

September 11, 2018

TECHNICAL MEMORANDUM

To: Steve Clough, Nevada Environmental Response Trust

From: John Pekala, CEM#2347, Expires 9/20/2018, Ramboll
Jessica Donovan, Ramboll
Chris Stubbs, Ramboll

Re: **RI Phase 2 Modification No. 14**
Nevada Environmental Response Trust Site
Henderson, Nevada
Ramboll Project No. 1690006608-020

This Technical Memorandum presents Ramboll’s recommended Modification No. 14 to the scope of work for the Remedial Investigation (RI) Phase 2 Investigation currently in progress at the Nevada Environmental Response Trust Site (the “Site”) located in Henderson, Nevada. This recommended modification proposes changes to the surface water sampling at locations within Las Vegas Wash (the “Wash”) and nearby tributaries to improve our understanding of perchlorate mass loading. Monthly surface water sampling at locations in the Wash was previously proposed in RI Phase 2 Modification No. 3, dated June 7, 2017, and then updated in Modification No. 10, dated March 1, 2018 (approved by the Nevada Division of Environmental Protection with comments for the administrative record on June 9, 2017 and May 2, 2018, respectively).

- 1) The recent construction of the Historic Lateral Expansion Weir has increased the width of the Wash at sampling transect LVW5.3. To maintain good sampling coverage across the increased width of the Wash, we propose a change in the location and number of samples in this transect. Figure 1 shows the proposed locations. The previous transect had three samples, while the proposed transect has six samples to cover the increased width of the Wash. Samples from the new locations will be analyzed for the same parameters as the samples currently being collected at transect LVW5.3, specifically perchlorate, chlorate, and total dissolved solids (TDS).

- 2) In addition, we propose monthly sampling at two new locations shown on Figure 2 to quantify the perchlorate mass loading to the Wash that appears to originate from subdrains beneath the Chimera Golf Course and nearby Tuscany residential area. The subdrains discharge into surface drainage channels that join the C-1 Channel which then discharges into the Wash just upstream of transect LVW5.3. The subdrains were presumably designed to prevent the groundwater table from rising too high beneath the golf course and residential areas. Based on preliminary observations, drainage is continuously flowing at Location #1 and flows only after storm events at Location #2. A sample recently collected at Location #1 contained

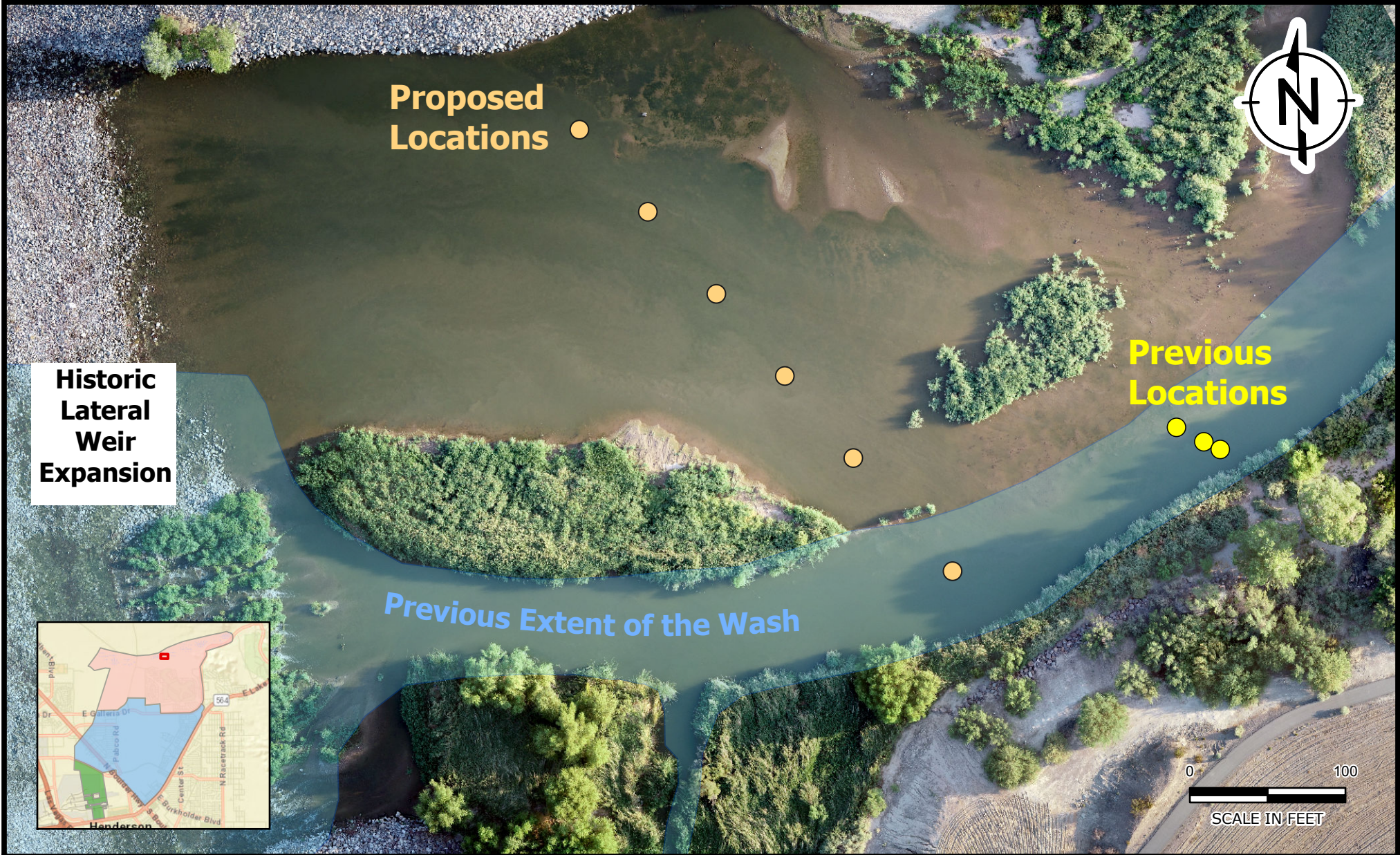
perchlorate at a concentration of 2.5 mg/L, similar to that found in nearby shallow groundwater. We propose that monthly grab samples be collected when drainage is flowing at these locations and analyzed for perchlorate, chlorate, and TDS. At each monthly sampling event, the flow in each drainage channel will be estimated by measuring the flow velocity and cross-sectional area.

