

VRP Sixth Semi-Annual Progress Report  
(PR-6)

Metalplate Galvanizing Facility  
505 Selig Drive, SW  
Atlanta, Fulton County, Georgia 30336

HSI No. 10204

Tax Parcel 14F-0082-LL-0346

Submitted:

February 18, 2014

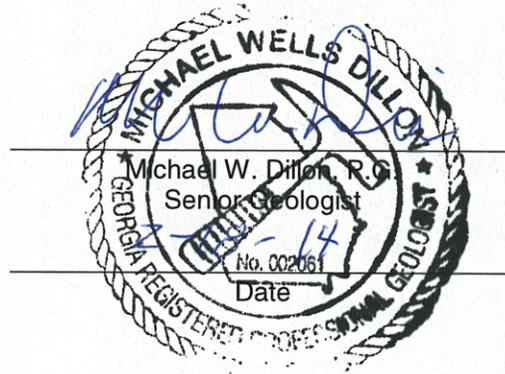
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## CERTIFICATION

*I certify that I am a qualified ground-water scientist who has received a baccalaureate or post-graduate degree in the natural sciences or engineering, and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, that enable me to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that this report was prepared by myself or by a subordinate working under my direction.*



## 1.0 INTRODUCTION

### 1.1 Executive Summary

On November 18, 2013, Metalplate Galvanizing received EPD's November 8, 2013 letter (Appendix A) that followed up Metalplate's July 8, 2013 meeting with the Director and October 21, 2013 meeting with EPD personnel and also provided comments on Metalplate's Third, Fourth, and Fifth Semi-Annual Progress Report, referred to as PR-3, PR-4, and PR-5 respectively. The purpose of these meetings was to discuss Metalplate's commitment to installing an industry-leading, state-of-the-art stormwater treatment system and—given the system's potential to positively affect conditions possibly relevant under the VRP—the impact of that commitment on the appropriate timing of VRP-related obligations.

In addition to some technical comments, EPD's letter provided a proposed schedule for Compliance Status Report submission. Metalplate provided a December 18, 2013 response letter (Appendix B) indicating the company's general agreeability to the proposed schedule, providing additional constructive detail on evaluative work to be performed, and sharing feedback on EPD's technical comments. Since submitting this response, Metalplate has not received any additional feedback from EPD. Thus, Metalplate is proceeding at the Site in accordance with the EPD November 8, 2013 letter and Metalplate's December 18, 2013 letter.

This Progress Report (PR-6) summarizes Site status in light of this correspondence. PR-6 also summarizes the semi-annual groundwater monitoring report (Appendix C).

### 1.2 General Introduction

Metalplate Galvanizing, L.P. (Metalplate) received approval for the Voluntary Investigation and Remediation Plan and Application from the Georgia Environmental Protection Division (EPD) on February 14, 2011.

The purpose of each semiannual progress report is to describe actions taken since the last submittal. The background of the site, including site location, surrounding area, site description, and site history are documented in the semiannual groundwater monitoring report, Appendix C.

## 2.0 ACTIONS TAKEN SINCE LAST SUBMITTAL

### 2.1 Semiannual Groundwater Report

The conclusions of the semiannual groundwater monitoring/corrective action effectiveness report, February 18, 2014, Appendix C of this report, are:

- Groundwater flow at the site is generally toward the southeast with a hydraulic gradient of approximately 0.034 feet per foot and a flow velocity of approximately 59.0 feet per year.
- During the October 2013 groundwater monitoring event total zinc concentrations did not exceed the Type 4 RRS (31 mg/L) at any sampling point. The horizontal extent of total zinc in groundwater is defined in all directions.
- Concentrations of total zinc in groundwater decreased to below the Type 4 RRS following corrective action and have stabilized. Total zinc concentrations in the area of the outwash (MW-2 and MW-13D) increased slightly following corrective

action, but since corrective action, MW-13D has never exceeded Type 4 RRS, and MW-2 has been below Type 4 RSS with the exception of two occasions.

- Effectiveness of the corrective action will continue to be monitored during annual sampling events.

See Appendix C.

## 2.2 EPD Comment Letter dated November 8, 2013

EPD's comment letter enclosed "Proposed Milestone Dates for Project Implementation" as a schedule for CSR submission. Under that schedule, Metalplate would evaluate Selig Pond sediments in parallel with evaluating the benefits of the stormwater management system and also engage in refined surface water and groundwater sampling and elevation gauging efforts. As Metalplate indicated in its December 18, 2013 response, the company is generally agreeable to EPD's schedule, and Metalplate made specific proposals on what the sediment analysis should entail and on how to conduct the requested stormwater and groundwater sampling and gauging. Given the apparent conceptual agreement on these items, Metalplate is moving forward at the Site on the schedule sent by EPD and in accordance with the additional detail provided in Metalplate's response.

EPD's comment letter also provided a few other comments. On some, Metalplate agreed and, on others, Metalplate provided feedback. For the sake of completeness in this Progress Report, the following bullets note the areas on which Metalplate provided feedback with a view toward additional dialogue (the full comments and responses are attached in Appendices A and B).

- Metalplate proposes a field visit with EPD staff to review the appropriateness of and, if necessary, a feasible location for an additional MW-3 replacement well.
- Metalplate believes Utoy Creek data is relevant only if Utoy Creek is the point of compliance for surface water conditions under the VRP, and the company would be willing to collect the requested sampling data from Utoy Creek on that basis.
- Metalplate is aware of the potential nuances posed by the property currently owned by Aston Investment Corporation.

Finally, Metalplate's response documented the company's belief that a consent order is not needed to implement EPD's schedule and memorialized EPD's concurrence that vertical delineation is satisfied at the Site.

## 3.0 RESPONSE TO OUTSTANDING CONDITIONS IN THE APPROVAL LETTER, FEBRUARY 14, 2011

### 3.1 Cost Estimate and Financial Assurance (Condition 1)

See Section 2.2.5 of PR-5.

### 3.2 EPD Comment Letter dated February 14, 2011 (Condition 2)

The following addresses the items in the comment letter of February 14, 2011.

- 3.2.1 Conceptual Site Model, potential migration of contamination (Item 1)  
– Complete. See PR-4, Section 4.2.1. Because this comment has

been addressed completely, discussion of it will be removed from future PRs.

- 3.2.2 Conceptual Site Model, surface water data (Item 2) – See PR-4, Section 2.1; PR-3, Section 2.3. Further, as described in Metalplate's December 18, 2013 letter to EPD (Appendix B), this comment's discussion of Utoy Creek is the comment's only aspect not addressed by Metalplate's plan to sample and gauge surface water in connection with installing and operating the storm water management system. Metalplate believes Utoy Creek data is relevant only if Utoy Creek is the point of compliance for surface water conditions under the VRP. Metalplate would be willing to collect the requested sampling data from Utoy Creek on that basis.
  - 3.2.3 Conceptual Site Model, impact of contaminated groundwater on surface water concentrations (Item 3) – See PR-4, Sections 2.1 and 2.3. Further, as described in Metalplate's December 18, 2013 letter to EPD (Appendix B), the need to address sediments cannot be fully known before the benefits of an operational storm water management system are evaluated, but it is clear to Metalplate that EPD would like sediments to be further characterized as described in PR-4 on the schedule included with the EPD's November 8 comment letter. Metalplate is generally agreeable to this approach and will move forward on that basis.
  - 3.2.4 Soil, continuation with corrective action on tax parcel ID 14-0059-LL-017, Aston Investments Property (Item 4) – As described in Metalplate's December 18, 2013 letter to EPD (Appendix B), Metalplate is aware of the potential nuances posed by the property currently owned by Aston Investments Corp. See, e.g., PR-5 § 2.2.6; PR-4 § 2.4.6; PR-3 § 2.1.6.
  - 3.2.5 Soil, off-property areas exceeding resident RRS for soil (Item 5) – Complete. See PR-1. Because this comment has been addressed completely, discussion of it will be removed from future PRs.
  - 3.2.6 Soil, zinc in soil concentration criteria (Item 6) – Complete. See PR-1. Because this comment has been addressed completely, discussion of it will be removed from future PRs.
  - 3.2.7 Groundwater, vertical delineation of the groundwater plume (Item 7) – Complete. As documented in Metalplate's December 18, 2013 letter to EPD (Appendix B), EPD has concurred that the vertical delineation requirement is satisfied. Because this comment has been addressed completely, discussion of it will be removed from future PRs.
  - 3.2.8 Groundwater, additional monitoring well in the vicinity of the detention basin (Item 8) – Metalplate is modifying its storm water management pond system as part of its strategy to improve the quality of its storm water discharge. When the modifications are complete, the potential for such a monitoring well will be evaluated.
- 3.3 Notice to Withdraw (Condition 3)

Metalplate is aware of EPD's indication that it expects submission of a corrective action plan that complies with the requirements of the Hazardous

Site Response Act and associated rules of Hazardous Site Response within 90 days of a submission of notice to withdraw or termination by the Director.

3.4 Payment of Fees (Condition 4)

Metalplate has paid all outstanding fees within sixty days of receipt of an invoice for any costs to the division in reviewing the application or subsequent document that exceeds the initial application fee. The last invoice was paid on November 8, 2013 for the amount of \$3,975.00.

3.5 Investigation of off-site property (Condition 5)

As described in Metalplate's December 18, 2013 letter to EPD (Appendix B), Metalplate is aware of the potential nuances posed by the property currently owned by Aston Investments Corp. See also PR-5 § 2.2.6; PR-4 § 2.4.6; PR-3 § 2.1.6.

4.0 STATUS OF FUTURE REQUIREMENTS

4.1 Progress reports annually through February 14, 2019, as provided in the "Proposed Milestone Dates for Project Implementation" included with EPD's November 8 comment letter.

4.2 Implement actions described in Proposed Milestone Dates for Project Implementation.

4.3 February 14, 2019 – Date provided in Proposed Milestone Dates for Project Implementation for compliance status report.

5.0 RESPONSE TO SLERA NOTICE OF DEFICIENCY, FEBRUARY 14, 2011

Complete. See PR-4. Because this letter has been addressed completely, discussion of it will be removed from future PRs.

6.0 PROJECT SCHEDULE

A copy of the current project schedule is included in Table 2.

7.0 COST SUMMARY

7.1 VRP Cost

Table 1 summarizes the monthly invoiced services related to the VRP as follows:

VRP effort prior to approval (pre February 2011)	\$ 46,321.07
VRP project since approval (post February 2011)	<u>\$ 317,208.30</u>

Total VRP-related Cost	\$363,529.37
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7.2 Total Project Cost

The total project cost to date (Initial HSI listing through January 31, 2014)	\$1,005,530.80
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## TABLES

TABLE 1

SUMMARY OF INVOICED SERVICES

**Table 1**  
**Metalplate Galvanizing Facility**  
**Cost Summary as of January 31, 2014**

Month/Yr	Engineering/ Testing	Legal	Administrative (EPD)		
February-10	\$270.00	\$0.00	\$0.00		
March-10	\$0.00	\$1,827.50	\$0.00		
April-10	\$0.00	\$127.50	\$0.00		
May-10	\$0.00	\$297.50	\$0.00		
June-10	\$0.00	\$1,105.00	\$0.00		
July-10	\$13,792.75	\$7,737.50	\$0.00		
August-10	\$2,012.84	\$7,225.00	\$761.72		
September-10	\$598.03	\$319.17	\$761.72		
October-10	\$598.03	\$319.17	\$761.72		
November-10	\$598.03	\$319.17	\$761.72		
December-10	\$733.03	\$2,550.00	\$761.72		
January-11	\$598.03	\$722.50	\$761.72	<b>VRP application (pre-approval)</b>	<b>TOTAL</b>
				<b>February 2010 - January 2011</b>	<b>\$46,321.07</b>
February-11	\$4,511.36	\$3,976.25	\$761.72		
March-11	\$11,788.22	\$3,976.25	\$761.72		
April-11	\$32,289.66	\$5,716.46	\$0.00		
May-11	\$19,003.59	\$10,322.50	\$0.00		
June-11	\$2,010.00	\$3,488.75	\$0.00		
July-11	\$2,160.00	\$0.00	\$0.00		
August-11	\$15,638.23	\$4,707.50	\$0.00		
September-11	\$2,913.51	\$7,052.24	\$75.00		
October-11	\$4,399.51	\$9,980.95	\$225.00		
November-11	\$10,182.56	\$6,552.50	\$225.00		
December-11	\$2,621.82	\$0.00	\$225.00		
January-12	\$1,302.50	\$430.00	\$28.13		
February-12	\$2,101.03	\$632.50	\$28.13		
March-12	\$945.00	\$1,310.00	\$28.13		
April-12	\$12,260.35	\$2,177.50	\$28.13		
May-12	\$3,078.60	\$82.50	\$581.25		
June-12	\$8,595.00	\$4,231.35	\$581.25		
July-12	\$10,650.00	\$4,231.35	\$581.25		
August-12	\$17,828.71	\$5,458.55	\$581.25		
September-12	\$2,222.50	\$0.00	\$283.93		
October-12	\$25.00	\$0.00	\$283.93		
November-12	\$0.00	\$0.00	\$283.93		
December-12	\$0.00	\$330.00	\$283.93		
January-13	\$1,244.33	\$275.00	\$283.93		
February-13	\$21,794.86	\$7,135.00	\$283.93		
March-13	\$4,995.00	\$0.00	\$283.93		
April-13	\$0.00	\$0.00	\$283.93		
May-13	\$270.00	\$0.00	\$283.93		
June-13	\$135.00	\$0.00	\$283.93		
July-13	\$0.00	\$2,197.50	\$283.93		
August-13	\$1,147.50	\$860.00	\$283.93		
September-13	\$7,482.40	\$5,345.00	\$283.93		
October-13	\$1,012.50	\$226.47	\$283.93		
November-13	\$135.00	\$2,590.00	\$0.00		
December-13	\$4,737.50	\$1,077.50	\$0.00	<b>VRP Project (post-approval)</b>	<b>TOTAL</b>
January-14	\$337.50	\$4,340.00	\$0.00	<b>February 2011 - January 2014</b>	<b>\$317,208.30</b>

<b>Total VRP-Related Cost</b>	<b>\$363,529.37</b>
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<b>Project Cost From Initial HSI Listing (1994) thru July '13</b>	<b>TOTAL \$1,005,530.80</b>
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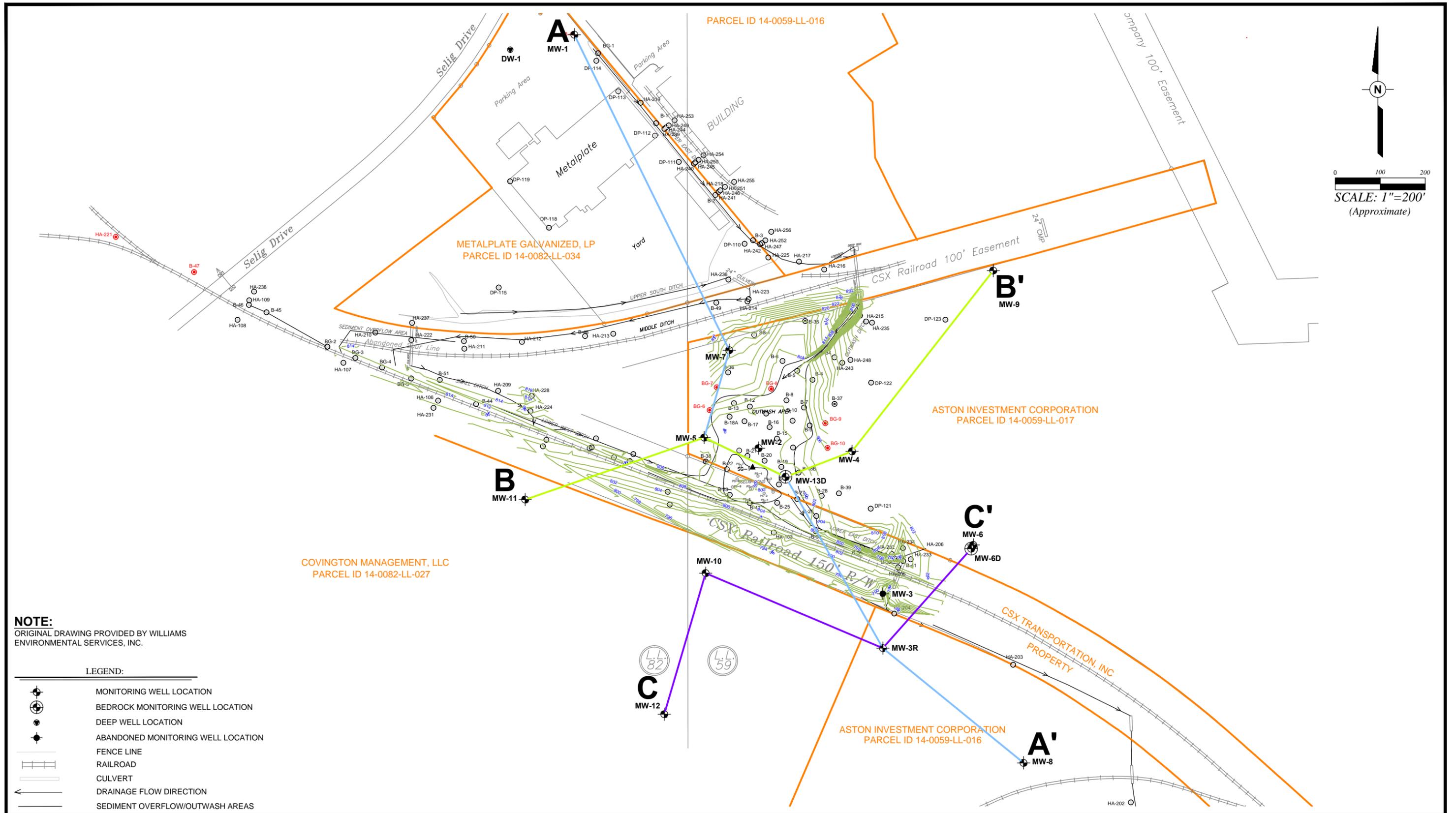
TABLE 2  
PROJECT SCHEDULE

**TABLE 2**  
**EPD Proposed Milestone Dates for Project Implementation**  
**Metalplate Galvanizing Facility, HSI 10204**  
**November 8, 2013**

Projected Date	Area	Action
<b>2014</b>		
February 14, 2014	VRP	Progress Report ( <b>PR-6</b> ) with results of October 2013 sampling event.
April 2014	Sampling	Limited sampling: surface water sampling and surface water/groundwater elevation measurements (No groundwater sampling).
October 2014	Sampling	Groundwater and surface water sampling with groundwater/surface water elevation measurements. [Baseline groundwater and surface water sampling event before start-up date of storm water treatment system].
<b>2015</b>		
February 14, 2015	VRP	Progress Report ( <b>PR-7</b> ). Should include April event and baseline groundwater and surface water sampling event.
April 2015	VRP	Sediment evaluation as per CSM in PR-4.
August 22, 2015	SW	IGP SW Effluent limit requirements effective.
October 2015	Sampling	Post Implementation Sampling Event #1 (groundwater and surface water sampling with elevation measurements).
<b>2016</b>		
February 14, 2016	VRP	( <b>PR-8</b> ). Should include results of sediment evaluation.
October 2016	Sampling	Post Implementation Sampling Event #2 (groundwater and surface water sampling with elevation measurements).
<b>2017</b>		
February 14, 2017	VRP	( <b>PR-9</b> ). Should include an evaluation of Corrective Action and submittal of Final Remedial Implementation Plan.
October 2017	Sampling	Post Implementation Sampling Event #3 (groundwater and surface water sampling with elevation measurements).
<b>2018</b>		
February 14, 2018	VRP	( <b>PR-10</b> ). Should include an evaluation of Corrective Action progress.
October 2018	Sampling	Post Implementation Sampling Event #4.
<b>2019</b>		
February 14, 2019	VRP-CSR	Submittal of VRP CSR certifying compliance with all applicable cleanup standards.

*Note: Post-implementation sampling and reporting schedule subject to effectiveness of the stormwater treatment system and sediment/groundwater evaluation results. If, prior to February 2017, the data shows that additional corrective action will be necessary, the Final Remedial Plan submittal date shall be moved up accordingly.*

## FIGURES



**NOTE:**  
ORIGINAL DRAWING PROVIDED BY WILLIAMS ENVIRONMENTAL SERVICES, INC.

**LEGEND:**

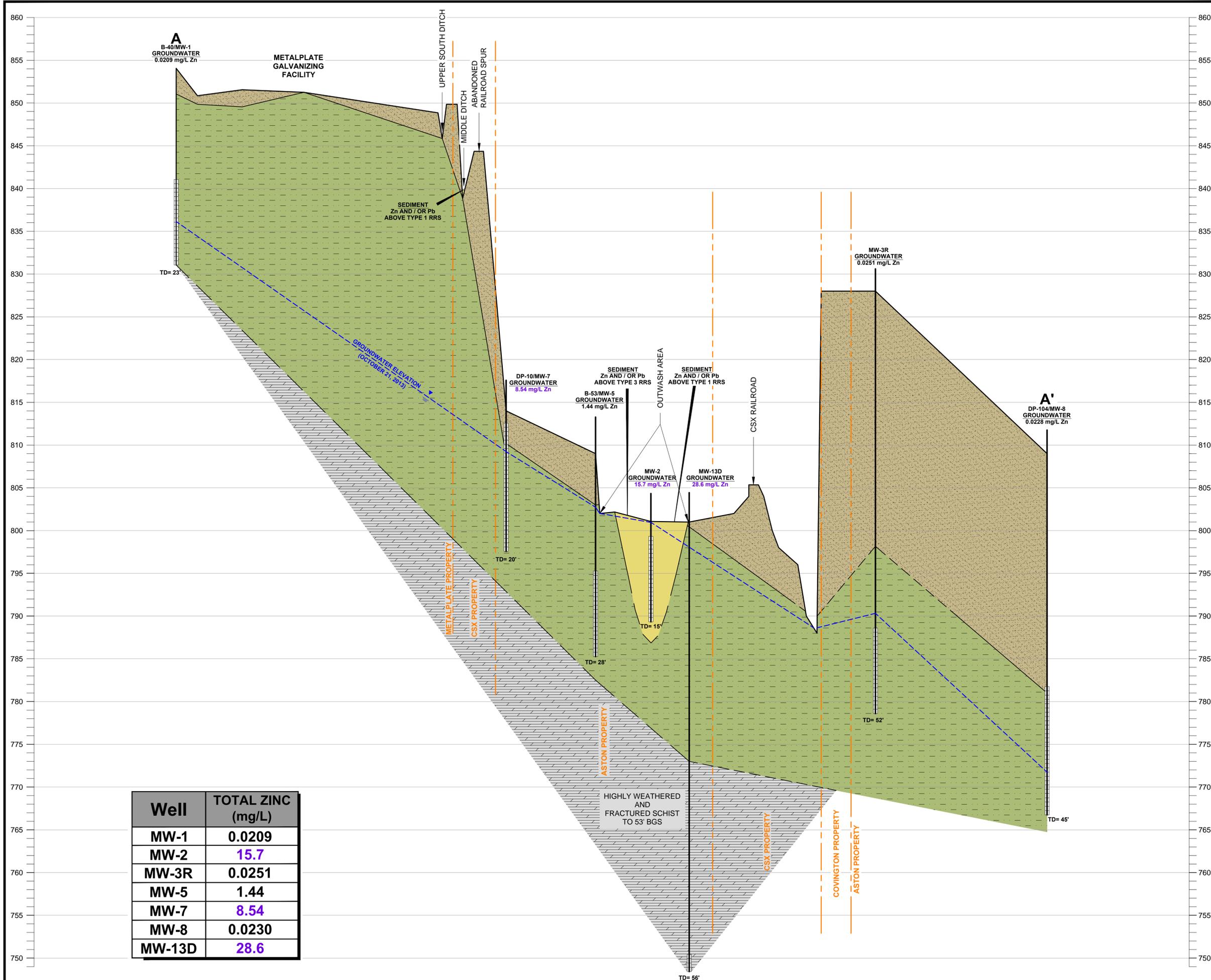
	MONITORING WELL LOCATION
	BEDROCK MONITORING WELL LOCATION
	DEEP WELL LOCATION
	ABANDONED MONITORING WELL LOCATION
	FENCE LINE
	RAILROAD
	CULVERT
	DRAINAGE FLOW DIRECTION
	SEDIMENT OVERFLOW/OUTWASH AREAS

<b>PPM</b> PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 2/11/14
PROJECT NUMBER: 494501	BILLING GROUP: PR6

**METALPLATE GALVANIZING, L.P.**  
**METALPLATE FACILITY/SELIG POND**  
505 SELIG DRIVE SW  
ATLANTA, GEORGIA

SITE MAP

FIGURE NUMBER  
**1**



Well	TOTAL ZINC (mg/L)
MW-1	0.0209
MW-2	15.7
MW-3R	0.0251
MW-5	1.44
MW-7	8.54
MW-8	0.0230
MW-13D	28.6

**Notes:**  
 1. UPPER CONTACT LINES SHOW GENERALIZED SURFACE TOPOGRAPHY.  
 2. REFER TO FIGURE 1 FOR LOCATION OF CROSS-SECTION LINES.

