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MEMORANDUM

30 June 2016
File No. 38797-003

TO: Nestlé Waters North America
Larry Lawrence, Natural Resource Manager

FROM: Haley & Aldrich, Inc.
Mark Nicholls, CHG, Lead Hydrogeologist

SUBJECT: Stream Reconnaissance Survey of Upper Strawberry Canyon and Proposed Future Data Collection Activities

Introduction

On 8 April 2016 the San Bernardino National Forest (SBNF) requested (Information Request) that Nestlé Waters North America (NWNA) collect and submit specific data regarding biological resources and hydrologic characteristics of Strawberry Canyon in support of the ongoing National Environmental Policy Act scoping analysis being conducted in conjunction with the requested renewal of Special Use Permit Number 7285 for the continued use of a pipeline easement on which collection and conveyance infrastructure is located within the SBNF boundaries. The specific methods, timing, and scope of data collection identified in the Information Request was further refined during subsequent meetings and telephone discussions held with SBNF staff. This document was prepared for the purpose of conveying the results of the hydrologic data collection activities and to convey a proposed program of future hydrologic data collection to be conducted in Strawberry Canyon. Biological studies conducted pursuant to the 8 April 2016 information request are described in a separate report. No further discussion of biological resources or biological studies is included in this report.

The Information Request stated that hydrologic data should be collected in accordance with the *Stream Condition Inventory (SCI) Technical Guide, Pacific Southwest Region; Version 5.0 dated July 2005* (United States Department of Agriculture Forest Service, 2005). The SCI is a data collection protocol designed to create a uniform set of criteria that may be applied to stream reaches to document stream conditions in support of management decisions. The SCI protocol was specifically designed for wadable, perennial streams, with gradients less than 10 percent. The SCI protocol notes that some of the SCI data collection procedures may be applied to intermittent streams and others may not be applied, and that using the SCI protocols to characterize intermittent streams will produce a limited data set that may present challenges to data interpretation. The SCI protocol also advises that application of the protocol in high gradient stream channels requires careful evaluation of inventory and monitoring objectives given that the sensitive attributes in such channels are different than those the protocol was designed to characterize (USFS, 2005).

Conditions on Strawberry Creek differ substantially from those contemplated in the SCI protocol. The upper reaches of Strawberry Creek, where NWNA facilities are located, are characterized as intermittent. Large portions of the creek bed are naturally dry, flowing only in response to substantial precipitation events or springtime runoff. The gradient of both wetted and dry reaches of the creek bed ranges between approximately 11 and 61 percent throughout the study area, and there are few wadable locations on Strawberry Creek. Further compounding the differences in hydrologic conditions within upper Strawberry Canyon from those described in the SCI protocol, conditions in the Canyon are extremely rugged, including steep rocky terrain, an elevation differential of approximately 1800 feet, and thick chaparral vegetation. No inspection has been made of the drainages within the Canyon for a period of at least twelve years because of these rugged conditions. Consequently, no data exist describing current stream conditions, precluding identification of survey locations to be evaluated with the SCI protocol.

Understanding that the differences between conditions in Strawberry Canyon and those described in the SCI protocol will preclude collection of the full SCI dataset, Haley & Aldrich, Inc. (Haley & Aldrich) contacted the SBNF hydrologist to discuss conditions in Strawberry Canyon and to plan appropriate data collection given conditions in the Canyon. Haley & Aldrich met with the SBNF hydrologist on 17 May 2016. At this meeting, Haley & Aldrich proposed to conduct a stream reconnaissance survey to identify locations where the SCI protocol may be applied and to determine what data may be collected in channel segments where the full protocol cannot be implemented. The purpose of the stream reconnaissance survey was to develop an initial dataset that may be used to plan implementation of the SCI protocol. The study area for the stream reconnaissance survey extends from the uppermost springs in Strawberry Canyon to the confluence of Strawberry and East Strawberry Creeks.

The objectives of the stream reconnaissance are:

- Identify surface water occurrence and extent, including previously unknown springs and seeps;
- Identify stream channel dimensions and characteristics where surface water is present;
- Identify locations where additional biological data may be collected (i.e. previously unknown springs and seeps);
- Identify locations where the SCI protocol may be applied and which parts of the protocol may be applied; and
- Define proposed data collection activities where the full SCI protocol cannot be applied.

Stream Reconnaissance Survey

Haley & Aldrich hydrogeologists traversed the main channel of Strawberry Creek and each of the major tributary drainages between 31 May and 10 June 2016. The survey focused primarily on conditions in each of the channels below the NWNA spring sites and extended from the spring sites to the confluence of Strawberry and East Strawberry Creeks. The survey was conducted by traversing the centerline of each subject drainage, noting the location of surface water bodies, key characteristics of those water bodies, channel dimensions, channel conditions, fault locations, and other hydrologic observations. These data were compiled in conjunction with high resolution surface topography data generated by an aerial LiDAR survey of Strawberry Canyon conducted in August 2015. The LiDAR data were used specifically to determine the stream channel gradient and to identify subtle topographic variation.

Data collected in the field include:

- GPS locations at the head and toe of each surface water occurrence;
- GPS location of pools within the stream channel;
- Pool dimensions;
- Stream flow measurements and channel dimensions at selected locations;
- Photographs of channel conditions; and
- Photographs of vegetation communities within and adjacent to the channel.

