Area (BSA)
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)

### OC Loop Segments O, P, and Q

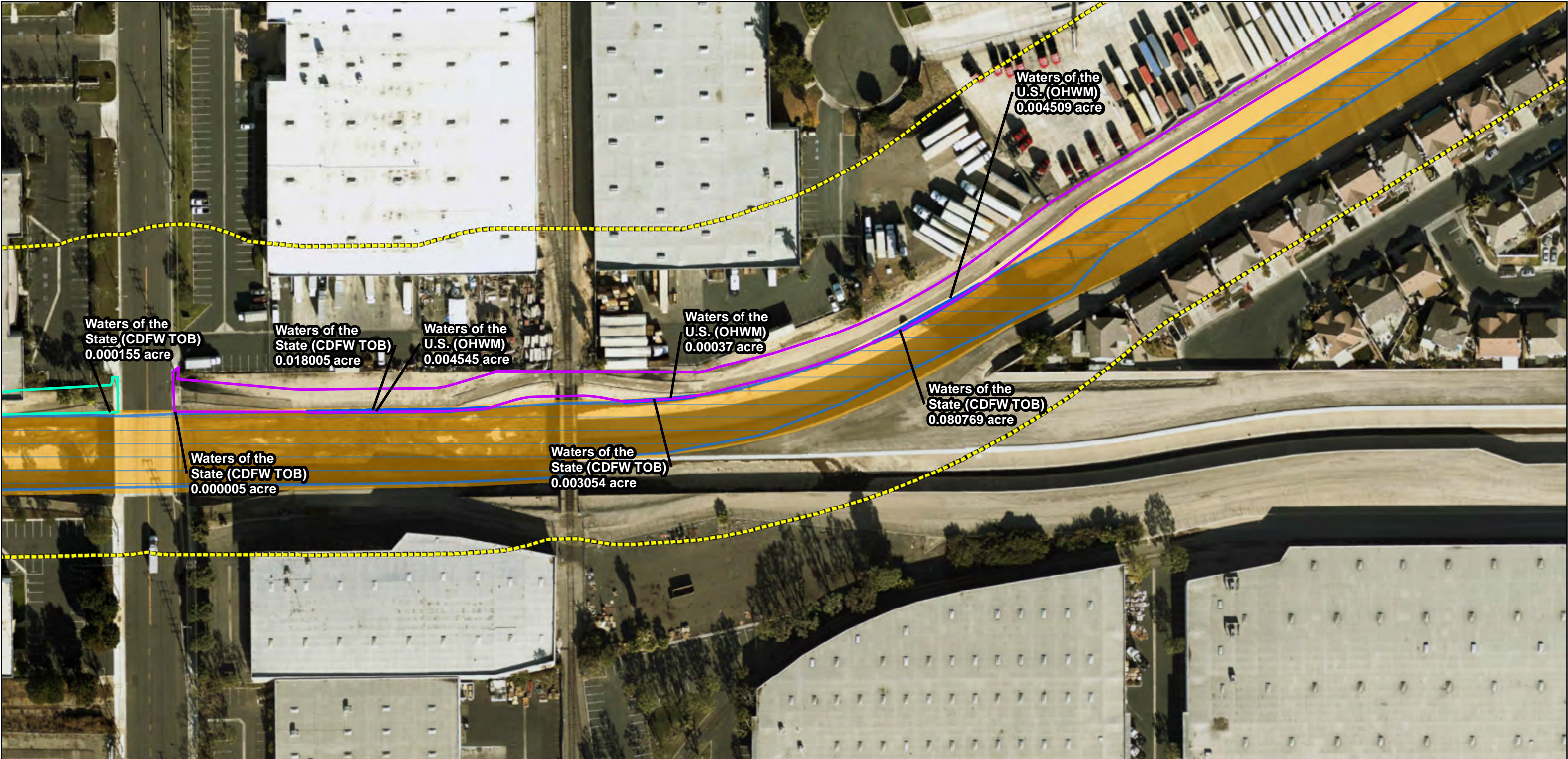
Impacts to  
Jurisdictional Waters

Appendix E

Map 7 of 13

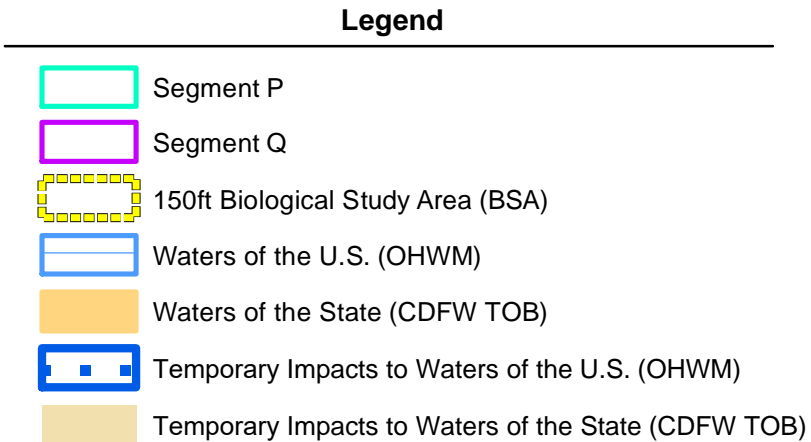
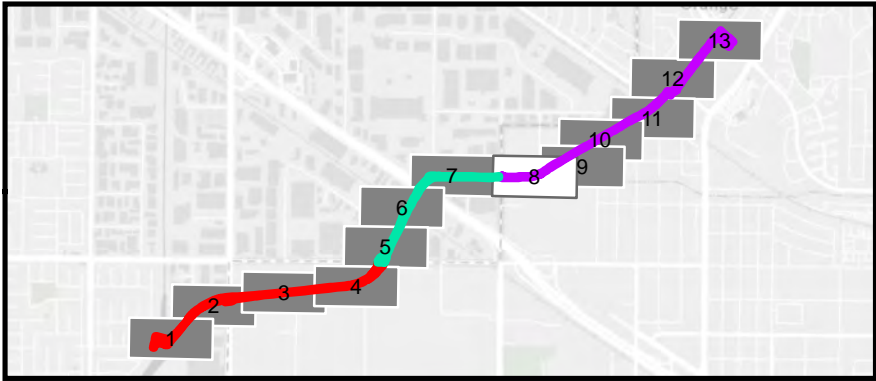
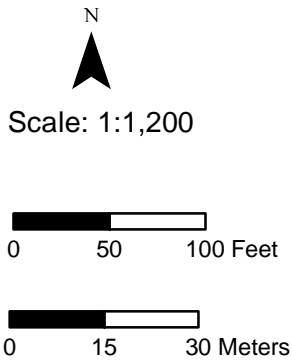






Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Impacts\_ALL\_MapBook\_11x17\_2020\_05\_04.mxd  
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



**OC Loop  
Segments O, P, and Q**

