

TECHNICAL MEMORANDUM

To: Nevada Environmental Response Trust

Cc: Nevada Division of Environmental Protection
United States Environmental Protection Agency

From: Dana Grady

Date: February 10, 2023

Subject: Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study Monthly Progress Report

At the direction of the Nevada Environmental Response Trust (NERT or Trust), Tetra Tech, Inc. (Tetra Tech) has prepared this memorandum to summarize Tetra Tech's progress during December 2022 toward successfully implementing the Las Vegas Wash Zero-Valent Iron (ZVI)-Enhanced Bioremediation Treatability Study.

Task Progress Update: December 2022

Task M18 – Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

- Current Status
 - Pre-construction field activities, including the installation, development, sampling, and testing of 24 pre-construction pilot wells, began on August 17, 2022 and was completed on November 7, 2022. A layout map and construction details for the pilot wells are provided on Figure 1 and in Table 1. Analytical results from baseline groundwater sampling were summarized in previous monthly progress reports.
 - The drainage study for the grading permit application package was approved by the City of Henderson on December 13, 2022. Following City of Henderson approval, the drainage study was submitted to the Clark County Regional Flood Control District (CCRFCD) for review on December 14, 2022. The grading permit application package was also submitted to City of Henderson on December 14, 2022 to be reviewed concurrently with CCRFCD review of the drainage study.
 - A Stormwater Notice of Intent to obtain a Construction Stormwater General Permit was submitted to the Nevada Division of Environmental Protection – Bureau of Water Pollution Control on December 22, 2022.
- Schedule and Progress Updates
 - Initial site preparation activities including road improvements, staging area construction, and benching activities will begin immediately following issuance of the grading permit.

- Health and Safety
 - There were no health and safety incidents related to Task M18 during December 2022.

CERTIFICATION

Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study Monthly Progress Report

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 systems(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, not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

Not Individually, but Solely
as President of the Trustee

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

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

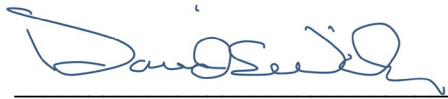
Company: Le Petomane XXVII, Inc., not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

Date: 2/10/23

CERTIFICATION

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 prepared 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. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.

Description of Services Provided: Prepared Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study Monthly Progress Report.



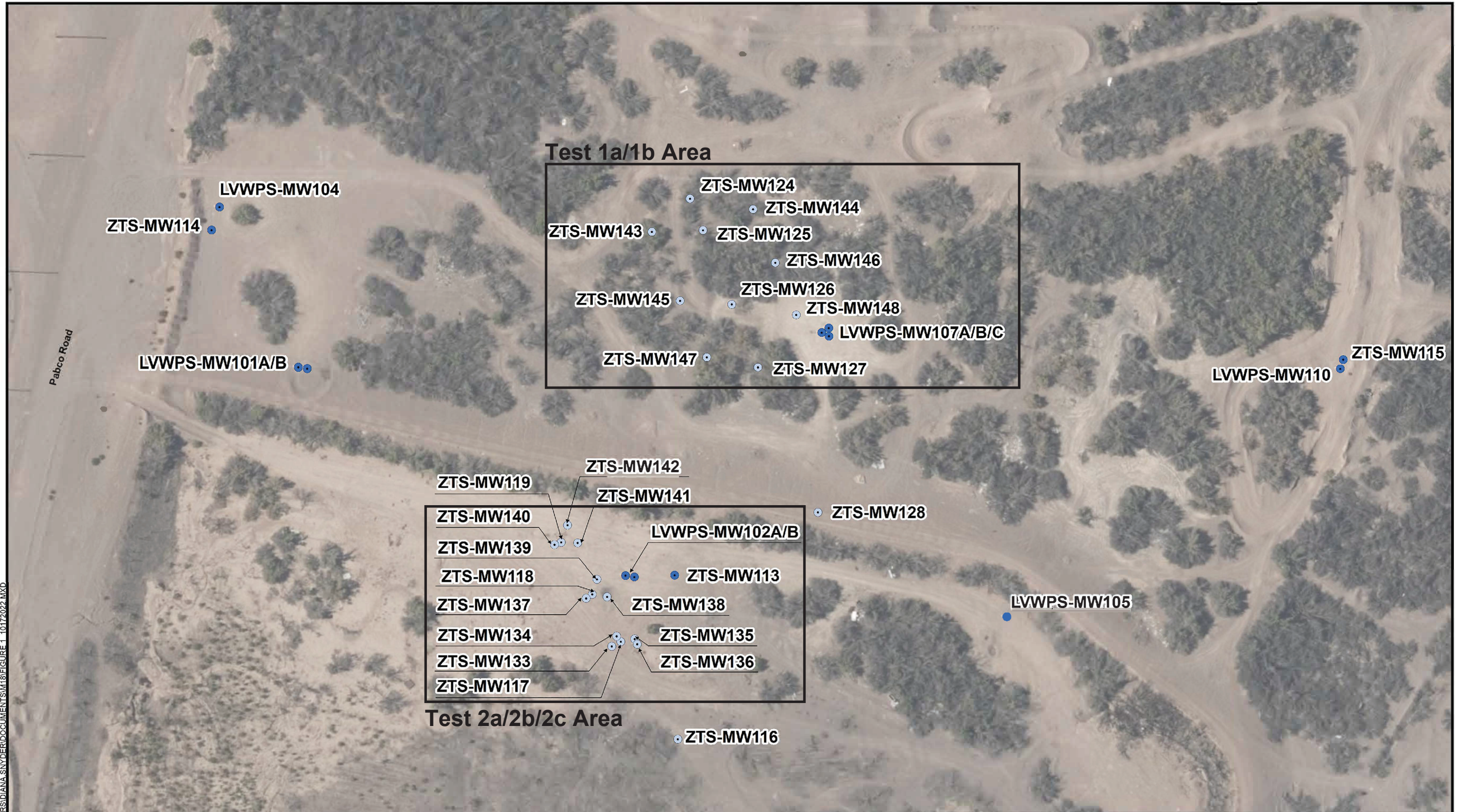
David S. Wilson, CEM
Principal Engineer
Tetra Tech, Inc.

