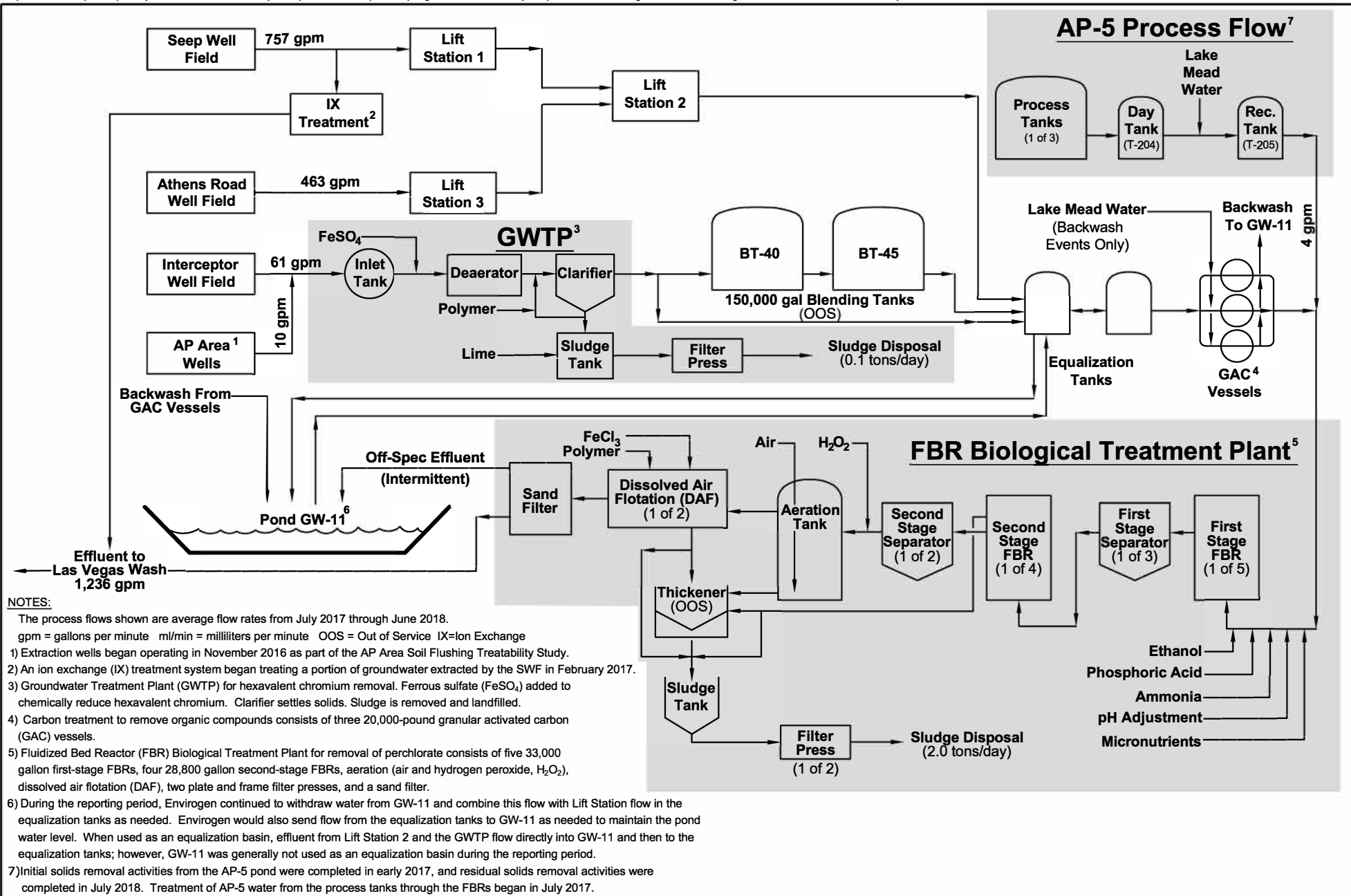


Legend		Land Ownership		NERT Remedial Investigation Study Areas	
Sampled/Measured Well and Stratigraphy ○ NA ⊕ Qal ⊕ Qal/UMCf ⊕ UMCf	★ Seep Capture Sump (no longer operating) ⋯ Las Vegas Wash	Master-Planned Community BMI Lhoist City of Henderson Henderson Groundwater	Nevada Power Olin Titanium Metals Corporation (TIMET) Jasmine WAPA NERT	Downgradient Study Area Eastside Study Area NERT Off-Site Study Area NERT Site	
Decommissioned and/or Replaced Wells and Stratigraphy ○ NA ⊕ Qal ⊕ Qal/UMCf					



Groundwater Extraction and Treatment System (GWETS) Flow Diagram
 Nevada Environmental Response Trust (NERT)
 Henderson, Nevada

Figure
2

Legend

NERT Remedial Investigation Study Areas

- Downgradient Study Area
- Eastside Study Area
- NERT Off-Site Study Area
- NERT Site

Upward Vertical Gradient (ft/ft)

- >0.3
- 0.2 - 0.3
- 0.05 - 0.2

Insignificant Vertical Gradient (ft/ft)

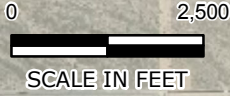
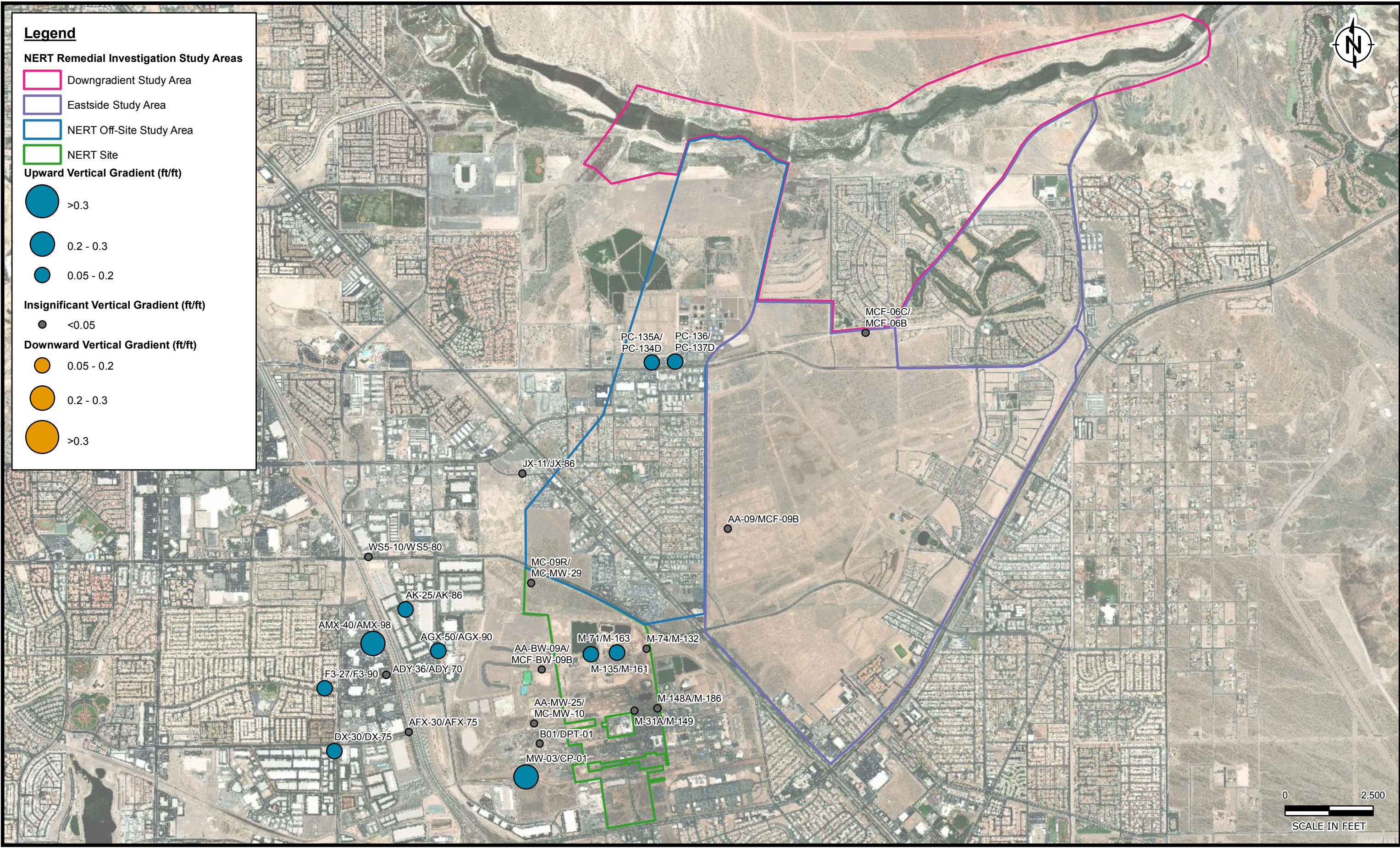
- <0.05

