

INDIVIDUAL WATER QUALITY ASSESSMENT REPORT

Site Name/Facility:

Siempre Viva and Bristow Channels

Master Program Map No.:

Maps 126 and 127

Date:

March 21, 2017; Revised April 28, 2017

Civil Engineer (name, company, phone number):

Jayne Janda-Timba
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5620 Friars Road
San Diego, California 92110
(619) 688-1448

Register Civil Engineer Number & Expiration Date (place stamp here):

RCE # 70649
Exp. 06/2017



Instructions: This form must be completed for each facility prior to the completion of the Individual Maintenance Plan and prior to any work being conducted in the facility. Attach additional sheets if needed.

EXISTING CONDITIONS

Introduction:

The City of San Diego developed the Master Storm Water System Maintenance Program to optimize its business processes and environmental protection practices related to channel operation and maintenance activities. The Master Maintenance Program (MMP) is intended to integrate operation and maintenance planning, implementation and assessment activities with its water quality protection programs. This document provides a summary of the Individual Water Quality Assessment (IWQA) Report activities conducted within Siempre Viva and Bristow Channels (MMP Maps 126 and 127). Siempre Viva Channel is located east of Britannia Court and southeast of a United States Border Patrol facility. Bristow Channel is located east of Britannia Boulevard and east of Bristow Court. For the location of Siempre Viva and Bristow Channels, see Figure 1 – Regional Location Map, and Figure 2 – Project Vicinity Map attached.

The IWQA procedures are documented in the report titled, “Standard Operating Procedures (SOP) to Conduct Water Quality Assessment and Quantification Model for Flood Control Channel (Storm Water Facility) Maintenance,” written by Weston Solutions in March 2011 (herein referred to as SOP), located in Appendix A of the Water Quality Assessment and Quantification Model for Flood Channel Maintenance White Paper found in Appendix F of the report titled, “Master Storm Water System Maintenance Program Final Recirculated Programmatic Environmental Impact Report SCH. No. 2004101032, Project No. 42891,” prepared for the City of San Diego in October 2011. The SOP identifies two criteria that must be met for IWQA component implementation: 1) the storm water facility must have fairly consistent dry weather flows, and 2) it must have vegetation capable of assimilation of pollutants. The first criteria listed above was not met by the sections of Siempre Viva and Bristow Channels designated for maintenance at this time. Site visits were performed by Rick Engineering Company on November 14, 2016 and December 15, 2016 and no dry weather flows were observed.

Description of Creek/Channel Geometry (length, width, and depth):

Pursuant to the MMP, the Individual Hydrologic and Hydraulic Assessment (IHHA) recommends the limits and amount of maintenance for each channel. The IHHA Report for Siempre Viva and Bristow Channels consists of three reaches (Reach 1, 2, and 3). Pursuant to the IHHA, it should be noted that all reaches (Reach 1, Reach 2, and Reach 3) are proposed for maintenance.

The reaches are indicated below and illustrated in Figure 4 – Hydraulic Workmap attached.

- Reach 1: Bristow Channel (North Channel), HEC-RAS Cross Sections 72.6711 to 735.8522
- Reach 2: Bristow Channel (North Channel), HEC-RAS Cross Sections 735.8522 to 1459.6140
- Reach 3: Siempre Viva Channel (South Channel), HEC-RAS Cross Sections 4.8674 to 1311.2390

The limits of Reach 1, Reach 2, and Reach 3 are identified in Figure 4 – Hydraulic Workmap attached. Reach 1, Reach 2, and Reach 3 are mapped within the MMP.

Reach 1: Bristow Channel (North Channel), HEC-RAS Cross Sections 72.6711 to 735.8522 MMP Map 126

Reach 1 is bound at the downstream end by the shared detention facility and extends upstream approximately 730 feet to the outfall of the pair of culverts underneath the driveways at the eastern end of Bristow Court. Pursuant to the Britannia Commerce Center As-Built Plan 22611-12-D prepared by RICK, dated March 10, 1988, Reach 1 is entirely earthen and has a trapezoidal geometry. The majority of Reach 1 (HEC-RAS Cross Sections 174.4880 to 735.8522) has a base width of 4 feet and has 2-foot horizontal to 1-foot vertical (2H:1V) side slopes with a depth of 6 feet. Pursuant to Britannia Commerce Center As-Built Plan 22611-15-D prepared by RICK, dated March 10, 1988, the downstream portion of the reach (HEC-RAS Cross Sections 72.6711 to 174.4880) has a base width of 8 feet and 2H:1V side slopes. Spot elevation on this As-Built Plan show that the eastern side slopes are approximately 5 to 5.5 feet deep. As-Built Plans were not available for the pair of culverts at the upstream end of Reach 1. However, during the site visit conducted on December 15, 2016, the pair of culverts was observed to consist of two elliptical High-Density Polyethylene (HDPE) pipes. The northern pipe is approximately 7.5 feet wide by 5.5 feet tall. The southern pipe is approximately 6.5 feet wide by 5.5 feet tall.