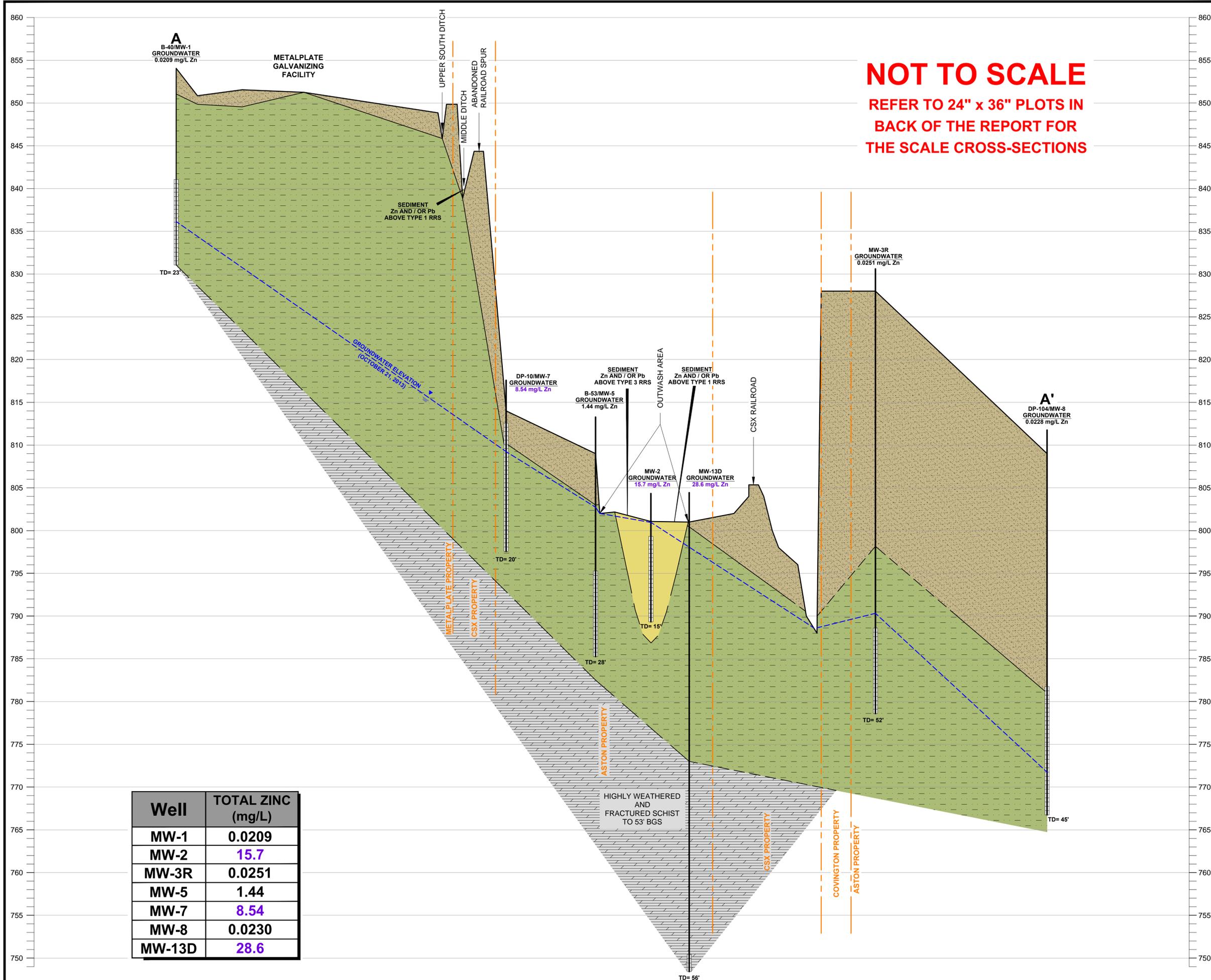
**LEGEND:**

- B-40/MW-1** SOIL BORING/MONITORING WELL LOCATION
- SEDIMENT
- NATURAL UNCONSOLIDATED SOIL OR FILL MATERIAL
- CLAYEY SILT SAPROLITE
- BEDROCK
- TD= 23' TOTAL DEPTH (ft.)
- 15.7 mg/L Zn PURPLE CONCENTRATION INDICATES ABOVE TYPE 3 RRS
- SCREENED INTERVAL
- RRS RISK REDUCTION STANDARD

HORIZ. SCALE: 1"=100'  
 VERT. SCALE: 1"=5'  
 VERT. EXAGGERATION: x20

**METALPLATE GALVANIZING, L.P.**  
 METALPLATE FACILITY/SELIG POND  
 505 SELIG DRIVE SW  
 ATLANTA, GEORGIA

CONCEPTUAL SITE MODEL - CROSS-SECTION A-A'



**NOT TO SCALE**  
 REFER TO 24" x 36" PLOTS IN  
 BACK OF THE REPORT FOR  
 THE SCALE CROSS-SECTIONS

Well	TOTAL ZINC (mg/L)
MW-1	0.0209
MW-2	15.7
MW-3R	0.0251
MW-5	1.44
MW-7	8.54
MW-8	0.0230
MW-13D	28.6

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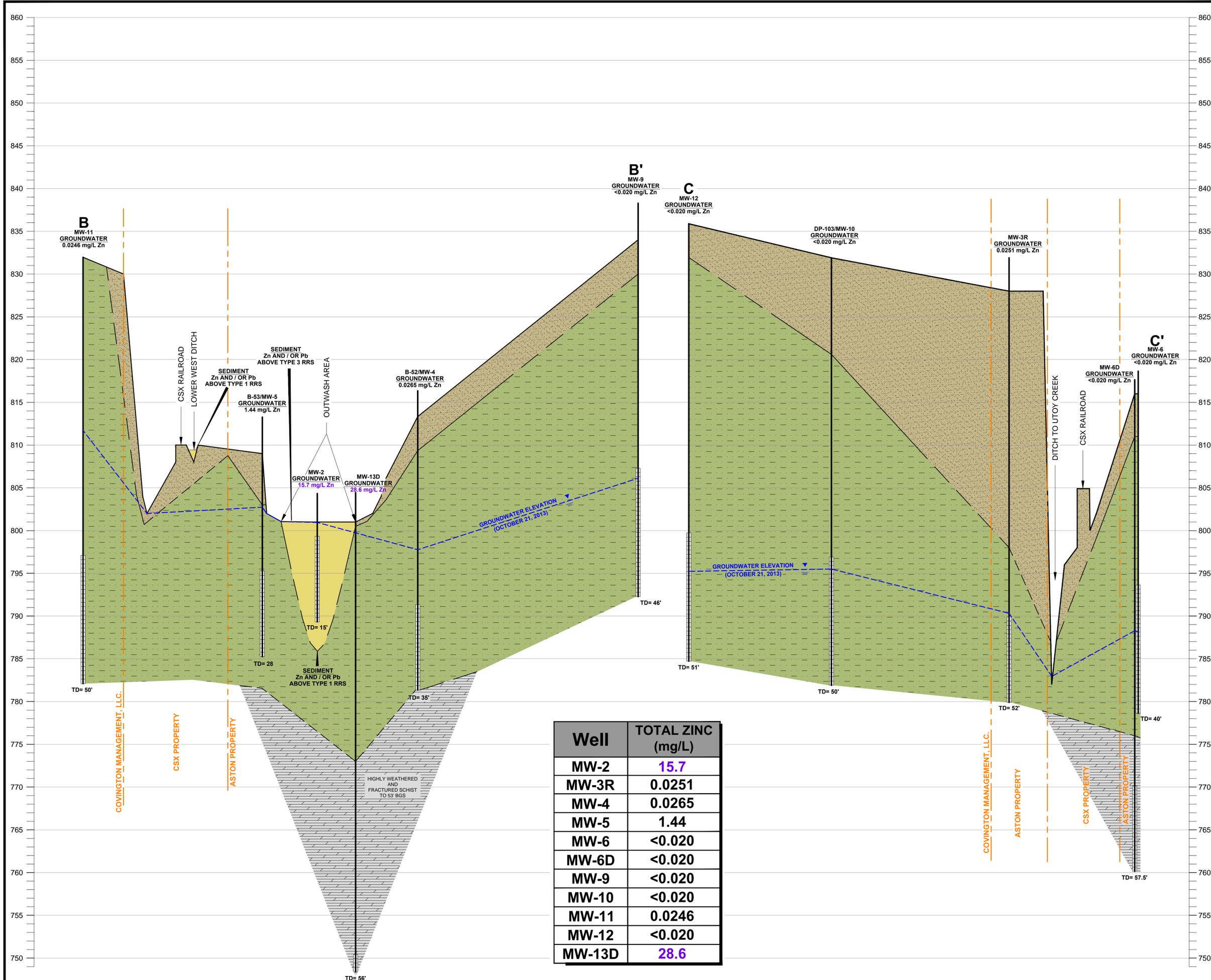
**LEGEND:**

- B-40/MW-1 SOIL BORING/MONITORING WELL LOCATION
- SEDIMENT
- NATURAL UNCONSOLIDATED SOIL OR FILL MATERIAL
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HORIZ. SCALE: 1"=100'  
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 VERT. EXAGGERATION: x20

**METALPLATE GALVANIZING, L.P.**  
 METALPLATE FACILITY/SELIG POND  
 505 SELIG DRIVE SW  
 ATLANTA, GEORGIA

CONCEPTUAL  
 SITE MODEL -  
 CROSS-SECTION  
 A-A'



**Notes:**  
 1. UPPER CONTACT LINES SHOW GENERALIZED SURFACE TOPOGRAPHY.  
 2. REFER TO FIGURE 1 FOR LOCATION OF CROSS-SECTION LINES.

**LEGEND:**

- MW-11 MONITORING WELL LOCATION
- SEDIMENT
- NATURAL UNCONSOLIDATED SOIL OR FILL MATERIAL
- CLAYEY SILT SAPROLITE
- BEDROCK
- TD= 50' TOTAL DEPTH (ft.)
- 15.7 mg/L Zn PURPLE CONCENTRATION INDICATES ABOVE TYPE 3 RRS
- SCREENED INTERVAL
- RRS RISK REDUCTION STANDARD

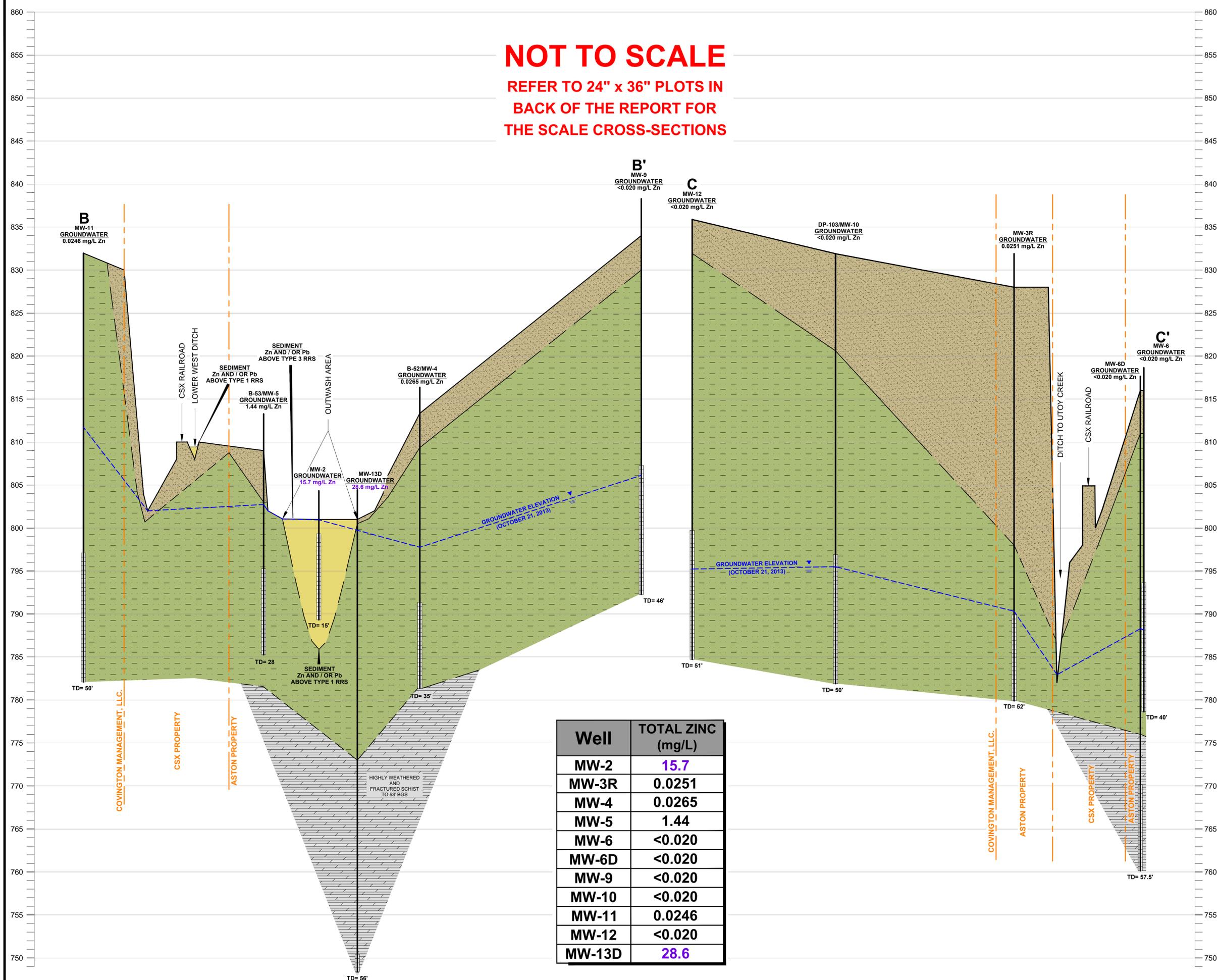
HORIZ. SCALE: 1"=100'  
 VERT. SCALE: 1"=5'  
 VERT. EXAGGERATION: x20

**METALPLATE GALVANIZING, L.P.**  
 METALPLATE FACILITY/SELIG POND  
 505 SELIG DRIVE SW  
 ATLANTA, GEORGIA

**CONCEPTUAL SITE MODEL - CROSS-SECTION B-B' AND C-C'**

Well	TOTAL ZINC (mg/L)
MW-2	15.7
MW-3R	0.0251
MW-4	0.0265
MW-5	1.44
MW-6	<0.020
MW-6D	<0.020
MW-9	<0.020
MW-10	<0.020
MW-11	0.0246
MW-12	<0.020
MW-13D	28.6

**NOT TO SCALE**  
**REFER TO 24" x 36" PLOTS IN**  
**BACK OF THE REPORT FOR**  
**THE SCALE CROSS-SECTIONS**



**Notes:**  
 1. UPPER CONTACT LINES SHOW GENERALIZED SURFACE TOPOGRAPHY.  
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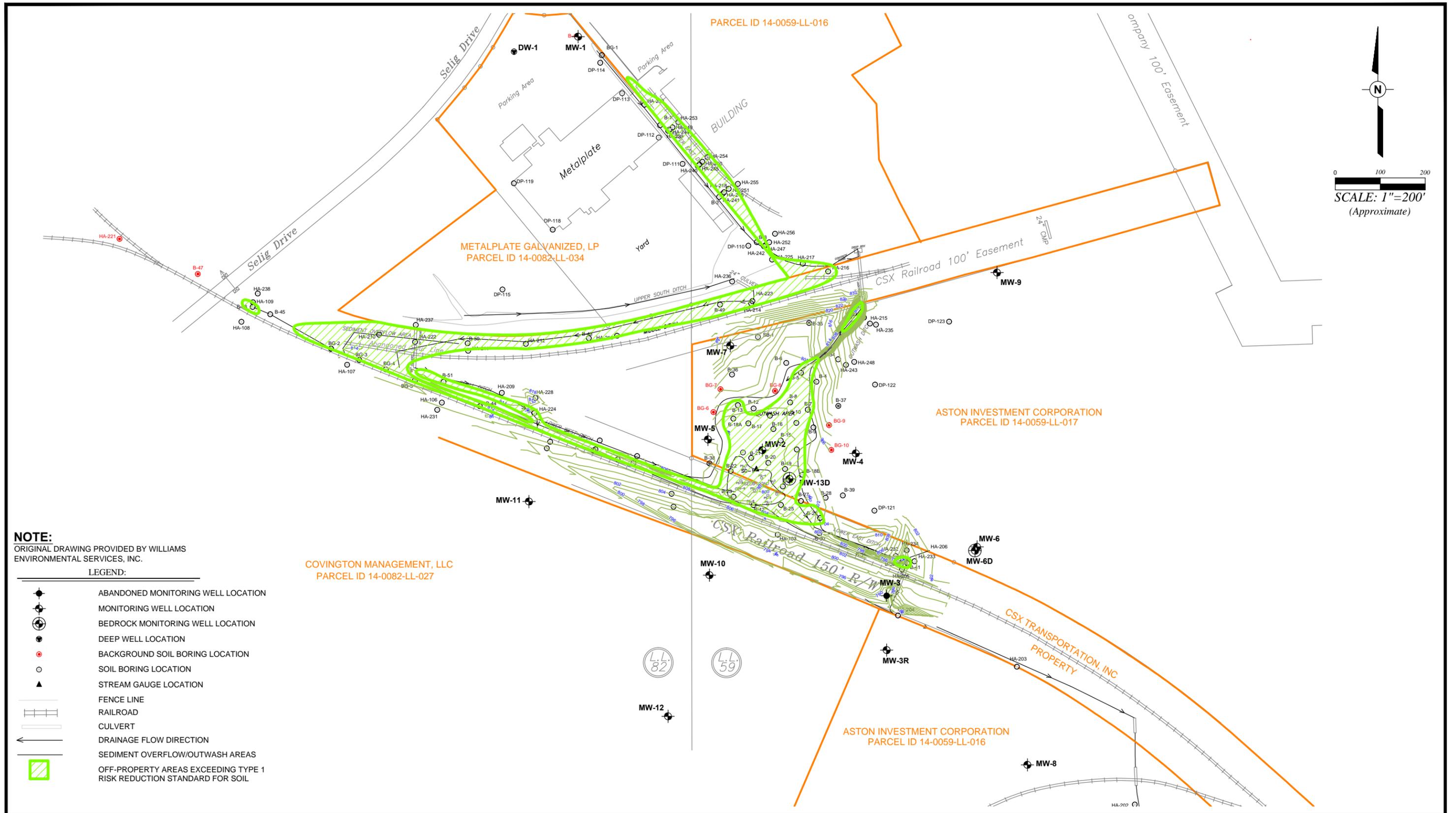
- MW-11 MONITORING WELL LOCATION
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- CLAYEY SILT SAPROLITE
- BEDROCK
- TD= 50' TOTAL DEPTH (ft.)
- 15.7 mg/L Zn PURPLE CONCENTRATION INDICATES ABOVE TYPE 3 RRS
- SCREENED INTERVAL
- RRS RISK REDUCTION STANDARD

HORIZ. SCALE: 1"=100'  
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 VERT. EXAGGERATION: x20

**METALPLATE GALVANIZING, L.P.**  
 METALPLATE FACILITY/SELIG POND  
 505 SELIG DRIVE SW  
 ATLANTA, GEORGIA

**CONCEPTUAL SITE MODEL - CROSS-SECTION B-B' AND C-C'**

Well	TOTAL ZINC (mg/L)
MW-2	15.7
MW-3R	0.0251
MW-4	0.0265
MW-5	1.44
MW-6	<0.020
MW-6D	<0.020
MW-9	<0.020
MW-10	<0.020
MW-11	0.0246
MW-12	<0.020
MW-13D	28.6



**NOTE:**  
ORIGINAL DRAWING PROVIDED BY WILLIAMS ENVIRONMENTAL SERVICES, INC.

- LEGEND:**
- ABANDONED MONITORING WELL LOCATION
  - MONITORING WELL LOCATION
  - BEDROCK MONITORING WELL LOCATION
  - DEEP WELL LOCATION
  - BACKGROUND SOIL BORING LOCATION
  - SOIL BORING LOCATION
  - STREAM GAUGE LOCATION
  - FENCE LINE
  - RAILROAD
  - CULVERT
  - DRAINAGE FLOW DIRECTION
  - SEDIMENT OVERFLOW/OUTWASH AREAS
  - OFF-PROPERTY AREAS EXCEEDING TYPE 1 RISK REDUCTION STANDARD FOR SOIL

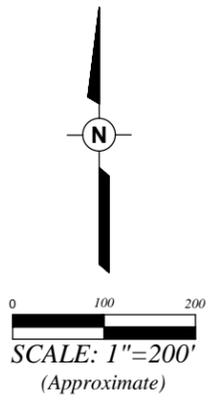
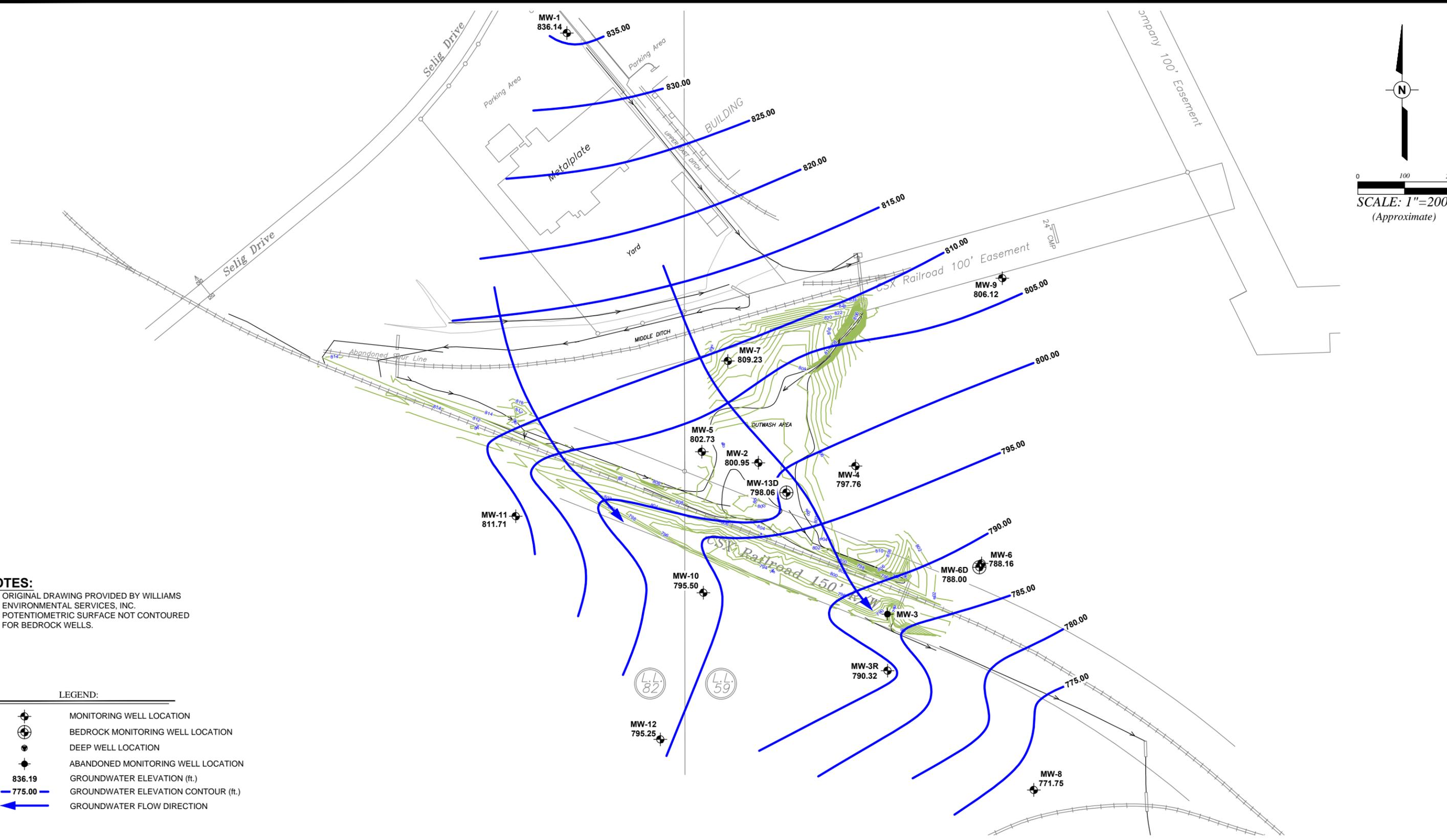
COVINGTON MANAGEMENT, LLC  
PARCEL ID 14-0082-LL-027

<b>PPM</b> PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 2/11/14
PROJECT NUMBER: 494501	BILLING GROUP: PR6

**METALPLATE GALVANIZING, L.P.**  
**METALPLATE FACILITY/SELIG POND**  
505 SELIG DRIVE SW  
ATLANTA, GEORGIA

OFF-PROPERTY AREAS EXCEEDING TYPE 1 RRS FOR SOIL

FIGURE NUMBER  
**4**



- NOTES:**
1. ORIGINAL DRAWING PROVIDED BY WILLIAMS ENVIRONMENTAL SERVICES, INC.
  2. POTENTIOMETRIC SURFACE NOT CONTOURED FOR BEDROCK WELLS.

**LEGEND:**

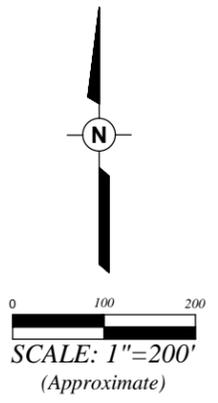
	MONITORING WELL LOCATION
	BEDROCK MONITORING WELL LOCATION
	DEEP WELL LOCATION
	ABANDONED MONITORING WELL LOCATION
836.19	GROUNDWATER ELEVATION (ft.)
775.00	GROUNDWATER ELEVATION CONTOUR (ft.)
	GROUNDWATER FLOW DIRECTION

<b>PPM</b> PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 2/11/14
PROJECT NUMBER: 494501	BILLING GROUP: PR6

**METALPLATE GALVANIZING, L.P.**  
**METALPLATE FACILITY/SELIG POND**  
 505 SELIG DRIVE SW  
 ATLANTA, GEORGIA

**GROUNDWATER ELEVATION MAP**  
 (OCTOBER 21, 2013)

FIGURE NUMBER  
**5**



**NOTES:**  
 1. ORIGINAL DRAWING PROVIDED BY WILLIAMS ENVIRONMENTAL SERVICES, INC.  
 2. CONCENTRATIONS NOT CONTOURED FOR BEDROCK WELLS.