Downward Vertical Gradient (ft/ft)

- 0.05 - 0.2
- 0.2 - 0.3
- >0.3



I:\wcv\p\1\eng\LePetomane\NERT\GWM\Annual Performance Reports\2018 Annual\Figures\GIS\Figure 3a - shallow vertical gradient.mxd



Vertical Gradient Evaluation - Shallow WBZ
Annual Remedial Performance Report
Nevada Environmental Response Trust Site
Henderson, Nevada

FIGURE 3a

Legend

NERT Remedial Investigation Study Areas

- Downgradient Study Area
- Eastside Study Area
- NERT Off-Site Study Area
- NERT Site

Upward Vertical Gradient (ft/ft)

- >0.3
- 0.2 - 0.3
- 0.05 - 0.2

Insignificant Vertical Gradient (ft/ft)

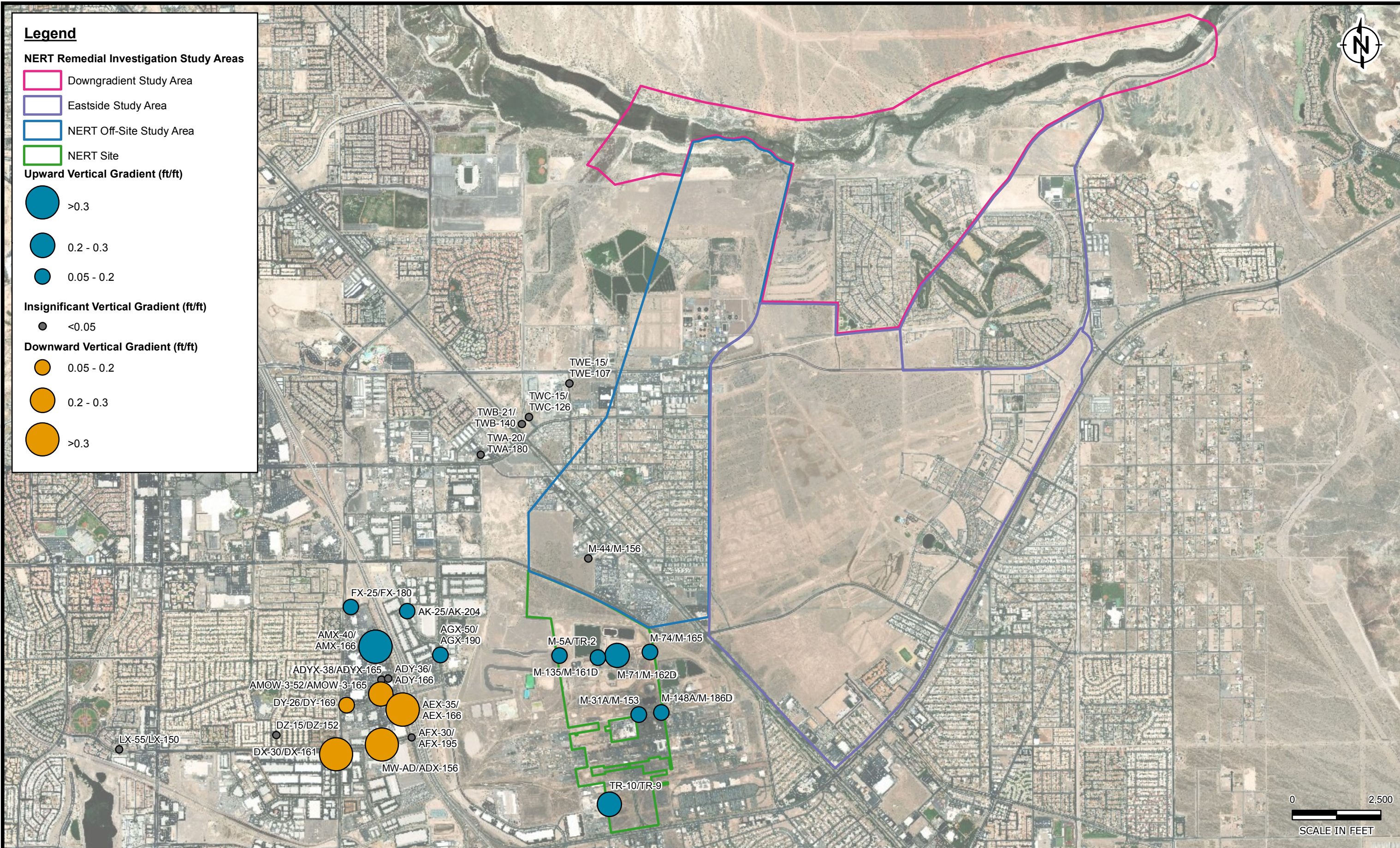
- <0.05

Downward Vertical Gradient (ft/ft)

- 0.05 - 0.2
- 0.2 - 0.3
- >0.3



I:\wcv\figs1\eng\LePetomane\NERT\GWM\Annual Performance Reports\2018 Annual\Figures\GIS\Figure 3b - middle vertical gradient.mxd



Vertical Gradient Evaluation - Middle WBZ
Annual Remedial Performance Report
Nevada Environmental Response Trust Site
Henderson, Nevada

FIGURE 3b
PROJECT: 1690006941

Legend

NERT Remedial Investigation Study Areas

- Downgradient Study Area
- Eastside Study Area
- NERT Off-Site Study Area
- NERT Site

Upward Vertical Gradient (ft/ft)

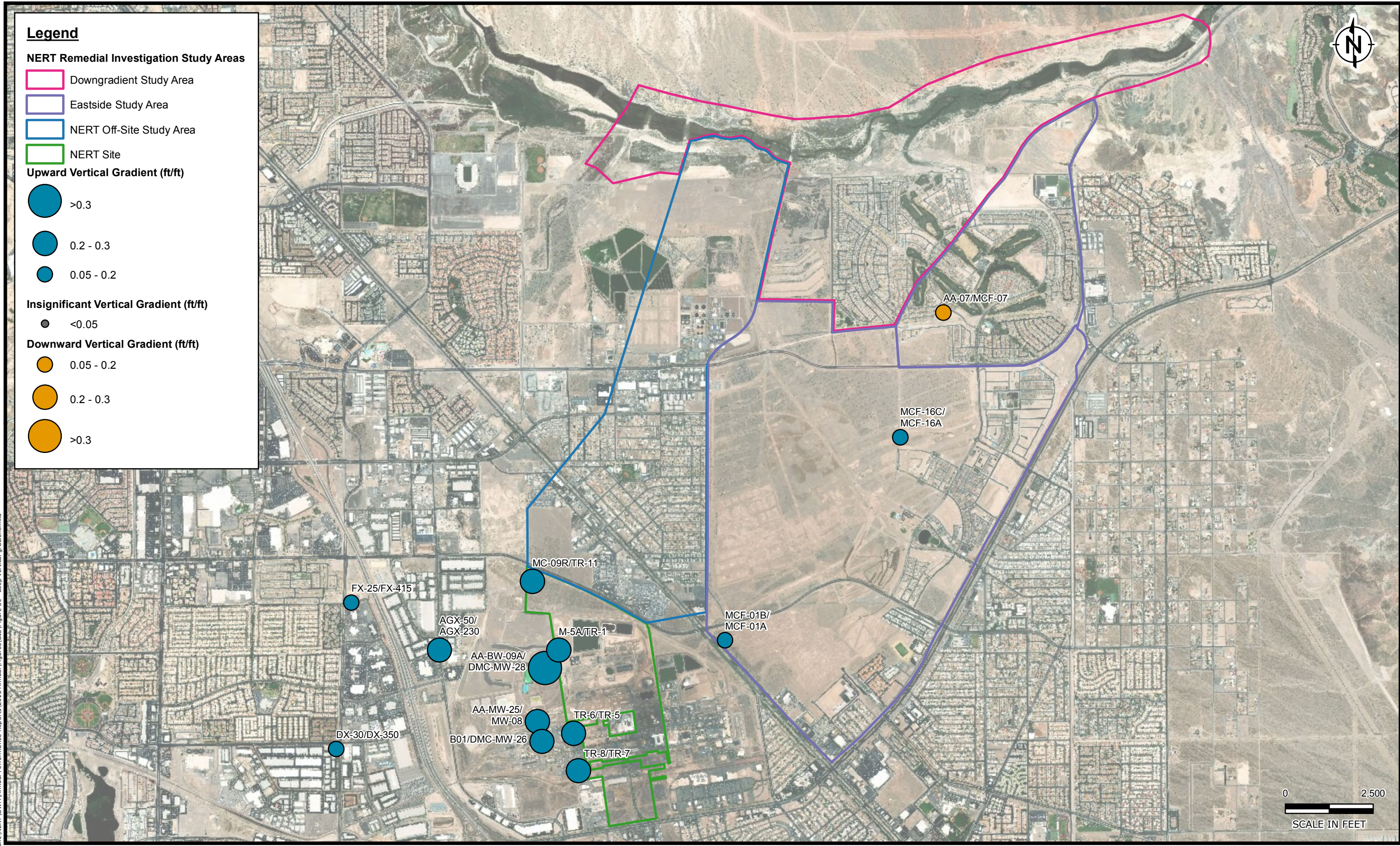
- >0.3
- 0.2 - 0.3
- 0.05 - 0.2

Insignificant Vertical Gradient (ft/ft)