As observed during the December 15, 2016 site visit, in Reach 1 the eastern side slope of the shared detention facility was approximately 7 to 9 feet tall. Additionally, Reach 1 contains accumulated sediment and dense stands of willows and palm trees throughout. Due to sediment deposition, the existing grade of the channel is approximately 2 inches above the invert of the pair of culverts at the upstream end of Reach 1.

Reach 2: Bristow Channel (North Channel), HEC-RAS Cross Sections 735.8522 to 1459.6140 MMP Map 127

Reach 2 is bound at the downstream end by the upstream end of Reach 1 and extends upstream approximately 725 feet to the outfall of the 6-foot wide by 3-foot high Reinforced Concrete Box (RCB) underneath Britannia Boulevard. Pursuant to the Britannia Commerce Center As-Built Plan 22611-22-D prepared by RICK, dated March 10, 1988, Reach 2 is entirely earthen and has a trapezoidal geometry throughout with a the base width of 4 feet and has 2H:1V side slopes with a depth of 6 feet. Two pairs of culverts are located along this reach. The downstream pair of culverts, located underneath the driveways at the eastern terminus of Bristow Court consists of two pipes and is approximately 130 feet in length. As-Built Plans were not available for this pair of culverts. However, during the site visit conducted on December 15, 2016, the culvert was observed to consist of two elliptical HDPE pipes. The northern pipe is approximately 7.5 feet wide by 5.5 feet tall. The southern pipe is approximately 6.5 feet wide by 5.5 feet tall. The upstream pair of culverts, located underneath a driveway in the middle of Reach 2 (HEC-RAS Cross Sections 1112.5730 to 1170.5770), also consists of two HDPE pipes and is approximately 50 feet in length. Both pipes were observed to be elliptical with a width of approximately 6.5 feet and a height of approximately 5.5 feet.

As observed during the December 15, 2016 site visit, Reach 2 contains vegetation and sediment deposition throughout. Due to sediment deposition, the existing grade of the channel is above the invert of both pairs of culverts and the RCB at the upstream end of Reach 2. Approximately 1.5 feet of accumulated sediment was observed in the channel between HEC-RAS Cross Sections 877.6657 and 1112.5730.

Reach 3: Siempre Viva Channel (South Channel), HEC-RAS Cross Sections 4.8674 to 1311.2390 MMP Map 126

Reach 3 is bound at the downstream end by the shared detention facility and extends approximately 1300 feet upstream to the outfall of the 18-inch RCP located at the eastern end of Britannia Court. Pursuant to the Britannia Commerce Center As-Built Plan 22611-12-D prepared by RICK, dated March 10, 1988, Reach 3 is entirely earthen and has a trapezoidal cross section with a 4-foot base width and has 2H:1V side slopes. The upstream portion of Reach 3 (HEC-RAS Cross Section 770.7793 to 1311.2390) is 6 feet deep. Pursuant to spot elevation shown on Britannia Commerce Center As-Built Plan 22611-15-D prepared by RICK, dated March 10, 1988, the eastern side slope is approximately 5 to 5.5 feet deep in the lower portion of the channel (HEC-RAS Cross Section 4.8674 to 770.7793).

As observed during the December 15, 2016 site visit, the eastern side slope was approximately 8 to 9 feet tall. Additionally, Reach 3 contains vegetation and sediment deposition. Reeds and other vegetation are present throughout the majority of this reach and dense stands of willow are established at two approximate locations: HEC-RAS Cross Sections 222.0471 to 322.0501 and 522.0566 to 622.0599. At the 90-degree bend in the channel (HEC-RAS Cross Section 770.7793) approximately 1.0 to 1.5 feet of accumulated sediment was observed, resulting in negative drainage at this location.

Shared Detention Facility (Downstream end of Reaches 1 and 3)

Pursuant to Britannia Commerce Center As-Built Plan 22611-33-D prepared by RICK Engineering, dated March 10, 1988, the shared detention facility at the downstream end of Reaches 1 and 3 consists of two detention basins and a private wet well. An approximately 3-foot high 24-inch CMP riser is located in each detention basin and these risers are connected to the wet well between the two basins by 24-inch CMP outflow pipes. Pursuant to Britannia Commerce Center As-Built Plan 22611-32-D prepared by RICK Engineering, dated March 10, 1988, water is pumped out of the wet well by a Hydromatik SK-100 submersible pump. The pump is automatically turned on when the water surface in the wet well exceeds 460.67 feet NAVD 88 and turns off when water has been drawn down below 460.17 feet NAVD 88. As documented by Hydromatik, this pump has a maximum capacity of 155 gallons per minute (gpm) (0.34 cubic feet per second). Additionally, the two detention basins are connected by an 18-inch RCP that allows water surface elevations to equalize between the two detention basins.