Impacts to  
Jurisdictional Waters

Appendix E

Map 8 of 13



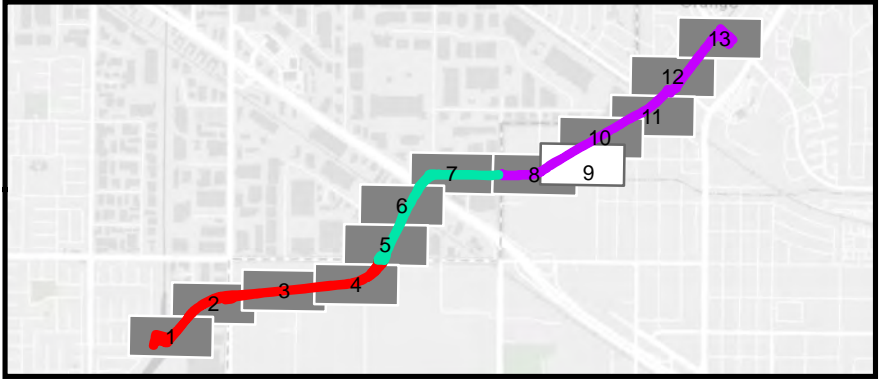
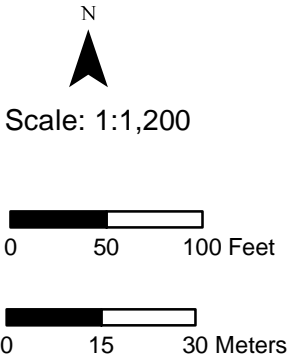




Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Impacts\_ALL\_MapBook\_11x17\_2020\_05\_04.mxd

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



### Legend

- Segment Q
- 150ft Biological Study Area (BSA)
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)
- Temporary Impacts to Waters of the U.S. (OHWM)
- Temporary Impacts to Waters of the State (CDFW TOB)