All field data were collected using a Samsung tablet that recorded GPS locations, photos, and field observations. The primary observations made during the stream reconnaissance survey are shown on Figures 1 and 2.

Figure 1 is a map of the northern half of the study area that shows the locations of horizontal borings 1, 1A & 8, 7, 7A, 7B, 7C, 10, 11, and 12, and Tunnels 2 and 3. Figure 1 shows the locations and extent of surface water observed, location and dimensions of pools observed, character of the surface water occurrence (i.e. contiguous or intermittent), flow measurement values and channel dimensions, and undeveloped spring locations. Figure 1 also includes photographic reference points at selected locations that are representative of conditions observed within the stream channel. The photos are included in Attachment A.

Figure 2 is a map of the southern half of the study area and slightly overlaps the bottom of Figure 1 to provide spatial reference. Figure 2 shows the locations of horizontal borings 10, 11, and 12 only. Figure 2 shows the location and extent of surface water observed, location and dimensions of pools observed, character of the surface water occurrence, flow measurement values, channel dimensions, and undeveloped spring locations. Figure 2 also includes photographic reference points at selected locations. The photos are included in Attachment A.

Summary of Observations

REACHES UP GRADIENT FROM THE NORTH STRAND OF WATERMAN FAULT

The San Bernardino Mountains lie within the central portion of the Transverse Ranges geomorphic province and are comprised of a large uplifted cretaceous-age batholith composed predominantly of quartz monzonite (Morton and Miller, 2006). The granitic and metaplutonic rocks in the area around the Arrowhead Springs site consist primarily of quartz monzonite, known locally as the Cactus granite (Norris and Webb, 1990). This rock crops out as weathered blocks and weathered-in-place boulders throughout the Strawberry Creek watershed.

The main channel of Strawberry Creek and the principal tributaries that constitute the upper reaches of the study area are characterized as steep and rocky with intermittent fines and little soil. Much of the channel is composed of bedrock outcrop of quartz monzonite, covered by a thin layer of colluvium shed from the flanking canyon walls. The quartz monzonite bedrock is locally fractured, and several pronounced faults intersect the stream channels resulting in measurable changes in creek bed gradient and directly affecting both groundwater and surface water occurrence. The steep gradient prevents the accumulation of significant quantities of fines or the formation of an extensive soil profile within the stream channel. The channel and ground surface gradient immediately flatten out sufficiently to allow significant soil accumulation above the north strand of the Waterman fault.

The upper reaches of the Strawberry Creek watershed have intermittent surface water above the northern strand of the Waterman fault. Four wetted reaches were observed to have contiguous surface water present in this area. The shortest wetted reach was approximately 85 feet in length and the longest wetted was approximately 265 feet in length. One additional reach had discontinuous surface water present over a distance of approximately 85 feet. The total combined length of wetted channel constitutes approximately 8 percent of the total length of stream channel inspected during the reconnaissance stream survey. Channel gradients of the wetted reaches ranged from 22 to 43 percent in the upper watershed (Figure 1).

The intermittent stream conditions observed in the steep upper reaches above the Waterman fault are consistent with conditions shown on United States Geological Survey (USGS) topographic maps published in 1901, 1953, 1967, and subsequent years (USGS, 1901; USGS, 1953; and USGS, 1967).

Flow measured in the upper reaches of Strawberry Canyon ranged from less than 1 gallon per minute (GPM) to approximately 2 GPM where water was present (Figure 1). Changes in flow within each wetted reach and at the terminus of each wetted reach are controlled by channel geometry, channel fill volume, and geologic conditions. Width of the wetted channel in the upper reaches was typically less than 1 foot and the water depth was typically less than 1 foot where wetted channel was observed. Three small pools measuring between 2 feet and 5 feet across were identified in the upper reaches (Figure 1).

The relatively low flow observed during the stream reconnaissance survey is low enough in magnitude that the velocity is controlled by channel roughness. The steep channel conditions observed in the uppermost reaches result in high velocity flows when surface water is present in those reaches. The high velocity flows occur in response to precipitation events and springtime runoff. The low flow and steep channel conditions preclude application of the majority of the SCI protocol to theses reaches. A limited suite of hydrologic parameters that may be collected in the upper reaches of the study area are described below under the heading Proposed Future Data Collection.

REACHES DOWN GRADIENT FROM THE NORTH STRAND OF WATERMAN FAULT

The basement rocks down gradient of the north strand of the Waterman fault are composed predominantly of the same quartz monzonite present north of the fault. The stream channel is narrower and more deeply incised below the south strand of the Waterman fault.

The channel gradient below the northern strand of the Waterman fault flattens out relative to the upper reaches. The gradient of the wetted stream channel below the north strand of the Waterman fault ranges from 11 to 18 percent, with the lowest gradient (11 percent) occurring in the channel between the north and south strands of the Waterman fault. The steepest gradient (18 percent) measured in the wetted lower reaches of the study (Figure 2) occurs down gradient of the south strand of the Waterman fault, reducing slightly to 13 percent near the confluence of Strawberry Creek and East Strawberry Creek.