**LEGEND:**

	MONITORING WELL LOCATION
	BEDROCK MONITORING WELL LOCATION
	DEEP WELL LOCATION
	ABANDONED MONITORING WELL LOCATION
0.0209	TOTAL ZINC CONCENTRATION (mg/L)
	ESTIMATED HORIZONTAL EXTENT OF ZINC IN GROUNDWATER EXCEEDING THE TYPE 1 RRS (2 mg/L)

<b>PPM</b> PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 2/11/14
PROJECT NUMBER: 494501	BILLING GROUP: PR6

**METALPLATE GALVANIZING, L.P.**  
**METALPLATE FACILITY/SELIG POND**  
 505 SELIG DRIVE SW  
 ATLANTA, GEORGIA

**TOTAL ZINC ISOCONCENTRATION MAP**  
 (OCTOBER 2013)

FIGURE NUMBER  
**6**

## APPENDICES

APPENDIX A

EPD COMMENT LETTER

November 8, 2013

# Georgia Department of Natural Resources

Environmental Protection Division-Land Protection Branch  
2 Martin Luther King, Jr. Dr., Suite 1054 East, Atlanta, Georgia 30334  
(404) 657-8600; Fax (404) 657-0807  
Judson H. Turner, Director

November 8, 2013

## VIA E-MAIL AND REGULAR MAIL

Metalplate Galvanizing Corp.  
c/o Mr. Adam Brown  
500 Selig Drive  
Atlanta, Georgia 30336

RE: Voluntary Investigation and Remediation Plan-Third, Fourth and Fifth Progress Reports  
Semi-Annual Groundwater Monitoring/Corrective Action Reports  
Metalplate Galvanizing Facility, HSI # 10204  
Atlanta, Fulton County, Georgia 30336

Dear Mr. Brown:

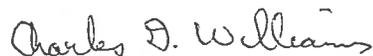
The Georgia Environmental Protection Division (EPD) has completed its review of the Voluntary Investigation and Remediation Plan (VIRP) Third, Fourth and Fifth Semi-Annual Progress Reports dated August 14, 2012, February 14, 2013, and August 14, 2013, respectively, submitted for the Metalplate Galvanizing site located in Atlanta, Georgia. EPD and Metalplate representatives met on October 21, 2013 to discuss a possible extension to the approved VIRP schedule based on extensive efforts to address elevated zinc concentrations in stormwater. Although we agree that the stormwater work will have a significant impact on surface water concentrations, we anticipate that further corrective action for sediment and/or groundwater will be necessary to meet standards. Therefore, we propose that further evaluation of those interactions be completed in parallel with the stormwater work, in accordance with the attached revised schedule. In addition, our comments on the progress reports are provided below:

1. The newly installed MW-3R is a side-gradient well as acknowledged by Metalplate in the Fourth Progress Report. EPD concurs with that conclusion and notes that EPD requested an appropriately placed well to replace MW-3 to verify plume conditions in the area. Consequently, MW-3R is not representative of downgradient groundwater conditions and it appears that MW-8 may not be representative either. If an appropriately placed MW-3 replacement well is not installed and sampled, EPD will continue to assume that groundwater remains impacted at concentrations in the range of 80 ug/L (above Type 4 RRS), and will factor that into any conclusions regarding whether groundwater corrective action is necessary to address ongoing surface water exceedances.
2. EPD will defer a decision on whether additional sediment removal is necessary until Metalplate submits a full evaluation on sediment, stormwater and groundwater influence on zinc concentration in surface water. EPD recommends that the sediment evaluation recommended in Section 4.0 of the Fourth Progress Report be completed in parallel with the ongoing stormwater work.

3. The interaction between surface water and groundwater would be better understood with the collection of comprehensive rounds of surface water and groundwater elevation data relative to mean sea level. This data should be plotted on a C size drawing incorporating all monitoring wells and surface water features in the vicinity of the Site. This has previously been requested in Comment 2 of EPD's February 14, 2011 VIRP comment letter and in Comment 1 of EPD's June 29, 2012 VIRP - First and Second Semi-Annual Progress Reports comment letter.
4. Further details on the methods that are used for the collection of surface water samples, in addition to details about the weather and surface water elevations at the time of sample collection, should be provided for the next surface water sampling event.
5. EPD proposes that annual groundwater monitoring be continued for monitoring wells MW-1, MW-2, MW-4, MW-5, MW-7, and MW-13D throughout the implementation of the stormwater system.
6. The progress reports note that responses to Comments 2, 3, and 4 of EPD's February 14, 2011 comment letter are complete. However, the issues referenced in those comments are not fully resolved and should continue to be addressed.
7. EPD has reviewed Metalplate's XRF sediment data analysis. As recommended by the Pro-UCL Technical Guidance, EPD prefers the use of non-parametric statistical methods to compute the 95% UCL for skewed distribution data sets which do not follow the gamma distribution. In this case, the 95% Standard UCL is a better estimate. Note that the results do not change the overall conclusion that sediment corrective action is not required based on ecological risk.

Please review the comments and the attached schedule and provide feedback within 30 days. If you concur, EPD will issue a proposed Consent Order to memorialize the revised schedule. EPD anticipates receipt of the next progress report by February 14, 2014. If you have any questions, please contact Montague M<sup>o</sup>Pherson of the Response and Remediation Program at (404) 657-8600.

Sincerely,



Charles D. Williams  
Program Manager  
Response and Remediation Program

c: James D. Levine, McKenna Long & Aldridge LLP (on behalf of Aston Investment Corp.)  
Frances Carpenter, Non-Point Source Program, WPB

Encl: Revised VIRP Schedule

EPD Proposed Milestone Dates for Project Implementation  
Metalplate Galvanizing Facility, HSI 10204  
November 8, 2013

Projected Date	Area	Action
02/2014	VRP	Progress Report <b>(PR-6)</b> with results of October 2013 sampling event.
04/2014	Sampling	Limited sampling: surface water sampling and surface water/groundwater elevation measurements (No groundwater sampling).
10/2014	Sampling	Groundwater and surface water sampling with groundwater/surface water elevation measurements. [Baseline groundwater and surface water sampling event before start- up date of storm water treatment system.]
02/2015	VRP	Progress Report <b>(PR-7)</b> . Should include April event and baseline groundwater and surface water sampling event.
04/2015	VRP	Sediment evaluation as per CSM in PR-4.
8/22/2015	SW	IGP SW Effluent limit requirements effective.
10/2015	Sampling	Post Implementation Sampling Event #1 (groundwater and surface water sampling with elevation measurements).
02/2016	VRP	<b>(PR-8)</b> . Should include results of sediment evaluation.
10/2016	Sampling	Post Implementation Sampling Event #2 (groundwater and surface water sampling with elevation measurements).
02/2017	VRP	<b>(PR-9)</b> . Should include an evaluation of Corrective Action and submittal of Final Remedial and Implementation Plan.
10/2017	Sampling	Post Implementation Sampling Event #3 (groundwater and surface water sampling with elevation measurements).
02/2018	VRP	<b>(PR-10)</b> . Should include an evaluation of Corrective Action progress.
10/2018	Sampling	Post Implementation Sampling Event #4.
02/2019	VRP-CSR	Submittal of VRP CSR certifying compliance with all applicable cleanup standards.

- \* Post-implementation sampling and reporting schedule subject to the effectiveness of the stormwater treatment system and sediment/groundwater evaluation results. If, prior to February 2017, the data shows that additional corrective action will be necessary, the Final Remedial Plan submittal date shall be moved up accordingly.

APPENDIX B

METALPLATE RESPONSE LETTER

December 18, 2013



**Metalplate Galvanizing, L.P.**

December 18, 2013

**VIA E-MAIL AND REGULAR MAIL**

Charles D. Williams  
Program Manager  
Response and Remediation Program  
EPD-Land Protection Branch  
2 Martin Luther King, Jr. Drive, SE  
Suite 1054, East  
Atlanta, GA 30334

**RE: Voluntary Investigation and Remediation Plan  
Third, Fourth and Fifth Progress Reports  
Semi-Annual Groundwater Monitoring/Corrective Action Reports  
Metalplate Galvanizing Facility, HSI # 10204  
Atlanta, Fulton County, Georgia 30336**

Dear Mr. Williams:

This letter is Metalplate Galvanizing, L.P.'s ("Metalplate's") response to EPD's November 8, 2013 letter concerning the Selig Site, HSI # 10204 (the "EPD Comments"). The EPD Comments address Metalplate's Third, Fourth, and Fifth VRP Progress Reports (PR-3 – PR-5) for the Selig Site. Metalplate appreciates the ongoing dialogue with EPD about how to address the Selig Site and intends this letter and subsequent discussions to advance that dialogue and effort. Metalplate's specific responses to each item in the EPD Comments follow:

1. EPD and Metalplate have corresponded on multiple occasions regarding former monitoring well MW-3. This correspondence included Metalplate's documentation of concerns regarding MW-3's lack of integrity and request to replace the well. Metalplate also documented that topography presents significant feasibility challenges to placing a well in the immediate vicinity of former MW-3. EPD approved Metalplate's request to replace MW-3 with a well in MW-3R's location. EPD has also indicated its belief that an additional well is necessary to verify plume conditions in the area of former MW-3.

**Corporate Office**

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1120 39th Street North  
Birmingham, AL 35201  
Phone (205) 595-4700  
Fax (205) 595-7800

**Plant 1**

4450 7th Avenue North  
Birmingham, AL 35212  
Phone (205) 595-1106  
Fax (205) 591-4659

**Plant 2**

1120 39th Street North  
Birmingham, AL 35234  
Phone (205) 595-7103  
Fax (205) 595-2965

**Atlanta Plant**

505 Selig Drive, S.W.  
Atlanta, GA 30336  
Phone (404) 691-0600  
Fax (404) 699-2270

**Jacksonville Plant**

7123 Moncrief Road, West  
Jacksonville, FL 32219  
Phone (904) 768-6330  
Fax (904) 764-3948

**Houston West**

10625 Needham Street  
Houston, TX 77013  
Phone (713) 671-2454  
Fax (713) 671-2957

**Houston East**

10635 Needham Street  
Houston, TX 77013  
Phone (713) 672-9480  
Fax (713) 672-9892



Metalplate is prepared to work constructively with EPD to attempt to resolve this issue. Considering the apparent hydraulic divide in the vicinity of the ditch system and the sampling results from MW-6 and MW-6D, Metalplate does not believe there is a data gap for an additional well to fill. Thus, we propose a field visit with EPD staff to review the appropriateness of and, if necessary, a feasible location for an additional replacement well.

Also, Metalplate is concerned that the EPD Comments suggest that, absent installation of another replacement well, EPD would assume that groundwater concentrations remain at the level last associated with MW-3, despite the fact that such data is obviously invalid. Such an assumption would be inappropriate in light of the documented concerns with former MW-3's integrity, as well as site data that will otherwise be produced in the future.

2. Metalplate is willing to further characterize sediments as described in PR-4 Section 4.0 on the schedule included with the EPD Comments as the "Proposed Milestone Dates for Project Implementation." To further specify the nature of the sediment evaluation, Metalplate proposes that sediment evaluation will include the following items:
  - Review existing data on sediments in and in the immediate vicinity of Selig Pond;
  - Implement additional investigative borings within the pond footprint;
  - Profile sediments as a function of layering and/or anomalies observed;
  - Investigate the depth profile and volume of affected sediments;
  - Collect and analyze additional samples to evaluate the distribution of zinc within the sediments; and
  - Install stream/staff gages in surface waters to monitor the spatial relationships between media.

Furthermore, Metalplate notes that, if sediments require corrective action, Metalplate may evaluate options other than removal.

3. For water elevation data collection events, Metalplate proposes to collect data from monitoring wells 1, 2, 4, 5, 7, and 13D, as well as the staff gauge points approximately denoted on the attached Figure 1. Note that the listed monitoring wells are the same wells that would be subject to annual sampling under EPD comment 5. Metalplate also proposes to use elevation data from MW-2 as a proxy for the elevation of Selig Pond surface water because grounding a staff gauge in the Pond



itself is infeasible (two prior efforts to do this were unsuccessful because the gauges subsided into sediment).

4. Comment noted. The requested information will be provided for any future surface water sampling events.
5. Comment noted, and Metalplate agrees.
6. Comment 6 notes that Metalplate should continue to address comments 2, 4, and 6 of EPD's February 14, 2011 comment letter (the "2011 Comments"). Metalplate further addresses these three 2011 Comments here:
  - 2) 2011 Comment 2's discussion of Utoy Creek is the only aspect of that comment not addressed by EPD Comment 3 and Metalplate's plan to sample surface water at points approximately denoted on Figure 1 in connection with installing and operating the storm water management system. Metalplate believes Utoy Creek data is relevant only if Utoy Creek is the point of compliance for surface water conditions under the VRP. Metalplate would be willing to collect sampling data from Utoy Creek on that basis.
  - 3) Although any need to address sediments cannot be fully known before the benefits of the operational storm water management system are evaluated, it is clear to Metalplate that EPD would like sediments to be further characterized as described in PR-4 on the schedule included with the EPD Comments. Metalplate is generally agreeable to this approach. *See also* Response to EPD Comment 2 *supra*.
  - 4) Metalplate is aware of the potential nuances posed by the property currently owned by Aston Investments Corp. *See, e.g.*, PR-5 § 2.2.6; PR-4 § 2.4.6.
7. Metalplate acknowledges EPD's preferred statistical method. EPD concurs that, regardless of the statistical method used, sediment corrective action is not required based on ecological risk. Metalplate agrees with EPD's concurrence.

In addition to the above responses to the numbered EPD Comments, Metalplate observes that the agency has indicated orally that it considers vertical delineation satisfied as Metalplate described in PR-5 § 3.2.7 and PR-4 § 4.2.7. This Response hereby documents that concurrence. Metalplate would also expect EPD's agreement on this item to be recited in any acceptable consent order.

Subject to clarification and agreement on above-noted items, Metalplate believes EPD's "Proposed Milestone Dates for Project Implementation" is a workable schedule. Metalplate does not believe a consent order is necessary to implement this schedule. But if EPD proposes a



consent order, Metalplate will of course review it to determine whether the terms and conditions are agreeable.

Please be in touch with comments and questions. Metalplate looks forward to future discussions on bringing this site to a satisfactory resolution.

Best regards,

A handwritten signature in blue ink, appearing to be "ATB", written in a cursive style.

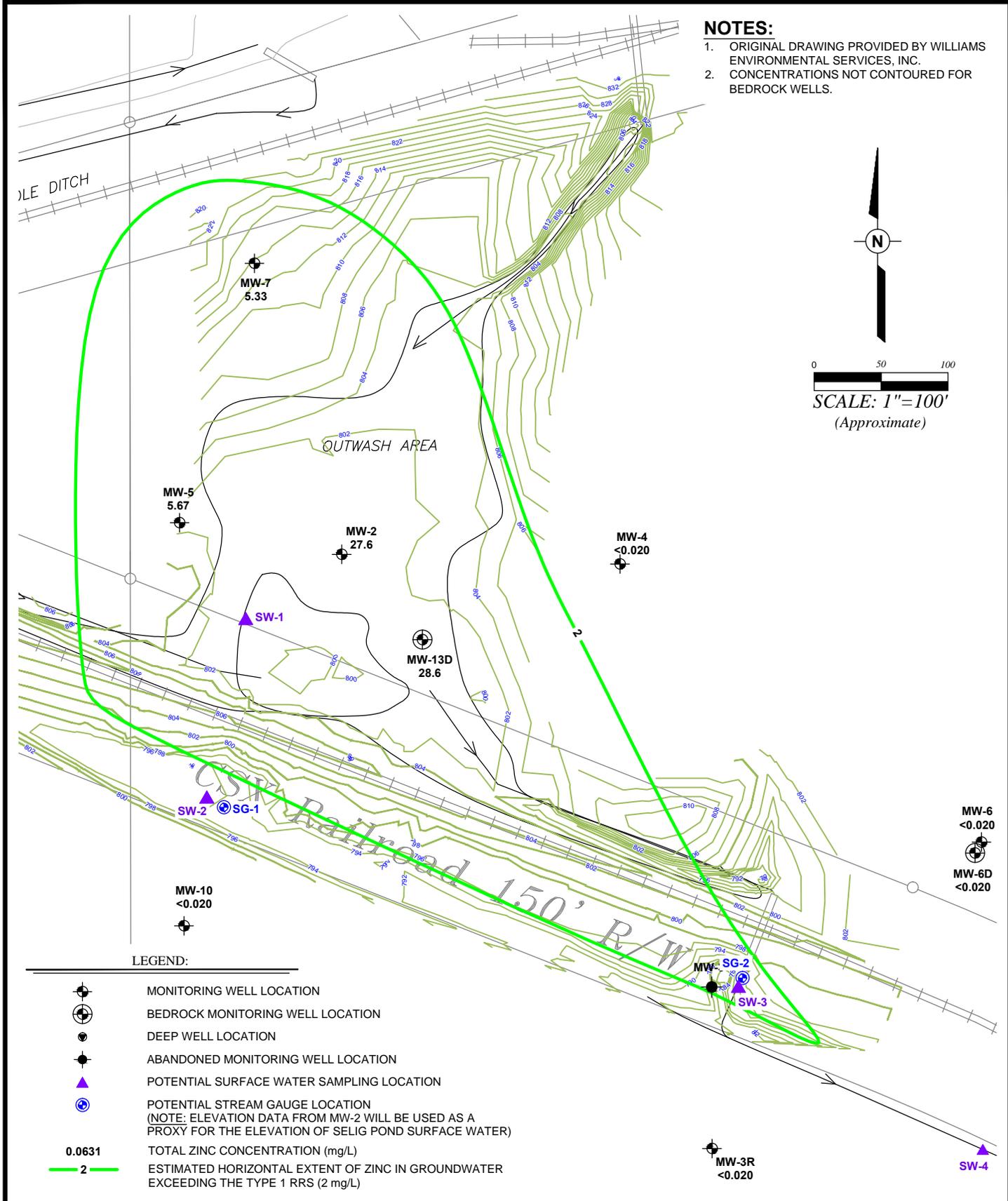
Adam T. Brown  
Vice President  
Technical & Environmental Affairs

cc: Montague McPherson, EPD Response and Remediation Program  
Frances Carpenter, EPD Non-Point Source Program

Z:\Metalplate Galvanizing, L.P.494501 - Metalplate Facility Selig Pond\Gwm13\494501-Gwm13.dwg, 1 prop. 12/16/2013 7:22:41 AM, brian hicks

**NOTES:**

1. ORIGINAL DRAWING PROVIDED BY WILLIAMS ENVIRONMENTAL SERVICES, INC.
2. CONCENTRATIONS NOT CONTOURED FOR BEDROCK WELLS.



**LEGEND:**

- MONITORING WELL LOCATION
- BEDROCK MONITORING WELL LOCATION
- DEEP WELL LOCATION
- ABANDONED MONITORING WELL LOCATION
- POTENTIAL SURFACE WATER SAMPLING LOCATION
- POTENTIAL STREAM GAUGE LOCATION  
(NOTE: ELEVATION DATA FROM MW-2 WILL BE USED AS A PROXY FOR THE ELEVATION OF SELIG POND SURFACE WATER)
- 0.0631**  
 TOTAL ZINC CONCENTRATION (mg/L)
- 2**  
 ESTIMATED HORIZONTAL EXTENT OF ZINC IN GROUNDWATER EXCEEDING THE TYPE 1 RRS (2 mg/L)

PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: <b>BWH</b>	DRAWN DATE: <b>12/13/13</b>
PROJECT NUMBER: <b>494501</b>	BILLING GROUP: <b>GWM13</b>

**METALPLATE GALVANIZING, L.P.**  
**METALPLATE FACILITY/SELIG POND**  
 505 SELIG DRIVE SW  
 ATLANTA, GEORGIA

POTENTIAL SURFACE WATER SAMPLING LOCATIONS AND STREAM GAUGE LOCATIONS

FIGURE NUMBER  
**1**

APPENDIX C

SEMI-ANNUAL GROUNDWATER MONITORING REPORT

February 18, 2014

**SEMI-ANNUAL GROUNDWATER  
MONITORING/CORRECTIVE ACTION  
EFFECTIVENESS REPORT**

**METALPLATE GALVANIZING, L.P.  
METALPLATE GALVANIZING FACILITY  
505 SELIG DRIVE SW  
ATLANTA, GEORGIA 30336**

**HSI NO. 10204**

**PPM PROJECT NO. 494501-GWM13**

**FEBRUARY 18, 2014**

Environmental Science  
and Engineering



**SEMI-ANNUAL GROUNDWATER  
MONITORING/CORRECTIVE ACTION EFFECTIVENESS REPORT**

**FOR**

**METALPLATE GALVANIZING FACILITY  
505 SELIG DRIVE SW  
ATLANTA, GEORGIA 30336**

**HSI NO. 10204**

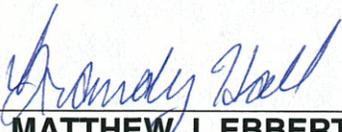
**PREPARED FOR:**

**METALPLATE GALVANIZING, L.P.  
505 SELIG DRIVE SW  
ATLANTA, GEORGIA 30336**

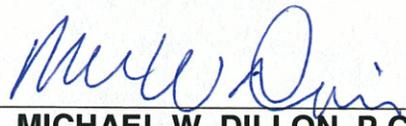
**PPM PROJECT NO. 494501-GWM13**

**FEBRUARY 18, 2014**

**PREPARED BY:**

  
for **MATTHEW J. EBBERT, P.G.  
SENIOR GEOLOGIST**

**REVIEWED BY:**

  
**MICHAEL W. DILLON, P.G.  
SENIOR GEOLOGIST/  
PROJECT MANAGER**

**PPM CONSULTANTS, INC.  
5555 BANKHEAD HIGHWAY  
BIRMINGHAM, ALABAMA 35210  
(205) 836-5650**

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### **TABLES (Appendix C)**

Table 1 – Intrinsic Groundwater Parameters

Table 2 – Groundwater Depths and Elevations

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### **APPENDICES**

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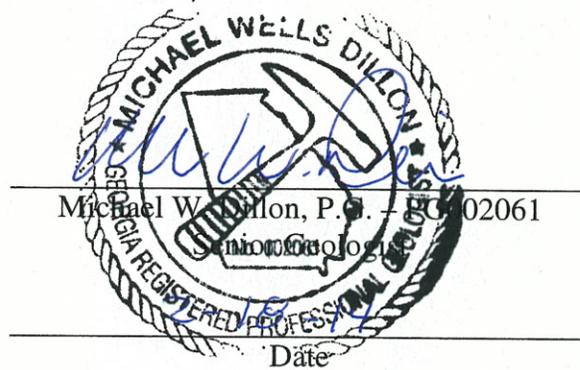
Appendix B – Groundwater Sampling Field Logs

Appendix C – Tables

Appendix D – Groundwater Analytical Results

## CERTIFICATION

*I certify that I am a qualified ground-water scientist who has received a baccalaureate or post-graduate degree in the natural sciences or engineering, and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, that enable me to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that this report was prepared by myself or by a subordinate working under my direction.*



## 1.0 INTRODUCTION

PPM Consultants, Inc. (PPM) was retained by Metalplate Galvanizing, L. P. (Metalplate) to conduct semi-annual groundwater monitoring and to prepare semi-annual groundwater monitoring/corrective action effectiveness reports for the Metalplate Galvanizing Facility/Selig Pond site located at 505 Selig Drive SW, Atlanta, Fulton County, Georgia (Georgia Hazardous Site Inventory Number 10204). These activities were proposed as part of the Georgia Environmental Protection Division (EPD) approved corrective action plan (CAP) dated August 27, 2007.

The purpose of these activities is to gauge the effectiveness of the corrective action, which included source removal and subsequent site restoration on concentrations of total zinc in groundwater. This report provides a description of the site, summarizes the results of previous investigations, describes conducted field activities, and presents analytical results and findings from the October 2013 groundwater monitoring event. The constituent of interest (COI) for the site groundwater is total zinc.

## 2.0 BACKGROUND

### 2.1 SITE LOCATION

The Metalplate facility is located at 505 Selig Drive Southwest in Atlanta, Fulton County, Georgia. The geographic coordinates of the site are 33° 44' 43" north latitude and 84° 32' 44" west longitude (**Figure 1, Site Location Map, Appendix A, Figures**).

### 2.2 SURROUNDING AREA

The facility is surrounded entirely by property that has been either developed for industrial or commercial purposes, or is undeveloped. The properties located to the north of the facility are industrial and undeveloped. The property west of the facility is industrial. Property to the east of the facility is commercial/industrial. The properties to the south of the facility are railroad property, undeveloped property, and commercial/industrial property. The site includes the property where the Metalplate facility is located and adjacent properties to the south, southeast, and east owned by Aston Investment Corporation (Aston), Commercial Development, Stonehenge Management Company, and CSX Transportation, Inc. (CSXT).

## **2.3 SITE DESCRIPTION**

The site is mostly comprised of the drainage area just south of the facility and includes several ditches/drainages and a pond (**Figure 2, Site Map**). These include portions of the drainage ditches located near the eastern and southern property boundaries of the Metalplate property (Upper East Ditch and Upper South Ditch), portions of the drainage ditches on CSXT property (Middle Ditch, Small Ditch, Lower West Ditch, and Lower East Ditch), portions of the drainage ditch on Aston property (Outwash Ditch), and an alluvial fan depositional area (Outwash Area) located on Aston property. The site also includes a pond that is approximately 30,000 square feet in area and is located on both Aston and CSXT properties (**Figure 2**). According to the topographic map of the area, elevations at the site generally range from 800 to 880 feet above mean sea level (amsl) (**Figure 1**).

## **2.4 SITE HISTORY**

Following is a brief summary of the history of the site:

Atlantic Steel was the former owner of the present Metalplate property from 1966 to 1974. Atlantic Steel operated the galvanizing facility from 1966 to 1970. The assets of the galvanizing facility were sold to Metalplate in 1970 whereby Metalplate became the operator. The property was subsequently sold to Metalplate in 1974.

### **2.4.1 Sampling Event – March 28, 1984**

Craig-Lynes Chemical Management, Inc. collected five water and/or sludge samples from within and in the vicinity of Selig Pond (**Figure 2**) as part of the Form 103 C (Notification of Hazardous Waste Site) reporting requirements to the United States Environmental Protection Agency (USEPA). One sample was also collected from a smaller pond on the south side of the railroad tracks.

The samples were analyzed for total concentrations of the eight Resource, Conservation, and Recovery Act (RCRA) metals and pH. Two samples were also analyzed for total organic carbon (TOC). The results of the sampling event indicated that elevated concentrations of lead were present in water and/or sludge in the area of Selig Pond. More information regarding this sampling event can be found in the Compliance Status Report (CSR), revised May 29, 2008.

#### **2.4.2 Sampling Event – March 12, 1986**

On March 12, 1986, USEPA representatives collected soil samples from the Lower West Ditch leading into Selig Pond, from within Selig Pond, from a location upgradient of Selig Pond, and from just below the CSXT railroad spur. Representatives for Metalplate were provided with splits of the samples. The split samples were analyzed for total lead and zinc and RCRA metals according to the extraction procedure (EP) toxicity leaching protocol. The results of the sampling event revealed elevated concentrations of lead and zinc in soil. Additional information can be found in the CSR.