### OC Loop Segments O, P, and Q

Impacts to  
Jurisdictional Waters

Appendix E

Map 9 of 13

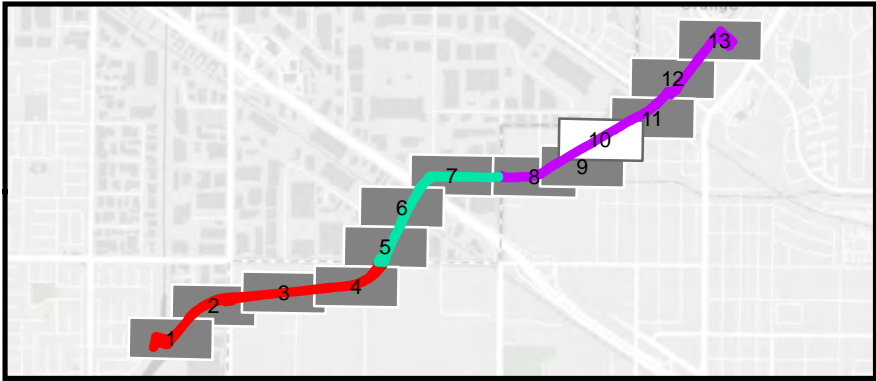
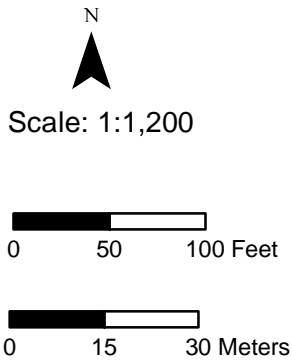






Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Impacts\_ALL\_MapBook\_11x17\_2020\_05\_04.mxd  
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



**Legend**

- Segment Q
- 150ft Biological Study Area (BSA)
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)
- Temporary Impacts to Waters of the State (CDFW TOB)

**OC Loop  
Segments O, P, and Q**

Impacts to  
Jurisdictional Waters

Appendix E

Map 10 of 13

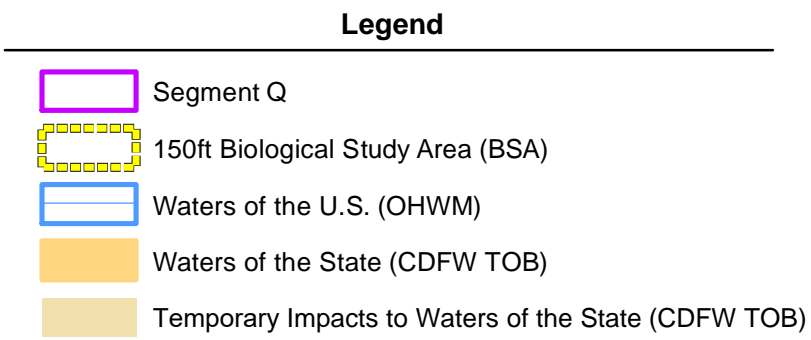
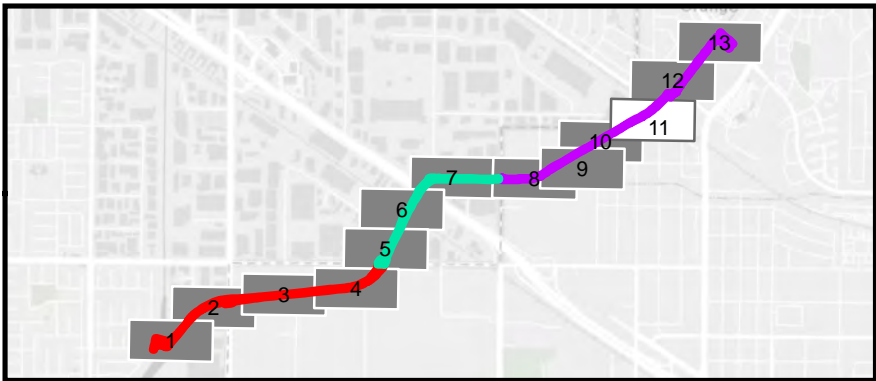
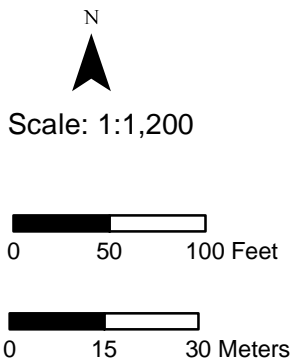






Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Impacts\_ALL\_MapBook\_11x17\_2020\_05\_04.mxd  
 Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