As observed during the December 15, 2016 site visit, sediment accumulation was observed at the downstream ends of the detention basins, near the private wet well. In the basin at the downstream end of Bristow Channel, the depth of accumulated sediment was approximately 1 foot. In the basin at the downstream end of Siempre Viva Channel, the depth of accumulated sediment was approximately 1.5 feet. Numerous grasses and weeds were established in the downstream end of the two detention basins. However, no woody shrubs or trees were present. Note that this description of sediment and vegetation accumulation only applies to the downstream portions of the detention basins (i.e., within 50 feet of the private wet well). For a description of conditions within other portions of the detention basins, see the description for Reaches 1 and 3 as applicable.

Description of Sediment Sampling Activities (location(s), depth, shipment/deliverer to laboratory(s)):

Site visits were conducted on November 14, 2016 and December 15, 2016 to determine if dry weather flows exist. No dry weather flows were observed on either date. The field observation activities (described below) established that there are no negative water quality impacts associated with channel maintenance due to no dry weather flows in the channel, pursuant to the SOP. For this reason, sediment sampling activities are unnecessary, and would only serve to prove that channel maintenance has a greater positive impact on water quality than leaving the vegetation and sediment in place.

Description of Flow Measurement Activities (location(s) and equipment):

The flow chart (Figure A-1) found on page 2 of the SOP states that if there is no dry weather flow, it can be concluded that maintenance will have no negative impact on water quality, and no further water quality analysis is required.

Two field visits were made to the Siempre Viva and Bristow Channels to determine if dry weather flows exist, on November 14, 2016 and December 15, 2016. During each of these visits, no dry weather flow was observed within the channels. Therefore, no flow measurements are necessary pursuant to the SOP.

Description of Volume Measurement Activities (interval, total number, equipment):

No dry weather flows were observed in the Siempre Viva and Bristow Channels. Therefore, there is no dry weather flow volume of water flowing through the channels and it cannot be measured.

<p>Description of Water Quality Sampling Activities (location(s), shipment/delivery to laboratory(s)):</p> <p>Water samples were not taken since there was no observed dry weather flow to be analyzed.</p>
<p>Description of Wetland Assessment (Existing) Activities (personnel, general conditions):</p> <p>Wetland Assessment (existing) activities were not performed since the SOP explains that if there is no dry weather flow, then it can be concluded that maintenance will have no negative impact on water quality.</p>
<p>Description of Wetland Assessment (Recovery) Activities (personnel, general conditions):</p> <p>Wetland Assessment (recovery) activities were not performed since the SOP explains that if there is no dry weather flow, then it can be concluded that maintenance will have no negative impact on water quality.</p>
<p>Sediment Pollutant Loading Estimates:</p> <p>Field observations with no dry weather flows support the conclusion that there are no negative water quality impacts associated with channel maintenance. For this reason, sediment loading estimates are unnecessary, and would only prove that channel maintenance has a greater positive impact on water quality than leaving the vegetation and sediment in place.</p>
<p>MAINTENANCE IMPACTS</p>
<p>Evaluation of Benefits / Impacts:</p> <p>Are there constituents that have potential impacts greater than benefits? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p>After analyzing the channels pursuant to the SOP for preparation of an IWQA, it was determined that, due to no dry weather flow, there are no negative water quality impacts associated with channel maintenance.</p> <p>If so, identify constituents here and compare measured concentrations to thresholds.</p> <p>Not Applicable.</p>
<p>MITIGATION</p>
<p>If impacts are identified, list potential mitigation efforts (e.g., BMPs type(s) and number(s)) that may be implemented in the watershed:</p> <p>The analysis for this IWQA has determined that there are no negative impacts to water quality associated with channel maintenance, due to no dry weather flows in the channel.</p>

LIST OF ATTACHMENTS (Check All That Apply):

- ☒ Site Photos
- ☐ Chain of Custody Sheet(s) for Sediment Sampling
- ☐ Analytical Results of Sediment Sample(s)
- ☐ Chain of Custody Sheet(s) for Water Column Sampling
- ☐ Analytical Results of Water Column Sample(s)
- ☐ Flow Measurement Model
- ☐ Volume Measurement Model (Existing Condition)
- ☐ Wetland Land Assessment Scoring Sheet (Existing Condition)
- ☐ Wetland Land Recovery Assessment Scoring Sheet (Maintained Storm water facility)
- ☐ Sieve Analysis Laboratory Results
- ☐ Sediment Pollutant Loading Model (Load Removal in Sediment)
- ☐ Potential Water Quality Impacts Model and Comparison to Benefits
- ☐ Potential Mitigation Efforts Model
- ☒ Figures:
 - 1) Regional Location Map
 - 2) Project Vicinity Map
 - 3) IWQA Limits of Channel Maintenance for Siempre Viva and Bristow Channel
MMP Maps 126 and 127
 - 4) Hydraulic Workmap
 - 5) Photo Locations Map

SITE PHOTOS

Date of Site Visit: 11/14/16

See notes below and Figure 5 – Photo Locations Map for picture location and orientation.