#### **2.4.3 Compliance Status Investigation – February 2000 through May 2008**

A Compliance Status Investigation (CSI) was performed between February 28, 2000 and May 28, 2004, by Williams Environmental Services, Inc. (Williams) and continued by PPM between March 12, 2007 and May 16, 2008. The investigation was prompted by the site being placed on the state hazardous site inventory list based on an exceedance of the Reportable Quantities Screening Method (RQSM) threshold score for soil. The RQSM threshold was not exceeded for groundwater.

The purpose of the investigation was to determine the compliance status of the site compared with applicable risk reduction standards (RRSs) established under the Georgia Hazardous Site Response Act (HSRA). Other objectives of the study were to investigate the nature and horizontal and vertical extent of regulated COI in the soil, groundwater, and surface water, identify human and environmental receptors potentially exposed to the release, and define the properties affected by the release.

During the investigation, soil was evaluated by collection and analysis of soil samples from 147 soil borings advanced during and prior to the CSI. A total of 12 shallow Type II monitoring wells (MW-1 through MW-12) and two bedrock Type III monitoring wells (MW-6D and MW-13D) were installed for the evaluation of groundwater. Surface water was evaluated by collection and analysis of surface water samples from 16 locations.

The horizontal and vertical extent of COI concentrations in soil and groundwater above upper background limits (UBLs) was defined in all directions at the site during the CSI. At certain locations, lead and zinc concentrations in soil and concentrations of zinc in groundwater exceeded Type 1, 2, 3, and 4 RRSs. The results of the CSI can be found in the revised CSR submitted on May 29, 2008.

#### **2.4.4 Soil Removal – August 11, 2008 through August 20, 2008**

During the soil removal, a total of approximately 1,555 tons (estimated 1,037 cubic yards) of soil was excavated from the facility property, transported, and disposed. Soil with visible impact (discoloration) was excavated from the entire length of both the Upper East Ditch and the Upper South Ditch located on the facility property. Confirmation samples confirmed that soil with concentrations of COI above Type 4 RRSs was removed from the excavations. The excavations were a minimum of 1 foot deep and a maximum of approximately 7 feet deep.

Site restoration activities were performed by Metalplate following the soil removal. The Upper East Ditch and Upper South Ditch were reconstructed and a detention basin was constructed connecting the two ditches. The restoration was part of the BMP for the facility's SWPPP. These measures are expected to decrease sediment loads leaving the property and decrease COI concentrations in storm water, surface water, and groundwater.

#### **2.4.5 Voluntary Investigation and Remediation Plan and Application**

A Voluntary Investigation and Remediation Plan (VIRP) and Application was prepared by MACTEC and submitted to the EPD on August 9, 2010. In response, the EPD in letters dated February 14, 2011, accepted the Metalplate Galvanizing Facility property as a participant in the Voluntary Remediation Program Act and requested items to be included in future semi-annual VIRP progress reports. The EPD also requested that an additional deep well be installed for the purpose of vertical delineation of groundwater in a location between monitoring wells MW-2 and MW-3. The EPD requested the installation of an additional monitoring well in the vicinity of the detention basin for the purpose of enhancing horizontal delineation of groundwater, and enhancing the Conceptual Site Model (CSM), for use in future modeling of groundwater migration and surface water impacts.

#### **2.4.6 Screening Level Ecological Risk Assessment**

A Screening Level Ecological Risk Assessment (SLERA) was prepared by MACTEC and submitted to the EPD on August 9, 2010. In response, the EPD in a letter dated February 14, 2011, requested a revised SLERA, a Baseline Ecological Risk Assessment (BERA), Remedial Goal Options (RGOs), and a schedule for submittal of a sediment corrective plan by May 16, 2011. The EPD also stated that semi-annual groundwater and surface water sampling results should be submitted with the required VIRP progress reports.

### **2.4.7 Groundwater Monitoring**

Baseline groundwater monitoring was performed at the site between September 8, 2008 and September 10, 2008, shortly after the soil removal corrective action activities were complete. The sampling was performed to establish baseline concentrations for the purpose of determining corrective action effectiveness. The results of the baseline groundwater sampling were presented in the Soil Removal Report.

Semi-annual groundwater monitoring events have been conducted to monitor plume stability and effectiveness of corrective action. The results of these events have been presented in Semi-Annual Groundwater Monitoring/Corrective Action Effectiveness Reports and semi-annual VIRP progress reports.

In correspondence dated November 8, 2013, the EPD provided a proposed VIRP schedule after meeting with Metalplate representatives on October 21, 2013. The schedule (EPD Proposed Milestone Dates for Project Implementation, November 8, 2013) proposes surface water sampling and collection of water elevation data to be conducted in April 2014. The schedule proposes annual groundwater sampling, surface water sampling, and water elevation data collection to be conducted in October each year through 2018. Annual VIRP Progress Reports will be submitted to the EPD in February each year following the October sampling events; with the exception of February 2019 in which a Compliance Status Report will be submitted. Results of the groundwater and surface water sampling activities conducted during each previous period will be included in the Progress Report. During the annual groundwater sampling events, groundwater from monitoring wells MW-1, MW-2, MW-4, MW-5, MW-7, and MW13D are required to be sampled and analyzed.

## **3.0 INVESTIGATIVE METHODOLOGY**

### **3.1 GROUNDWATER ELEVATION SURVEY**

Site groundwater depth and flow direction were estimated through groundwater elevation surveys of site wells on October 21, 2013. Depth to groundwater measurements were accomplished with the use of a water level indicator capable of measuring the water depth to within +/- 0.01 feet. The indicator probe was cleaned prior to use at each well location by means of a phosphate-free soap rinse and a rinse with distilled water. The well casing elevations and groundwater depths were used to calculate groundwater elevations for the purpose of determining groundwater flow direction.

### 3.2 GROUNDWATER SAMPLING

Groundwater samples were collected from all site wells (MW-1, MW-2, MW-3R, MW-4 through MW-6, MW-6D, MW-7 through MW-12, and MW-13D) on October 21, 2013 and October 22, 2013. The wells were sampled in general accordance with Region 4 EPA Science and Ecosystem Report Division operating procedure No. SESDPROC-301-R1.

Groundwater samples were collected using low flow/low volume groundwater sampling techniques. Depths to groundwater were measured in the monitoring wells using a water level indicator. Depths to water, well diameter, and total well depths from the monitoring wells were used to calculate well volumes. Purging and sampling was accomplished using a variable speed submersible pump or peristaltic pump and dedicated polyethylene tubing and silicone tubing. The intake of the polyethylene tubing for the peristaltic pump or intake of the submersible pump was placed at an approximate depth that correlated to the center of the monitoring well screened interval. In some cases, the top of water within the well was below the top of screen. In these cases, the intake was placed approximately at the center of the water column. Purging rates ranged from approximately 0.03 gallons per minute (gpm) to 0.08 gpm.

Temperature, pH, specific conductivity, oxidation-reduction potential (ORP), and turbidity were measured during purging using a flow-through cell. The wells were purged until these field parameters had equilibrated and an attempt was made to collect samples when the turbidity was less than 10 nephelometric turbidity units (NTUs). The groundwater samples from monitoring wells MW-3R, MW-5, and MW-7 were collected with turbidity levels greater than 10 NTUs after attempts to obtain lower turbidity levels failed. The higher turbidity levels appeared to be from suspended mica. Field measurements were recorded on groundwater sampling field logs found in **Appendix B, Groundwater Sampling Field Logs** and are summarized in **Appendix C, Table 1, Intrinsic Groundwater Parameters**.

Groundwater samples were obtained through dedicated polyethylene tubing prior to reaching the flow-through cell and were placed in polyethylene containers, one containing nitric acid (HNO<sub>3</sub>) for analysis of total zinc and one with no preservative for analysis of dissolved zinc. Each container was filled with the sample, promptly capped, and appropriately labeled to indicate the sample origin. Containers were subsequently placed in an iced cooler for preservation during shipment to the laboratory. Disposable, nitrile gloves were worn during the sample collection and changed between each sample acquisition.

### 3.3 LABORATORY ANALYSIS

Analytical Environmental Services, Inc. (AES) of Atlanta, Georgia (NELAC Certification No. E87582), analyzed groundwater samples collected from the wells. Samples were submitted using chain-of-custody protocol and were analyzed for total zinc and dissolved zinc per EPA Method 6010C.

## 4.0 FINDINGS

### 4.1 GROUNDWATER ELEVATIONS

The groundwater flow pattern and ground surface topographic contours are shown on **Figure 3, Groundwater Elevation Map (October 21, 2013)**. The groundwater flow on October 21, 2013 was to the southeast at an average gradient of 0.034 feet per foot (ft/ft) (measured from MW-1 to MW-6). Groundwater elevations are provided in the **Table 2, Groundwater Depths and Elevations**, and shown on **Figure 3**.

The groundwater flow velocity (V) can be determined using the horizontal hydraulic conductivity, hydraulic gradient, and effective porosity. Site values for horizontal hydraulic conductivity and hydraulic gradient were determined from the data collected during the CSI, and the semi-annual groundwater monitoring events, respectively. Effective porosity can be estimated from published literature based on the presence of silt and sand.

The groundwater flow velocity (V) is calculated from the equation:

$$V = k * \frac{i}{n_e}$$

Where:

- k = hydraulic conductivity = 9.25E-04 ft/min (average from slug tests in soil)
- i = hydraulic gradient = 0.034 (average from monitoring well MW-1 to MW-6 on October 21, 2013)
- ne = effective porosity = 0.28 (combination of silt and sand from Groundwater Hydrology and Hydraulics, D. B. McWhorter and D. K. Sunada, 1977).

Using the assumptions listed above, the average groundwater flow velocity at the site is approximately 0.162 feet per day (ft/day) or 59.0 feet per year (ft/year).

## 4.2 TOTAL ZINC CONCENTRATIONS

Total zinc concentrations for the baseline groundwater sampling event performed at the time of corrective action (September 2008) and the two latest semi-annual sampling events are summarized below and included in **Table 3, Groundwater Analytical Summary**. Groundwater analytical reports are included in **Appendix D, Groundwater Analytical Results**.

**Total Zinc Concentration Comparison for Baseline and Current Sampling Events (mg/L)**

Well I.D.	September 2008 (Baseline)	April 2013	October 2013
MW-1	0.372	0.0631	0.0209
MW-2	11.0	27.6	15.7
MW-3	<b>62.5</b>	--	--
MW-3R	--	<0.020	0.0251
MW-4	<0.020	<0.020	0.0264
MW-5	14.1	5.67	1.44
MW-6	0.028	<0.020	<0.020
MW-6D	0.0493	<0.020	<0.020
MW-7	<b>48.8</b>	5.33	8.54
MW-8	<0.020	0.0228	0.0230
MW-9	<0.020	<0.020	<0.020
MW-10	<0.020	<0.020	<0.020
MW-11	<0.020	0.0293	0.0246
MW-12	<0.020	<0.020	<0.020
MW-13D	9.12	28.6	28.6

**Bold** – indicates above a Type 4 RRS [31 milligrams per liter (mg/L)]

The plume extends from the facility toward the southeast and is horizontally defined to the northwest by monitoring well MW-1, to the northeast by MW-4 and MW-9, to the southeast by MW-3R, MW-6, and MW-8, and to the southwest by MW-10 and MW-11. The Lower East Ditch also appears to function as a hydraulic divide (or barrier).

Total zinc concentrations in groundwater for the October 2013 event are shown on **Figure 4, Total Zinc Isoconcentration Map (October 21, 2013)**. A graph showing total zinc concentrations versus time is shown on **Figure 5, Total Zinc Concentration vs. Time**.

### 4.3 EVALUATION OF THE EFFECTIVENESS OF CORRECTIVE ACTION

The concentration of total zinc at the up-gradient portion of the plume (MW-7) has decreased following corrective action at the site and the concentration has remained relatively stable and below the Type 4 RRS for the last four years. Total zinc concentrations have increased slightly at MW-2 and MW-13D since corrective action but have remained below the Type 4 RRS with the exception of concentrations at MW-2 on two occasions (April 2011 and April 2012). Effectiveness of the corrective action will continue to be monitored during annual sampling events.

## 5.0 CONCLUSIONS

The general direction of groundwater flow at the site is toward the southeast. The hydraulic gradient between monitoring wells MW-1 and MW-6 is estimated at approximately 0.034 ft/ft and flow velocity is estimated at 59.0 ft/year. The Lower East Ditch functions as a groundwater divide and the Selig Pond functions as a surface impoundment. Both of these features impact the pattern of groundwater flow in the immediate vicinity as has been reflected in **Figure 3**.

During the latest groundwater sampling event (October 2013), total zinc concentrations did not exceed the Type 4 RRS for total zinc (31 mg/L). The horizontal extent of total zinc in groundwater is defined in all directions.

Concentrations of total zinc in groundwater decreased to below the Type 4 RRS following corrective action and have stabilized. Total zinc concentrations in the area of the outwash (MW-2 and MW-13D) increased slightly following corrective action but, since corrective action, MW-13D has never exceeded Type 4 RRS and MW-2 has been below Type 4 RRS with the exception of two occasions.

Effectiveness of the corrective action will continue to be monitored during annual sampling events.

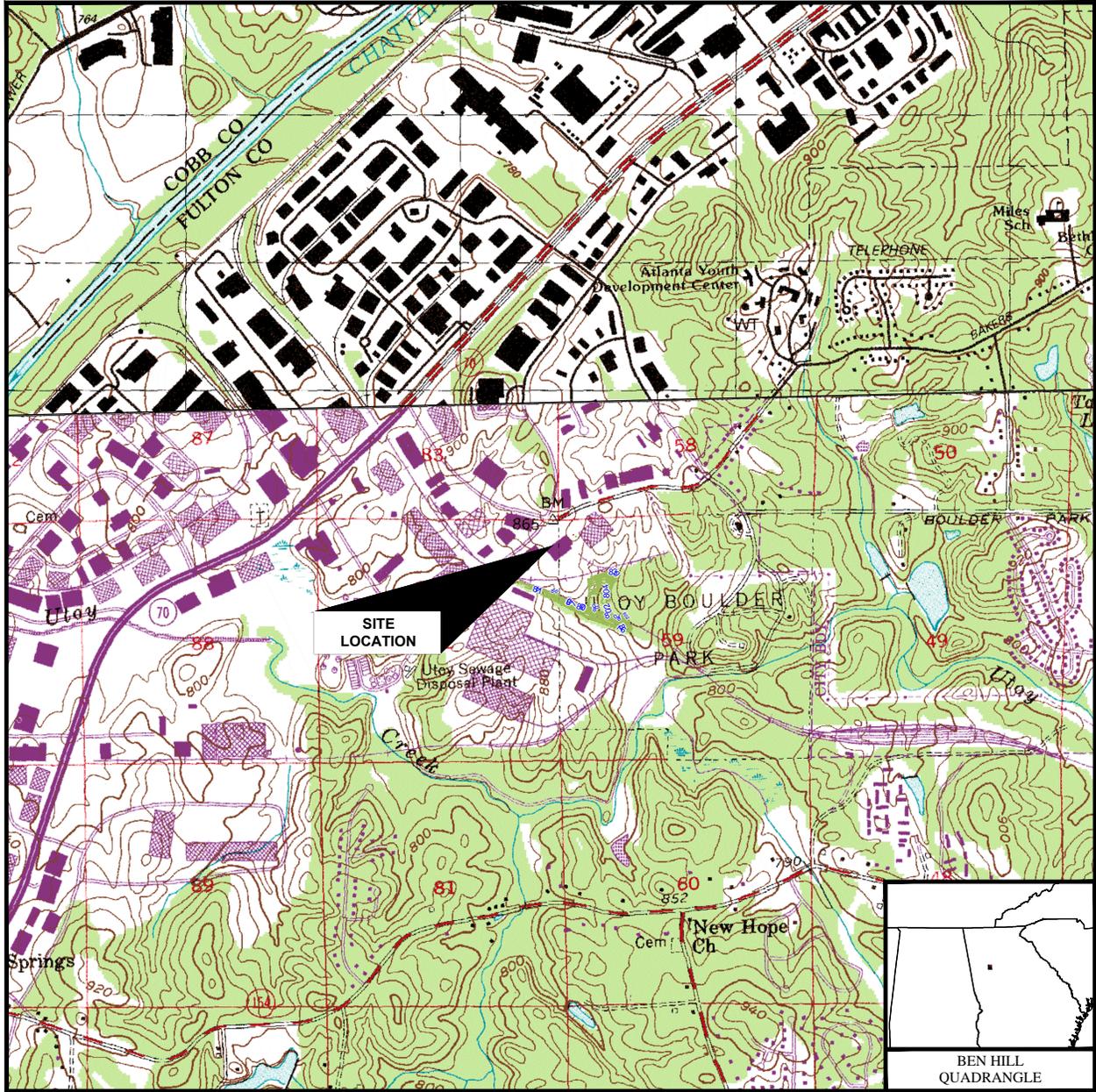
## **6.0 RECOMMENDATIONS**

PPM recommends continuing the monitoring of the soil removal corrective action effectiveness by conducting annual groundwater and surface water sampling as proposed by the EPD in the revised VIRP schedule dated November 8, 2013.

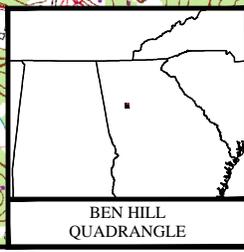
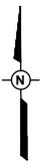
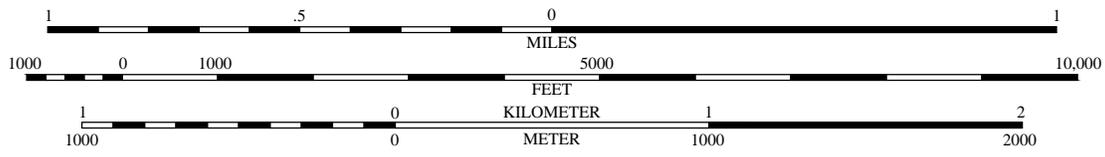
## **APPENDICES**

## **APPENDIX A – FIGURES**

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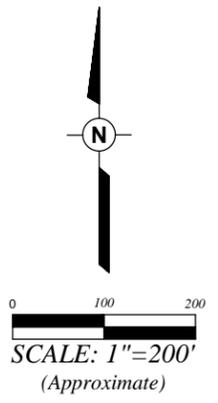
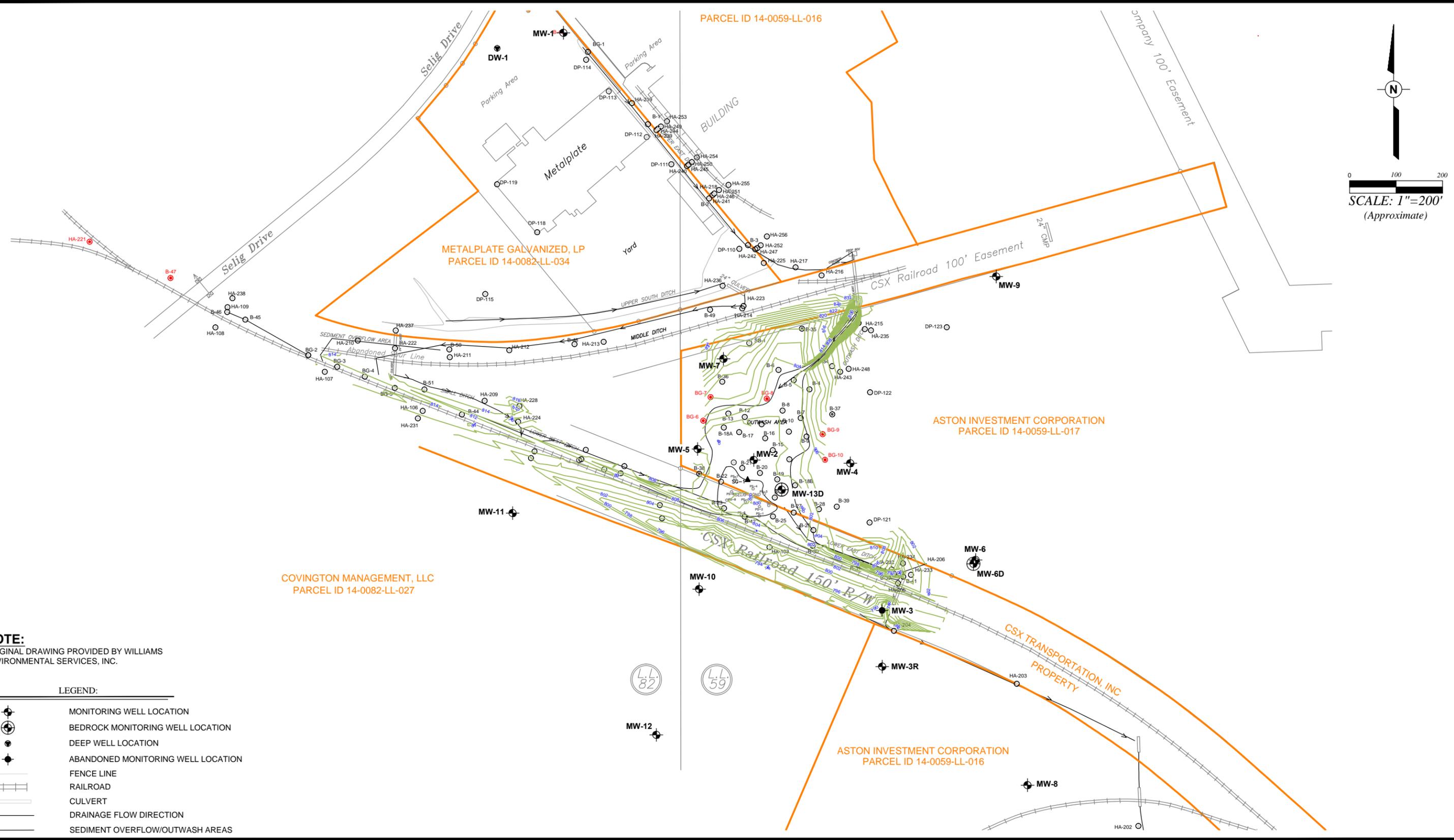
 <b>PPM CONSULTANTS, INC.</b> www.ppmco.com	
DRAWN BY: <b>BWH</b>	DRAWN DATE: <b>1/13/14</b>
PROJECT NUMBER: <b>494501</b>	BILLING GROUP: <b>GWM13</b>

**METALPLATE GALVANIZING, L.P.**  
**METALPLATE FACILITY/SELIG POND**  
 505 SELIG DRIVE SW  
 ATLANTA, GEORGIA

**SITE LOCATION MAP**

FIGURE NUMBER  
**1**

Z:\Metalplate Galvanizing\_LP\494501 - Metalplate Facility Selig Pond\Gwm13\494501-Gwm13.dwg, 2 sm, 2/4/2014 1:36:32 PM, brian hicks



**NOTE:**  
ORIGINAL DRAWING PROVIDED BY WILLIAMS ENVIRONMENTAL SERVICES, INC.

**LEGEND:**

	MONITORING WELL LOCATION
	BEDROCK MONITORING WELL LOCATION
	DEEP WELL LOCATION
	ABANDONED MONITORING WELL LOCATION
	FENCE LINE
	RAILROAD
	CULVERT
	DRAINAGE FLOW DIRECTION
	SEDIMENT OVERFLOW/OUTWASH AREAS

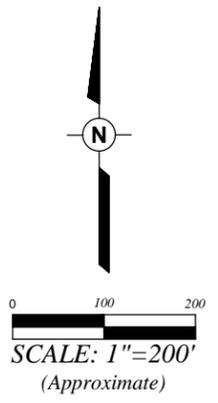
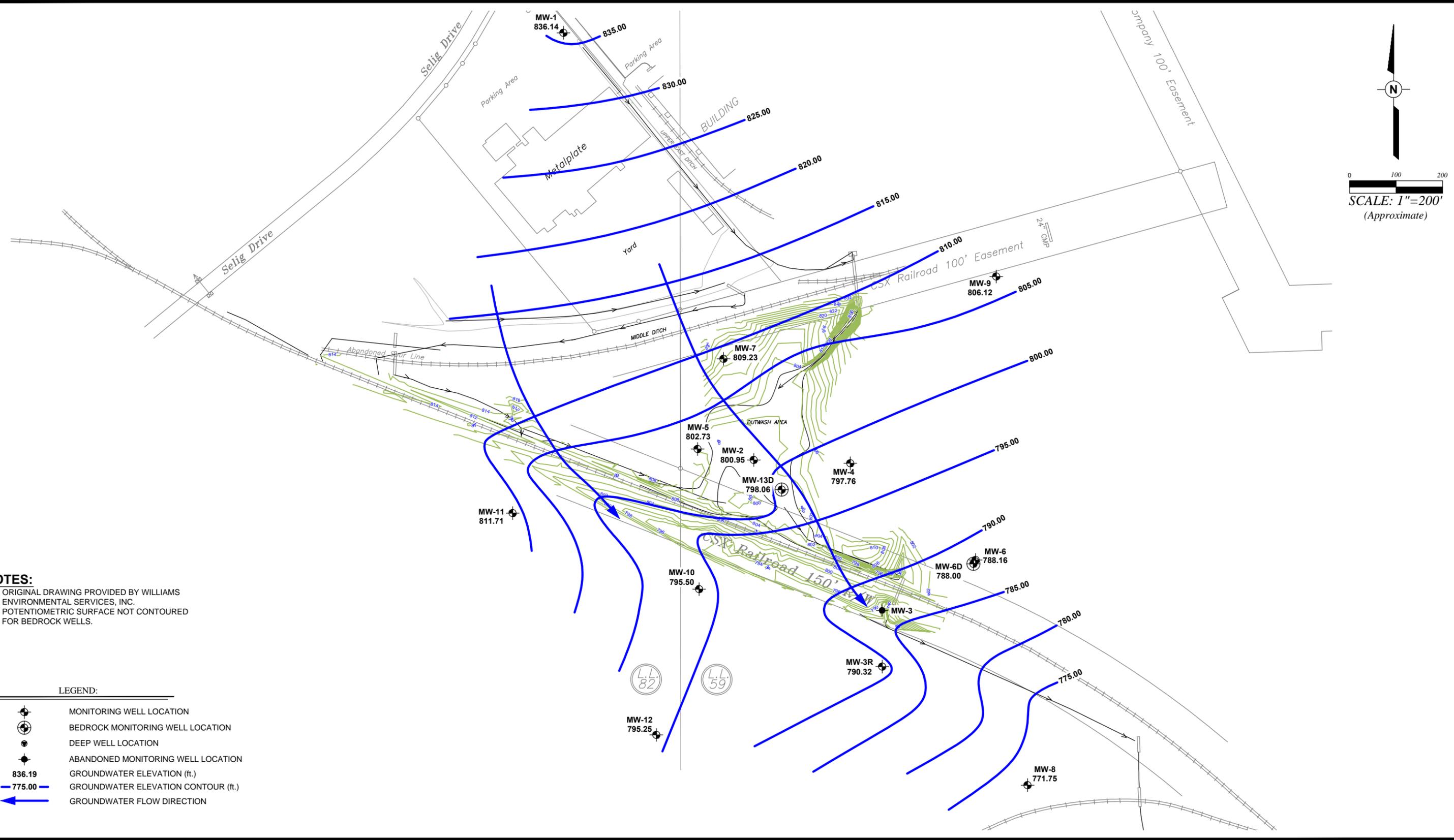
<b>PPM</b> PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 1/13/14
PROJECT NUMBER: 494501	BILLING GROUP: GWM13

**METALPLATE GALVANIZING, L.P.**  
METALPLATE FACILITY/SELIG POND  
505 SELIG DRIVE SW  
ATLANTA, GEORGIA

SITE MAP

FIGURE NUMBER  
**2**

Z:\Metalplate Galvanizing\_L.P\494501 - Metalplate Facility Selig Pond\Gwm13\494501-Gwm13.dwg, 3 gw, 2/11/2014 1:36:44 PM, brian hicks



- NOTES:**
1. ORIGINAL DRAWING PROVIDED BY WILLIAMS ENVIRONMENTAL SERVICES, INC.
  2. POTENTIOMETRIC SURFACE NOT CONTOURED FOR BEDROCK WELLS.