**OC Loop  
Segments O, P, and Q**

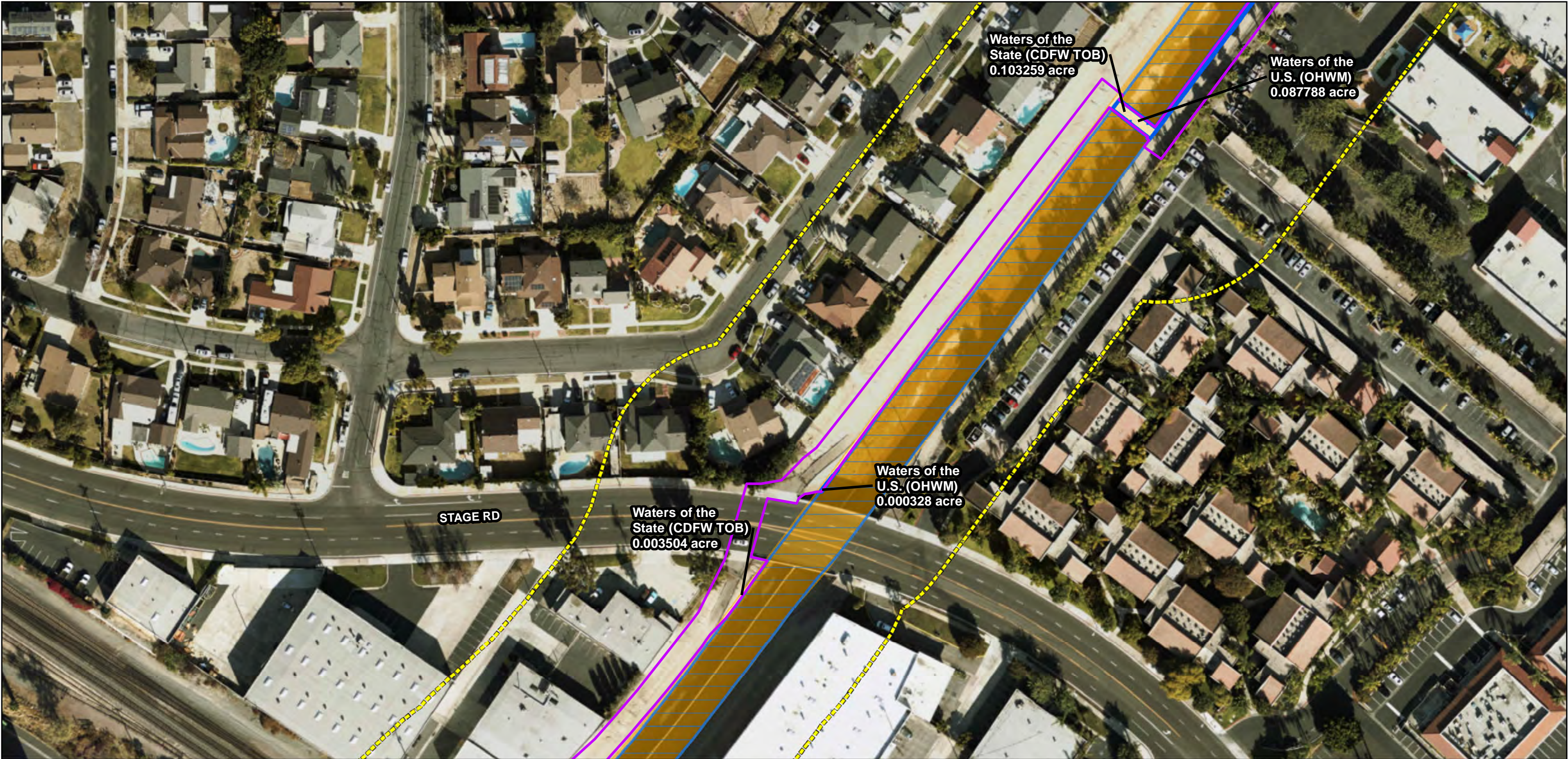
Impacts to  
Jurisdictional Waters

Appendix E

Map 11 of 13

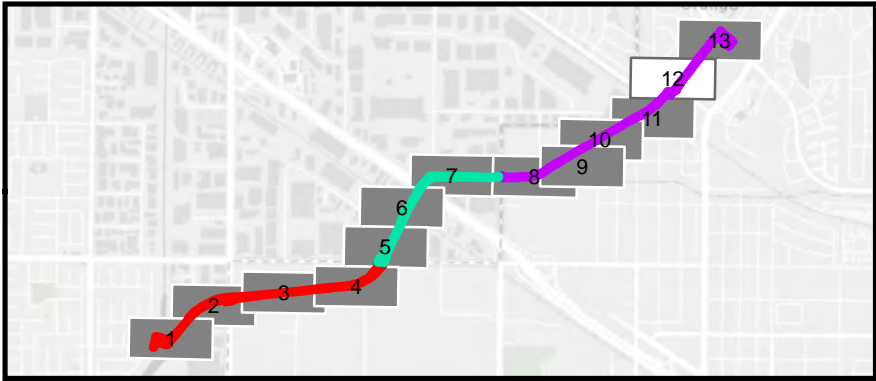
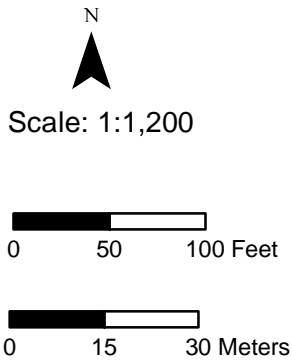






Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Impacts\_ALL\_MapBook\_11x17\_2020\_05\_04.mxd  
 Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



### Legend

- Segment Q
- 150ft Biological Study Area (BSA)
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)
- Temporary Impacts to Waters of the U.S. (OHWM)
- Temporary Impacts to Waters of the State (CDFW TOB)