Flow measured in the lower reaches of the study area ranged from less than less than 1 GPM to approximately 10 GPM below Spring 10, 11, &12 (Figure 2). Changes in flow within each wetted reach and at the terminus of each wetted reach are controlled by channel geometry, channel fill volume, and geologic conditions. Changes in channel geometry and channel fill caused flow to infiltrate at the two locations where discontinuous flow conditions were observed.

The channel gradient is low enough and wide enough to allow the accumulation of fines and formation of a soil profile in much of the area between the north and south strands of the Waterman fault. Where the channel narrows, fine sediment and soil are washed out, exposing bare bedrock outcrops covered by a thin layer of alluvium composed of boulders, large cobble, and gravel. Below the south strand of the Waterman fault, the channel steepens and narrows, resulting in less soil formation and greater exposure of bedrock covered by a thin layer of coarse alluvium.

Surface water occurrence was nearly continuous from the area south of horizontal borings 10, 11, and 12, to the confluence of Strawberry and East Strawberry Creeks. Two relatively short reaches were found to be dry in the main channel totaling approximately 450 feet in length in the main channel. The remainder of the main channel between the confluence and the north strand of the Waterman fault had approximately 5,700 feet of wetted channel length. Approximately 85 percent of the channel length surveyed below the north strand of the Waterman fault had contiguous surface water.

The wetted channel ranged from approximately 1 to 4 feet in width in the lower reaches of the study area. The depth of water in the channel was typically less than 1 foot except where pools were present. Eight pools measuring between 3 to 20 feet across were identified in the lower reaches (Figure 2). Pool depth ranged from 1 to 2 feet.

The stream channel reaches down gradient of the north strand of the Waterman fault have a notably lower gradient than those above the fault. This condition facilitates slower stream flow velocities, accumulation of sediment, and development of soil profile where channel geometry and geologic conditions permit. In areas where the channel narrows, velocities increase, scouring the channel down to bedrock.

The channel between the north and south strands of Waterman fault bears the most similarity to a "Sensitive Reach" as defined in SCI. This is also the area with lowest channel gradient and the greatest potential for sediment accumulation and development of soils. However, although more hydrologic data may be collected in this area than in the upper reaches, conditions observed in the lower reaches do not fully conform to those contemplated in the SCI protocol. Proposed future data collection in the lower reaches of the study area are described below.

Proposed Future Data Collection

The stream reconnaissance survey generated important details regarding the presence and extent of surface water and key attributes for each surface body observed. As noted above, the hydrologic and geomorphic conditions observed in the Strawberry Creek channel throughout the study do not fully conform to the conditions for which the SCI protocol was developed. This fact precludes the collection or implementation of several of the data collection procedures described in the SCI and fundamentally affects interpretation of data collected under the remaining procedures. That said, the SCI provides a useful framework for characterization of both the intermittent and contiguous reaches of Strawberry Creek within the study area. The proposed data collection strategy is to generate a consistent dataset describing characteristics of Strawberry Creek by applying as much of the SCI protocol as feasible. In reaches where few of the SCI attributes may be collected, a reduced series of hydrologic data will be collected that describe the occurrence, extent, and variability of surface water.

The proposed data collection program will be divided into three tiers and assigned to a particular reach within the watershed. Tiers I, II, and III are generally comprised of SCI Attributes presented in Table 1 of the SCI Technical Guide (USGS, 2005). Tier I data are to be collected in the steepest stream channels where surface water is present. Tier II data are to be collected in intermediate gradient channels and tributary channels where surface water is present. Tier III data are to be collected in the channels below the north strand of the Waterman fault.

Minor deviations from the SCI Attribute Table include wetted channel dimensions, flow estimates, bed material description, and stream temperature. NWNA will include a general bed material soil description rather than collecting particle size distribution as described in the SCI protocol due to the small wetted dimensions of the channel. In addition, stream temperature measurements will be collected using a hand held thermometer instead of a recording thermograph. Portions of the SCI field forms provided by the SBNF will be used to collect attribute data. Attributes associated with Tiers I, II, and III and related SCI field forms (USFS, 2005) are listed below.

- Tier I Data Collection
  - Wetted Dimensions & Flow Estimate (Forms 1 &2)
  - Bed Material Description (Form 1)
- Tier II Data Collection
  - Wetted Dimensions & Flow Estimate (Forms 1 & 2)
  - Bed Material Description (Form 1)
  - Stream Temperature (Form 1)
  - Large Woody Debris (Form 9)
  - Habitat Type (Form 6)
  - Streambank Stability (Form 8)
  - Stream Shading (Form 6/7B)

- Tier III Data Collection
  - Wetted Dimensions & Flow Estimate (Forms 1 &2)
  - Macroinvertebrates (Form 11)
  - Bed Material Description (Form 1)
  - Stream Temperature (Form 1)
  - Large Woody Debris (Form 9)
  - Bankfull Stage (Form 3/3B)
  - Cross Section (Form 3/3B)
  - Width-to-Depth Ratio (Form 3/3B)
  - Entrenchment (Form 3/3B)
  - Habitat Type (Form 6)
  - Pools (Form 6)
  - Streambank Stability (Form 8)
  - Stream Shading (Form 6/7B)
  - Aquatic Fauna (Form 8)

The proposed reach locations for collection of Tier I, II and III data are shown on Figures 3 and 4. Proposed locations for the collection of stream cross-section attributes are shown on Figure 4.