February 10, 2023

Date

Nevada CEM Certificate Number: 2385
Nevada CEM Expiration Date: September 19, 2024

Figures

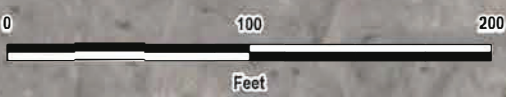


DOCUMENT PATH: C:\USERS\DIANA.SNYDER\DOCUMENTS\M18\FIGURE 1_10172022.MXD

Legend

- Existing Monitoring Well Location
- Pre-Construction Monitoring Wells

Notes:
1. Imagery Source: Esri World Map, October 2019.



TETRA TECH

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NEVADA ENVIRONMENTAL RESPONSE TRUST

LAS VEGAS WASH ZVI-ENHANCED BIOREMEDIATION TREATABILITY STUDY
MONTHLY PROGRESS REPORT
HENDERSON, NEVADA

PRE-CONSTRUCTION MONITORING WELLS

PROJECT NO.:	117-7502022
DATE:	OCTOBER 17, 2022
DESIGNED BY:	AAM
Figure No.	1

Tables

Table 1
Phase 2 Pre-Construction Well Construction Details
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well ID	Screened Lithology	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Depth to Water ¹	Groundwater Elevation	Casing Material	Slot Size	Filter Pack Gradation	Nominal Borehole Diameter	Borehole Total Depth	Well Diameter	Nominal Screen Length	Well Total Depth	Bottom of Screen	Top of Screen
				feet amsl	feet amsl	ft bTOC	amsl		inches		inches	feet bgs	inches	feet	feet bgs	feet bgs	feet bgs
ZTS-MW116	UMCf	26732461.29	833014.94	1548.45	1547.92	16.75	1531.17	Schedule 40 PVC	0.010	#2/16	6	55	2	15	48.5	48	33
ZTS-MW117	UMCf	26732546.84	832964.21	1547.64	1547.32	16.30	1531.02	Schedule 40 PVC	0.010	#2/16	8	75	4	15	56	55.5	40.5
ZTS-MW118	Alluvium	26732588.00	832939.61	1547.64	1547.41	16.78	1530.63	Schedule 40 PVC	0.020	#3	8	40	4	10	24	23.5	13.5
ZTS-MW119	Alluvium	26732634.25	832912.06	1547.46	1547.12	16.80	1530.32	Schedule 40 PVC	0.020	#3	8	37.5	4	10	25.5	25	15
ZTS-MW124	Alluvium	26732935.79	833025.72	1544.78	1544.44	16.28	1528.16	Schedule 40 PVC	0.020	#3	8	40	4	10	34.5	34	24
ZTS-MW125	UMCf	26732907.80	833037.00	1546.94	1546.51	18.49	1528.02	Schedule 40 PVC	0.010	#2/16	8	75	4	10	50.5	50	40
ZTS-MW126	Alluvium	26732842.82	833063.07	1548.61	1548.47	20.38	1528.09	Schedule 40 PVC	0.020	#3	8	40	4	10	30.5	30	20
ZTS-MW127	Alluvium	26732787.83	833086.14	1548.05	1547.67	19.48	1528.19	Schedule 40 PVC	0.020	#3	8	40	4	5	23.5	23	18