### OC Loop Segments O, P, and Q

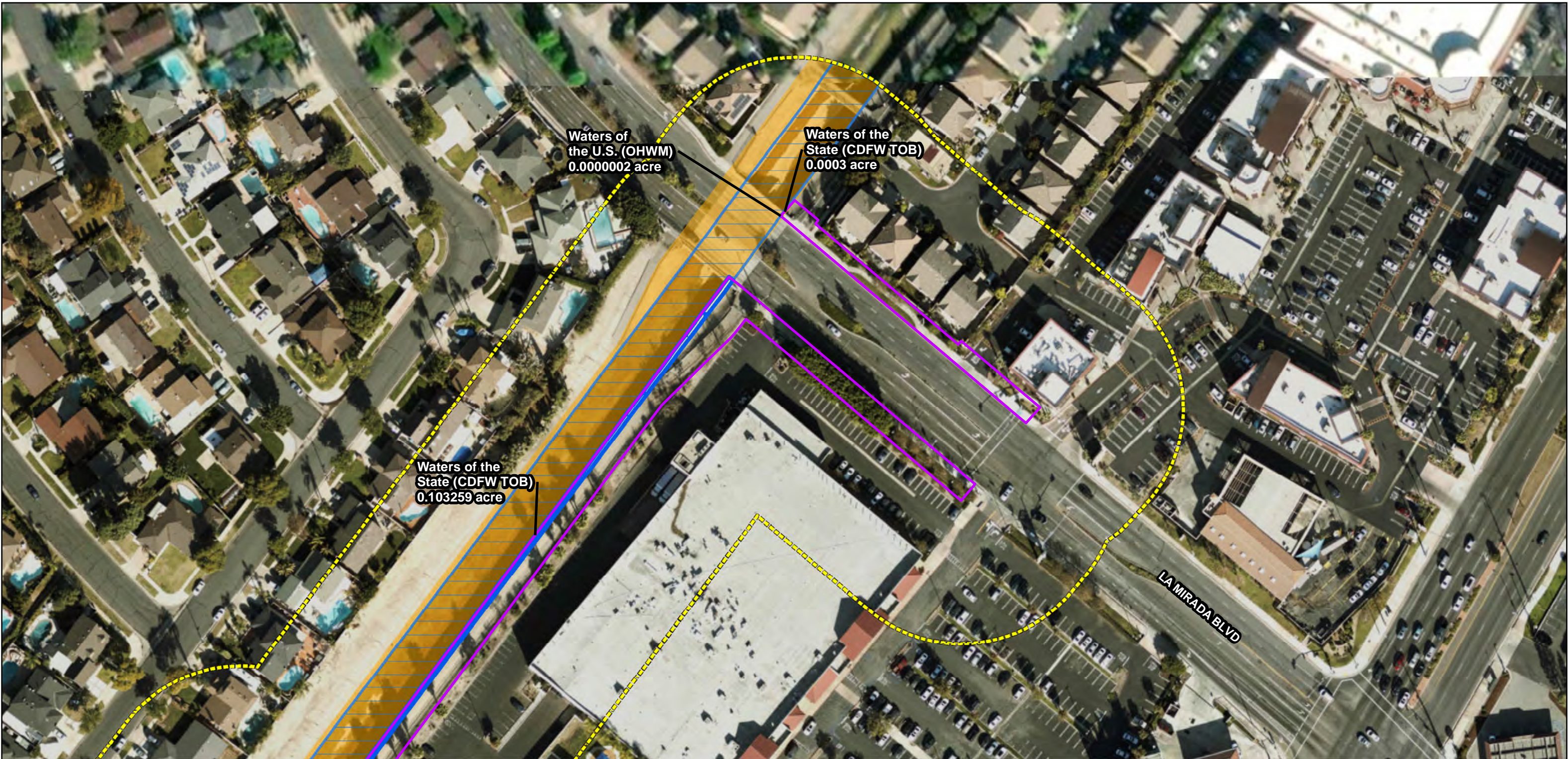
Impacts to  
Jurisdictional Waters

Appendix E

Map 12 of 13

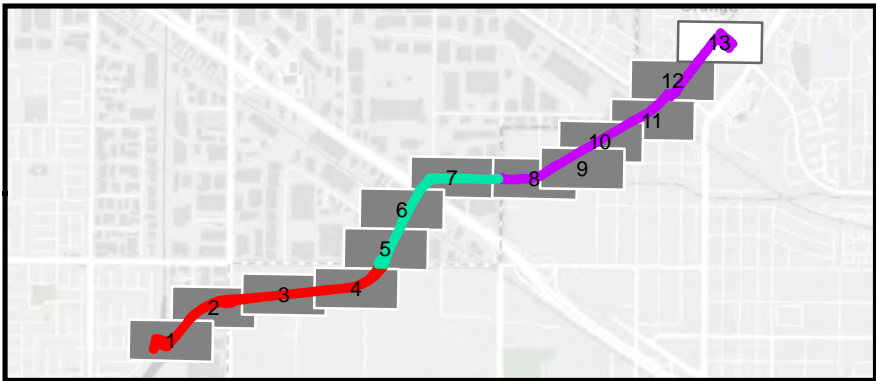
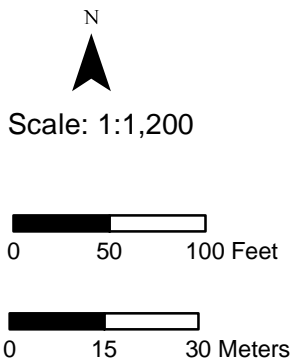






Path: \\GISSVR\gis\Projects\7034\_OC\_Loop\MXD\7034\_OC\_Loop\_JD\_Impacts\_ALL\_MapBook\_11x17\_2020\_05\_04.mxd  
 Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; Orange County, 2018; Mark Thomas, July 2018; UltraSystems Environmental, Inc. 2020

May 04, 2020



### Legend

- Segment Q
- 150ft Biological Study Area (BSA)
- Waters of the U.S. (OHWM)
- Waters of the State (CDFW TOB)
- Temporary Impacts to Waters of the U.S. (OHWM)
- Temporary Impacts to Waters of the State (CDFW TOB)