FREQUENCY OF FUTURE DATA COLLECTION

The stream reconnaissance survey described in this Technical Memorandum was conducted to explore Strawberry Creek reaches that had not been inspected for the past twelve years with the intent of identifying where meaningful data may be collected by applying as much of the SCI protocol as feasible. The reconnaissance survey was conducted near the end of springtime, at the tail end of the expected wettest period of the year. A similar data set should be collected during the driest period of the year to compare seasonal variability of conditions within the Strawberry Creek watershed. The basic dataset developed during the stream reconnaissance survey will be used to plan implementation of the appropriate SCI protocols and other data collection.

The stream attributes listed under Tier I, II, and III should be collected at the reaches shown on Figures 3 and 4 once during springtime (April-May) and fall (September-October) each year for the period of time that the data are required.

The next data collection event should be scheduled for late September or October 2016, during which time data describing the Tier I, II, and III attributes listed above should be collected in the stream reaches shown on Figures 3 and 4.

Please contact Mark Nicholls (602) 819-0913 with any questions you may have regarding the content of this Technical Memorandum.

Attachments:
- Figure 1 – Preliminary Stream Survey, North Area
- Figure 2 – Preliminary Stream Survey, South Area
- Figure 3 – Proposed Data Collection Stream Condition Inventory Attributes, North Area
- Figure 4 – Proposed Data Collection Stream Condition Inventory Attributes, South Area
- Attachment A - Photo Log

References

Morton, D.M. and F.K. Miller, 2006. *Geologic map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California.* U.S. Geological Survey Open File Report 2006-1217. Available at http://pubs.usgs.gov/of/2006/1217.

Norris, R.M. and R.W. Webb, 1990. *Geology of California*. John Wiley & Sons, New York, NY. 541 pp.

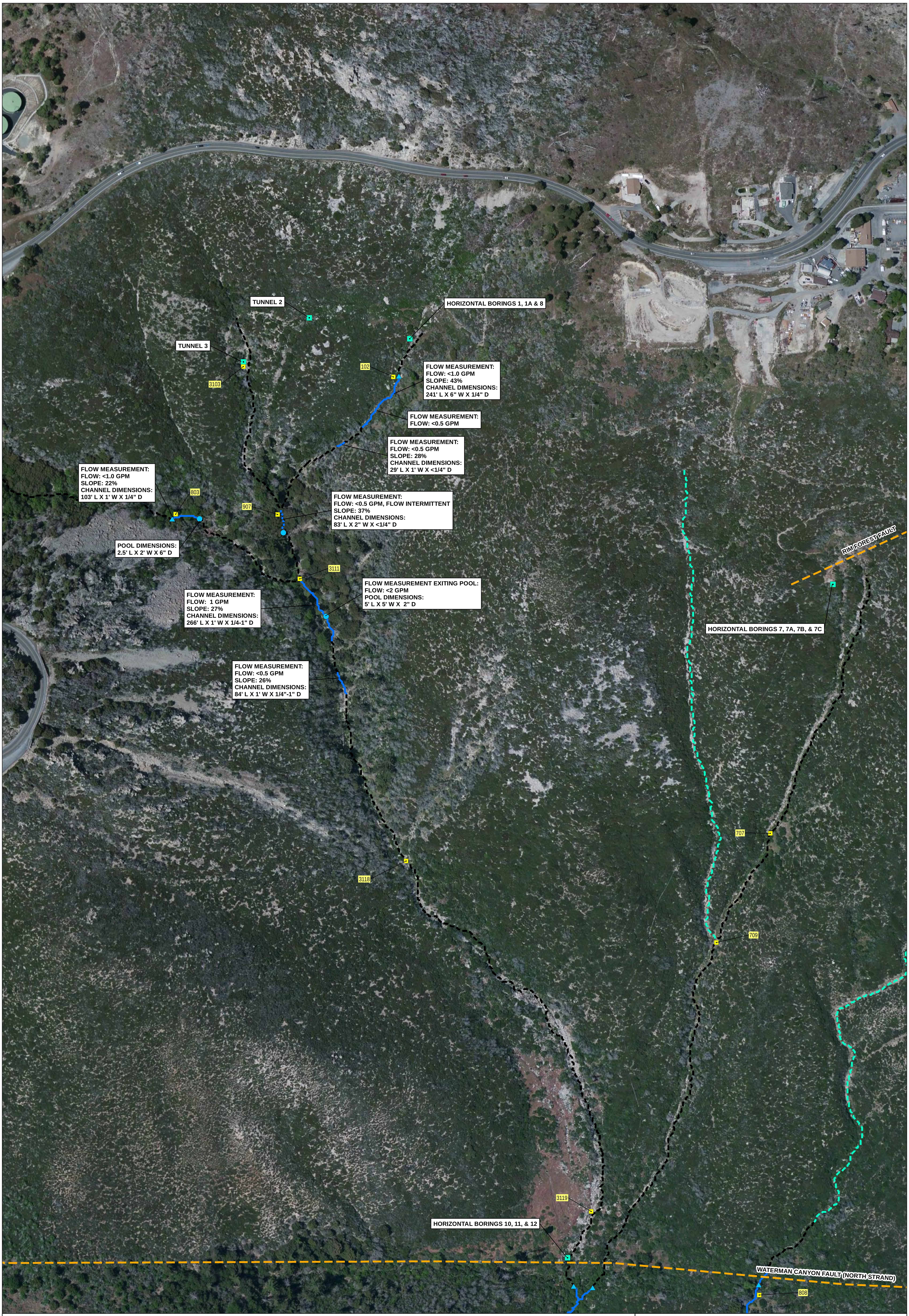
United States Department of Agriculture Forest Service, 2005. *Stream Condition Inventory (SCI) Technical Guide, Pacific Southwest Region*. Version 5.0. July.