- <0.05

Downward Vertical Gradient (ft/ft)

- 0.05 - 0.2
- 0.2 - 0.3
- >0.3

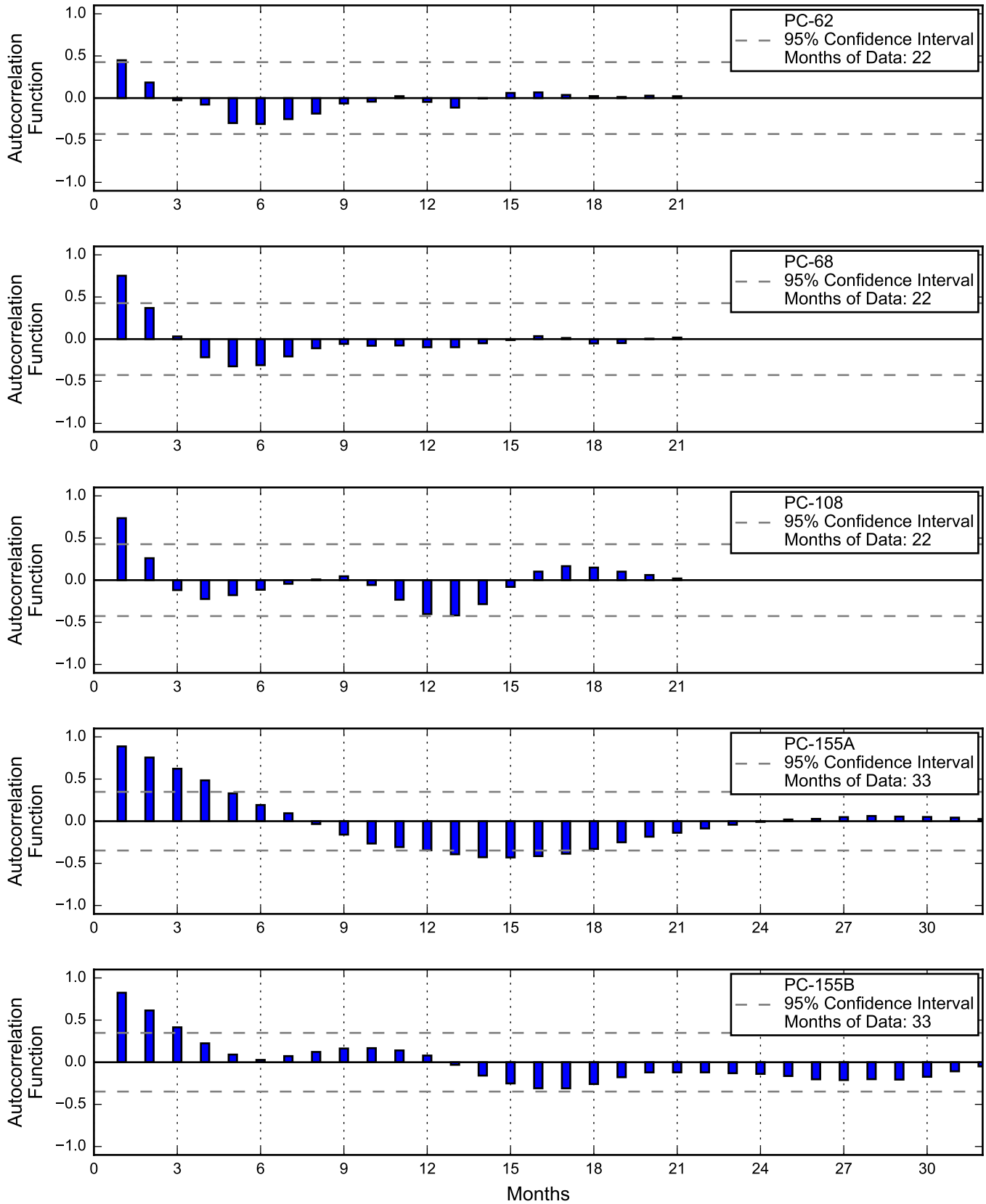


I:\wcv\files\1\eng\LePetomane\NERT\GWM\Annual Performance Reports\2018 Annual\Figures\GIS\Figure 3c - deep vertical gradient.mxd



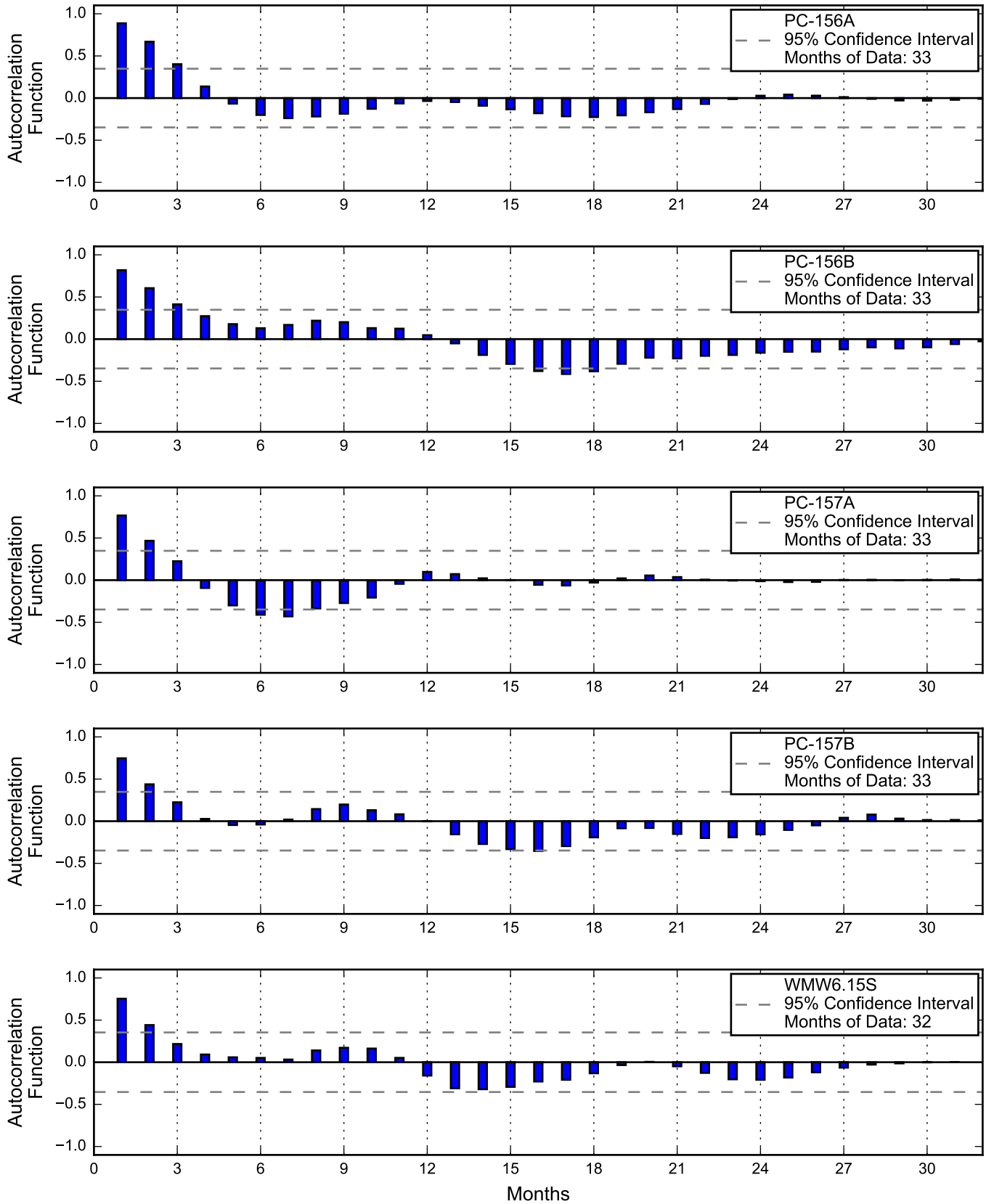
Vertical Gradient Evaluation - Deep WBZ
Annual Remedial Performance Report
Nevada Environmental Response Trust Site
Henderson, Nevada