- 3) We also propose slightly modifying the location of sample LVW 8.85 as shown on Figure 3. The proposed location is located as close as possible to the Las Vegas Wasteway stream gage without requiring access to Clark County Water Reclamation Facility property.

Please contact us should you have any questions about the recommended surface water sampling modifications.

Attachments

- Figure 1 Proposed Surface Water Sampling Locations at LVW 5.3
- Figure 2 Proposed Sampling Locations at C-1 Channel
- Figure 3 Proposed Surface Water Sampling Location at LVW 8.85



Proposed Surface Water Sampling Locations at LVW 5.3

Nevada Environmental Response Trust
Henderson, Nevada

FIGURE
1

DRAFTED BY:

DATE: 9/5/2018

PROJECT:



Sampling Location #1



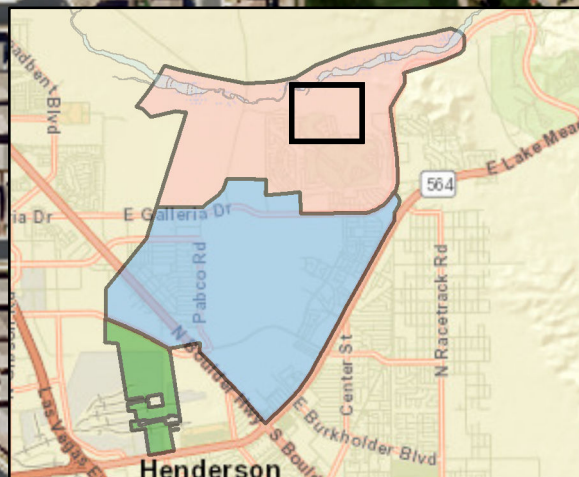
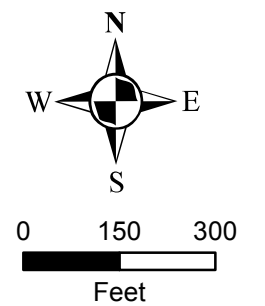
Sampling Location #2