United States Geological Survey (USGS), 1901. *California Redlands Quadrangle Topographic Sheet.* 15 October.

USGS, 1953. *Harrison Mtn. Quadrangle, 7.5 Minute Series Topographic Map, California – San Bernardino Co.* NW/4 Redlands, 15' Quadrangle. N3407.5 – W11707.5/7.5.

USGS, 1967. *Harrison Mtn. Quadrangle, 7.5 Minute Series Topographic Map, California – San Bernardino Co.* NW/4 Redlands, 15' Quadrangle. N3407.5 – W11707.5/7.5. Photo Revised 1973.

Figures



LEGEND

- FLOWING SPRING/SEEP
- POOL
- DEVELOPED SPRING VAULT
- APPROXIMATE PHOTO LOCATION WITH PHOTO NUMBER
- TRAVERSE REACH WITH CONTIGUOUS SURFACE WATER PRESENT
- TRAVERSE REACH WITH INTERMITTENT SURFACE WATER PRESENT
- TRAVERSE REACH WITH NO WATER PRESENT
- REACH SURVEYED BY AIR NO WATER PRESENT
- APPROXIMATE FAULT TRACE

NOTES

1. ALL LOCATIONS ARE APPROXIMATE.
2. ALL SURFACE WATER FLOW MEASUREMENTS ARE APPROXIMATE.
3. DATA COLLECTED BETWEEN 5/31 AND 6/10/2016.

0 150 300 450 600
SCALE IN FEET

HALEY ALDRICH

STRAWBERRY CANYON STREAM RECON
NESTLE WATERS, INC.