FIGURE 3c



Transducer Groundwater Elevation Autocorrelation, 2015 - 2018
 Nevada Environmental Response Trust Site
 Henderson, Nevada

Figure
4a

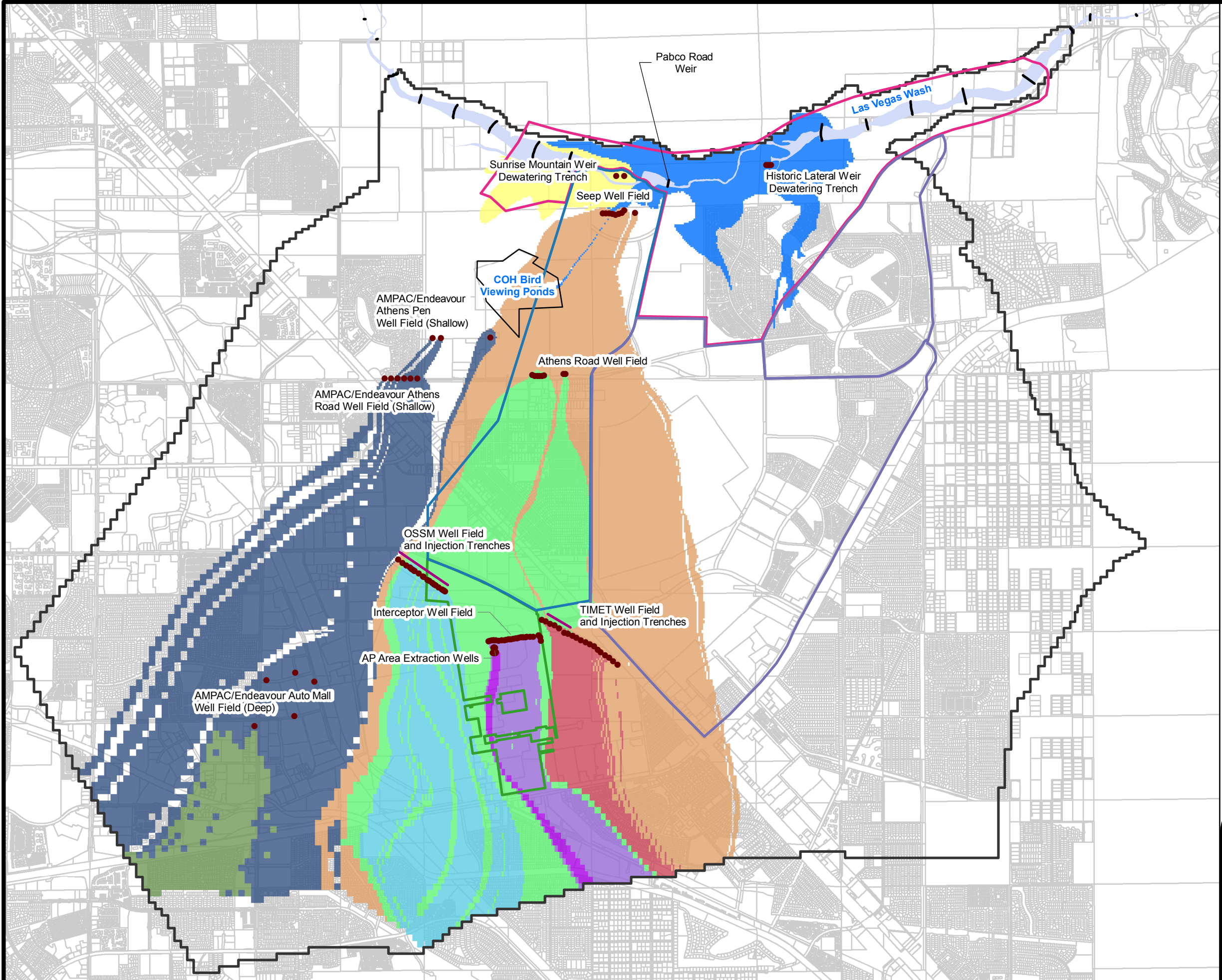


Transducer Groundwater Elevation Autocorrelation, 2015 - 2018
Nevada Environmental Response Trust Site
Henderson, Nevada

Figure

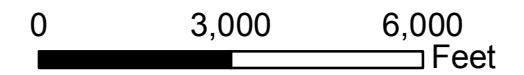
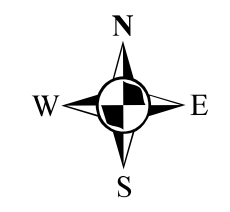
4b

Path: \\rce\p1st1\eng\l_e\Palomane\NERT\GW\Annual Performance Reports\2018 Annual\Figures\GIS\Fig 5a - Shallow_Capture_Zone_v2.mxd



- Legend**
- Extraction Wells
 - Injection Trenches
 - Downgradient Study Area
 - Eastside Study Area
 - NERT Off-Site Study Area
 - NERT Site
 - Updated Phase 5 Model Boundary
 - Las Vegas Wash
 - SNWA Weirs
- Capture Zone**
- AP Area Extraction Well
 - Interceptor Well Field
 - Athens Road Well Field
 - Seep Well Field
 - OSSM Well Field
 - TIMET Well Field
 - AMPAC/Endeavour - Shallow Extraction
 - AMPAC/Endeavour - Deep Extraction
 - Historic Lateral Weir Dewatering Trench
 - Sunrise Mountain Weir Dewatering Trench

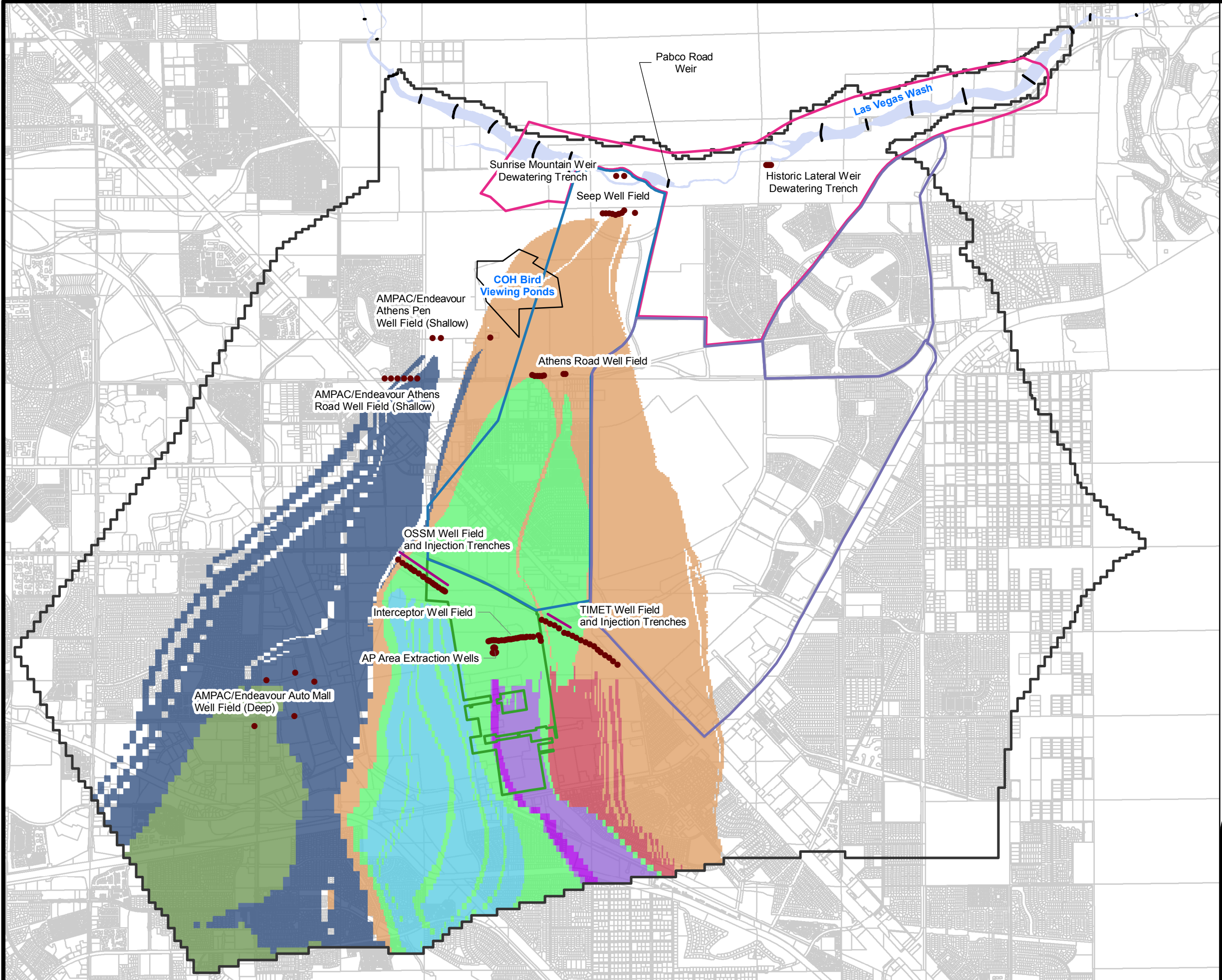
AMPAC/Endeavour = American Pacific Corporation/Endeavour LLC
 OSSM = Olin/Stauffer/Syngenta/Montrose
 TIMET = Titanium Metals Corporation
 COH = City of Henderson