**LEGEND:**

	MONITORING WELL LOCATION
	BEDROCK MONITORING WELL LOCATION
	DEEP WELL LOCATION
	ABANDONED MONITORING WELL LOCATION
836.19	GROUNDWATER ELEVATION (ft.)
775.00	GROUNDWATER ELEVATION CONTOUR (ft.)
	GROUNDWATER FLOW DIRECTION

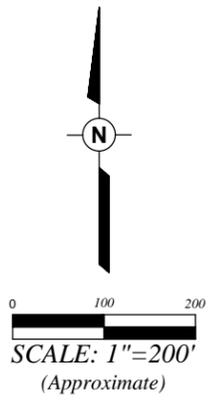
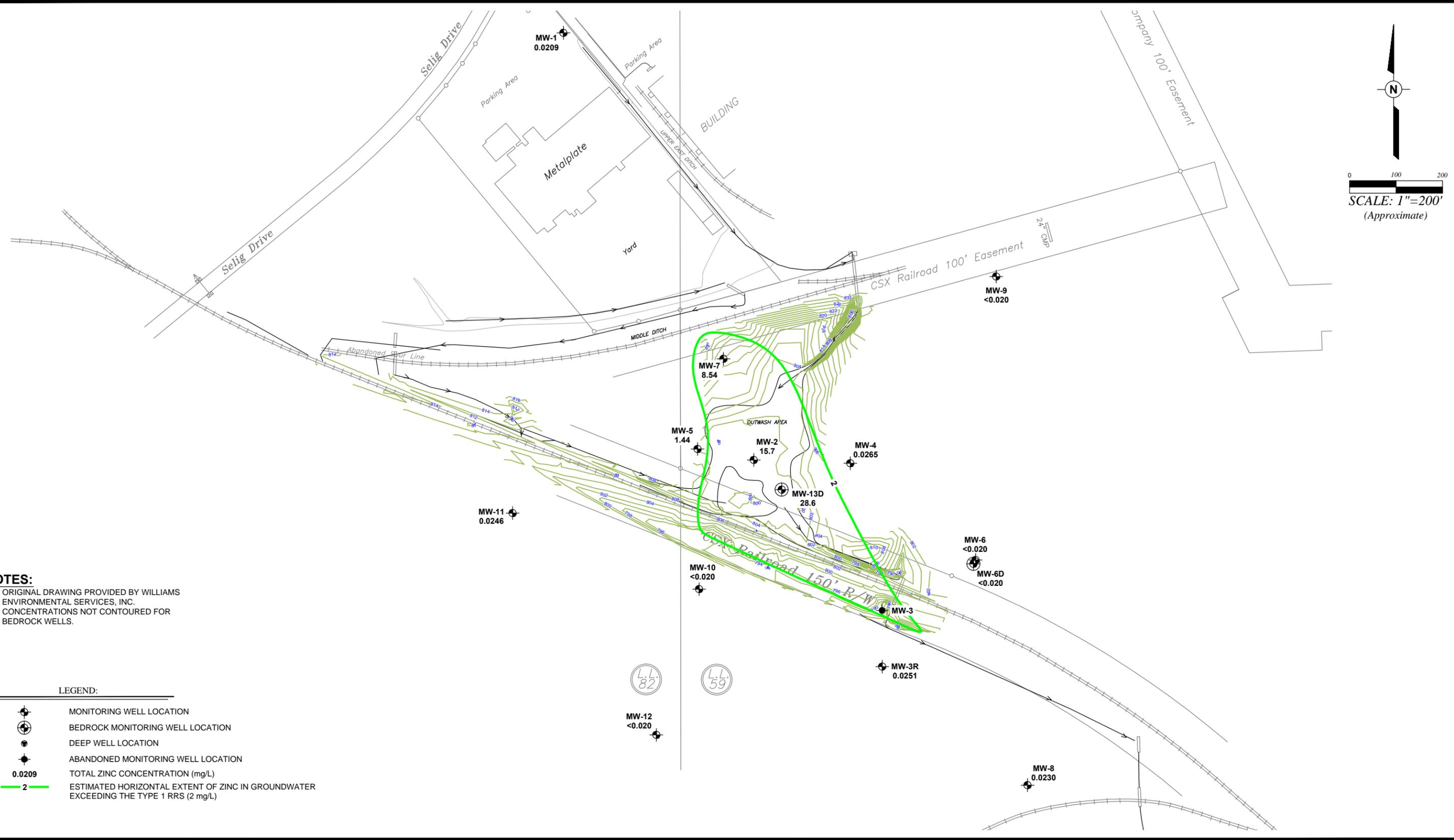
<b>PPM</b> PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 1/13/14
PROJECT NUMBER: 494501	BILLING GROUP: GWM13

**METALPLATE GALVANIZING, L.P.**  
**METALPLATE FACILITY/SELIG POND**  
 505 SELIG DRIVE SW  
 ATLANTA, GEORGIA

**GROUNDWATER ELEVATION MAP**  
 (OCTOBER 21, 2013)

FIGURE NUMBER  
**3**

Z:\Metalplate Galvanizing\_L\494501 - Metalplate Facility Selig Pond\Gwm13\494501-Gwm13.dwg, 4 zinc, 2/4/2014 1:36:55 PM, brian hicks



- NOTES:**
1. ORIGINAL DRAWING PROVIDED BY WILLIAMS ENVIRONMENTAL SERVICES, INC.
  2. CONCENTRATIONS NOT CONTOURED FOR BEDROCK WELLS.

- LEGEND:**
- MONITORING WELL LOCATION
  - BEDROCK MONITORING WELL LOCATION
  - DEEP WELL LOCATION
  - ABANDONED MONITORING WELL LOCATION
  - 0.0209** TOTAL ZINC CONCENTRATION (mg/L)
  - 2** ESTIMATED HORIZONTAL EXTENT OF ZINC IN GROUNDWATER EXCEEDING THE TYPE 1 RRS (2 mg/L)

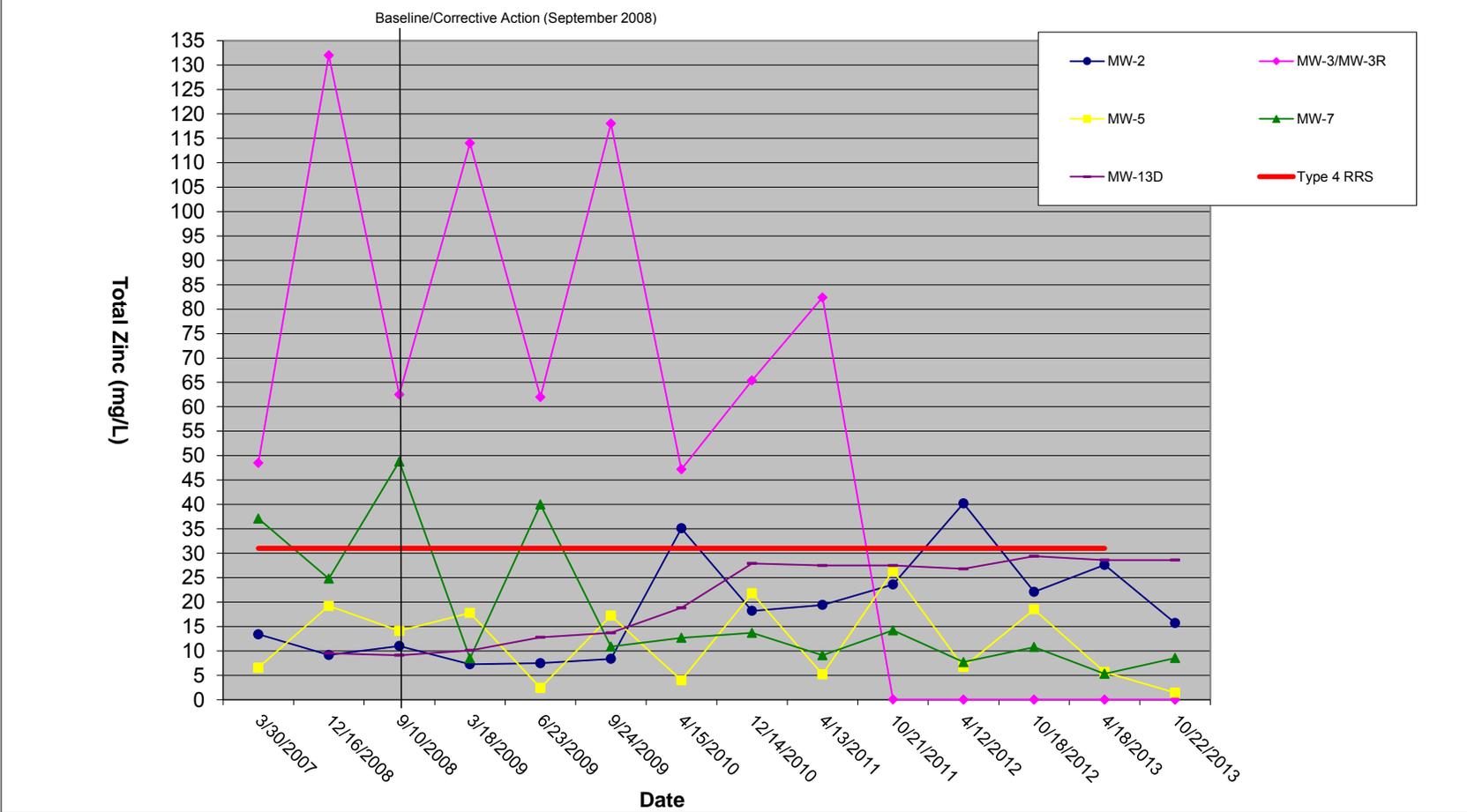
<b>PPM</b> PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 1/13/14
PROJECT NUMBER: 494501	BILLING GROUP: GWM13

**METALPLATE GALVANIZING, L.P.**  
**METALPLATE FACILITY/SELIG POND**  
 505 SELIG DRIVE SW  
 ATLANTA, GEORGIA

**TOTAL ZINC ISOCONCENTRATION MAP**  
 (OCTOBER 2013)

FIGURE NUMBER  
**4**

**FIGURE 5  
Total Zinc Concentration vs Time**



	Baseline													
	Mar-07	Dec-08	Sep-08	Mar-09	Jun-09	Sep-09	Apr-10	Dec-10	Apr-11	Oct-11	Apr-12	Oct-12	Apr-13	Oct-13
MW-2	13.4	9.17	11.0	7.25	7.48	8.36	35.1	18.2	19.4	23.6	40.2	22.1	27.6	15.7
MW-3/MW-3R	48.5	132	62.5	114	62.0	118	47.2	65.4	82.4	0.0387	<0.020	<0.020	<0.020	0.0251
MW-5	6.59	19.2	14.1	17.8	2.44	17.2	4.00	21.8	5.19	26.4	6.71	18.5	5.7	1.44
MW-7	37.1	24.8	48.8	8.46	40.0	10.9	12.7	13.7	9.13	14.2	7.70	10.8	5.3	8.54
MW-13D		9.53	9.12	10.1	12.8	13.7	18.8	27.9	27.5	27.5	26.8	29.4	28.6	28.6
Type 4 RRS	31	31	31	31	31	31	31	31	31	31	31	31	31	31

Not Applicable

**APPENDIX B – GROUNDWATER SAMPLING FIELD LOGS**

# GROUNDWATER SAMPLING FIELD LOG

## SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501.GWM13
SITE NAME:	Metalplate	SAMPLING DATE:	10/22/13
LOCATION:	Atlanta Georgia	WEATHER:	Cloudy
WELL I.D.:	<b>MW-1</b>		
SAMPLER'S NAME:	JMS/JB		

## WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	855.16
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	<del>40.00</del> 17.92
Well Depth (ft-BTOC)	23.08	Well Volume (gal)	0.84
Water Column (ft)	5.16	Screened Interval (ft-BGS)	13-23

## WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-flow
Pump Type	Monsoon variable speed submersible pump
Tubing Type	0.170 I.D.
Time of Sampling	9:00
Pumping Flow Rate (gpm)	~0.036 gpm
Pump/Tubing depth (ft-BTOC)	19.0' BTOC

## WATER QUALITY PARAMETERS

	Initial					
Time	8:45	8:50	8:55	89:00		
Depth to water (ft-BTOC)		18.45	18:56	18.87		
Amount Purged	-	<0.25G		~0.5		
Temperature (°C)	17.7	19.2	19.4	19.5		
Sp. Cond. (uS/cm)	11.6	11.8	11.3	11.1		
pH (S.U.)	5.17	5.08	5.04	5.03		
ORP (mV)	204	220	224	228		
Turbidity (NTU)	7.96	3.05	2.25	0.90		

## LABORATORY DATA

Sample I.D.	MW-1	Sample Time:	9:00
Analyte	Total Zinc/Dissolved Zinc		
Containers/Preservative	250 ml (Nitric)/ 500 ml (unpreserved)		

REMARKS AND OBSERVATIONS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# GROUNDWATER SAMPLING FIELD LOG

## SITE INFORMATION

CLIENT: Metalplate Galvanizing PROJECT NO.: 494501.GWM13  
 SITE NAME: Metalplate SAMPLING DATE: 10/22/13  
 LOCATION: Atlanta Georgia WEATHER: CLOUDY  
 WELL I.D.: MW-2  
 SAMPLER'S NAME: JMS/JB

## WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material PVC Reference Pt. (TOC) 805.55  
 Casing Diameter (in.) 2" Depth to Water (ft-BTOC) 3.38  
 Well Depth (ft-BTOC) 15.43 Well Volume (gal) 1.96  
 Water Column (ft) 12.05 Screened Interval (ft-BGS) 2-12

## WATER SAMPLE COLLECTION DATA

Method of Sampling Low-flow  
 Pump Type Monsoon variable speed submersible pump  
 Tubing Type 0.170 I.D.  
 Time of Sampling 17:25  
 Pumping Flow Rate (gpm) ~0.05 gpm  
 Pump/Tubing depth (ft-BTOC) 8' BTOC

## WATER QUALITY PARAMETERS

	Initial					
Time	17:10	17:15	17:20	17:25		
Depth to water (ft-BTOC)	3.47	3.48	3.48	3.50		
Amount Purged	-	~0.25	~0.5	~0.75		
Temperature (°C)	19.7	19.9	19.8	19.8		
Sp. Cond. ( $\mu\text{S/cm}$ )	43.4	44.7	<del>45.1</del> 45.1	45.4		
pH (S.U.)	4.56	4.17	4.11	4.10		
ORP (mV)	270	292	296	298		
Turbidity (NTU)	4.27	2.73	1.96	0.55		

## LABORATORY DATA

Sample I.D.	MW-2	Sample Time: 17:25	
Analyte	Total Zinc/Dissolved Zinc		
Containers/Preservative	250 ml (Nitric)/ 500 ml (unpreserved)		

REMARKS AND OBSERVATIONS: CONTAINED PURGE WATER, PUT IN PICKLE TANK

# GROUNDWATER SAMPLING FIELD LOG

## SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501.GWM13
SITE NAME:	Metalplate	SAMPLING DATE:	10/21/13
LOCATION:	Atlanta Georgia	WEATHER:	P. CLOUDY ~ 75°
WELL I.D.:	<b>MW-3R</b>		
SAMPLER'S NAME:	JMS/JB		

## WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	831.70
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	40.28
Well Depth (ft-BTOC)	51.98	Well Volume (gal)	1.90
Water Column (ft)	11.7	Screened Interval (ft-BGS)	40 - 50

## WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-flow
Pump Type	Monsoon variable speed submersible pump
Tubing Type	0.170 I.D.
Time of Sampling	15:25
Pumping Flow Rate (gpm)	< 0.1 gpm
Pump/Tubing depth (ft-BTOC)	45' BTOC

## WATER QUALITY PARAMETERS

	Initial						
Time	14:25	14:30	14:40	14:50	15:00	15:10	15:25
Depth to water (ft-BTOC)		41.20	41.86	42.09	42.75	43.20	44.43
Amount Purged	-			0.56			~2.56
Temperature (°C)	18.3	18.5	19.3	19.5	20.0	20.2	19.9
Sp. Cond. (uS/cm)	41.2	40.6	39.1	39.2	39.7	40.5	41.4
pH (S.U.)	6.12	6.16	6.18	6.21	6.26	6.28	6.29
ORP (mV)	-96	-106	-112	-117	-126	-132	-136
Turbidity (NTU)	NM	NM	41.5	53.9	24.7	13.8	18.1

## LABORATORY DATA

Sample I.D.	<b>MW-3R</b>	Sample Time:	15:25
Analyte	Total Zinc/Dissolved Zinc		
Containers/Preservative	250 ml (Nitric)/ 500 ml (unpreserved)		

REMARKS AND OBSERVATIONS: \_\_\_\_\_

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# GROUNDWATER SAMPLING FIELD LOG

## SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501.GWM13
SITE NAME:	Metalplate	SAMPLING DATE:	10/22/13
LOCATION:	Atlanta Georgia	WEATHER:	CLOUDY (LT. RAIN)
WELL I.D.:	<b>MW-4</b>		
SAMPLER'S NAME:	JMS/JB		

## WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	814.78
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	18.59
Well Depth (ft-BTOC)	30.35	Well Volume (gal)	1.91
Water Column (ft)	<del>30.35</del> 11.76	Screened Interval (ft-BGS)	18-28

## WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-flow
Pump Type	Monsoon variable speed submersible pump
Tubing Type	0.170 I.D.
Time of Sampling	11:25
Pumping Flow Rate (gpm)	< 0.1 gpm
Pump/Tubing depth (ft-BTOC)	23' BTOC

## WATER QUALITY PARAMETERS

	Initial					
Time	11:00	11:10	11:20	11:25		
Depth to water (ft-BTOC)	18.81	18.83	18.83	18.85		
Amount Purged	-	~1.06	~1.25	~1.5		
Temperature (°C)	16.2	16.6	16.8	16.8		
Sp. Cond. (uS/cm)	7.9	7.0	6.4	6.3		
pH (S.U.)	5.50	5.30	5.25	5.24		
ORP (mV)	210	223	228	231		
Turbidity (NTU)	48.7	9.02	3.49	2.33		

## LABORATORY DATA

Sample I.D.	<b>MW-4</b>	Sample Time:	11:25
Analyte	Total Zinc/Dissolved Zinc		
Containers/Preservative	250 ml (Nitric)/ 500 ml (unpreserved)		

**REMARKS AND OBSERVATIONS:** \_\_\_\_\_

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# GROUNDWATER SAMPLING FIELD LOG

## SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501.GWM13
SITE NAME:	Metalplate	SAMPLING DATE:	10/22/13
LOCATION:	Atlanta Georgia	WEATHER:	
WELL I.D.:	<b>MW-5</b>		
SAMPLER'S NAME:	JMS/JB		

## WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	813.26
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	9.43
Well Depth (ft-BTOC)	27.49	Well Volume (gal)	2.94
Water Column (ft)	18.06	Screened Interval (ft-BGS)	15-25

## WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-flow
Pump Type	Monsoon variable speed submersible pump
Tubing Type	0.170 I.D.
Time of Sampling	15:40
Pumping Flow Rate (gpm)	~ 0.04 gpm
Pump/Tubing depth (ft-BTOC)	20' BTOC

## WATER QUALITY PARAMETERS

	Initial				
Time	15:05	15:10	15:20	15:30	15:40
Depth to water (ft-BTOC)	9.69	9.61	9.70	9.71	9.69
Amount Purged	-	<0.25	~0.75	~1.06	~1.5
Temperature (°C)	17.4	17.7	17.7	17.7	17.6
Sp. Cond. ( $\mu\text{S}/\text{cm}$ )	0.159	0.158	0.159	0.159	0.159
pH (S.U.)	5.17	5.13	5.08	5.07	5.07
ORP (mV)	223	234	242	246	249
Turbidity (NTU)	18.0	48.3	34.2	14.6	25.8

## LABORATORY DATA

Sample I.D.	MW-5	Sample Time:	15:40
Analyte	Total Zinc/Dissolved Zinc		
Containers/Preservative	250 ml (Nitric)/ 500 ml (unpreserved)		

**REMARKS AND OBSERVATIONS:** \_\_\_\_\_

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## GROUNDWATER SAMPLING FIELD LOG

### SITE INFORMATION

CLIENT:	<u>Metalplate Galvanizing</u>	PROJECT NO.:	<u>494501.GWM13</u>
SITE NAME:	<u>Metalplate</u>	SAMPLING DATE:	<u>10/22/2013</u>
LOCATION:	<u>Atlanta Georgia</u>	WEATHER:	<u>P CLOUDY</u>
WELL I.D.:	<u>MW-6</u>		
SAMPLER'S NAME:	<u>JMS/JB</u>		

### WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	<u>PVC</u>	Reference Pt. (TOC)	<u>819.53</u>
Casing Diameter (in.)	<u>2"</u>	Depth to Water (ft-BTOC)	<u>30.27</u>
Well Depth (ft-BTOC)	<u>39.44</u>	Well Volume (gal)	<u>1.49</u>
Water Column (ft)	<u>9.17</u>	Screened Interval (ft-BGS)	<u>23-38</u>

### WATER SAMPLE COLLECTION DATA

Method of Sampling	<u>Low-flow</u>
Pump Type	<u>Monsoon variable speed submersible pump</u>
Tubing Type	<u>0.170 I.D.</u>
Time of Sampling	<u>13:15</u>
Pumping Flow Rate (gpm)	<u>0.066 gpm</u>
Pump/Tubing depth (ft-BTOC)	<u>35' BTOC</u>

### WATER QUALITY PARAMETERS

	Initial					
Time	<u>12:25</u>	<u>12:35</u>	<u>12:45</u>	<u>12:55</u>	<u>13:05</u>	<u>13:15</u>
Depth to water (ft-BTOC)		<u>30.45</u>	<u>30.48</u>	<u>30.50</u>	<u>30.52</u>	<u>30.53</u>
Amount Purged	<u>—</u>	<u>~0.5g</u>	<u>~1.0g</u>	<u>~1.5</u>	<u>~2.0</u>	<u>3.0</u>
Temperature (°C)	<u>16.1</u>	<u>16.9</u>	<u>17.0</u>	<u>17.0</u>	<u>17.0</u>	<u>17.0</u>
Sp. Cond. <sup>mS/cm</sup>	<u>8.2</u>	<u>7.7</u>	<u>7.6</u>	<u>7.6</u>	<u>7.5</u>	<u>7.5</u>
pH (S.U.)	<u>5.56</u>	<u>5.36</u>	<u>5.34</u>	<u>5.32</u>	<u>5.31</u>	<u>5.32</u>
ORP (mV)	<u>202</u>	<u>218</u>	<u>223</u>	<u>226</u>	<u>228</u>	<u>230</u>
Turbidity (NTU)	<u>103.7</u>	<u>130</u>	<u>62.8</u>	<u>15.5</u>	<u>6.25</u>	<u>3.42</u>

### LABORATORY DATA

Sample I.D.	<u>MW-6</u>	Sample Time:	<u>13:15</u>
Analyte	<u>Total Zinc/Dissolved Zinc</u>		
Containers/Preservative	<u>250 ml (Nitric)/ 500 ml (unpreserved)</u>		

REMARKS AND OBSERVATIONS: \_\_\_\_\_

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# GROUNDWATER SAMPLING FIELD LOG

## SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501.GWM13
SITE NAME:	Metalplate	SAMPLING DATE:	10/22/2013
LOCATION:	Atlanta Georgia	WEATHER:	P CLOUDY
WELL I.D.:	<b>MW-6D</b>		
SAMPLER'S NAME:	JMS/JB		

## WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	818.74
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	29.64
Well Depth (ft-BTOC)	57.47	Well Volume (gal)	4.53
Water Column (ft)	27.83	Screened Interval (ft-BGS)	45-55

## WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-flow
Pump Type	Monsoon variable speed submersible pump
Tubing Type	0.170 I.D.
Time of Sampling	12:05
Pumping Flow Rate (gpm)	20.14 gpm
Pump/Tubing depth (ft-BTOC)	47' BTOC