### OC Loop Segments O, P, and Q

Impacts to  
Jurisdictional Waters

Appendix E

Map 13 of 13





---

## **APPENDIX F**

### **REPRESENTATIVE SITE PHOTOGRAPHS**

---



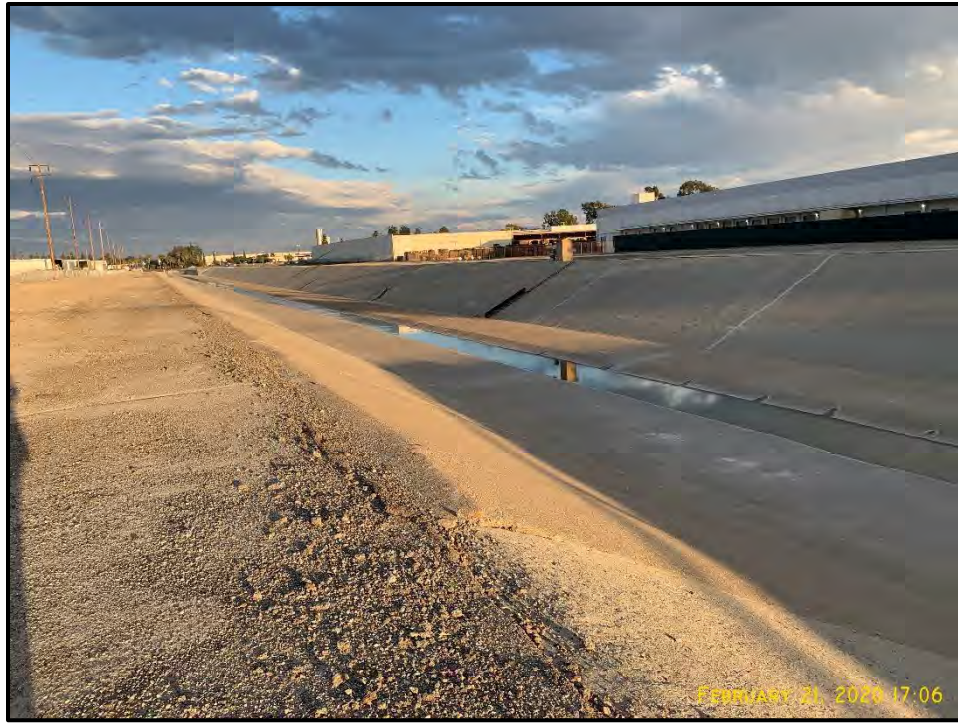


**Photo 1.** Segment O. Confluence of Coyote Creek North Fork (left) and Coyote Creek (right). The pedestrian bridge would cross Coyote Creek North Fork at the top of the dividing berm.



**Photo 2.** Segment O. Coyote Creek west of Valley View Boulevard. Water is present in the low-flow channel; in many areas of the channel the OHWM was determined by water staining (visible center left). View is upstream, looking east at the Valley View undercrossing.





**Photo 3.** Segment O. Coyote Creek east of Valley View Boulevard. Water was present in the low-flow channel at the time of the survey. View is from top of bank looking upstream (east).



**Photo 4.** Segment P. Coyote Creek, at the southwest edge of the Southern Pacific Railroad undercrossing. View is upstream looking northeast.



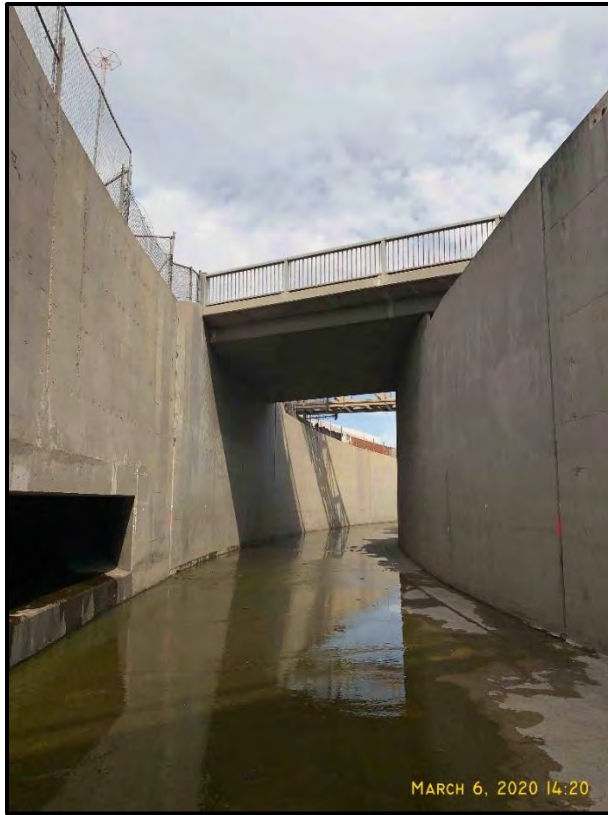


**Photo 5.** Segment P. Coyote Creek. View is from Firestone Boulevard looking upstream (north) toward the Interstate 5 undercrossings.