ZTS-MW128	UMCf	26732659.68	833137.95	1555.83	1555.41	26.89	1528.52	Schedule 40 PVC	0.010	#2/16	6	75	2	10	52.5	52	42
ZTS-MW133	UMCf	26732542.30	832957.28	1547.79	1547.51	10.24	1537.27	Schedule 40 PVC	0.010	#2/16	6	75	2	15	69.5	69	54
ZTS-MW134	UMCf	26732551.09	832961.57	1547.75	1547.54	16.78	1530.76	Schedule 40 PVC	0.010	#2/16	6	37	2	10	36.5	36	26
ZTS-MW135	UMCf	26732548.80	832977.51	1547.56	1547.42	10.13	1537.29	Schedule 40 PVC	0.010	#2/16	6	76	2	15	69.5	69	54
ZTS-MW136	UMCf	26732544.12	832979.70	1547.67	1547.29	16.54	1530.75	Schedule 40 PVC	0.010	#2/16	6	55	2	20	47.5	47	27
ZTS-MW137	Alluvium	26732584.41	832934.77	1547.68	1547.44	16.80	1530.64	Schedule 40 PVC	0.020	#3	6	28	2	10	24.5	24	14
ZTS-MW138	Alluvium	26732585.74	832953.21	1547.68	1547.35	16.81	1530.54	Schedule 40 PVC	0.020	#3	6	25	2	10	24.5	24	14
ZTS-MW139	Alluvium	26732601.13	832944.31	1547.36	1547.07	16.59	1530.48	Schedule 40 PVC	0.020	#3	6	30	2	10	23.5	23	13
ZTS-MW140	Alluvium	26732631.52	832907.03	1547.30	1546.73	16.36	1530.37	Schedule 40 PVC	0.020	#3	6	30	2	10	26.0	25.5	15.5
ZTS-MW141	Alluvium	26732633.15	832927.38	1547.65	1547.39	17.12	1530.27	Schedule 40 PVC	0.020	#3	6	30	2	10	25.0	24.5	14.5
ZTS-MW142	Alluvium	26732648.69	832918.45	1547.42	1546.81	16.62	1530.19	Schedule 40 PVC	0.020	#3	6	27	2	10	26.5	26	16
ZTS-MW143	Alluvium	26732906.40	832992.60	1545.04	1544.90	16.51	1528.39	Schedule 40 PVC	0.020	#3	6	35	2	10	33.5	33	23
ZTS-MW144	Alluvium	26732926.25	833081.32	1544.47	1544.52	16.82	1527.70	Schedule 40 PVC	0.020	#3	6	40	2	10	34.5	34	24
ZTS-MW145	UMCf	26732845.93	833017.26	1547.43	1547.13	18.73	1528.40	Schedule 40 PVC	0.010	#2/16	8	50	4	10	49.5	49	39
ZTS-MW146	UMCf	26732879.40	833100.75	1548.63	1547.33	20.61	1526.72	Schedule 40 PVC	0.010	#2/16	8	55	4	10	51.5	51	41
ZTS-MW147	Alluvium	26732796.25	833040.66	1547.65	1547.18	18.70	1528.48	Schedule 40 PVC	0.020	#3	6	35	2	10	30.0	29.5	19.5
ZTS-MW148	Alluvium	26732833.56	833119.27	1548.62	1548.41	20.67	1527.74	Schedule 40 PVC	0.020	#3	6	35	2	10	32.5	32.0	22.0

Notes
 amsl - above mean sea level
 bgs - below ground surface
 bTOC - below top of casing
 PVC - polyvinyl chloride
 UMCf - Upper Muddy Creek formation
 1. Depth to water collected on October 17, 2022.