SHALLOW WBZ CAPTURE ZONES
 Nevada Environmental Response Trust Site
 Henderson, Nevada

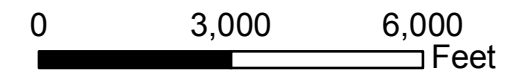
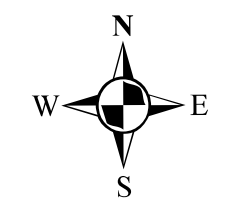
Date: 11/4/2018	Contract Number: 1690006941	Figure
Drafter: AS	Approved:	Revised:
		5a

Path: \\rcv\p1st1\eng\lePalomane\NERT\GW\Annual Performance Reports\2018 Annual\Figures\GIS\Fig 5b - Middle_Capture_Zone_v2.mxd



- Legend**
- Extraction Wells
 - Injection Trenches
 - Downgradient Study Area
 - Eastside Study Area
 - NERT Off-Site Study Area
 - NERT Site
 - Updated Phase 5 Model Boundary
 - Las Vegas Wash
 - SNWA Weirs
- Capture Zone**
- AP Area Extraction Well
 - Interceptor Well Field
 - Athens Road Well Field
 - Seep Well Field
 - OSSM Well Field
 - TIMET Well Field
 - AMPAC/Endeavour - Shallow Extraction
 - AMPAC/Endeavour - Deep Extraction
 - Historic Lateral Weir Dewatering Trench
 - Sunrise Mountain Weir Dewatering Trench

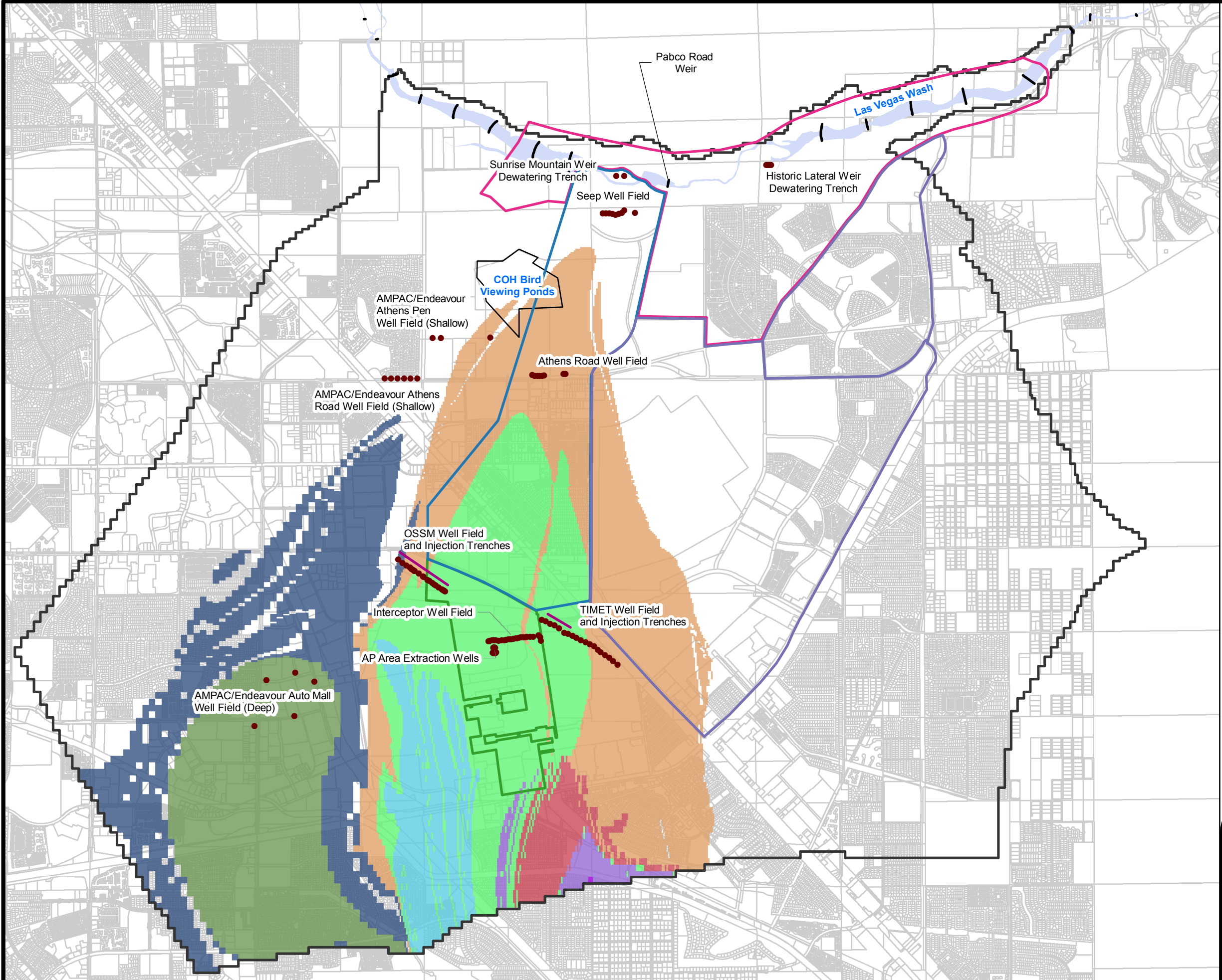
AMPAC/Endeavour = American Pacific Corporation/Endeavour LLC
 OSSM = Olin/Stauffer/Syngenta/Montrose
 TIMET = Titanium Metals Corporation
 COH = City of Henderson



MIDDLE WBZ CAPTURE ZONES
 Nevada Environmental Response Trust Site
 Henderson, Nevada

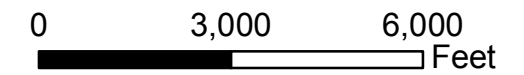
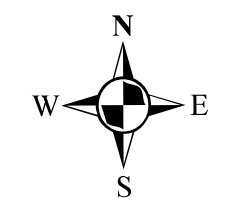
Date: 11/4/2018	Contract Number: 1690006941	Figure
Drafter: AS	Approved:	Revised:
		5b

Path: \\ncev\p1st1\eng\l_e\Palomane\NERT\GW\Annual Performance Reports\2018 Annual Figures\GIS\Fig 5c - Deep Capture Zone_v2.mxd



- Legend**
- Extraction Wells
 - Injection Trenches
 - Downgradient Study Area
 - Eastside Study Area
 - NERT Off-Site Study Area
 - NERT Site
 - Updated Phase 5 Model Boundary
 - Las Vegas Wash
 - SNWA Weirs
- Capture Zone**
- AP Area Extraction Well
 - Interceptor Well Field
 - Athens Road Well Field
 - Seep Well Field
 - OSSM Well Field
 - TIMET Well Field
 - AMPAC/Endeavour - Shallow Extraction
 - AMPAC/Endeavour - Deep Extraction
 - Historic Lateral Weir Dewatering Trench
 - Sunrise Mountain Weir Dewatering Trench