1.



Upstream end of Siempre Viva Channel Reach 3 facing east at the end of Britannia Court. No dry weather flows and dense vegetation was observed in Reach 3.

2.



Upstream end of Siempre Viva Channel Reach 3 facing east at the end of Britannia Court. No dry weather flows and dense vegetation was observed in Reach 3.

SITE PHOTOS

Date of Site Visit: 11/14/16

See notes below and Figure 5 – Photo Locations Map for picture location and orientation.

3.



Upstream end of Siempré Viva Channel Reach 3 facing east. No dry weather flows and dense vegetation was observed in Reach 3.

4.



Downstream end of Bristow Channel Reach 2 facing east. No flowing water was observed in Bristow Channel Reach 2.

SITE PHOTOS

Date of Site Visit: 12/15/16

See notes below and Figure 5 – Photo Locations Map for picture location and orientation.

5.



Downstream end of Bristow Channel Reach 2 facing west. No flowing water was observed in Reach 2.

6.



Central portion of Bristow Channel Reach 2 facing west. No flowing water was observed in Reach 2.

SITE PHOTOS

Date of Site Visit: 12/15/16

See notes below and Figure 5 – Photo Locations Map for picture location and orientation.

7.



Central portion of Bristow Channel Reach 2 facing east. No dry weather flows and dense vegetation was observed in Reach 2.

8.



Upstream end of Bristow Channel Reach 2 facing west. Light vegetation was observed throughout the upper end of Reach 2. No flowing water was observed.

SITE PHOTOS

Date of Site Visit: 12/15/16

See notes below and Figure 5 – Photo Locations Map for picture location and orientation.

9.



Upstream end of Bristow Channel Reach 2 facing west. No flowing water was observed in Reach 2.

10.



Upstream end of Siempre Viva Channel Reach 1 facing east at the end of Bristow Court. No dry weather flows and dense vegetation was observed in Reach 1.

SITE PHOTOS

Date of Site Visit: 12/15/16

See notes below and Figure 5 – Photo Locations Map for picture location and orientation.

11.



Upstream end of Siempre Viva Channel Reach 1 facing northeast. No dry weather flows and dense vegetation was observed in Reach 1.

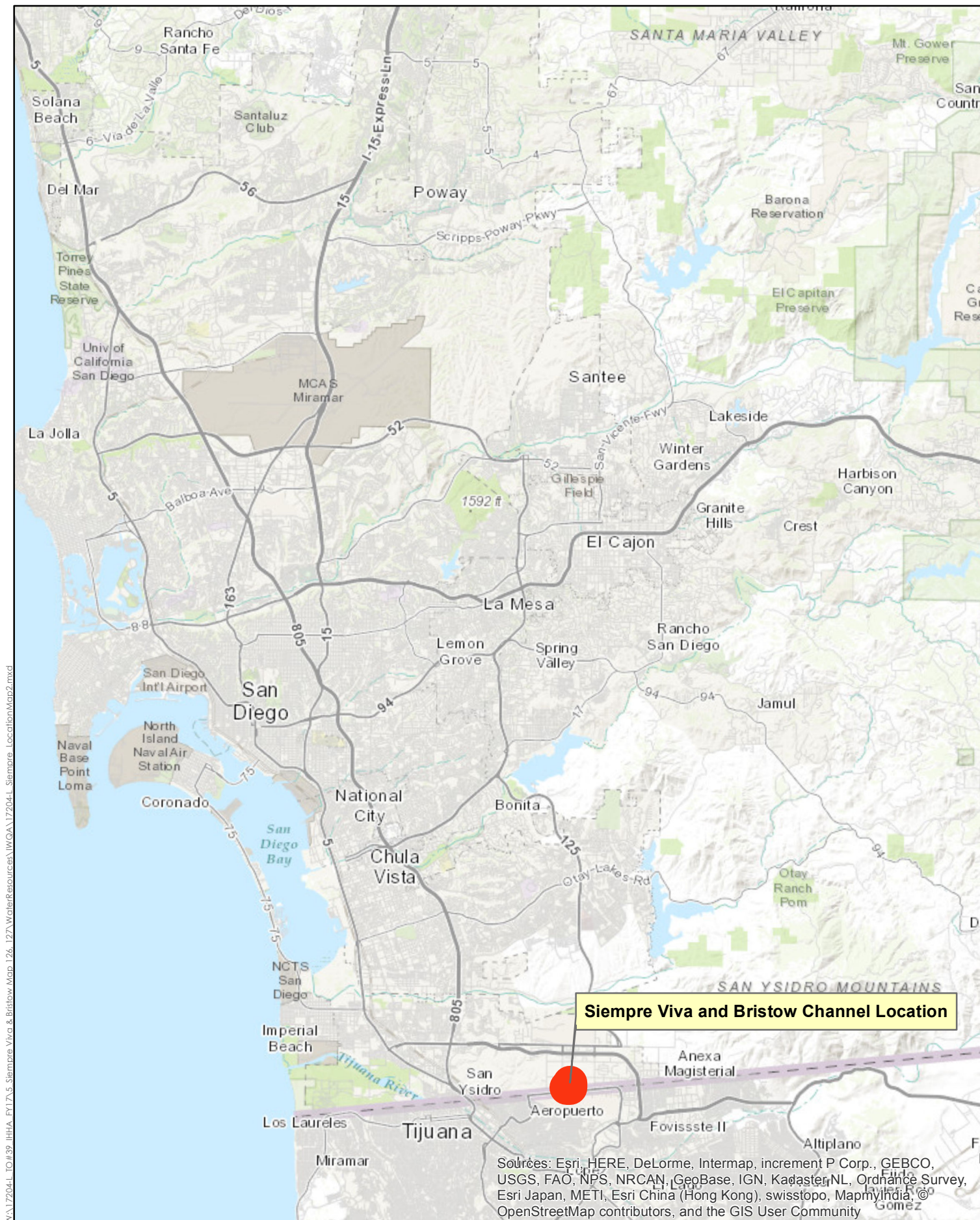
12.