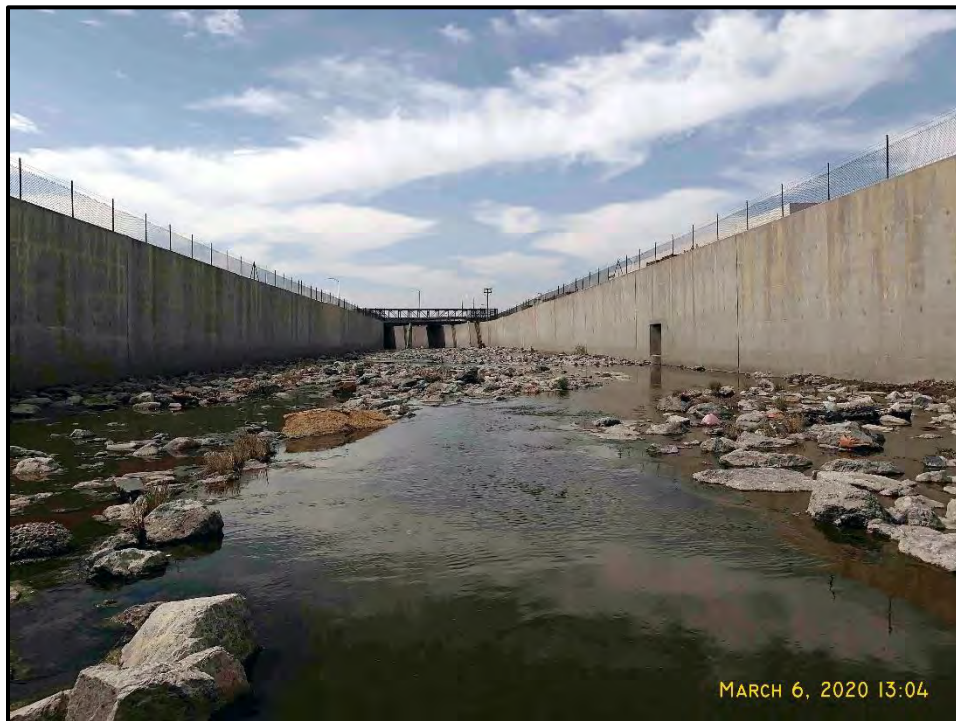


**Photo 6.** Segment P. Coyote Creek, beneath the Trojan Way undercrossing. View is downstream (southwest) toward the Interstate 5 and Firestone Boulevard undercrossings.





**Photo 7.** Segment P. Coyote Creek, west of Trojan Way. View is upstream (northeast) toward Trojan Way and Chevron and Crimson Pipelines. The trail will be located on the surface at this location, and this undercrossing and the pipelines will be avoided.

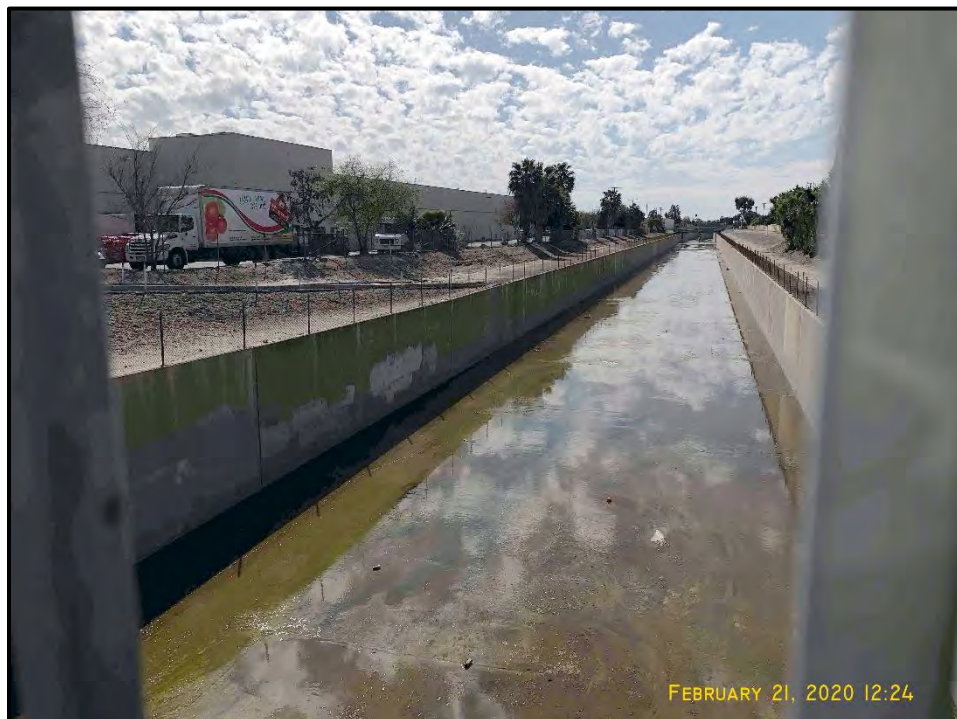


**Photo 8.** Segment P. Coyote Creek at Osmond Avenue, west of Knott Avenue. View is downstream (west) toward Trojan Way. The NWI described this portion of Coyote Creek as a palustrine emergent (PEM) wetland (see Section 6.1).





**Photo 9.** Segment Q. Coyote Creek, north of the Brea Creek confluence. View is upstream (east).



**Photo 10.** Segment Q. Coyote Creek, looking upstream (northeast) toward the northern terminus of the project.