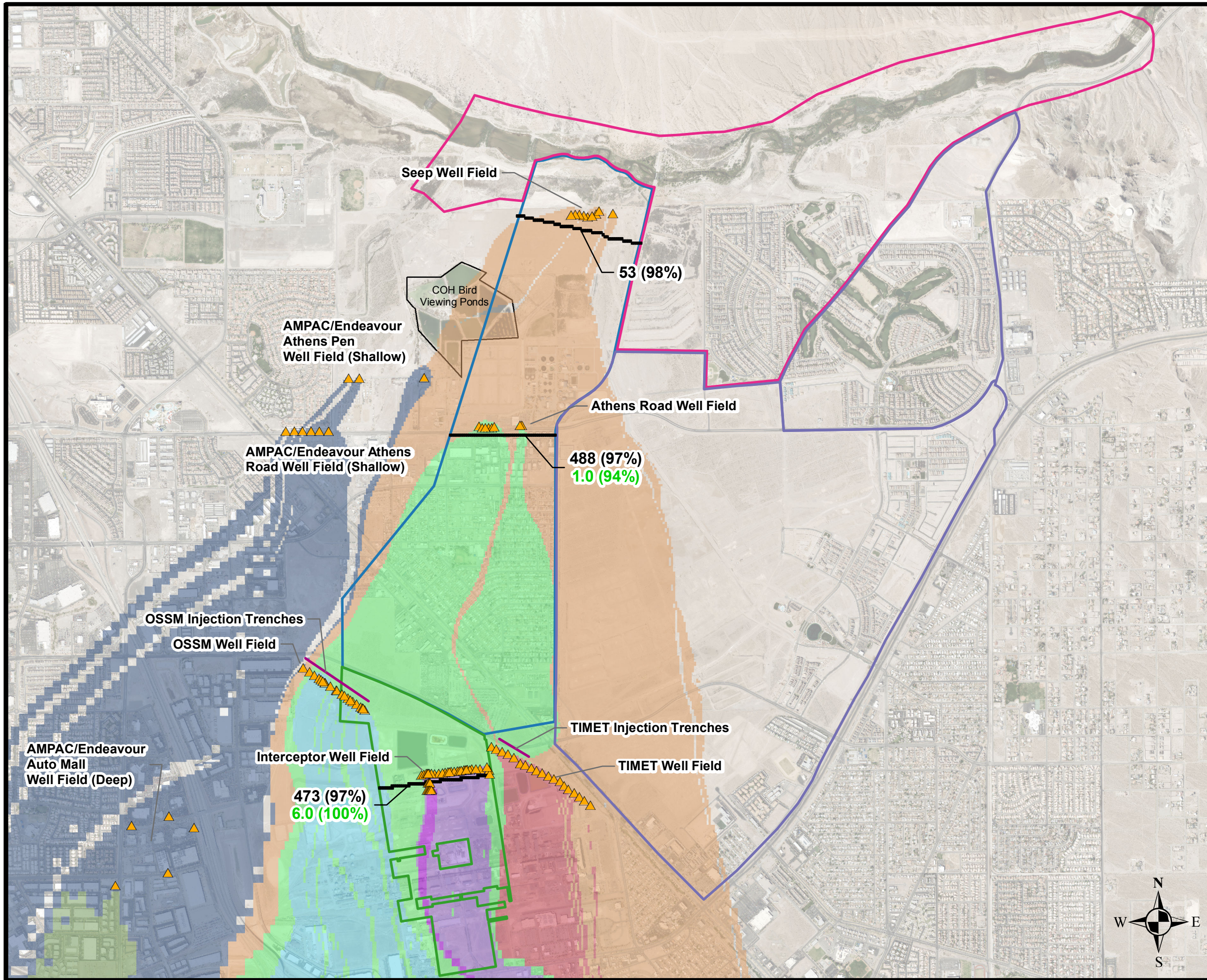
AMPAC/Endeavour = American Pacific Corporation/Endeavour LLC
 OSSM = Olin/Stauffer/Syngenta/Montrose
 TIMET = Titanium Metals Corporation
 COH = City of Henderson



DEEP WBZ CAPTURE ZONES
 Nevada Environmental Response Trust Site
 Henderson, Nevada

Date: 11/4/2018	Contract Number: 1690006941	Figure
Drafter: AS	Approved:	Revised:

Path: \\rce\p1st1\eng\ul\lePalomane\NERT\GWA\Annual Performance Reports\2018 Annual\Figures\GIS\Fig 6 - Well Field Capture Efficiency_v2.mxd



Legend

- Extraction Wells
- Injection Trenches
- Transect Lines
- Downgradient Study Area
- Eastside Study Area
- NERT Off-Site Study Area
- NERT Site

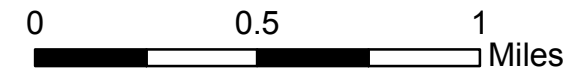
Capture Zone

- AP Area Extraction Well
- Interceptor Well Field
- Athens Road Well Field
- Seep Well Field
- OSSM Well Field
- TIMET Well Field
- AMPAC/Endeavour - Shallow Extraction
- AMPAC/Endeavour - Deep Extraction

473 (97%) Total Perchlorate Mass Flux (lbs/d) and percent capture efficiency

6.0 (100%) Total Chromium Mass Flux (lbs/d) and percent capture efficiency

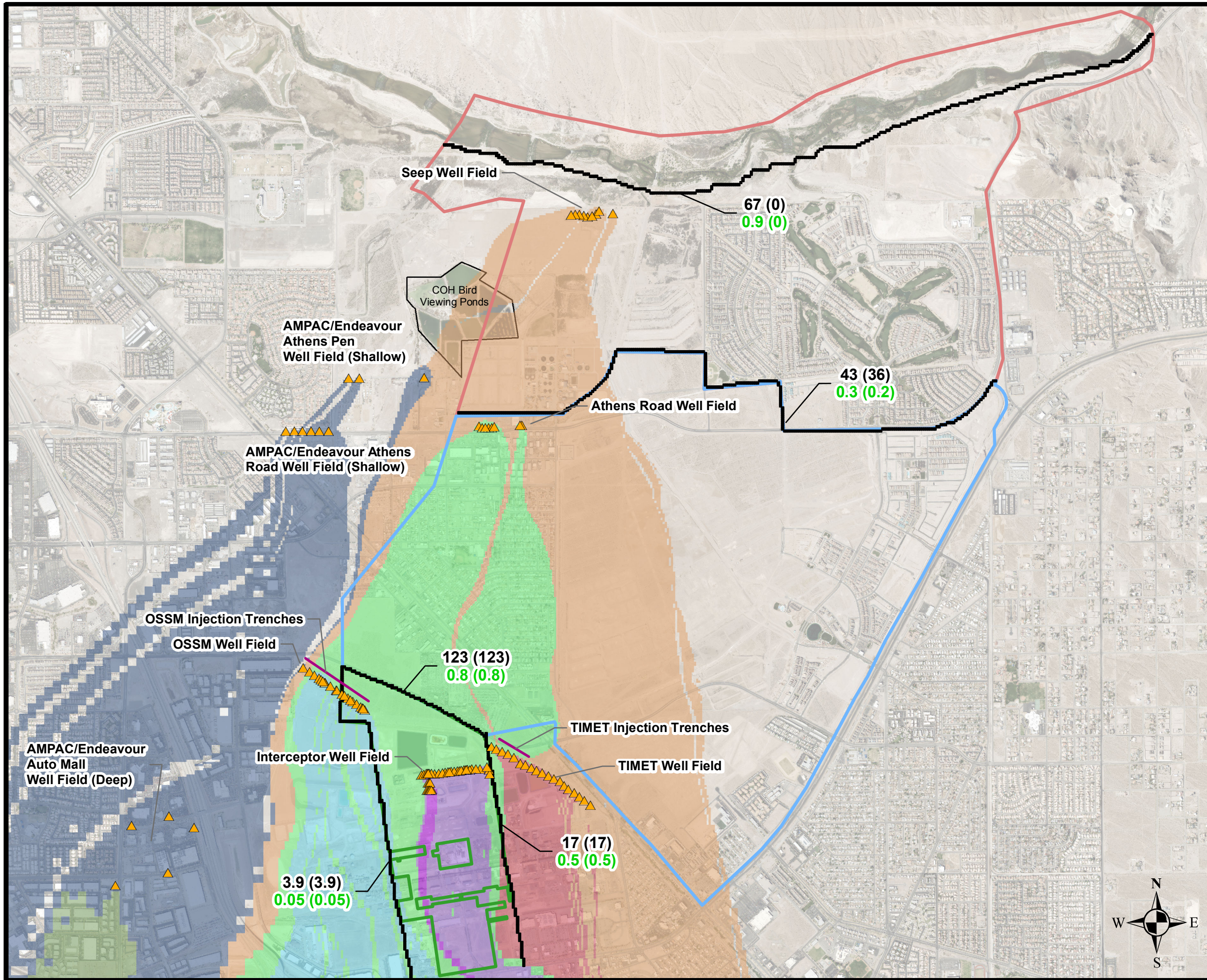
AMPAC/Endeavour = American Pacific Corporation/Endeavour LLC
 OSSM = Olin/Stauffer/Syngenta/Montrose
 TIMET = Titanium Metals Corporation
 COH = City of Henderson
 lbs/d= pounds per day