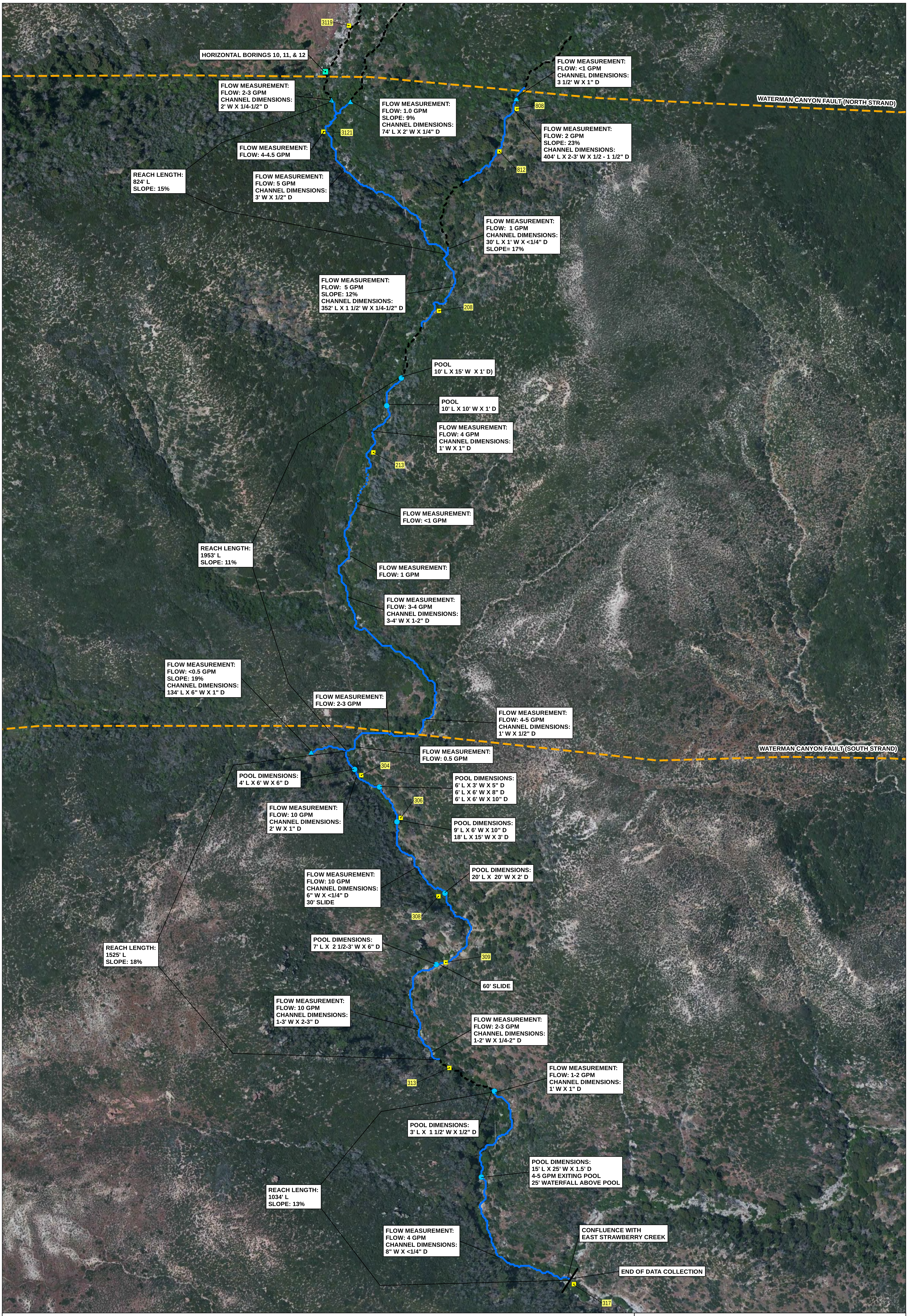
DRAFT

Nestlé Waters

PRELIMINARY STREAM SURVEY
STRAWBERRY CANYON
NORTH AREA

6/30/2016

FIGURE 1



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LEGEND

- FLOWING SPRING/SEEP
- POOL
- DEVELOPED SPRING VAULT
- APPROXIMATE PHOTO LOCATION WITH PHOTO NUMBER
- TRAVERSE REACH WITH CONTIGUOUS SURFACE WATER PRESENT
- TRAVERSE REACH WITH INTERMITTENT SURFACE WATER PRESENT
- TRAVERSE REACH WITH NO WATER PRESENT
- APPROXIMATE FAULT TRACE

NOTES

1. ALL LOCATIONS ARE APPROXIMATE.
2. ALL SURFACE WATER FLOW MEASUREMENTS ARE APPROXIMATE
3. DATA COLLECTED BETWEEN 5/31 AND 6/9/2016

0 150 300 450 600
SCALE IN FEET

HALEY ALDRICH

STRAWBERRY CANYON STREAM RECON
NESTLE WATERS, INC.