## WATER QUALITY PARAMETERS

	Initial					
Time	11:45	11:50	12:00	12:05		
Depth to water (ft-BTOC)		30.59	30.62	30.65		
Amount Purged	—	~0.25	~1.0	~1.5		
Temperature (°C)	16.3	16.6	16.6	16.6		
Sp. Cond. (uS/cm)	11.1	11.2	11.2	11.1		
pH (S.U.)	5.77	5.73	5.73	5.72		
ORP (mV)	206	205	203	201		
Turbidity (NTU)	7.05	1.39	1.30	1.23		

## LABORATORY DATA

Sample I.D.	MW-6D	Sample Time:	12:05
Analyte	Total Zinc/Dissolved Zinc		
Containers/Preservative	250 ml (Nitric)/ 500 ml (unpreserved)		

REMARKS AND OBSERVATIONS: \_\_\_\_\_

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# GROUNDWATER SAMPLING FIELD LOG

## SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501.GWM13
SITE NAME:	Metalplate	SAMPLING DATE:	10/22/13
LOCATION:	Atlanta Georgia	WEATHER:	cloudy
WELL I.D.:	<b>MW-7</b>		
SAMPLER'S NAME:	JMS/JB		

## WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	818.74
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	8.34
Well Depth (ft-BTOC)	17.46	Well Volume (gal)	1.48
Water Column (ft)	9.12	Screened Interval (ft-BGS)	5-20

## WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-flow
Pump Type	Monsoon variable speed submersible pump
Tubing Type	0.170 I.D.
Time of Sampling	17:00
Pumping Flow Rate (gpm)	~ 0.05 GPM.
Pump/Tubing depth (ft-BTOC)	14' BTOC

## WATER QUALITY PARAMETERS

	Initial						
Time	16:00	16:10	16:20	16:30	16:40	16:50	17:00
Depth to water (ft-BTOC)	8.45	8.40	8.39	8.44	8.43	8.47	8.48
Amount Purged	—	~0.5	~1.0	~1.75	2.0	~2.5	~3.0
Temperature (°C)	18.9	18.9	19.0	18.9	18.9	18.8	18.8
Sp. Cond. (µS/cm)	0.161	0.157	0.158	0.165	0.168	0.170	0.169
pH (S.U.)	4.94	4.92	4.91	4.86	4.84	4.82	4.83
ORP (mV)	256	262	265	270	273	276	277
Turbidity (NTU)	1,052	566	179	65.0	43.6	23.1	17.4

## LABORATORY DATA

Sample I.D.	MW-7	Sample Time:	17:00
Analyte	Total Zinc/Dissolved Zinc		
Containers/Preservative	250 ml (Nitric)/ 500 ml (unpreserved)		

REMARKS AND OBSERVATIONS: CONTAINED PURGE WATER, PUT IN PICKLE TANK

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# GROUNDWATER SAMPLING FIELD LOG

## SITE INFORMATION

CLIENT:	<u>Metalplate Galvanizing</u>	PROJECT NO.:	<u>494501.GWM13</u>
SITE NAME:	<u>Metalplate</u>	SAMPLING DATE:	<u>10/21/13</u>
LOCATION:	<u>Atlanta Georgia</u>	WEATHER:	<u>P. CLOUDY</u>
WELL I.D.:	<u>MW-8</u>		
SAMPLER'S NAME:	<u>JMS/JB</u>		

## WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	<u>PVC</u>	Reference Pt. (TOC)	<u>812.85</u>
Casing Diameter (in.)	<u>2"</u>	Depth to Water (ft-BTOC)	<u>40.00</u>
Well Depth (ft-BTOC)	<u>45.66</u>	Well Volume (gal)	<u>0.92</u>
Water Column (ft)	<u>5.66</u>	Screened Interval (ft-BGS)	<u>28-43</u>

## WATER SAMPLE COLLECTION DATA

Method of Sampling	<u>Low-flow</u>
Pump Type	<u>Monsoon variable speed submersible pump</u>
Tubing Type	<u>0.170 I.D.</u>
Time of Sampling	<u>13:55</u>
Pumping Flow Rate (gpm)	<u>&lt; 0.1 GPM</u>
Pump/Tubing depth (ft-BTOC)	<u>41.5 BTOC</u>

## WATER QUALITY PARAMETERS

	Initial				
Time	<u>13:34</u>	<u>13:39</u>	<u>13:44</u>	<u>13:49</u>	<u>13:54</u>
Depth to water (ft-BTOC)		<u>40.15</u>	<u>40.15</u>	<u>40.14</u>	<u>40.16</u>
Amount Purged	<u>-</u>				
Temperature (°C)	<u>18.2</u>	<u>18.7</u>	<u>18.9</u>	<u>19.0</u>	<u>19.0</u>
Sp. Cond. (uS/cm)	<u>54.0</u>	<u>51.3</u>	<u>51.2</u>	<u>51.0</u>	<u>51.0</u>
pH (S.U.)	<u>6.17</u>	<u>6.32</u>	<u>6.37</u>	<u>6.40</u>	<u>6.42</u>
ORP (mV)	<u>-134</u>	<u>-154</u>	<u>-151</u>	<u>-166</u>	<u>-168</u>
Turbidity (NTU)		<u>0.00</u>	<u>1.93</u>	<u>1.66</u>	<u>1.51</u>

## LABORATORY DATA

Sample I.D.	<u>MW-8</u>	Sample Time:	<u>13:55</u>
Analyte	<u>Total Zinc/Dissolved Zinc</u>		
Containers/Preservative	<u>250 ml (Nitric)/ 500 ml (unpreserved)</u>		

REMARKS AND OBSERVATIONS:

Cond. = mS/m

## GROUNDWATER SAMPLING FIELD LOG

### SITE INFORMATION

CLIENT:	<u>Metalplate Galvanizing</u>	PROJECT NO.:	<u>494501.GWM13</u>
SITE NAME:	<u>Metalplate</u>	SAMPLING DATE:	<u>10/22/13</u>
LOCATION:	<u>Atlanta Georgia</u>	WEATHER:	<u>P. CLOUDY</u>
WELL I.D.:	<u>MW-9</u>		
SAMPLER'S NAME:	<u>JMS/JB</u>		

### WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	<u>PVC</u>	Reference Pt. (TOC)	<u>839.39</u>
Casing Diameter (in.)	<u>2"</u>	Depth to Water (ft-BTOC)	<u>32.17</u>
Well Depth (ft-BTOC)	<u>46.76</u>	Well Volume (gal)	<u>2.37</u>
Water Column (ft)	<u>14.59</u>	Screened Interval (ft-BGS)	<u>21-43</u>

### WATER SAMPLE COLLECTION DATA

Method of Sampling	<u>Low-flow</u>
Pump Type	<u>Monsoon variable speed submersible pump</u>
Tubing Type	<u>0.170 I.D.</u>
Time of Sampling	<u>10:40</u>
Pumping Flow Rate (gpm)	<u>~0.05 gpm.</u>
Pump/Tubing depth (ft-BTOC)	<u>40' BTOC</u>

### WATER QUALITY PARAMETERS

	Initial					<u>10:25</u>	<u>10:35</u>	
Time	<u>09:40</u>	<u>09:45</u>	<u>09:55</u>	<u>10:05</u>	<u>10:15</u>	<del>10:35</del>	<del>10:45</del>	<u>10:40</u>
Depth to water (ft-BTOC)		<u>32.38</u>	<u>32.45</u>	<u>32.47</u>	<u>32.47</u>	<u>32.51</u>	<u>32.53</u>	<u>32.54</u>
Amount Purged	<u>—</u>		<u>~0.5</u>	<u>~1.0</u>	<u>~1.5</u>	<u>~2.25</u>	<u>~3.0</u>	<u>~3.0</u>
Temperature (°C)	<u>16.6</u>	<u>16.8</u>	<u>17.4</u>	<u>17.7</u>	<u>17.8</u>	<u>17.8</u>	<u>17.7</u>	<u>17.8</u>
Sp. Cond. (uS/cm)	<u>5.0</u>	<u>4.9</u>	<u>4.9</u>	<u>6.2</u>	<u>6.5</u>	<u>6.7</u>	<u>7.0</u>	<u>7.1</u>
pH (S.U.)	<u>5.60</u>	<u>5.58</u>	<u>5.51</u>	<u>5.56</u>	<u>5.56</u>	<u>5.56</u>	<u>5.57</u>	<u>5.58</u>
ORP (mV)	<u>197</u>	<u>199</u>	<u>208</u>	<u>207</u>	<u>206</u>	<u>256</u>	<u>207</u>	<u>207</u>
Turbidity (NTU)	<u>76.5</u>	<u>61.1</u>	<u>51.7</u>	<u>24.8</u>	<u>17.5</u>	<del>20.0</del> <u>12.1</u>	<u>6.88</u>	<u>5.34</u>

### LABORATORY DATA

Sample I.D.	<u>MW-9</u>	Sample Time:	<u>10:40</u>
Analyte	<u>Total Zinc/Dissolved Zinc</u>		
Containers/Preservative	<u>250 ml (Nitric)/ 500 ml (unpreserved)</u>		

REMARKS AND OBSERVATIONS: \_\_\_\_\_

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# GROUNDWATER SAMPLING FIELD LOG

## SITE INFORMATION

CLIENT:	<u>Metalplate Galvanizing</u>	PROJECT NO.:	<u>494501.GWM13</u>
SITE NAME:	<u>Metalplate</u>	SAMPLING DATE:	<u>10/21/13</u>
LOCATION:	<u>Atlanta Georgia</u>	WEATHER:	<u>P. CLOUDY</u>
WELL I.D.:	<u>MW-10</u>		
SAMPLER'S NAME:	<u>JMS/JB</u>		

## WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	<u>PVC</u>	Reference Pt. (TOC)	<u>833</u>
Casing Diameter (in.)	<u>2"</u>	Depth to Water (ft-BTOC)	<u>36.40</u>
Well Depth (ft-BTOC)	<u>49.45</u>	Well Volume (gal)	<u>2.12</u>
Water Column (ft)	<u>13.05</u>	Screened Interval (ft-BGS)	<u>35-50</u>

## WATER SAMPLE COLLECTION DATA

Method of Sampling	<u>Low-flow</u>
Pump Type	<u>Monsoon variable speed submersible pump</u>
Tubing Type	<u>0.170 I.D.</u>
Time of Sampling	<u>1800</u>
Pumping Flow Rate (gpm)	<u>~0.075 gpm</u>
Pump/Tubing depth (ft-BTOC)	<u>43' BTOC</u>

## WATER QUALITY PARAMETERS

	Initial						
Time	<u>17:00</u>	<u>17:15</u>	<u>17:25</u>	<u>17:35</u>	<u>17:45</u>	<u>17:55</u>	<u>18:00</u>
Depth to water (ft-BTOC)		<u>37.19</u>	<u>37.36</u>	<u>37.44</u>	<u>37.35</u>	<u>37.31</u>	<u>37.33</u>
Amount Purged	<u>—</u>	<u>~1.5G.</u>	<u>~2.0</u>	<u>~2.75</u>	<u>~3.75</u>	<u>~4.25</u>	<u>~4.50</u>
Temperature (°C)	<u>19.6</u>	<u>20.2</u>	<u>20.3</u>	<u>20.4</u>	<u>20.6</u>	<u>20.8</u>	<u>20.8</u>
Sp. Cond. (µS/cm)	<u>8.2</u>	<u>7.8</u>	<u>7.8</u>	<u>8.0</u>	<u>8.2</u>	<u>8.6</u>	<u>8.8</u>
pH (S.U.)	<u>5.66</u>	<u>5.42</u>	<u>5.40</u>	<u>5.40</u>	<u>5.41</u>	<u>5.42</u>	<u>5.43</u>
ORP (mV)	<u>143</u>	<u>175</u>	<u>172</u>	<u>145</u>	<u>130</u>	<u>113</u>	<u>107</u>
Turbidity (NTU)	<u>NM</u>	<u>121</u>	<u>45.4</u>	<u>14.5</u>	<u>10.77</u>	<u>6.18</u>	

## LABORATORY DATA

Sample I.D.	<u>MW-10</u>	Sample Time:	<u>1800</u>
Analyte	<u>Total Zinc/Dissolved Zinc</u>		
Containers/Preservative	<u>250 ml (Nitric)/ 500 ml (unpreserved)</u>		

REMARKS AND OBSERVATIONS: \_\_\_\_\_

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# GROUNDWATER SAMPLING FIELD LOG

## SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501.GWM13
SITE NAME:	Metalplate	SAMPLING DATE:	10/21/13
LOCATION:	Atlanta Georgia	WEATHER:	P. CLOUDY
WELL I.D.:	<b>MW-11</b>		
SAMPLER'S NAME:	JMS/JB		

## WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	833.06
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	20.25
Well Depth (ft-BTOC)	49.79	Well Volume (gal)	4.81
Water Column (ft)	29.54	Screened Interval (ft-BGS)	35-50

## WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-flow
Pump Type	Monsoon variable speed submersible pump
Tubing Type	0.170 I.D.
Time of Sampling	16:35
Pumping Flow Rate (gpm)	< 0.16 gpm
Pump/Tubing depth (ft-BTOC)	40' BTOC

## WATER QUALITY PARAMETERS

	Initial					
Time	16:00	16:15	16:25	16:35		
Depth to water (ft-BTOC)	21.59	22.21	22.26	22.29		
Amount Purged	—		1.756.			
Temperature (°C)	20.8	21.7	21.7	21.7		
Sp. Cond. (µS/cm)	18.5	18.3	18.5	18.4		
pH (S.U.)	5.97	5.82	5.79	5.80		
ORP (mV)	73	114	127	132		
Turbidity (NTU)	WM	28.9	8.91	4.99		

## LABORATORY DATA

Sample I.D.	MW-11	Sample Time:	16:35
Analyte	Total Zinc/Dissolved Zinc		
Containers/Preservative	250 ml (Nitric)/ 500 ml (unpreserved)		

**REMARKS AND OBSERVATIONS:** \_\_\_\_\_

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## GROUNDWATER SAMPLING FIELD LOG

### SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501.GWM13
SITE NAME:	Metalplate	SAMPLING DATE:	10/21/13
LOCATION:	Atlanta Georgia	WEATHER:	P. CLOUDY
WELL I.D.:	<b>MW-12</b>		
SAMPLER'S NAME:	JMS/JB		

### WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	836.98
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	40.63
Well Depth (ft-BTOC)	49.96	Well Volume (gal)	1.52
Water Column (ft)	9.33	Screened Interval (ft-BGS)	35-50

### WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-flow
Pump Type	Monsoon variable speed submersible pump
Tubing Type	0.170 I.D.
Time of Sampling	19:06
Pumping Flow Rate (gpm)	~0.056 gpm
Pump/Tubing depth (ft-BTOC)	45' BTOC

### WATER QUALITY PARAMETERS

	Initial					
Time	18:21	18:26	18:36	18:46	18:56	19:06
Depth to water (ft-BTOC)	NM	40.78	40.81	40.90	40.91	40.92
Amount Purged	-	-	~0.756	~1.25	~2.0	~2.5
Temperature (°C)	19.5	19.9	20.6	20.6	20.7	20.6
Sp. Cond. (uS/cm)	8.3	8.3	8.4	8.6	8.7	9.1
pH (S.U.)	5.87	5.85	5.83	5.81	5.80	5.79
ORP (mV)	97	118	137	147	152	157
Turbidity (NTU)	<del>29.3</del> 29.3	34.0	23.1	8.86	6.43	4.09

### LABORATORY DATA

Sample I.D.	MW-12	Sample Time:	19:06
Analyte	Total Zinc/Dissolved Zinc		
Containers/Preservative	250 ml (Nitric)/ 500 ml (unpreserved)		

REMARKS AND OBSERVATIONS: \_\_\_\_\_

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# GROUNDWATER SAMPLING FIELD LOG

## SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501.GWM13
SITE NAME:	Metalplate	SAMPLING DATE:	10/22/13
LOCATION:	Atlanta Georgia	WEATHER:	
WELL I.D.:	<b>MW-13D</b>		
SAMPLER'S NAME:	JMS/JB		

## WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	805.55
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	6.37
Well Depth (ft-BTOC)	56.17	Well Volume (gal)	8.11
Water Column (ft)	49.80	Screened Interval (ft-BGS)	51-53

## WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-flow
Pump Type	Monsoon variable speed submersible pump
Tubing Type	0.170 I.D.
Time of Sampling	14:07
Pumping Flow Rate (gpm)	< 0.1 gpm
Pump/Tubing depth (ft-BTOC)	51.5' BTOC

## WATER QUALITY PARAMETERS

	Initial					
Time	13:52	13:57	14:02	14:07		
Depth to water (ft-BTOC)	8.17	8.14	8.15	8.16		
Amount Purged	—	~0.5G	~0.75	~1.0		
Temperature (°C)	17.0	17.3	17.2	0.160		
Sp. Cond. (µS/cm)	0.159	0.159	0.160	0.160		
pH (S.U.)	5.08	5.02	5.01	5.01		
ORP (mV)	242	232	235	238		
Turbidity (NTU)	9.37	2.04	0.55	1.49		

## LABORATORY DATA

Sample I.D.	MW-13D	Sample Time:	14:07
Analyte	Total Zinc/Dissolved Zinc		
Containers/Preservative	250 ml (Nitric)/ 500 ml (unpreserved)		

REMARKS AND OBSERVATIONS: CONTAINED PURGE WATER, GAVE TO MP TO PUT IN PICKLE TANK.

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## **APPENDIX C – TABLES**

**TABLE 1  
INTRINSIC GROUNDWATER PARAMETERS  
METALPLATE GALVANIZING FACILITY  
ATLANTA, GEORGIA**

SAMPLE I.D.	SAMPLE DATE	pH (S.U.)	TEMPERATURE (°C)	SPECIFIC CONDUCTIVITY (µS/cm)	OXIDATION REDUCTION POTENTIAL (mV)	TURBIDITY (NTU)
MW-1	4/15/2010	5.22	18.8	94	257.7	1.63
	12/14/2010	5.10	18.8	13	-17.1	0.00
	4/12/2011	5.04	18.1	116	167.3	4.24
	10/21/2011	5.28	20.1	101	317.6	5.28
	4/12/2012	5.29	20.5	80	175.4	4.08
	10/18/2012	5.23	20.9	86	82.8	57.0
	4/18/2013	4.62	19.9	87	99.1	7.99
	10/22/2013	5.03	19.5	111	228.0	0.90
MW-2	4/15/2010	4.27	15.7	350	306.1	0.75
	12/14/2010	4.09	10.9	17	NM*	0.00
	4/12/2011	4.04	15.2	287	171.4	1.36
	10/20/2011	4.23	20.2	380	368.8	1.05
	4/12/2012	4.10	18.2	636	247.8	3.52
	10/18/2012	4.14	21.0	374	136.4	2.54
	4/18/2013	3.93	17.6	490	102.7	2.52
	10/22/2013	4.10	19.8	454	298.0	0.55
MW-3	4/15/2010	4.17	14.6	1,015	287.0	476
	12/14/2010	3.99	11.3	16	NM*	254
	4/12/2011	4.10	12.4	19	-1,314.1	2,481
MW-3R	8/26/2011	6.10	25.2	238	38.0	192
	10/20/2011	6.26	19.0	438	-13.4	238
	4/11/2012	6.42	19.4	340	-78.8	12.1
	10/17/2012	6.38	20.8	389	-77.6	64.3
	4/17/2013	6.03	20.9	369	-61.5	17.1
	10/21/2013	6.29	19.9	414	-136.0	18.1
MW-4	4/15/2010	5.56	15.0	58	228.0	7.93
	12/14/2010	5.21	14.9	36	167.3	0.00
	4/12/2011	5.05	15.7	41	126.9	2.21
	10/21/2011	5.45	15.8	55	310.2	5.32
	4/12/2012	5.53	16.0	38	180.8	16.3
	10/18/2012	5.43	17.0	49	68.2	4.60
	4/18/2013	4.68	17.3	34	84.2	4.23
	10/22/2013	5.24	16.8	63	231.0	2.33
MW-5	4/15/2010	5.19	15.8	1,415	265.0	9.23
	12/14/2010	4.85	15.3	1,207	200.8	10.3
	4/12/2011	4.99	16.0	1,452	131.4	7.98
	10/20/2011	4.55	17.0	1,403	414.4	2.95
	4/12/2012	5.13	16.0	1,183	166.9	31.4
	10/18/2012	4.56	17.6	1,085	111.8	4.99
	4/18/2013	4.74	16.1	1,129	54.6	4.99
	10/22/2013	5.07	17.6	1,590	249.0	25.8
MW-6	4/15/2010	5.44	16.4	47	229.0	46.4
	12/13/2010	5.34	15.2	44	199.6	1.68
	4/12/2011	5.36	17.0	56	115.9	6.35
	10/21/2011	5.74	15.8	64	187.5	3.37
	4/12/2012	5.70	16.8	47	178.1	5.63
	10/18/2012	5.56	17.5	54	92.4	9.80
	4/18/2013	5.03	17.8	51	72.2	20.0
	10/22/2013	5.32	17.0	75	230.0	3.42

**TABLE 1  
INTRINSIC GROUNDWATER PARAMETERS  
METALPLATE GALVANIZING FACILITY  
ATLANTA, GEORGIA**

SAMPLE I.D.	SAMPLE DATE	pH (S.U.)	TEMPERATURE (°C)	SPECIFIC CONDUCTIVITY (µS/cm)	OXIDATION REDUCTION POTENTIAL (mV)	TURBIDITY (NTU)
MW-6D	4/14/2010	5.84	16.9	80	171.2	46.1
	12/13/2010	5.73	14.8	70	146.1	40.0
	4/12/2011	5.77	16.4	90	72.7	1.16
	10/21/2011	5.65	15.5	97	189.0	5.19
	4/12/2012	6.07	15.6	74	150.4	4.14
	10/18/2012	5.84	16.7	76	55.2	4.36
	4/18/2013	5.25	17.0	85	60.2	8.42
	10/22/2013	5.72	16.6	111	201.0	1.23
MW-7	4/15/2010	4.94	14.5	1,165	286.3	5.05
	12/14/2010	4.70	16.5	20	NM*	315
	4/12/2011	4.90	14.7	1,344	131.1	17.3
	10/20/2011	4.69	18.1	1,772	377.9	5.28
	4/12/2012	5.03	15.8	1,218	179.4	16.7
	10/18/2012	4.56	18.9	1,485	102.3	8.52
	4/18/2013	4.82	14.9	914	68.9	105
	10/22/2013	4.83	18.8	1,690	277.0	17.4
MW-8	4/14/2010	6.55	19.3	462	-121.8	9.75
	12/13/2010	6.47	16.5	395	-107.5	0.00
	4/12/2011	6.54	18.2	458	-155.4	1.73
	10/20/2011	7.07	17.7	432	-56.6	5.05
	4/11/2012	6.67	18.6	374	-127.4	2.71
	10/17/2012	6.72	19.2	386	-124.5	2.62
	4/17/2013	6.21	19.7	420	-95.3	0.49
	10/21/2013	6.42	19.0	510	-168.0	1.51
MW-9	4/15/2010	5.56	17.1	25	213.5	2.85
	12/14/2010	5.56	15.2	40	151.5	1.81
	4/12/2011	5.54	17.6	54	116.3	8.87
	10/21/2011	5.71	16.5	70	309.1	3.61
	4/12/2012	5.87	16.9	56	171.6	2.23
	10/18/2012	5.61	17.7	72	62.5	3.02
	4/18/2013	4.96	17.8	79	67.8	2.92
	10/22/2013	5.58	17.8	71	207.0	5.34
MW-10	4/15/2010	6.24	20.3	225	-67.7	30.8
	12/13/2010	5.47	12.6	55	135.7	>1,100
	4/12/2011	5.87	19.2	217	-42.4	4.12
	10/20/2011	6.61	19.3	84	121.3	10.6
	4/11/2012	6.04	20.1	135	22.6	14.5
	10/17/2012	5.82	20.0	100	-4.7	40.1
	4/17/2013	5.32	20.3	105	39.8	11.4
	10/21/2013	5.43	20.8	88	107.0	6.18
MW-11	4/15/2010	5.95	22.0	150	168.3	4.00
	12/13/2010	5.97	18.5	121	149.9	4.61
	4/12/2011	5.77	21.4	143	114.7	5.37
	10/20/2011	6.81	20.5	134	165.4	18.3
	4/11/2012	6.04	21.7	136	156.6	5.87
	10/17/2012	5.99	21.4	131	17.7	2.24
	4/17/2013	5.59	21.5	151	43.2	3.59
	10/21/2013	5.80	21.7	184	132.0	4.99

**TABLE 1**  
**INTRINSIC GROUNDWATER PARAMETERS**  
**METALPLATE GALVANIZING FACILITY**  
**ATLANTA, GEORGIA**

SAMPLE I.D.	SAMPLE DATE	pH (S.U.)	TEMPERATURE (°C)	SPECIFIC CONDUCTIVITY (µS/cm)	OXIDATION REDUCTION POTENTIAL (mV)	TURBIDITY (NTU)
MW-12	4/14/2010	NL	NL	NL	NL	NL
	12/13/2010	5.67	16.9	66	163.4	3.85
	4/12/2011	5.74	19.6	78	101.8	3.65
	10/20/2011	6.74	19.5	82	179.7	2.18
	4/11/2012	6.07	20.2	65	160.9	9.51
	10/17/2012	5.87	20.4	67	53.9	46.1
	4/17/2013	5.41	20.2	69	78.3	4.82
	10/21/2013	5.79	20.6	91	157.0	4.09
MW-13D	4/15/2010	5.29	16.7	1,315	195.1	7.14
	12/14/2010	5.05	14.3	1,214	212.8	0.00
	4/12/2011	4.99	16.0	1,532	102.1	7.93
	10/20/2011	5.14	17.0	1,575	195.6	4.35
	4/12/2012	5.24	16.2	1,236	146.7	4.70
	10/18/2012	5.13	17.4	1,231	78.6	2.93
	4/18/2013	4.88	17.5	1,213	45.7	1.23
		10/22/2013	5.01	17.2	1,600	238.0

Notes: S.U. - Standard Units  
µS/cm - microSiemens/centimeter  
°C - degrees Celsius  
mV - millivolts  
ppm - parts per million  
NTU - Nephelometric Turbidity Units  
NL - Not located  
NM\* - Not measured due to equipment malfunction