C-1 Channel



EXPLANATION

 C-1 Channel Gauge Station

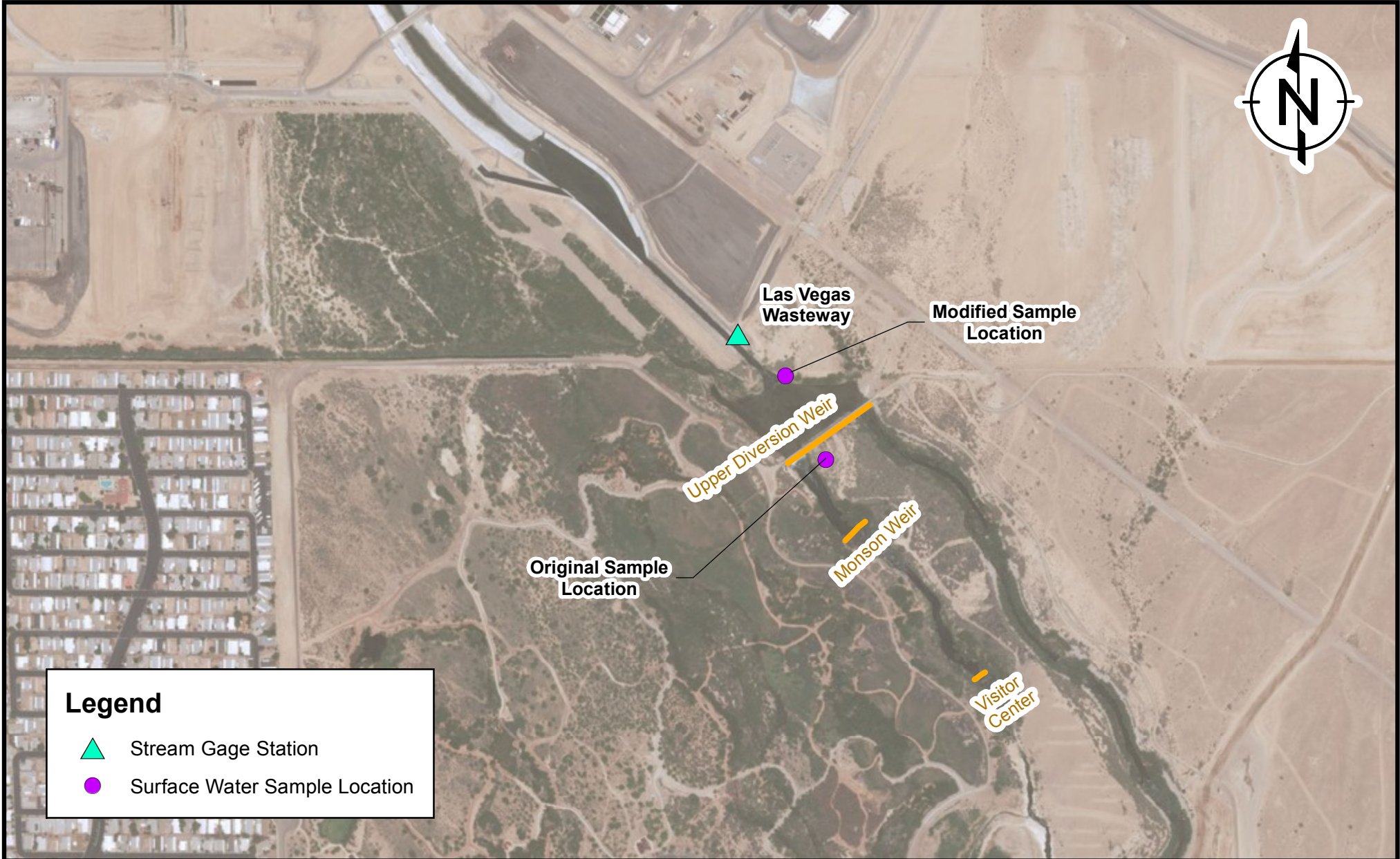


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**PROPOSED SAMPLING LOCATIONS
AT C-1 CHANNEL**
Nevada Environmental Response Trust Site
Henderson, Nevada

| | | |
|-------------------|------------------------------------|----------|
| Date: 9/5/2018 | Contract Number: 1690006943-019 | Figure |
| Drafter: AS | Approved: | Revised: |



Legend

-  Stream Gage Station
-  Surface Water Sample Location



Proposed Surface Water Sampling Location at LVW 8.85

Nevada Environmental Response Trust
Henderson, Nevada

FIGURE
3

RI Phase 2 Modification No. 14
Nevada Environmental Response Trust Site
Henderson, Nevada

RI Phase 2 Modification No. 14

**Nevada Environmental Response Trust Site
(Former Tronox LLC Site)
Henderson, Nevada**

Responsible Certified Environmental Manager (CEM) for this Project

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and, to the best of my knowledge, comply with all applicable federal, state and local statutes, regulations and ordinances.



September 11, 2018

John M. Pekala, PG
Senior Manager

Date

Certified Environmental Manager
Ramboll
CEM Certificate Number: 2347
CEM Expiration Date: September 20, 2018

The following individuals provided input to this document:

Kimberly Kuwabara



RI Phase 2 Modification No. 14
Nevada Environmental Response Trust Site
Henderson, Nevada

RI Phase 2 Modification No. 14

Nevada Environmental Response Trust Site (Former Tronox LLC Site) Henderson, Nevada

Nevada Environmental Response Trust (NERT) Representative Certification

I certify that this document and all attachments submitted to the Division were prepared at the request of, or under the direction or supervision of NERT. Based on my own involvement and/or my inquiry of the person or persons who manage the system(s) or those directly responsible for gathering the information or preparing the document, or the immediate supervisor of such person(s), the information submitted and provided herein is, to the best of my knowledge and belief, true, accurate, and complete in all material respects.

Office of the Nevada Environmental Response Trust

Le Petomane XXVII, Inc., not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

Signature: Jay A Steinberg, not individually, but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

not individually, but solely as Pres. of

Name: Jay A. Steinberg, not individually, but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

Title: Solely as President and not individually

Company: Le Petomane XXVII, Inc., not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

Date: September 11, 2018