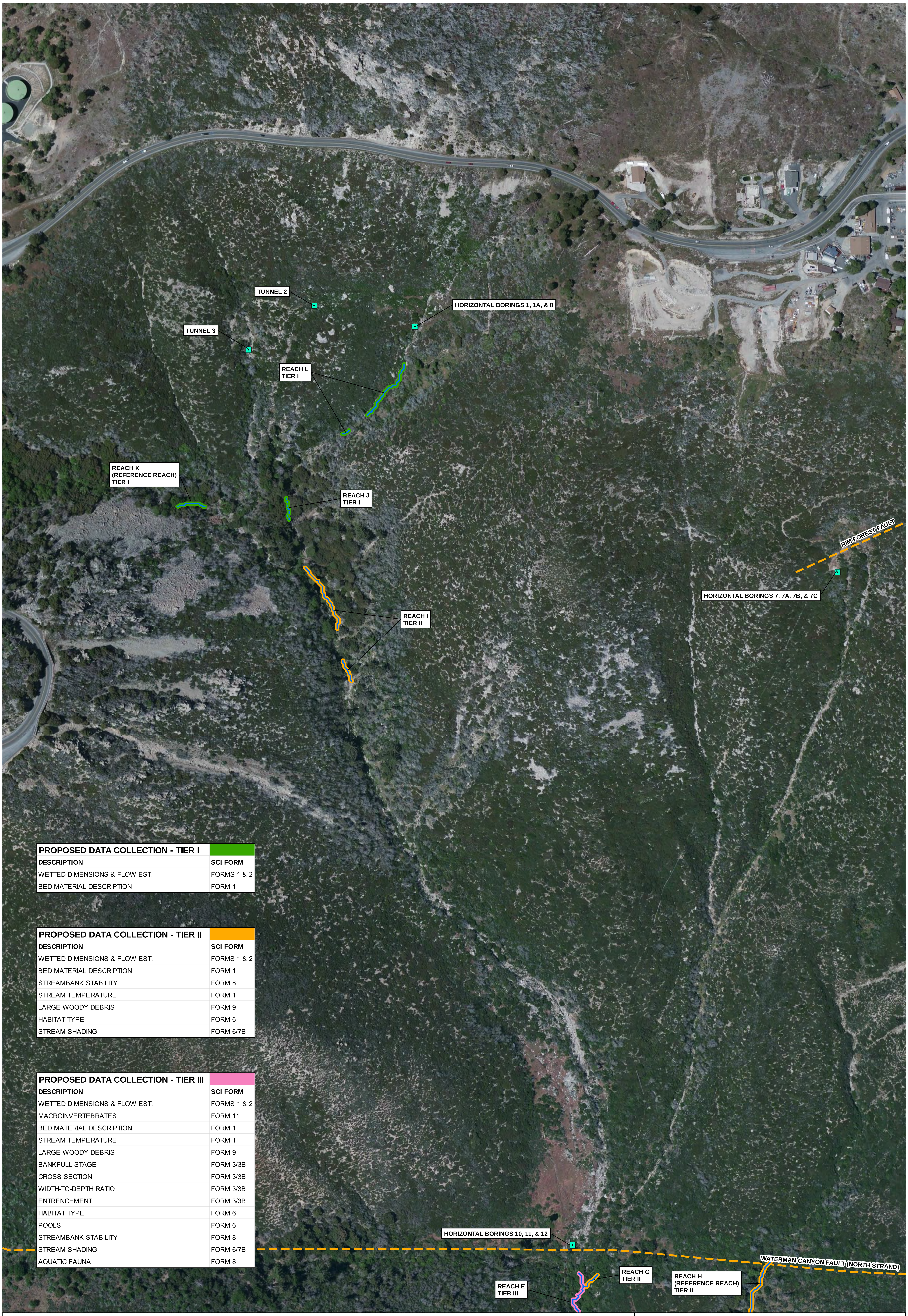
BP?DR

PRELIMINARY STREAM SURVEY
STRAWBERRY CANYON
SOUTH AREA

Nestle Waters

6/30/2016

FIGURE 2



PROPOSED DATA COLLECTION - TIER I	
DESCRIPTION	SCI FORM
WETTED DIMENSIONS & FLOW EST.	FORMS 1 & 2
BED MATERIAL DESCRIPTION	FORM 1

PROPOSED DATA COLLECTION - TIER II	
DESCRIPTION	SCI FORM
WETTED DIMENSIONS & FLOW EST.	FORMS 1 & 2
BED MATERIAL DESCRIPTION	FORM 1
STREAMBANK STABILITY	FORM 8
STREAM TEMPERATURE	FORM 1
LARGE WOODY DEBRIS	FORM 9
HABITAT TYPE	FORM 6
STREAM SHADING	FORM 6/7B

PROPOSED DATA COLLECTION - TIER III	
DESCRIPTION	SCI FORM
WETTED DIMENSIONS & FLOW EST.	FORMS 1 & 2
MACROINVERTEBRATES	FORM 11
BED MATERIAL DESCRIPTION	FORM 1
STREAM TEMPERATURE	FORM 1
LARGE WOODY DEBRIS	FORM 9
BANKFULL STAGE	FORM 3/3B
CROSS SECTION	FORM 3/3B
WIDTH-TO-DEPTH RATIO	FORM 3/3B
ENTRENCHMENT	FORM 3/3B
HABITAT TYPE	FORM 6
POOLS	FORM 6
STREAMBANK STABILITY	FORM 8
STREAM SHADING	FORM 6/7B
AQUATIC FAUNA	FORM 8

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LEGEND

- TRAVERSE REACH WITH CONTIGUOUS SURFACE WATER PRESENT
- TRAVERSE REACH WITH INTERMITTENT SURFACE WATER PRESENT
- APPROXIMATE FAULT TRACE
- PROPOSED DATA COLLECTION - TIER I
- PROPOSED DATA COLLECTION- TIER II
- PROPOSED DATA COLLECTION - TIER III

NOTES

1. ALL LOCATIONS ARE APPROXIMATE.
2. TIER III REACHES INCLUDE SURVEY SEGMENT ATTRIBUTES.
3. SURFACE WATER OCCURRENCE OBSERVATIONS MADE BETWEEN 5/31 AND 6/10/2016.

0 150 300 450 600
SCALE IN FEET

HALEY ALDRICH

STRAWBERRY CANYON STREAM RECON
NESTLE WATERS, INC.