Source: PPM Consultants, Inc.  
PPM Project No. 494501.GWM13

**TABLE 2  
GROUNDWATER DEPTHS AND ELEVATIONS  
METALPLATE GALVANIZING FACILITY  
ATLANTA, GEORGIA**

WELL ID.	DATE	TOP OF CASING ELEVATION (ft)	WELL DEPTH (ft-BTOC)	DEPTH TO WATER (ft-BTOC)	GROUNDWATER ELEVATION (ft)
MW-1	2/13/2003	855.16	23.0	17.81	837.35
	3/5/2003		23.0	17.52	837.64
	1/6/2004		23.0	16.68	838.48
	5/28/2004		23.0	16.50	838.66
	5/27/2007		23.0	21.93	833.23
	5/6/2008		-	-	-
	9/8/2008		23.1	22.56	832.60
	12/16/2008		23.1	22.64	832.52
	3/18/2009		23.1	22.67	832.49
	6/23/2009		23.0	21.37	833.79
	9/24/2009		23.0	21.37	833.79
	4/14/2010		23.1	16.19	838.97
	12/13/2010		23.0	18.83	836.33
	4/12/2011		23.1	18.25	836.91
	10/20/2011		23.0	19.96	835.20
	4/11/2012	23.0	19.50	835.66	
	10/17/2012	23.1	21.63	832.43	
4/17/2013	854.06	23.0	19.87	834.19	
10/21/2013	23.1	17.92	836.14		
MW-2	2/13/2003	805.55	15.4	3.96	801.59
	3/5/2003		15.4	3.54	802.01
	1/6/2004		15.4	3.86	801.69
	5/28/2004		15.4	6.13	799.42
	5/27/2007		15.4	3.90	801.65
	5/6/2008		-	-	-
	9/8/2008		15.5	4.60	800.95
	12/16/2008		15.5	3.45	802.10
	3/18/2009		15.5	3.16	802.39
	6/23/2009		15.5	4.27	801.28
	9/24/2009		15.5	3.20	802.35
	4/14/2010		15.5	3.19	802.36
	12/13/2010		15.5	3.36	802.19
	4/12/2011		15.4	3.23	802.32
	10/20/2011		15.4	3.91	801.64
	4/11/2012	15.5	4.18	801.37	
	10/17/2012	804.33	15.5	4.59	799.74
4/17/2013	15.4	3.25	801.08		
10/21/2013	15.4	3.38	800.95		
MW-3	2/13/2003	794.24	10.0	6.10	788.14
	3/5/2003		10.0	6.13	788.11
	1/6/2004		10.0	6.00	788.24
	5/28/2004		10.0	6.41	787.83
	5/27/2007		10.0	7.45	786.79
	5/6/2008		-	-	-
	9/8/2008		10.1	7.60	786.64
	12/16/2008		10.1	7.11	787.13
	3/18/2009		10.1	6.64	787.60
	6/23/2009		10.1	7.38	786.86
	9/24/2009		10.1	6.69	787.55
	4/14/2010		10.1	7.45	786.79
	12/13/2010		10.1	7.31	786.93
	4/12/2011		10.1	7.21	787.03

**TABLE 2  
GROUNDWATER DEPTHS AND ELEVATIONS  
METALPLATE GALVANIZING FACILITY  
ATLANTA, GEORGIA**

WELL ID.	DATE	TOP OF CASING ELEVATION (ft)	WELL DEPTH (ft-BTOC)	DEPTH TO WATER (ft-BTOC)	GROUNDWATER ELEVATION (ft)
MW-3R	8/16/2011	831.70	52.0	42.08	789.62
	10/20/2011		52.0	42.53	789.17
	4/11/2012		50.0	42.00	789.70
	10/17/2012	830.60	50.1	42.93	787.67
	4/17/2013		52.0	41.97	788.63
	10/21/2013		52.0	40.28	790.32
MW-4	2/13/2003	817.45	29.4	17.40	800.05
	3/5/2003		29.4	16.77	800.68
	1/6/2004		29.4	16.72	800.73
	5/28/2004		29.4	17.00	800.45
	5/27/2007		29.4	18.05	799.40
	5/6/2008		-	-	-
	9/8/2008		34.6	21.53	795.92
	12/16/2008		34.6	21.08	796.37
	3/18/2009		34.6	19.65	797.80
	6/23/2009		34.6	18.76	798.69
	9/24/2009		34.6	19.39	798.06
	4/14/2010		34.4	14.39	803.06
	12/13/2010		34.4	19.28	798.17
	4/12/2011	34.5	16.98	800.47	
	10/20/2011	34.6	21.73	795.72	
	4/11/2012	34.5	19.11	798.34	
	10/17/2012	34.6	22.23	794.12	
	4/17/2013	816.35	34.5	17.87	798.48
	10/21/2013		30.4	18.59	797.76
MW-5	2/13/2003	813.26	25.2	10.00	803.26
	3/5/2003		25.2	9.41	803.85
	1/6/2004		25.2	9.60	803.66
	5/28/2004		25.2	9.89	803.37
	5/27/2007		25.2	10.01	803.25
	5/6/2008		-	-	-
	9/8/2008		27.7	11.99	801.27
	12/16/2008		27.7	10.39	802.87
	3/18/2009		27.7	9.53	803.73
	6/23/2009		27.7	10.62	802.64
	9/24/2009		27.7	9.46	803.80
	4/14/2010		27.6	9.08	804.18
	12/13/2010		27.6	9.95	803.31
	4/12/2011	27.6	9.25	804.01	
	10/20/2011	27.5	11.60	801.66	
	4/11/2012	27.4	10.24	803.02	
	10/17/2012	812.16	27.4	11.58	800.58
	4/17/2013		27.4	9.22	802.94
	10/21/2013		27.5	9.43	802.73

**TABLE 2  
GROUNDWATER DEPTHS AND ELEVATIONS  
METALPLATE GALVANIZING FACILITY  
ATLANTA, GEORGIA**

WELL I.D.	DATE	TOP OF CASING ELEVATION (ft)	WELL DEPTH (ft-BTOC)	DEPTH TO WATER (ft-BTOC)	GROUNDWATER ELEVATION (ft)
MW-6	5/28/2004	819.53	40.3	28.38	791.15
	5/27/2007		40.3	29.01	790.52
	5/6/2008		-	-	-
	9/8/2008		39.7	31.81	787.72
	12/16/2008		39.7	31.70	787.83
	3/18/2009		39.7	31.00	788.53
	6/23/2009		39.7	29.66	789.87
	9/24/2009		39.7	30.64	788.89
	4/14/2010		39.7	26.36	793.17
	12/13/2010		39.7	31.00	788.53
	4/12/2011		39.7	29.73	789.80
	10/20/2011		39.7	32.19	787.34
	4/11/2012		39.4	30.72	788.81
	10/17/2012	39.4	32.50	785.93	
	4/17/2013	818.43	39.4	30.06	788.37
10/21/2013	39.4		30.27	788.16	
MW-6D	5/28/2004	818.74	57.3	27.75	790.99
	5/27/2007		57.3	29.65	789.09
	5/6/2008		-	-	-
	9/8/2008		57.5	31.12	787.62
	12/16/2008		57.5	30.98	787.76
	3/18/2009		57.5	30.26	788.48
	6/23/2009		57.5	29.08	789.66
	9/24/2009		57.5	29.88	788.86
	4/14/2010		57.6	26.04	792.70
	12/13/2010		57.5	30.22	788.52
	4/12/2011		57.4	29.04	789.70
	10/20/2011		57.5	31.50	787.24
	4/11/2012		57.5	30.06	788.68
	10/17/2012	57.5	31.77	785.87	
	4/17/2013	817.64	57.5	29.35	788.29
10/21/2013	57.5		29.64	788.00	
MW-7	5/27/2007	818.74	20.3	9.07	809.67
	5/6/2008		-	-	-
	9/8/2008		20.3	11.47	807.27
	12/16/2008		20.3	10.60	808.14
	3/18/2009		20.3	9.08	809.66
	6/23/2009		20.3	9.40	809.34
	9/24/2009		20.3	8.66	810.08
	4/14/2010		20.3	7.27	811.47
	12/13/2010		20.3	8.87	809.87
	4/12/2011		20.3	7.96	810.78
	10/20/2011		18.6	10.27	808.47
	4/11/2012		19.6	8.81	809.93
	10/17/2012		16.8	10.42	807.15
	4/17/2013	817.57	16.8	8.09	809.48
	10/21/2013		17.5	8.34	809.23

**TABLE 2  
GROUNDWATER DEPTHS AND ELEVATIONS  
METALPLATE GALVANIZING FACILITY  
ATLANTA, GEORGIA**

WELL ID.	DATE	TOP OF CASING ELEVATION (ft)	WELL DEPTH (ft-BTOC)	DEPTH TO WATER (ft-BTOC)	GROUNDWATER ELEVATION (ft)
MW-8	5/27/2007	812.85	45.8	39.99	772.86
	5/6/2008		46.1	40.16	772.69
	9/8/2008		45.7	40.62	772.23
	12/16/2008		45.7	40.48	772.37
	3/18/2009		45.7	40.24	772.61
	6/23/2009		45.7	39.99	772.86
	9/24/2009		45.7	39.40	773.45
	4/14/2010		45.7	39.10	773.75
	12/13/2010		45.6	40.30	772.55
	4/12/2011		45.6	40.05	772.80
	10/20/2011		45.7	40.66	772.19
	4/11/2012	45.6	40.30	772.55	
	10/17/2012	45.6	40.67	771.08	
	4/17/2013	811.75	45.7	39.92	771.83
10/21/2013	811.75	45.7	40.00	771.75	
MW-9	5/27/2007	839.39	45.0	33.45	805.94
	5/6/2008		-	-	-
	9/8/2008		46.8	36.44	802.95
	12/16/2008		46.8	37.46	801.93
	3/18/2009		46.8	37.37	802.02
	6/23/2009		46.8	34.45	804.94
	9/24/2009		46.8	35.32	804.07
	4/14/2010		46.8	26.65	812.74
	12/13/2010		46.8	32.98	806.41
	4/12/2011		46.8	33.35	806.04
	10/20/2011		46.8	35.23	804.16
	4/11/2012	46.8	35.05	804.34	
	10/17/2012	46.7	37.03	801.26	
	4/17/2013	838.29	46.7	35.66	802.63
10/21/2013	838.29	46.8	32.17	806.12	
MW-10	5/27/2007	833.00	50.0	36.23	796.77
	5/6/2008		50.7	36.80	796.20
	9/8/2008		50.1	37.70	795.30
	12/16/2008		50.1	37.44	795.56
	3/18/2009		50.1	37.13	795.87
	6/23/2009		50.1	36.76	796.24
	9/24/2009		50.1	36.48	796.52
	4/14/2010		50.1	34.83	798.17
	12/13/2010		50.2	36.47	796.53
	4/12/2011		50.1	36.14	796.86
	10/20/2011		50.1	37.65	795.35
	4/11/2012	50.1	37.22	795.78	
	10/17/2012	50.1	38.11	793.79	
	4/17/2013	831.90	50.1	37.73	794.17
10/21/2013	831.90	49.5	36.40	795.50	

**TABLE 2  
GROUNDWATER DEPTHS AND ELEVATIONS  
METALPLATE GALVANIZING FACILITY  
ATLANTA, GEORGIA**

WELL I.D.	DATE	TOP OF CASING ELEVATION (ft)	WELL DEPTH (ft-BTOC)	DEPTH TO WATER (ft-BTOC)	GROUNDWATER ELEVATION (ft)
MW-11	5/27/2007	833.06	50.5	20.40	812.66
	5/6/2008		-	-	-
	9/8/2008		49.8	21.71	811.35
	12/16/2008		49.8	22.55	810.51
	3/18/2009		49.8	20.84	812.22
	6/23/2009		49.8	20.37	812.69
	9/24/2009		49.8	20.64	812.42
	4/14/2010		49.8	19.33	813.73
	12/13/2010		49.8	21.23	811.83
	4/12/2011		49.8	20.04	813.02
	10/20/2011		49.8	21.97	811.09
	4/11/2012		49.8	20.60	812.46
	10/17/2012	49.8	21.88	810.08	
	4/17/2013	831.96	49.8	19.93	812.03
10/21/2013	49.8		20.25	811.71	
MW-12	5/27/2007	836.98	51.2	40.18	796.80
	5/6/2008		-	-	-
	9/8/2008		50.2	41.66	795.32
	12/16/2008		50.2	41.98	795.00
	3/18/2009		50.2	41.93	795.05
	6/23/2009		50.2	40.97	796.01
	9/24/2009		50.2	40.95	796.03
	4/14/2010		NL	NL	NL
	12/13/2010		50.2	40.10	796.88
	4/12/2011		50.2	40.46	796.52
	10/20/2011		49.9	41.23	795.75
	4/11/2012		49.9	41.39	795.59
	10/17/2012	835.88	50.0	42.02	793.86
	4/17/2013		49.9	41.62	794.26
	10/21/2013		50.0	40.63	795.25

**TABLE 2  
GROUNDWATER DEPTHS AND ELEVATIONS  
METALPLATE GALVANIZING FACILITY  
ATLANTA, GEORGIA**

WELL ID.	DATE	TOP OF CASING ELEVATION (ft)	WELL DEPTH (ft-BTOC)	DEPTH TO WATER (ft-BTOC)	GROUNDWATER ELEVATION (ft)
MW-13D	5/6/2008	805.55	57.0	6.25	799.30
	9/8/2008		56.2	8.86	796.69
	12/16/2008		56.2	7.58	797.97
	3/18/2009		56.2	6.51	799.04
	6/23/2009		56.2	7.41	798.14
	9/24/2009		56.2	6.39	799.16
	4/14/2010		56.2	4.50	801.05
	12/13/2010		56.2	6.78	798.77
	4/12/2011		56.3	5.55	800.00
	10/20/2011		56.2	8.33	797.22
	4/11/2012		56.2	7.63	797.92
	10/17/2012		56.3	9.26	795.17
	4/17/2013	804.43	56.2	6.01	798.42
	10/21/2013		56.2	6.37	798.06

Notes: *ft-BTOC - feet below top of casing*  
*SG-1 is a stream gauge located in Selig Pond*  
*NL - not located*

Source: *Williams Environmental Services, Inc.*  
*PPM Consultants, Inc.*  
*PPM Project No. 494501.GWM13*

**TABLE 3**  
**GROUNDWATER ANALYTICAL SUMMARY**  
**METALPLATE GALVANIZING FACILITY**  
**ATLANTA, GEORGIA**

SAMPLE I.D.	DATE	TOTAL LEAD (mg/L)	TOTAL ZINC (mg/L)	DISSOLVED ZINC (mg/L)	TURBIDITY (NTUs)
Type 4 RRS		-	31	31	-
MW-1	1/13/2003	<0.010	0.121	-	4.20
	3/29/2007	-	0.0789	<0.020	4.24
	9/10/2008	-	0.372	-	-
	12/16/2008	-	-	-	-
	3/18/2009	-	-	-	-
	6/24/2009	-	0.0389	0.0233	16.7
	9/25/2009	-	0.0210	<0.020	58.2
	4/15/2010	-	0.0215	<0.020	1.63
	12/14/2010	-	<0.020	<0.020	0.00
	4/13/2011	-	0.0328	<0.020	0.00
	10/21/2011	-	<0.020	<0.020	5.28
	4/12/2012	-	<0.020	0.0393	4.08
	10/18/2012	-	0.109	-	57.0
	4/18/2013	-	0.0631	<0.020	7.99
10/22/2013	-	0.0209	<0.020	0.90	
MW-2	1/9/2003	<0.010	20.5	-	4.80
	1/28/2003	-	31.4	-	0.85
	3/29/2007	-	13.4	12.1	1.67
	9/9/2008	-	11.0	10.7	0.00
	12/16/2008	-	9.17	9.56	0.00
	3/18/2009	-	7.25	7.06	0.00
	6/23/2009	-	7.48	8.66	0.00
	9/24/2009	-	8.36	8.52	3.38
	4/15/2010	-	35.1	36.5	0.75
	12/14/2010	-	18.2	18.4	0.00
	4/13/2011	-	19.4	19.8	0.00
	10/21/2011	-	23.6	25.3	1.05
	4/12/2012	-	40.2	43.6	3.52
	10/18/2012	-	22.1	22.5	2.54
4/18/2013	-	27.6	29.3	2.52	
10/22/2013	-	15.7	16.7	0.55	
MW-3	2/13/2003	-	130	-	8.96
	1/7/2004	<0.010	-	-	-
	3/29/2007	-	48.5	29.0	16.8
	9/9/2008	-	62.5	42.6	15.3
	12/16/2008	-	132	139	13.8
	3/18/2009	-	114	108	53.5
	6/23/2009	-	62.0	64.3	3.60
	9/24/2009	-	118	109	91.0
	4/15/2010	-	47.2	-	476
	12/14/2010	-	65.4	-	254
4/13/2011	-	82.4	-	254	
MW-3R	8/16/2011	-	0.110	0.0675	192
	10/21/2011	-	0.0387	<0.020	238
	4/11/2012	-	<0.020	<0.020	12.1
	10/17/2012	-	<0.020	<0.020	64.3
	4/17/2013	-	<0.020	<0.020	17.1
	10/21/2013	-	0.0251	<0.020	18.1

**TABLE 3  
GROUNDWATER ANALYTICAL SUMMARY  
METALPLATE GALVANIZING FACILITY  
ATLANTA, GEORGIA**

SAMPLE I.D.	DATE	TOTAL LEAD (mg/L)	TOTAL ZINC (mg/L)	DISSOLVED ZINC (mg/L)	TURBIDITY (NTUs)
Type 4 RRS		-	31	31	-
MW-4	2/12/2003	-	0.03	-	4.76
	1/6/2004	<0.010	-	-	-
	3/28/2007	-	0.0844	<0.020	4.70
	9/9/2008	-	<0.020	<0.020	10.8
	12/16/2008	-	<0.020	<0.020	0.97
	3/18/2009	-	<0.020	<0.020	0.01
	6/23/2009	-	<0.020	<0.020	0.00
	9/24/2009	-	<0.020	<0.020	0.00
	4/15/2010	-	<0.020	<0.020	7.93
	12/14/2010	-	<0.020	<0.020	0.00
	4/13/2011	-	<0.020	<0.020	0.00
	10/21/2011	-	<0.020	<0.020	5.32
	4/12/2012	-	<0.020	<0.020	16.3
	10/18/2012	-	<0.020	<0.020	4.60
4/18/2013	-	<0.020	<0.020	4.23	
10/22/2013	-	0.0265	<0.020	2.33	
MW-5	2/13/2003	-	5.9	-	24.70
	1/6/2004	<0.010	-	-	-
	3/29/2007	-	6.59	5.52	4.01
	9/9/2008	-	14.1	13.3	31.2
	12/16/2008	-	19.2	19.9	2.56
	3/19/2009	-	17.8	18.0	0.00
	6/23/2009	-	2.44	2.75	1.74
	9/24/2009	-	17.2	16.9	0.00
	4/15/2010	-	4.00	3.73	9.23
	12/14/2010	-	21.8	14.90	10.3
	4/13/2011	-	5.19	4.36	10.3
	10/21/2011	-	26.4	27.1	2.95
	4/12/2012	-	6.71	7.02	31.4
	10/18/2012	-	18.5	19.5	4.99
4/18/2013	-	5.67	5.60	4.99	
10/22/2013	-	1.44	1.67	25.8	
MW-6	5/28/2004	<0.010	<0.020	-	4.26
	3/28/2007	-	0.048	<0.020	4.21
	9/9/2008	-	0.028	<0.020	9.64
	12/17/2008	-	<0.020	<0.020	5.36
	3/18/2009	-	0.0235	<0.020	14.6
	6/23/2009	-	<0.020	<0.020	5.86
	9/25/2009	-	<0.020	<0.020	3.85
	4/15/2010	-	0.0580	<0.020	46.4
	12/13/2010	-	<0.020	<0.020	1.68
	4/13/2011	-	<0.020	<0.020	1.68
	10/21/2011	-	0.0242	<0.020	3.37
	4/12/2012	-	<0.020	<0.020	5.63
	10/18/2012	-	0.0272	<0.020	9.80
	4/18/2013	-	<0.020	<0.020	20.0
10/22/2013	-	<0.020	<0.020	3.42	

**TABLE 3  
GROUNDWATER ANALYTICAL SUMMARY  
METALPLATE GALVANIZING FACILITY  
ATLANTA, GEORGIA**

SAMPLE I.D.	DATE	TOTAL LEAD (mg/L)	TOTAL ZINC (mg/L)	DISSOLVED ZINC (mg/L)	TURBIDITY (NTUs)
Type 4 RRS		-	31	31	-
MW-6D	5/28/2004	<0.010	0.04	-	31.4
	3/28/2007	-	0.056	<0.020	31.2
	9/9/2008	-	0.0493	<0.020	9.23
	12/17/2008	-	<0.020	<0.020	0.00
	3/18/2009	-	<0.020	<0.020	0.00
	6/23/2009	-	0.0453	<0.020	0.00
	9/25/2009	-	<0.020	<0.020	1.64
	4/14/2010	-	<0.020	<0.020	46.1
	12/13/2010	-	<0.020	<0.020	40.1
	4/13/2011	-	<0.020	<0.020	40.0
	10/21/2011	-	<0.020	<0.020	5.19
	4/12/2012	-	<0.020	<0.020	4.14
	10/18/2012	-	<0.020	<0.020	4.36
	4/18/2013	-	<0.020	<0.020	8.42
10/22/2013	-	<0.020	<0.020	1.23	
MW-7	3/27/2007	-	37.1	29.7	4.79
	9/8/2008	-	48.8	48.0	11.5
	12/17/2008	-	24.8	23.2	10.9
	3/19/2009	-	8.46	8.49	15.1
	6/23/2009	-	40.0	39.5	9.17
	9/24/2009	-	10.9	11.6	11.6
	4/15/2010	-	12.7	12.2	5.05
	12/14/2010	-	13.7	13.8	315
	4/13/2011	-	9.13	8.55	315
	10/21/2011	-	14.2	15.3	5.28
	4/12/2012	-	7.70	11.2	16.7
	10/18/2012	-	10.8	10.4	8.52
	4/18/2013	-	5.33	5.36	105
	10/22/2013	-	8.54	8.79	17.4
MW-8	3/30/2007	-	<0.020	<0.020	19.4
	3/10/2008	<0.010	-	-	65.6
	9/10/2008	-	<0.020	<0.020	4.61
	12/17/2008	-	<0.020	<0.020	6.32
	3/19/2009	-	<0.020	<0.020	9.09
	6/24/2009	-	<0.020	<0.020	4.06
	9/25/2009	-	<0.020	<0.020	3.65
	4/14/2010	-	<0.020	<0.020	9.75
	12/13/2010	-	<0.020	<0.020	0.00
	4/13/2011	-	<0.020	<0.020	0.00
	10/20/2011	-	<0.020	<0.020	5.05
	4/11/2012	-	<0.020	<0.020	2.71
	10/17/2012	-	<0.020	<0.020	2.62
	4/17/2013	-	0.0228	<0.020	0.49
10/21/2013	-	0.0230	<0.020	1.51	

**TABLE 3**  
**GROUNDWATER ANALYTICAL SUMMARY**  
**METALPLATE GALVANIZING FACILITY**  
**ATLANTA, GEORGIA**

SAMPLE I.D.	DATE	TOTAL LEAD (mg/L)	TOTAL ZINC (mg/L)	DISSOLVED ZINC (mg/L)	TURBIDITY (NTUs)
Type 4 RRS		-	31	31	-
MW-9	3/30/2007	-	<0.020	<0.020	0.61
	9/9/2008	-	<0.020	<0.020	13.9
	12/17/2008	-	<0.020	<0.020	26.2
	3/18/2009	-	0.0211	<0.020	19.3
	6/23/2009	-	<0.020	<0.020	0.28
	9/25/2009	-	<0.020	<0.020	0.00
	4/15/2010	-	<0.020	<0.020	2.85
	12/14/2010	-	<0.020	<0.020	1.81
	4/13/2011	-	0.0296	<0.020	1.81
	10/21/2011	-	<0.020	<0.020	3.61
	4/12/2012	-	<0.020	<0.020	2.23
	10/18/2012	-	<0.020	<0.020	3.02
	4/18/2013	-	<0.020	<0.020	2.92
10/22/2013	-	<0.020	<0.020	5.34	
MW-10	3/30/2007	-	<0.020	<0.020	10.8
	3/6/2008	<0.010	-	-	11.9
	9/8/2008	-	<0.020	<0.020	14.4
	12/17/2008	-	<0.020	<0.020	28.2
	3/19/2009	-	<0.020	<0.020	6.84
	6/24/2009	-	<0.020	<0.020	2.92
	9/25/2009	-	<0.020	<0.020	15.9
	4/15/2010	-	<0.020	<0.020	30.8
	12/13/2010	-	0.0768	<0.020	>1,100
	4/12/2011	-	<0.020	<0.020	>1,100
	10/20/2011	-	<0.020	<0.020	10.6
	4/11/2012	-	<0.020	<0.020	14.5
	10/17/2012	-	<0.020	<0.020	40.1
4/17/2013	-	<0.020	<0.020	11.4	
10/21/2013	-	<0.020	<0.020	6.18	
MW-11	3/30/2007	-	<0.020	<0.020	3.55
	9/10/2008	-	<0.020	<0.020	2.35
	12/17/2008	-	<0.020	<0.020	0.00
	3/19/2009	-	<0.020	<0.020	0.00
	6/24/2009	-	<0.020	<0.020	0.00
	9/25/2009	-	0.175	0.0964	0.00
	4/15/2010	-	<0.020	0.0210	4.00
	12/13/2010	-	<0.020	<0.020	4.61
	4/12/2011	-	0.0229	<0.020	4.61
	10/20/2011	-	<0.020	<0.020	18.3
	4/11/2012	-	<0.020	<0.020	5.87
	10/17/2012	-	0.0344	0.0224	2.24
	4/17/2013	-	0.0293	<0.020	3.59
10/21/2013	-	0.0246	<0.020	4.99	