Downstream end of Siempre Viva Channel Reach 1 facing north. No dry weather flows and dense vegetation was observed in Reach 1.

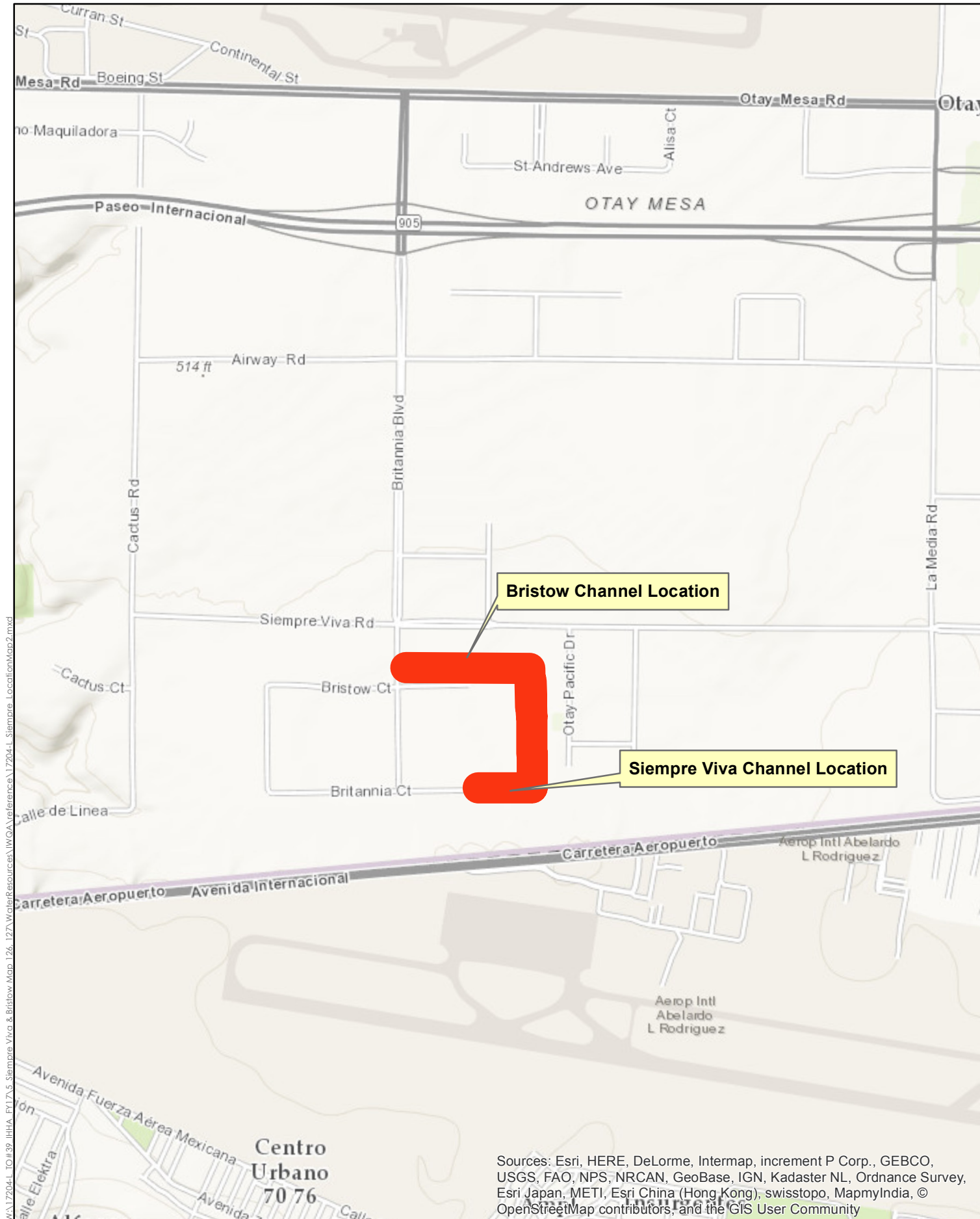
Figures:

- 1) Regional Location Map
- 2) Project Vicinity Map
- 3) IWQA Limits of Channel Maintenance for Siempre Viva and Bristow Channels MMP
Maps 126 and 127
- 4) Hydraulic Workmap
- 5) Photo Locations Map



Date of Exhibit: 3/15/2017
 DigitalGlobe Aerial Image: 04.2013

IWQA Report - Figure 1 - Regional Location Map
 Siempre Viva and Bristow MMP Maps 126 and 127



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Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Date of Exhibit: 4/20/2017
DigitalGlobe Aerial Image: 04.2013

IWQA Report - Figure 2 - Project Vicinity Map

Siempre Viva and Bristow MMP Maps 126 and 127

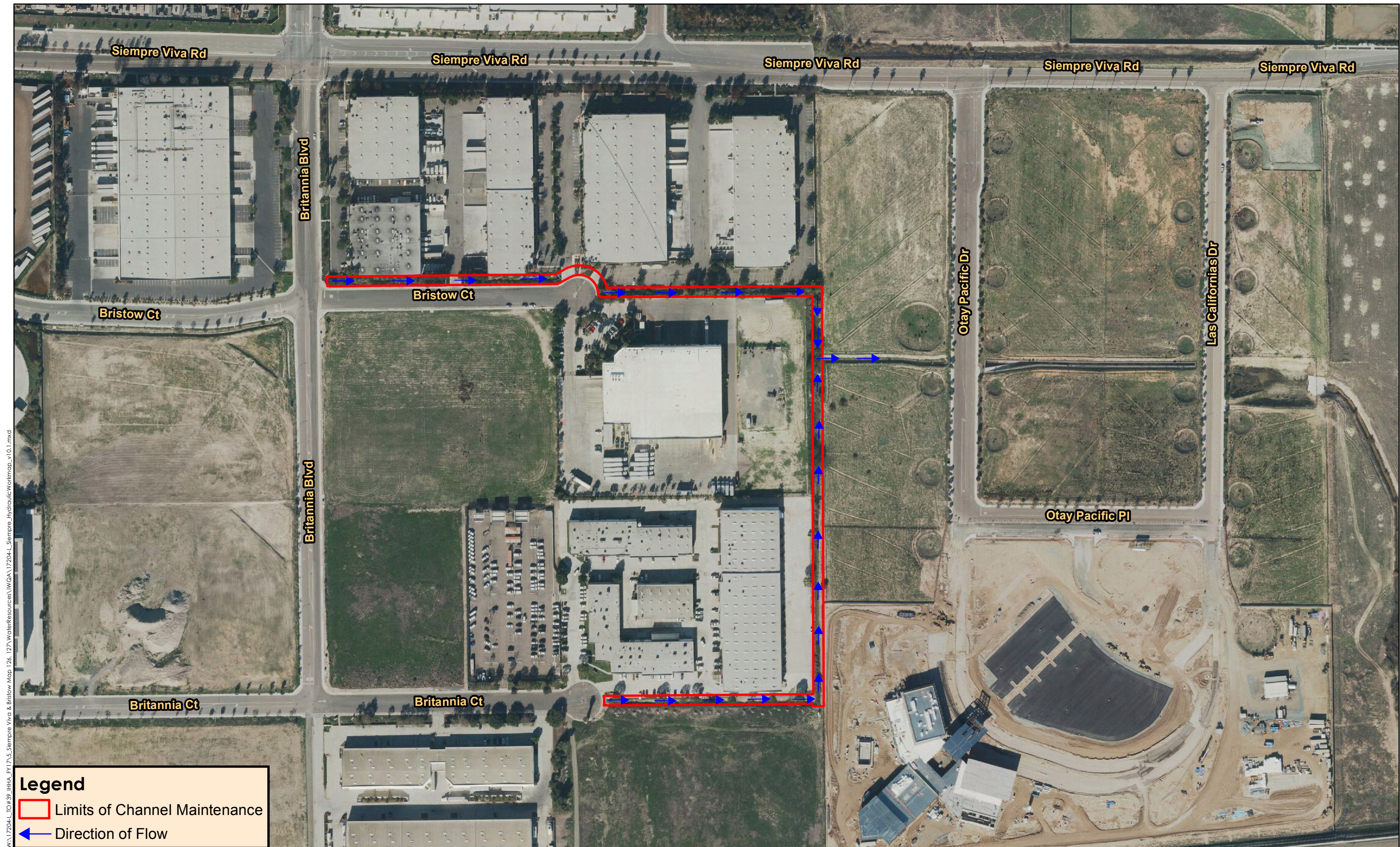
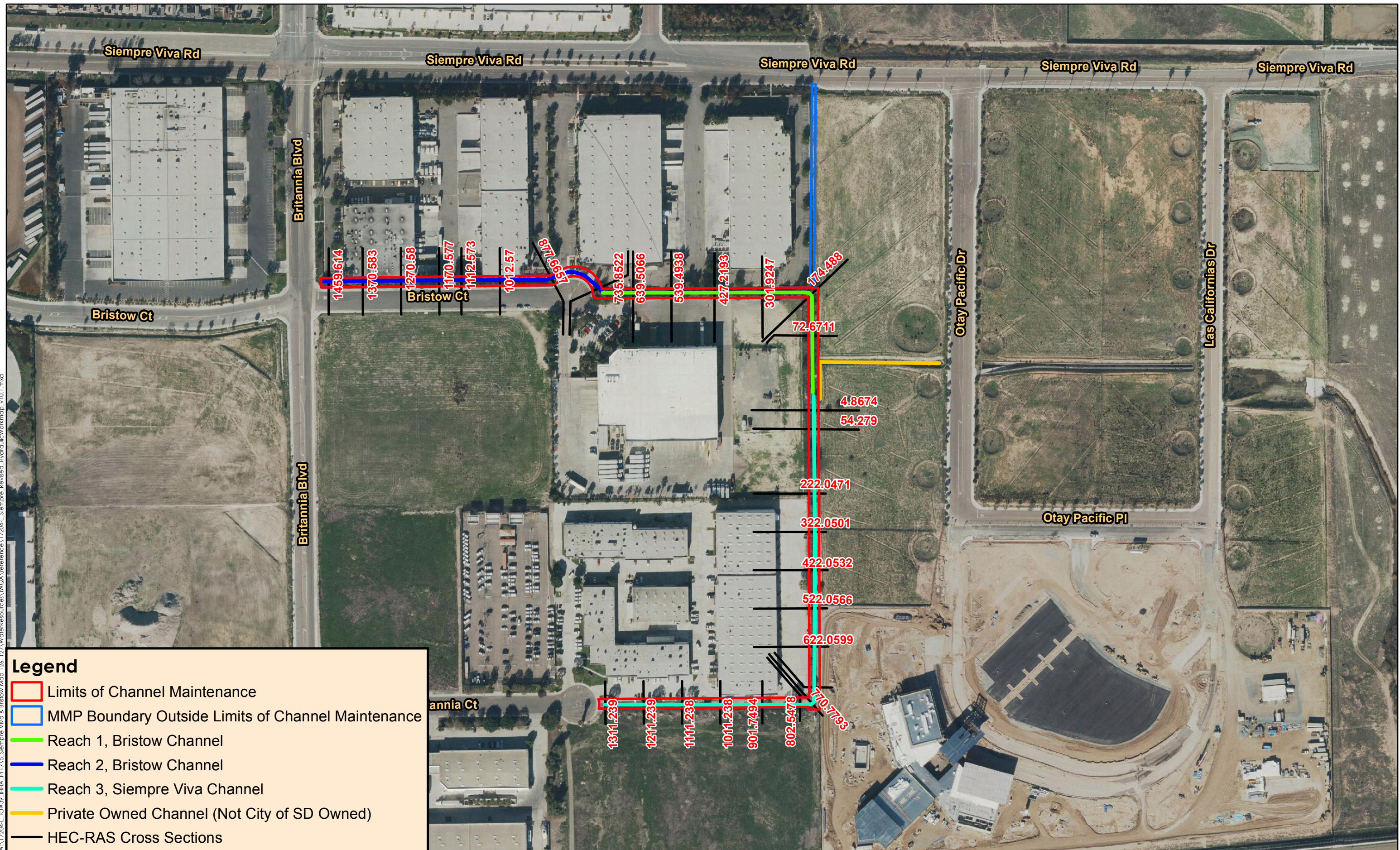
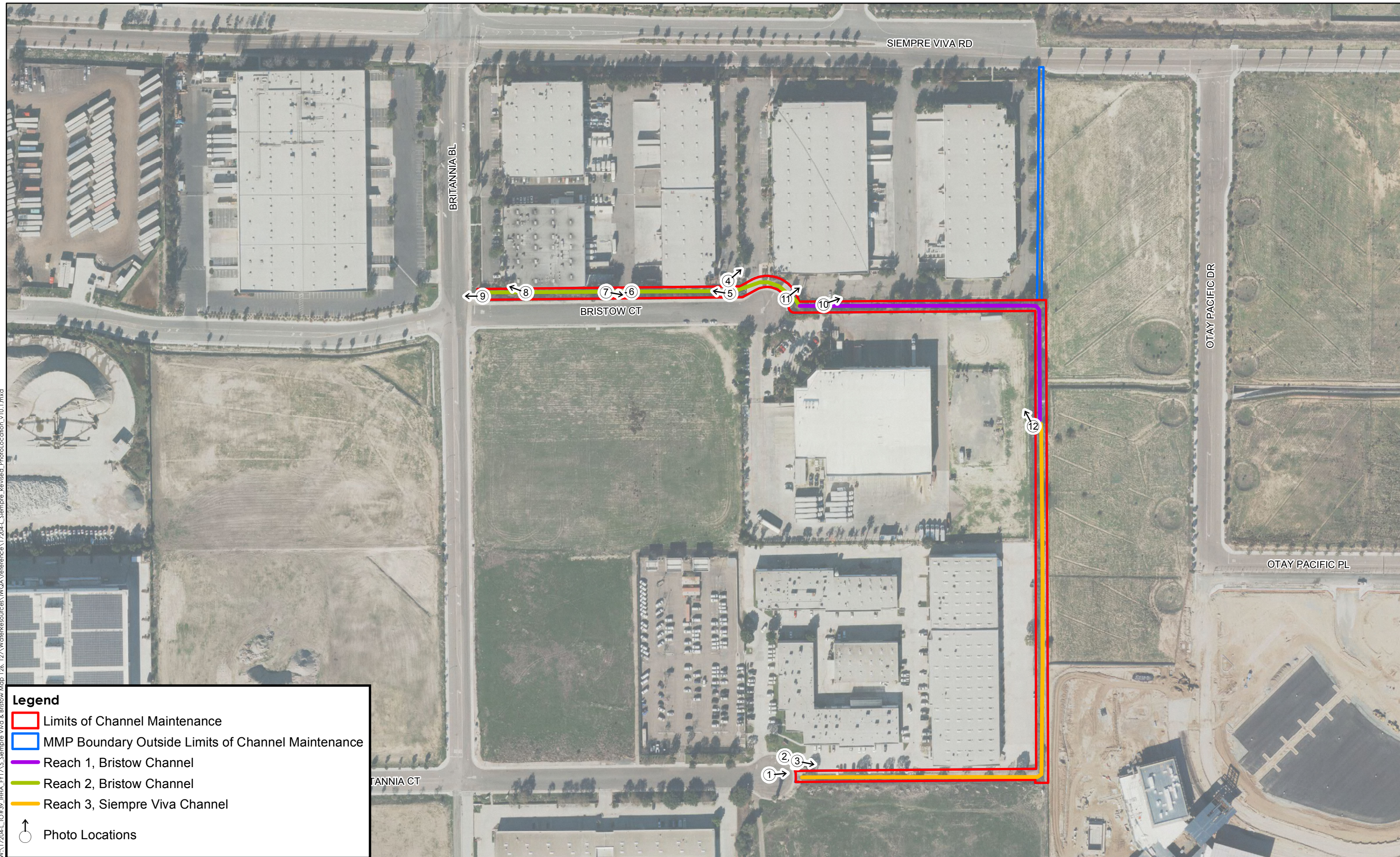


Figure 3 - IWQA Limits of Channel Maintenance for Siempre Viva and Bristow Channels MMP Maps 126 and 127

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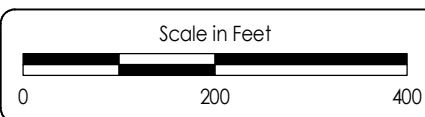


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Legend

- Limits of Channel Maintenance
- MMP Boundary Outside Limits of Channel Maintenance
- Reach 1, Bristow Channel
- Reach 2, Bristow Channel
- Reach 3, Siempre Viva Channel
- Photo Locations



Date of Exhibit: 4/26/2017
SANGIS/USGS Aerial Imagery: 11/2014

IWQA Report - Figure 5 - Photo Locations Map
Siempre Viva and Bristow Channel MMP Maps 126 and 127