Well Field Capture Efficiency
 Nevada Environmental Response Trust Site
 Henderson, Nevada

Date: 11/5/2018	Contract Number: 1690006941-021	Figure
Drafter: AS	Approved:	Revised:
		6

Path: \\rce\p1st1\eng\ul\lePelomane\NERT\GWM\Annual Performance Reports\2018 Annual\Figures\GIS\Fig 7a- Horizontal Mass Flux Estimates_v2.mxd



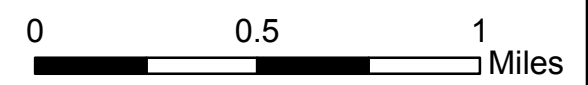
Legend

- Extraction Wells
 - Injection Trenches
 - Transect Lines
- Operable Unit Boundaries**
- OU-1
 - OU-2
 - OU-3
- Capture Zone**
- AP Area Extraction Well
 - Interceptor Well Field
 - Athens Road Well Field
 - Seep Well Field
 - OSSM Well Field
 - TIMET Well Field
 - AMPAC/Endeavour - Shallow Extraction
 - AMPAC/Endeavour - Deep Extraction

123 (123) Total (Captured) Perchlorate Mass Flux (lbs/d)

0.8 (0.8) Total (Captured) Chromium Mass Flux (lbs/d)

AMPAC/Endeavour = American Pacific Corporation/Endeavour LLC
 OSSM = Olin/Stauffer/Syngenta/Montrose
 TIMET = Titanium Metals Corporation
 COH = City of Henderson
 lbs/d= pounds per day

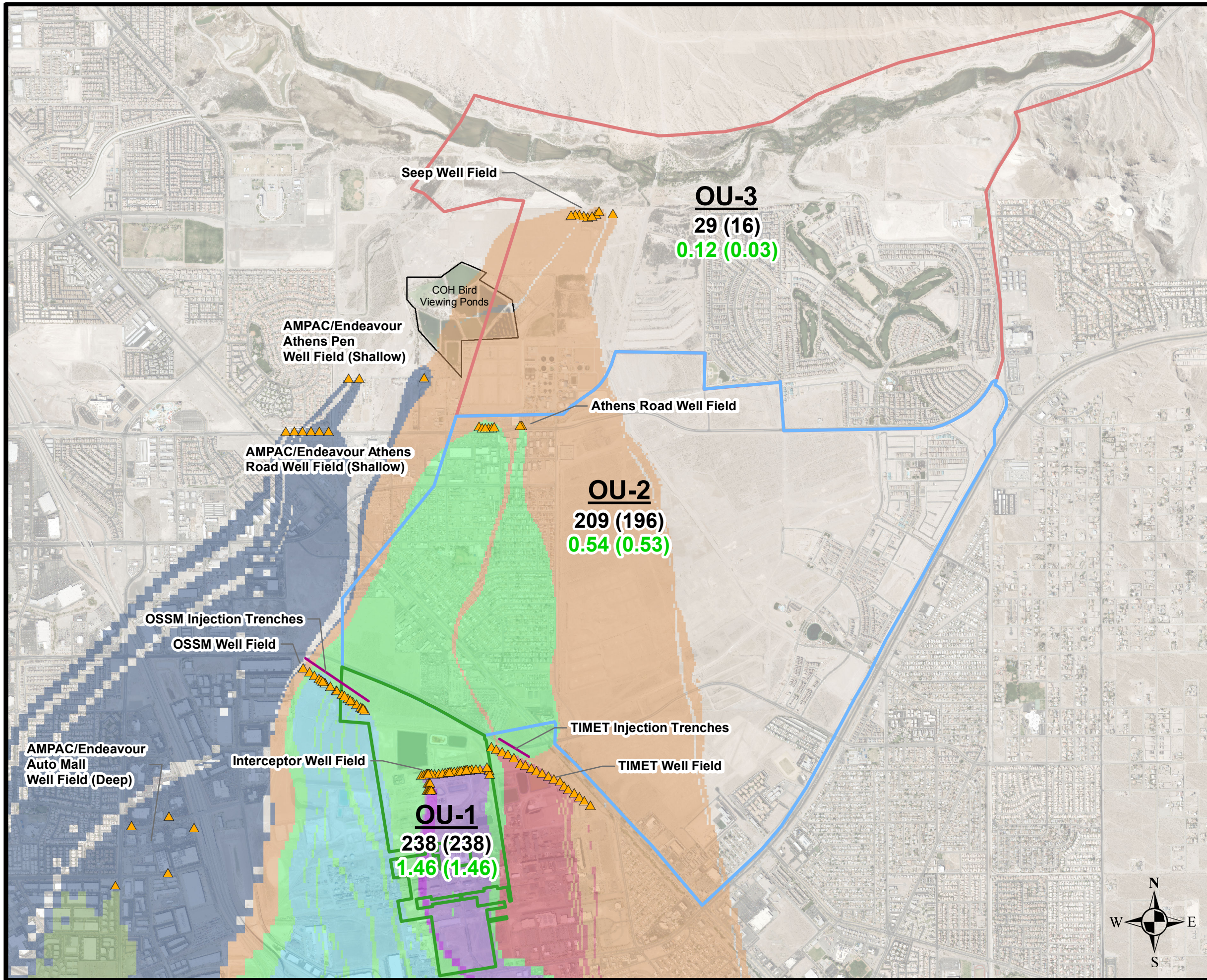


Horizontal Mass Flux Estimates
 Nevada Environmental Response Trust Site
 Henderson, Nevada

Date: 11/4/2018	Contract Number: 169006941-021	Figure
Drafter: AS	Approved:	Revised:

7a

Path: \\rce\p1st1\eng\ul\epetomane\NERT\GWA\Annual Performance Reports\2018 Annual Figures\GIS\Fig 7b - Vertical_Mass_Flux.mxd



Legend

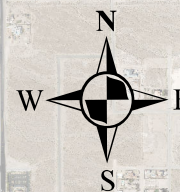
- Extraction Wells
- Injection Trenches
- Transect Lines
- Operable Unit Boundaries**
- OU-1
- OU-2
- OU-3
- Capture Zone**
- AP Area Extraction Well
- Interceptor Well Field
- Athens Road Well Field
- Seep Well Field
- OSSM Well Field
- TIMET Well Field
- AMPAC/Endeavour - Shallow Extraction
- AMPAC/Endeavour - Deep Extraction

238 (238) Total (Captured) Perchlorate Mass Flux (lbs/d)

1.46 (1.46) Total (Captured) Chromium Mass Flux (lbs/d)

AMPAC/Endeavour = American Pacific Corporation/Endeavour LLC
 OSSM = Olin/Stauffer/Syngenta/Montrose
 TIMET = Titanium Metals Corporation
 COH = City of Henderson
 lbs/d= pounds per day

Note: Positive mass flux is upward.