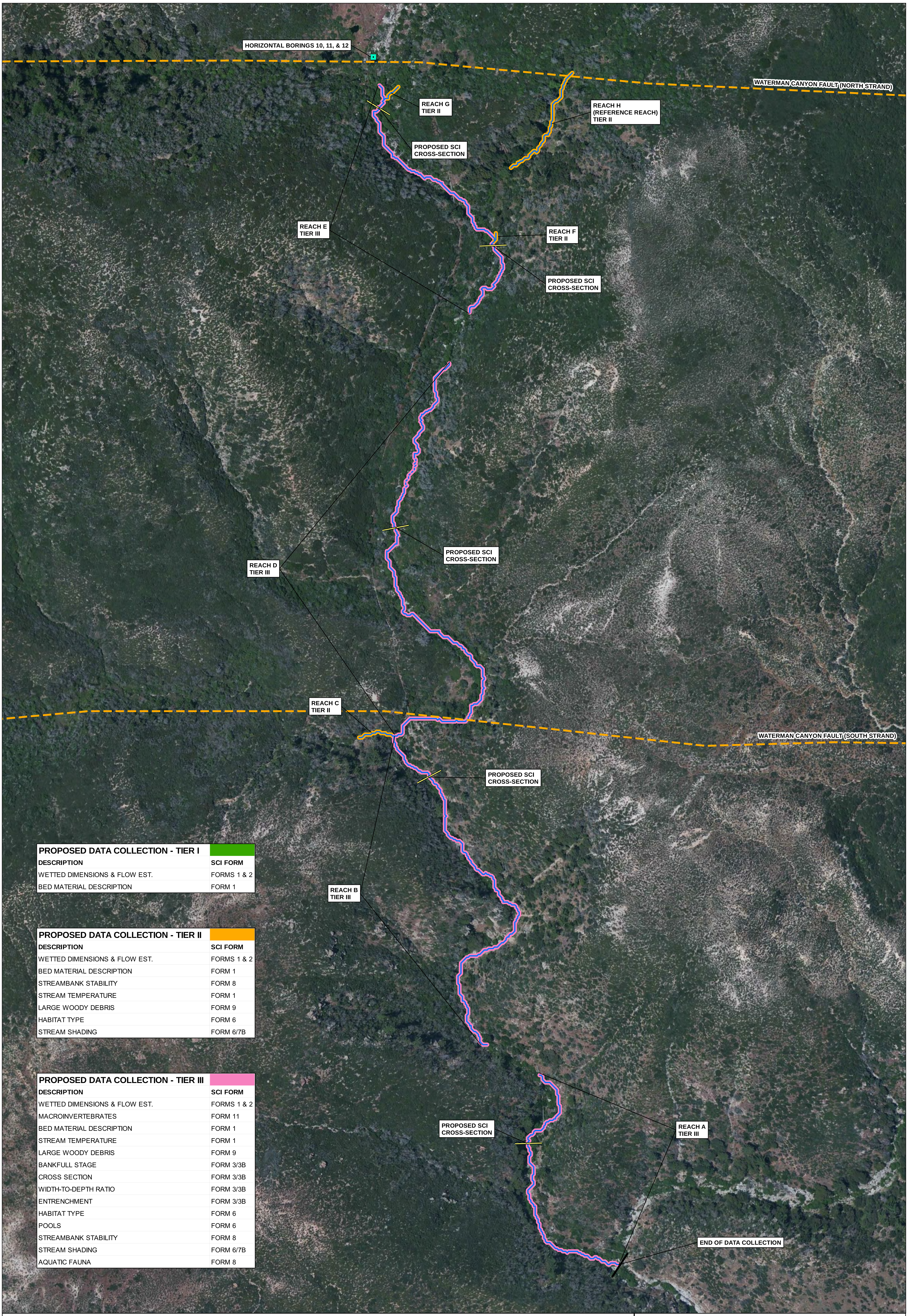
BP?DR

PROPOSED DATA COLLECTION
STREAM CONDITION INVENTORY
ATTRIBUTES
STRAWBERRY CANYON
NORTH AREA

Nestlé Waters

6/30/2016

FIGURE 3



PROPOSED DATA COLLECTION - TIER I	
DESCRIPTION	SCI FORM
WETTED DIMENSIONS & FLOW EST.	FORMS 1 & 2
BED MATERIAL DESCRIPTION	FORM 1

PROPOSED DATA COLLECTION - TIER II	
DESCRIPTION	SCI FORM
WETTED DIMENSIONS & FLOW EST.	FORMS 1 & 2
BED MATERIAL DESCRIPTION	FORM 1
STREAMBANK STABILITY	FORM 8
STREAM TEMPERATURE	FORM 1
LARGE WOODY DEBRIS	FORM 9
HABITAT TYPE	FORM 6
STREAM SHADING	FORM 6/7B

PROPOSED DATA COLLECTION - TIER III	
DESCRIPTION	SCI FORM
WETTED DIMENSIONS & FLOW EST.	FORMS 1 & 2
MACROINVERTEBRATES	FORM 11
BED MATERIAL DESCRIPTION	FORM 1
STREAM TEMPERATURE	FORM 1
LARGE WOODY DEBRIS	FORM 9
BANKFULL STAGE	FORM 3/3B
CROSS SECTION	FORM 3/3B
WIDTH-TO-DEPTH RATIO	FORM 3/3B
ENTRENCHMENT	FORM 3/3B
HABITAT TYPE	FORM 6
POOLS	FORM 6
STREAMBANK STABILITY	FORM 8
STREAM SHADING	FORM 6/7B
AQUATIC FAUNA	FORM 8

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LEGEND

- TRAVERSE REACH WITH CONTIGUOUS SURFACE WATER PRESENT
- TRAVERSE REACH WITH INTERMITTENT SURFACE WATER PRESENT
- PROPOSED SCI CROSS-SECTION
- PROPOSED DATA COLLECTION - TIER I
- PROPOSED DATA COLLECTION - TIER II
- PROPOSED DATA COLLECTION - TIER III

NOTES

1. ALL LOCATIONS ARE APPROXIMATE.
2. TIER III REACHES INCLUDE SURVEY SEGMENT ATTRIBUTES.
3. SURFACE WATER OCCURRENCE OBSERVATIONS MADE BETWEEN 5/31 AND 6/10/2016.

N

0 150 300 450 600

SCALE IN FEET

HALEY ALDRICH

STRAWBERRY CANYON STREAM RECON
NESTLE WATERS, INC.

BP?DR

Nestlé Waters

PROPOSED DATA COLLECTION
STREAM CONDITION INVENTORY
ATTRIBUTES
STRAWBERRY CANYON
NORTH AREA

6/30/2016

FIGURE 4

Attachment A

Photo Log

3103: Looking south (down gradient) near Tunnel 3.

3111: Looking south (down gradient).

3118: Looking north (up gradient).

3119: Looking north (up gradient).

3121: Looking south (down gradient).

208: Looking north (up gradient).

213: Looking south (down gradient).

304: Looking south (down gradient).

306: Looking south (down gradient) to lower pool.

308: Looking northeast (up gradient).

309: Looking northeast (up gradient).

313: Looking north (up gradient), no flow.

317: Looking north (up gradient). On left is main channel and East Strawberry Creek is on right side of photo.

803: Looking east (down gradient).

102: Looking south (down gradient).

907: Looking south (down gradient).

707: Looking south (down gradient).

709: Looking north (up gradient). Tributary to left and main channel on right side of photo.

808: Looking southwest (down gradient).

812: Looking southwest (down gradient).