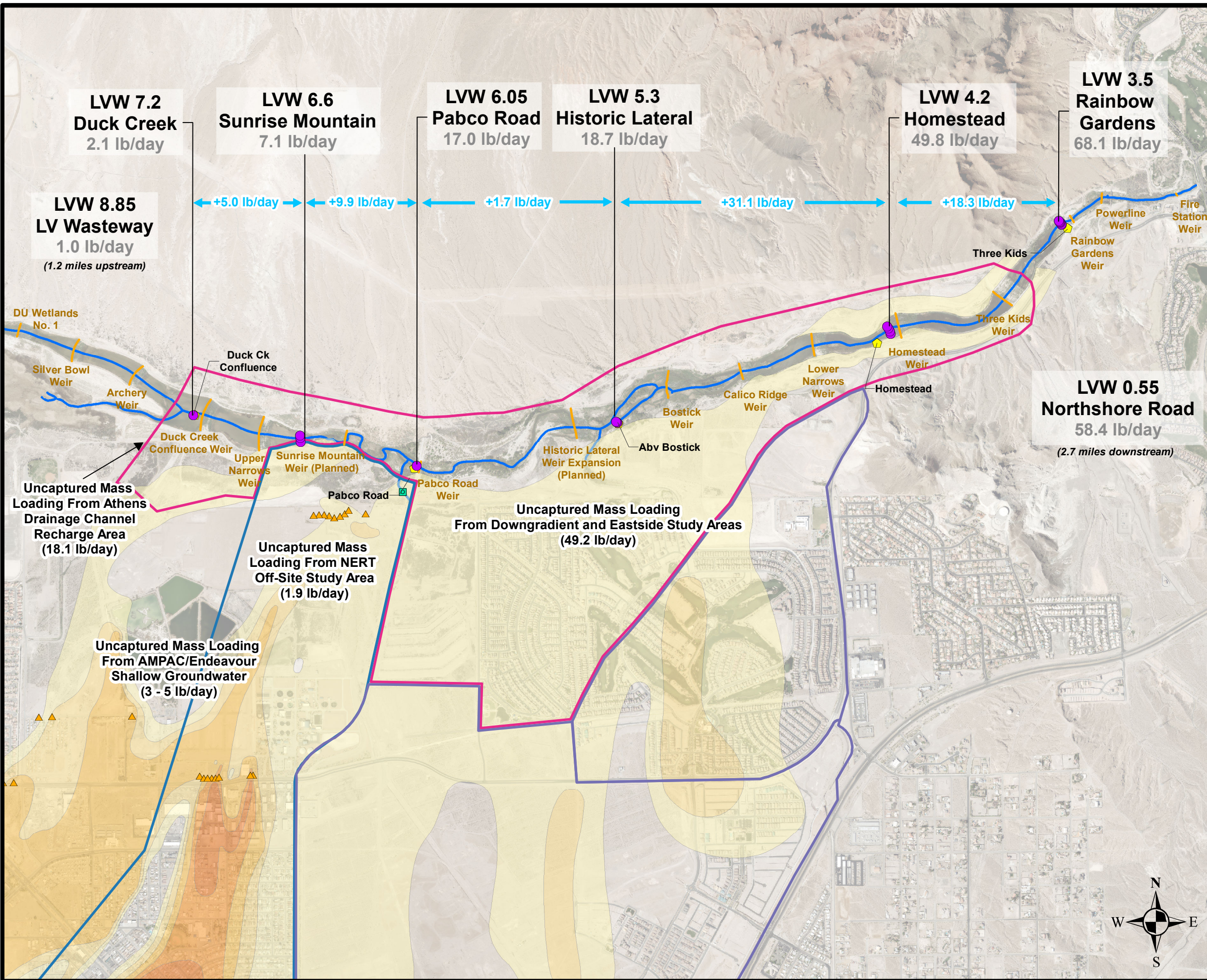


Vertical Mass Flux Estimates
 Nevada Environmental Response Trust Site
 Henderson, Nevada

Date: 11/6/2018	Contract Number: 169006941-021	Figure
Drafter: AS	Approved:	Revised:

7b

\\nce\apps\heng\LePetomane\NERT\GMM\Annual Performance Reports\2018 Annual\Figures\GIS\Fig 8a - LVW_MassLoading_July-Dec2017.mxd

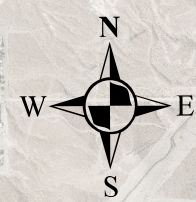
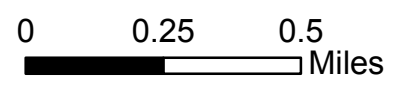


Legend

- NERT Surface Water Sample
- ◆ USGS Continuous Streamflow Location
- NERT/AMPAC/TIMET/COH Outfall Location
- ▲ Extraction Wells
- Weirs
- Las Vegas Wash
- Downgradient Study Area
- Eastside Study Area
- NERT Off-Site Study Area
- NERT Site

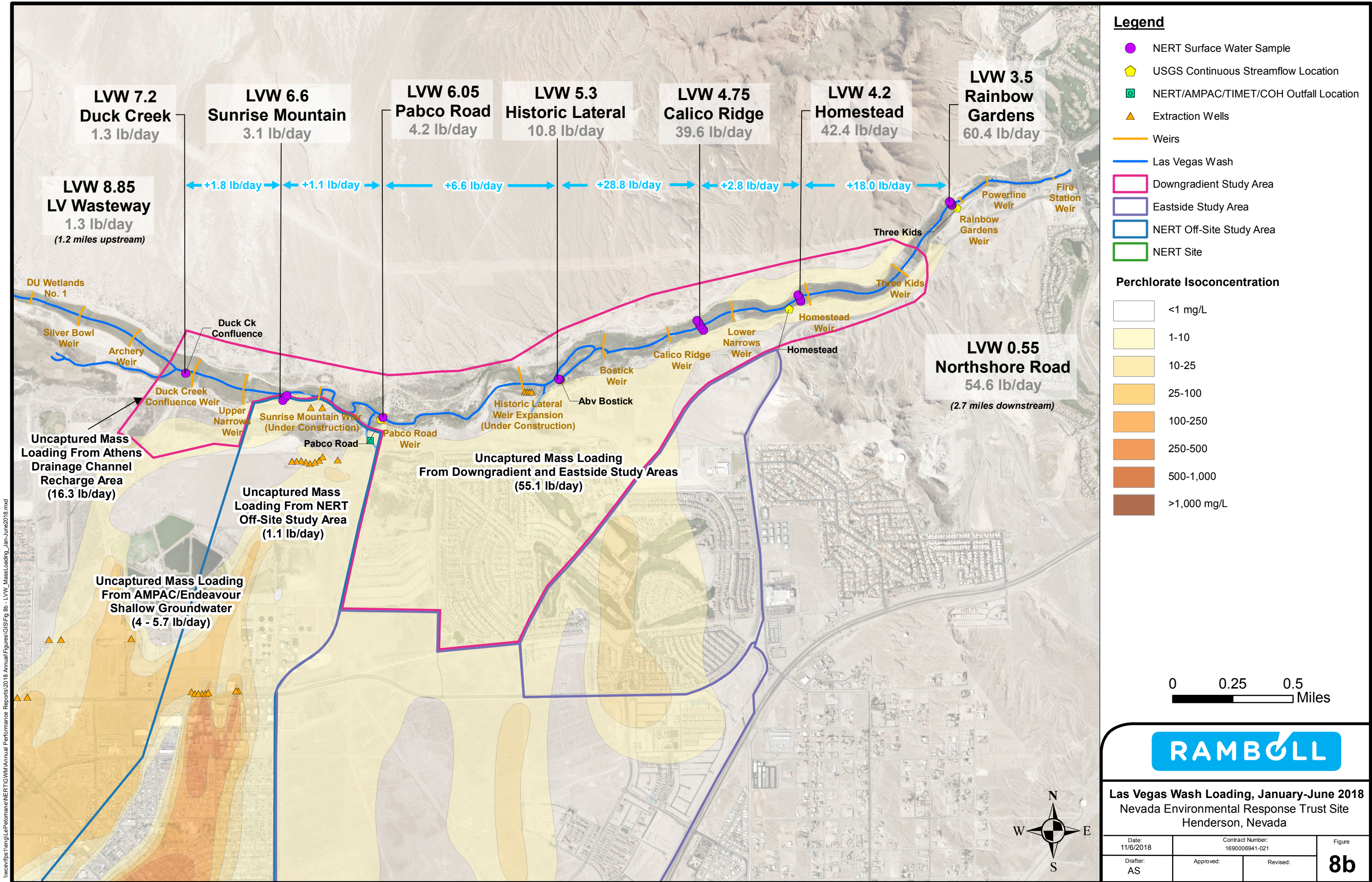
Perchlorate Isoconcentration

	<math><1\text{ mg/L}</math>
	1-10
	10-25
	25-100
	100-250
	250-500
	500-1,000
	>1,000 mg/L



Las Vegas Wash Loading, July-December 2017
 Nevada Environmental Response Trust Site
 Henderson, Nevada

Date: 11/6/2018	Contract Number: 169006941-021	Figure
Drafter: AS	Approved:	Revised:
		8a



I:\weve\pfs\ten\LePerchlorate\NERT\GIS\Annual Performance Reports\2018 Annual Figures\GIS\Fig 8b- LVW_Mass Loading_Jan-June2018.mxd

LVW 7.2
Duck Creek
1.3 lb/day

LVW 6.6
Sunrise Mountain
3.1 lb/day

LVW 6.05
Pabco Road
4.2 lb/day

LVW 5.3
Historic Lateral
10.8 lb/day

LVW 4.75
Calico Ridge
39.6 lb/day

LVW 4.2
Homestead
42.4 lb/day

LVW 3.5
Rainbow Gardens
60.4 lb/day

LVW 8.85
LV Wasteway
1.3 lb/day
(1.2 miles upstream)

LVW 0.55
Northshore Road
54.6 lb/day
(2.7 miles downstream)

Uncaptured Mass Loading From Athens Drainage Channel Recharge Area
(16.3 lb/day)

Uncaptured Mass Loading From NERT Off-Site Study Area
(1.1 lb/day)

Uncaptured Mass Loading From AMPAC/Endeavour Shallow Groundwater
(4 - 5.7 lb/day)

Uncaptured Mass Loading From Downgradient and Eastside Study Areas
(55.1 lb/day)

+1.8 lb/day

+1.1 lb/day

+6.6 lb/day

+28.8 lb/day

+2.8 lb/day

+18.0 lb/day