**TABLE 3  
GROUNDWATER ANALYTICAL SUMMARY  
METALPLATE GALVANIZING FACILITY  
ATLANTA, GEORGIA**

SAMPLE I.D.	DATE	TOTAL LEAD (mg/L)	TOTAL ZINC (mg/L)	DISSOLVED ZINC (mg/L)	TURBIDITY (NTUs)
Type 4 RRS		-	31	31	-
MW-12	3/30/2007	-	0.0759	<0.020	151
	9/10/2008	-	<0.020	<0.020	8.38
	12/17/2008	-	0.044	<0.020	116
	3/19/2009	-	0.0214	<0.020	41.1
	6/24/2009	-	<0.020	<0.020	0.00
	9/25/2009	-	<0.020	<0.020	0.00
	4/15/2010	-	NL	NL	NL
	12/13/2010	-	<0.020	<0.020	3.85
	4/12/2011	-	<0.020	<0.020	3.85
	10/20/2011	-	<0.020	<0.020	2.18
	4/11/2012	-	<0.020	<0.020	9.51
	10/17/2012	-	0.0230	<0.020	46.1
	4/17/2013	-	<0.020	<0.020	4.82
10/21/2013	-	<0.020	<0.020	4.09	
MW-13D	3/10/2008	<0.010	9.80	8.83	11.4
	9/9/2008	-	9.12	8.60	1.34
	12/16/2008	-	9.53	9.53	4.77
	3/18/2009	-	10.1	10.0	0.00
	6/23/2009	-	12.8	13.7	0.00
	9/24/2009	-	13.7	13.9	10.10
	4/15/2010	-	18.8	18.5	7.14
	12/14/2010	-	27.9	26.8	0.00
	4/13/2011	-	27.5	26.5	0.00
	10/21/2011	-	27.5	29.3	4.35
	4/12/2012	-	26.8	29.0	4.70
	10/18/2012	-	29.4	29.4	2.93
	4/18/2013	-	28.6	28.7	1.23
10/22/2013	-	28.6	31.3	1.49	
<b>DUPLICATE RESULTS</b>					
DUP (MW-2)	10/18/2012	-	22.0	23.0	2.54
DUP (MW-2)	4/18/2013	-	28.6	28.6	2.52
DUP (MW-2)	10/22/2013	-	16.0	16.8	0.55

Notes:                    *RRS - Risk reduction standard*  
                               *NTUs - Nephelometric Turbidity Units*  
                               *mg/L - milligrams per liter*  
                               ***Bold*** - Concentration above a Type 4 RRS

Source(s):                *Williams Environmental Services, Inc.*  
                               *PPM Consultants, Inc.*  
                               *PPM Project No. 494501.GWM13*

## **APPENDIX D – GROUNDWATER ANALYTICAL RESULTS**



October 29, 2013

Mike Dillon  
PPM Consultants, Inc.  
5555 Bankhead Hwy  
Birmingham AL 35210

TEL: (205) 836-5650  
FAX: (205) 836-5805

RE: Metal Plate - ATL

Dear Mike Dillon:

Order No: 1310I10

Analytical Environmental Services, Inc. received 8 samples on 10/22/2013 1:10:00 PM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/13-06/30/14.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

James Forrest  
Project Manager



**ANALYTICAL ENVIRONMENTAL SERVICES, INC**  
 3785 Presidential Parkway, Atlanta GA 30340-3704  
**AES** TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

**CHAIN OF CUSTODY**

Work Order: **130110**

Date: **10/22/13** Page **1** of **1**

COMPANY:	ADDRESS:		SAMPLE ID	DATE/TIME		DATE/TIME	RECEIVED BY	DATE/TIME	PROJECT INFORMATION	REMARKS	No # of Containers
	PHONE:	FAX:		RELINQUISHED BY	DATE/TIME						
<b>Ppm CONSULTANTS</b>	<b>5555 BANK HEAD HWY BIRMINGHAM, AL</b>								<b>METAL PLATE - A-TL</b>	<b>Visit our website www.aesatlanta.com</b>	
	<b>205-836-5650</b>	<b>205-836-5805</b>							<b>PROJECT # 494501.GWMI3</b>	<b>to check on the status of your results, place bottle orders, etc.</b>	
SAMPLED BY:	SIGNATURE								<b>SITE ADDRESS: 505 SELW DR. ATLANTA, GA</b>		
<b>JEFF SCHWARTZ / EYAN SLOVENSKI</b>									<b>SEND REPORT TO: MIK DILLON</b>		
#	DATE	TIME	Grab	Composite	Matrix (See codes)						
1	10/22/13	9:00			GW						2
2	10/21/13	15:25			GW						2
3	10/21/13	13:55			GW						2
4	10/22/13	10:40			GW						2
5	10/21/13	18:00			GW						2
6	10/21/13	14:35			GW						2
7	10/21/13	19:06			GW						2
8	10/22/13	11:25			GW						2
9											
10											
11											
12											
13											
14											
SPECIAL INSTRUCTIONS/COMMENTS:			SHIPMENT METHOD		DATE/TIME		RECEIVED BY		PROJECT INFORMATION		
			OUT / / VIA:	IN / / VIA:	10/22/13 12:18				Total # of Containers		
			CLIENT FedEx UPS MAIL COURIER	GREYHOUND OTHER	10/22/13 13:10				Turnaround Time Request		
					13:10				Standard 5 Business Days		
									2 Business Day Rush		
									Next Business Day Rush		
									Same Day Rush (auth req)		
									Other		
									STATE PROGRAM (if any):		
									E-mail? <input checked="" type="checkbox"/> N; Fax? <input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/>		
									DATA PACKAGE: I II III IV		
									QUOTE #: PO#:		
									INVOICE TO: (IF DIFFERENT FROM ABOVE)		
									TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES.		

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES.  
 SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water  
 PRESERVATIVE CODES: H+1 = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S(M+I) = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

**Client:** PPM Consultants, Inc.

**Project:** Metal Plate - ATL

**Lab ID:** 1310I10

**Case Narrative**

Sample Receiving Nonconformance:

Sample information on the Chain of Custody did not match that on the sample bottle labels for sample 1310I10-002. The container was labeled as MW-8 instead of MW-3 as listed on the COC. The collection date and time on the container matched the date and time on the COC. The sample was logged in using the information on the COC.

**Analytical Environmental Services, Inc**

**Date:** 29-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-1
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/22/2013 9:00:00 AM
<b>Lab ID:</b> 1310I10-001	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED SW6010C</b>					<b>(SW3005A)</b>			
Zinc	BRL	0.0200		mg/L	182751	1	10/23/2013 13:08	JL
<b>METALS, TOTAL SW6010C</b>					<b>(SW3010A)</b>			
Zinc	0.0209	0.0200		mg/L	182804	1	10/24/2013 19:11	JL

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

**Date:** 29-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-3R
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/21/2013 3:25:00 PM
<b>Lab ID:</b> 1310110-002	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED SW6010C</b>					<b>(SW3005A)</b>			
Zinc	BRL	0.0200		mg/L	182751	1	10/23/2013 13:12	JL
<b>METALS, TOTAL SW6010C</b>					<b>(SW3010A)</b>			
Zinc	0.0251	0.0200		mg/L	182804	1	10/24/2013 19:44	JL

**Qualifiers:**

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

**Date:** 29-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-8
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/21/2013 1:55:00 PM
<b>Lab ID:</b> 1310110-003	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED</b> <b>SW6010C</b>					<b>(SW3005A)</b>			
Zinc	BRL	0.0200		mg/L	182751	1	10/23/2013 13:16	JL
<b>METALS, TOTAL</b> <b>SW6010C</b>					<b>(SW3010A)</b>			
Zinc	0.0230	0.0200		mg/L	182804	1	10/24/2013 19:48	JL

**Qualifiers:**

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

**Date:** 29-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-9
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/22/2013 10:40:00 AM
<b>Lab ID:</b> 1310I10-004	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED SW6010C</b>					<b>(SW3005A)</b>			
Zinc	BRL	0.0200		mg/L	182751	1	10/23/2013 13:19	JL
<b>METALS, TOTAL SW6010C</b>					<b>(SW3010A)</b>			
Zinc	BRL	0.0200		mg/L	182804	1	10/24/2013 19:52	JL

**Qualifiers:**

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

**Date:** 29-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-10
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/21/2013 6:00:00 PM
<b>Lab ID:</b> 1310110-005	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED SW6010C</b>					<b>(SW3005A)</b>			
Zinc	BRL	0.0200		mg/L	182751	1	10/23/2013 13:23	JL
<b>METALS, TOTAL SW6010C</b>					<b>(SW3010A)</b>			
Zinc	BRL	0.0200		mg/L	182804	1	10/24/2013 19:55	JL

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

**Date:** 29-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-11
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/21/2013 4:35:00 PM
<b>Lab ID:</b> 1310I10-006	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED SW6010C</b>					<b>(SW3005A)</b>			
Zinc	BRL	0.0200		mg/L	182751	1	10/23/2013 13:26	JL
<b>METALS, TOTAL SW6010C</b>					<b>(SW3010A)</b>			
Zinc	0.0246	0.0200		mg/L	182804	1	10/24/2013 19:59	JL

**Qualifiers:**

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

**Date:** 29-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-12
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/21/2013 7:06:00 PM
<b>Lab ID:</b> 1310110-007	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED SW6010C</b>					<b>(SW3005A)</b>			
Zinc	BRL	0.0200		mg/L	182751	1	10/23/2013 13:30	JL
<b>METALS, TOTAL SW6010C</b>					<b>(SW3010A)</b>			
Zinc	BRL	0.0200		mg/L	182804	1	10/24/2013 20:03	JL

**Qualifiers:**

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

**Date:** 29-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-4
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/22/2013 11:25:00 AM
<b>Lab ID:</b> 1310110-008	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED</b> <b>SW6010C</b>					<b>(SW3005A)</b>			
Zinc	BRL	0.0200		mg/L	182751	1	10/23/2013 13:33	JL
<b>METALS, TOTAL</b> <b>SW6010C</b>					<b>(SW3010A)</b>			
Zinc	0.0265	0.0200		mg/L	182804	1	10/24/2013 20:06	JL

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client PPM Consultants

Work Order Number 1310I10

Checklist completed by [Signature] Date 10/22/13  
Signature Date

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? (4°C±2)\* Yes  No

Cooler #1 3.7 Cooler #2  Cooler #3  Cooler #4  Cooler #5  Cooler #6

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No

Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted?  Checked by [Signature]

Sample Condition: Good  Other(Explain)

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

\* Samples do not have to comply with the given range for certain parameters.

Client: PPM Consultants, Inc.  
 Project: Metal Plate - ATL  
 Lab Order: 1310I10

**Dates Report**

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1310I10-001A	MW-1	10/22/2013 9:00:00AM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/24/2013
1310I10-001B	MW-1	10/22/2013 9:00:00AM	Groundwater	DISSOLVED METALS BY ICP		10/23/2013	10/23/2013
1310I10-002A	MW-3R	10/21/2013 3:25:00PM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/24/2013
1310I10-002B	MW-3R	10/21/2013 3:25:00PM	Groundwater	DISSOLVED METALS BY ICP		10/23/2013	10/23/2013
1310I10-003A	MW-8	10/21/2013 1:55:00PM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/24/2013
1310I10-003B	MW-8	10/21/2013 1:55:00PM	Groundwater	DISSOLVED METALS BY ICP		10/23/2013	10/23/2013
1310I10-004A	MW-9	10/22/2013 10:40:00AM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/24/2013
1310I10-004B	MW-9	10/22/2013 10:40:00AM	Groundwater	DISSOLVED METALS BY ICP		10/23/2013	10/23/2013
1310I10-005A	MW-10	10/21/2013 6:00:00PM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/24/2013
1310I10-005B	MW-10	10/21/2013 6:00:00PM	Groundwater	DISSOLVED METALS BY ICP		10/23/2013	10/23/2013
1310I10-006A	MW-11	10/21/2013 4:35:00PM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/24/2013
1310I10-006B	MW-11	10/21/2013 4:35:00PM	Groundwater	DISSOLVED METALS BY ICP		10/23/2013	10/23/2013
1310I10-007A	MW-12	10/21/2013 7:06:00PM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/24/2013
1310I10-007B	MW-12	10/21/2013 7:06:00PM	Groundwater	DISSOLVED METALS BY ICP		10/23/2013	10/23/2013
1310I10-008A	MW-4	10/22/2013 11:25:00AM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/24/2013
1310I10-008B	MW-4	10/22/2013 11:25:00AM	Groundwater	DISSOLVED METALS BY ICP		10/23/2013	10/23/2013

**Client:** PPM Consultants, Inc.  
**Project Name:** Metal Plate - ATL  
**Workorder:** 1310I10

**ANALYTICAL QC SUMMARY REPORT**

**BatchID: 182751**

Sample ID: <b>MB-182751</b>	Client ID:	Units: <b>mg/L</b>	Prep Date: <b>10/23/2013</b>	Run No: <b>254521</b>							
SampleType: <b>MBLK</b>	TestCode: <b>METALS, DISSOLVED SW6010C</b>	BatchID: <b>182751</b>	Analysis Date: <b>10/23/2013</b>	Seq No: <b>5344011</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc BRL 0.0200

Sample ID: <b>LCS-182751</b>	Client ID:	Units: <b>mg/L</b>	Prep Date: <b>10/23/2013</b>	Run No: <b>254521</b>							
SampleType: <b>LCS</b>	TestCode: <b>METALS, DISSOLVED SW6010C</b>	BatchID: <b>182751</b>	Analysis Date: <b>10/23/2013</b>	Seq No: <b>5344009</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc 1.015 0.0200 1.000 102 80 120

Sample ID: <b>1310G90-001DMS</b>	Client ID:	Units: <b>mg/L</b>	Prep Date: <b>10/23/2013</b>	Run No: <b>254521</b>							
SampleType: <b>MS</b>	TestCode: <b>METALS, DISSOLVED SW6010C</b>	BatchID: <b>182751</b>	Analysis Date: <b>10/23/2013</b>	Seq No: <b>5344015</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc 1.041 0.0200 1.000 0.01915 102 75 125

Sample ID: <b>1310G90-001DMSD</b>	Client ID:	Units: <b>mg/L</b>	Prep Date: <b>10/23/2013</b>	Run No: <b>254521</b>							
SampleType: <b>MSD</b>	TestCode: <b>METALS, DISSOLVED SW6010C</b>	BatchID: <b>182751</b>	Analysis Date: <b>10/23/2013</b>	Seq No: <b>5344018</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc 1.035 0.0200 1.000 0.01915 102 75 125 1.041 0.516 20

**Qualifiers:** > Greater than Result value < Less than Result value B Analyte detected in the associated method blank  
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

**Client:** PPM Consultants, Inc.  
**Project Name:** Metal Plate - ATL  
**Workorder:** 1310I10

**ANALYTICAL QC SUMMARY REPORT**

**BatchID: 182804**

Sample ID: <b>MB-182804</b>	Client ID:	Units: <b>mg/L</b>	Prep Date: <b>10/24/2013</b>	Run No: <b>254619</b>							
SampleType: <b>MBLK</b>	TestCode: <b>METALS, TOTAL SW6010C</b>	BatchID: <b>182804</b>	Analysis Date: <b>10/24/2013</b>	Seq No: <b>5346231</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc BRL 0.0200

Sample ID: <b>LCS-182804</b>	Client ID:	Units: <b>mg/L</b>	Prep Date: <b>10/24/2013</b>	Run No: <b>254619</b>							
SampleType: <b>LCS</b>	TestCode: <b>METALS, TOTAL SW6010C</b>	BatchID: <b>182804</b>	Analysis Date: <b>10/24/2013</b>	Seq No: <b>5346228</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc 1.041 0.0200 1.000 104 80 120

Sample ID: <b>1310I10-001AMS</b>	Client ID: <b>MW-1</b>	Units: <b>mg/L</b>	Prep Date: <b>10/24/2013</b>	Run No: <b>254619</b>							
SampleType: <b>MS</b>	TestCode: <b>METALS, TOTAL SW6010C</b>	BatchID: <b>182804</b>	Analysis Date: <b>10/24/2013</b>	Seq No: <b>5346236</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc 1.071 0.0200 1.000 0.02092 105 75 125

Sample ID: <b>1310I10-001AMSD</b>	Client ID: <b>MW-1</b>	Units: <b>mg/L</b>	Prep Date: <b>10/24/2013</b>	Run No: <b>254619</b>							
SampleType: <b>MSD</b>	TestCode: <b>METALS, TOTAL SW6010C</b>	BatchID: <b>182804</b>	Analysis Date: <b>10/24/2013</b>	Seq No: <b>5346238</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc 1.058 0.0200 1.000 0.02092 104 75 125 1.071 1.24 20

<b>Qualifiers:</b>	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	



October 30, 2013

Mike Dillon  
PPM Consultants, Inc.  
5555 Bankhead Hwy  
Birmingham AL 35210

TEL: (205) 836-5650  
FAX: (205) 836-5805

RE: Metal Plate - ATL

Dear Mike Dillon:

Order No: 1310I54

Analytical Environmental Services, Inc. received 7 samples on 10/23/2013 10:20:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/13-06/30/14.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

James Forrest  
Project Manager



**ANALYTICAL ENVIRONMENTAL SERVICES, INC**  
 3785 Presidential Parkway, Atlanta GA 30340-3704  
**AES** TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

**CHAIN OF CUSTODY**

Work Order: **1310154**

Date: \_\_\_\_\_ Page **1** of **1**

#	SAMPLE ID	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	SHIPMENT METHOD			SPECIAL INSTRUCTIONS/COMMENTS:			
							OUT	/	VIA:		IN	/	VIA:
<b>COMPANY:</b> PPM Consultants, Inc <b>ADDRESS:</b> 5555 BANKHEAD HWY BIRMINGHAM, AL 35210 <b>PHONE:</b> 205-836-5650 <b>FAX:</b> 205-836-5005 <b>SAMPLED BY:</b> JEFF SUTERVAARDER/RYAN SEVENISH <b>SIGNATURE:</b> <i>[Signature]</i>							<b>SHIPMENT METHOD</b> CLIENT: <input checked="" type="radio"/> FedEx <input type="radio"/> UPS MAIL COURIER <input type="radio"/> GREYHOUND <input type="radio"/> OTHER			<b>SPECIAL INSTRUCTIONS/COMMENTS:</b> SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES. SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.			
#	SAMPLE ID	DATE	TIME	Grab	Composite	Matrix (See codes)	ANALYSIS REQUESTED				REMARKS	No # of Containers	
							PRESERVATION (See codes)						
1	MW-2	10/22/13	17:25			GW	DISSOLVED Zn						2
2	MW-5	10/22/13	15:40			GW	TOTAL Zn						2
3	MW-7	10/22/13	17:00			GW							2
4	MW-6	10/22/13	13:15			GW							2
5	MW-6D	10/22/13	12:05			GW							2
6	MW-15D	10/22/13	14:07			GW							2
7	PUP	10/22/13				GW							2
8													
9													
10													
11													
12													
13													
14													
<b>PROJECT INFORMATION:</b> <b>PROJECT NAME:</b> METAL PLATE - ATL <b>PROJECT #:</b> 994501.GWM13 <b>SITE ADDRESS:</b> 505 SELWICK DRIVE ATLANTA, GA <b>SEND REPORT TO:</b> MIKE DILLON <b>INVOICE TO:</b> METAL PLATE (IF DIFFERENT FROM ABOVE)							<b>RECEIPT:</b> Total # of Containers: <b>14</b> <input checked="" type="radio"/> Turnaround Time Request <input type="radio"/> Standard 5 Business Days <input type="radio"/> 2 Business Day Rush <input type="radio"/> Next Business Day Rush <input type="radio"/> Same Day Rush (auth req.) <input type="radio"/> Other						
<b>STATE PROGRAM (if any):</b> E-mail? Y / N; Fax? Y / N DATA PACKAGE: I II III IV QUOTE #: _____ PO#: _____													

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water  
 PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+H = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None  
 White Copy - Original; Yellow Copy - Client

**Analytical Environmental Services, Inc**

**Date:** 30-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-2
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/22/2013 5:25:00 PM
<b>Lab ID:</b> 1310154-001	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED SW6010C</b>					<b>(SW3005A)</b>			
Zinc	16.7	0.0200		mg/L	182712	1	10/25/2013 14:27	JL
<b>METALS, TOTAL SW6010C</b>					<b>(SW3010A)</b>			
Zinc	15.7	0.0200		mg/L	182838	1	10/25/2013 11:37	JL

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

**Date:** 30-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-5
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/22/2013 3:40:00 PM
<b>Lab ID:</b> 1310154-002	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED SW6010C</b>					<b>(SW3005A)</b>			
Zinc	1.67	0.0200		mg/L	182712	1	10/25/2013 14:31	JL
<b>METALS, TOTAL SW6010C</b>					<b>(SW3010A)</b>			
Zinc	1.44	0.0200		mg/L	182838	1	10/25/2013 12:07	JL

**Qualifiers:**

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

**Date:** 30-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-7
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/22/2013 5:00:00 PM
<b>Lab ID:</b> 1310154-003	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED SW6010C</b>					<b>(SW3005A)</b>			
Zinc	8.79	0.0200		mg/L	182712	1	10/25/2013 14:39	JL
<b>METALS, TOTAL SW6010C</b>					<b>(SW3010A)</b>			
Zinc	8.54	0.0200		mg/L	182838	1	10/25/2013 12:11	JL

**Qualifiers:**

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

**Date:** 30-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-6
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/22/2013 1:15:00 PM
<b>Lab ID:</b> 1310154-004	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED</b> <b>SW6010C</b>					<b>(SW3005A)</b>			
Zinc	BRL	0.0200		mg/L	182712	1	10/25/2013 14:46	JL
<b>METALS, TOTAL</b> <b>SW6010C</b>					<b>(SW3010A)</b>			
Zinc	BRL	0.0200		mg/L	182838	1	10/25/2013 12:29	JL

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<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

**Date:** 30-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-6D
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/22/2013 12:05:00 PM
<b>Lab ID:</b> 1310154-005	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED SW6010C</b>					<b>(SW3005A)</b>			
Zinc	BRL	0.0200		mg/L	182712	1	10/25/2013 14:50	JL
<b>METALS, TOTAL SW6010C</b>					<b>(SW3010A)</b>			
Zinc	BRL	0.0200		mg/L	182838	1	10/25/2013 12:32	JL

**Qualifiers:**

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

**Date:** 30-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> MW-13D
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/22/2013 2:07:00 PM
<b>Lab ID:</b> 1310154-006	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED SW6010C</b>					<b>(SW3005A)</b>			
Zinc	31.3	0.0200		mg/L	182712	1	10/25/2013 14:54	JL
<b>METALS, TOTAL SW6010C</b>					<b>(SW3010A)</b>			
Zinc	28.6	0.0200		mg/L	182838	1	10/25/2013 12:36	JL

**Qualifiers:**

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

**Date:** 30-Oct-13

<b>Client:</b> PPM Consultants, Inc.	<b>Client Sample ID:</b> DUP
<b>Project Name:</b> Metal Plate - ATL	<b>Collection Date:</b> 10/22/2013
<b>Lab ID:</b> 1310154-007	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>METALS, DISSOLVED</b> <b>SW6010C</b>					<b>(SW3005A)</b>			
Zinc	16.8	0.0200		mg/L	182712	1	10/25/2013 13:43	JL
<b>METALS, TOTAL</b> <b>SW6010C</b>					<b>(SW3010A)</b>			
Zinc	16.0	0.0200		mg/L	182838	1	10/25/2013 12:40	JL

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<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc.**

**Sample/Cooler Receipt Checklist**

Client PPM Consultants Work Order Number 1310I54

Checklist completed by [Signature] Date 10/23/13  
Signature Date

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? (4°C±2)\* Yes  No

Cooler #1 3.3 Cooler #2  Cooler #3  Cooler #4  Cooler #5  Cooler #6

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No

Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted?  Checked by [Signature]

Sample Condition: Good  Other(Explain)

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

**See Case Narrative for resolution of the Non-Conformance.**

\* Samples do not have to comply with the given range for certain parameters.

Client: PPM Consultants, Inc.  
 Project: Metal Plate - ATL  
 Lab Order: 1310I54

**Dates Report**

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1310I54-001A	MW-2	10/22/2013 5:25:00PM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/25/2013
1310I54-001B	MW-2	10/22/2013 5:25:00PM	Groundwater	DISSOLVED METALS BY ICP		10/25/2013	10/25/2013
1310I54-002A	MW-5	10/22/2013 3:40:00PM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/25/2013
1310I54-002B	MW-5	10/22/2013 3:40:00PM	Groundwater	DISSOLVED METALS BY ICP		10/25/2013	10/25/2013
1310I54-003A	MW-7	10/22/2013 5:00:00PM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/25/2013
1310I54-003B	MW-7	10/22/2013 5:00:00PM	Groundwater	DISSOLVED METALS BY ICP		10/25/2013	10/25/2013
1310I54-004A	MW-6	10/22/2013 1:15:00PM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/25/2013
1310I54-004B	MW-6	10/22/2013 1:15:00PM	Groundwater	DISSOLVED METALS BY ICP		10/25/2013	10/25/2013
1310I54-005A	MW-6D	10/22/2013 12:05:00PM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/25/2013
1310I54-005B	MW-6D	10/22/2013 12:05:00PM	Groundwater	DISSOLVED METALS BY ICP		10/25/2013	10/25/2013
1310I54-006A	MW-13D	10/22/2013 2:07:00PM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/25/2013
1310I54-006B	MW-13D	10/22/2013 2:07:00PM	Groundwater	DISSOLVED METALS BY ICP		10/25/2013	10/25/2013
1310I54-007A	DUP	10/22/2013 12:00:00AM	Groundwater	TOTAL METALS BY ICP		10/24/2013	10/25/2013
1310I54-007B	DUP	10/22/2013 12:00:00AM	Groundwater	DISSOLVED METALS BY ICP		10/25/2013	10/25/2013

Client: PPM Consultants, Inc.  
 Project Name: Metal Plate - ATL  
 Workorder: 1310154

**ANALYTICAL QC SUMMARY REPORT**

BatchID: 182712

Sample ID: <b>MB-182712</b>	Client ID:	Units: <b>mg/L</b>	Prep Date: <b>10/25/2013</b>	Run No: <b>254711</b>							
SampleType: <b>MBLK</b>	TestCode: <b>METALS, DISSOLVED SW6010C</b>	BatchID: <b>182712</b>	Analysis Date: <b>10/25/2013</b>	Seq No: <b>5348353</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc BRL 0.0200

Sample ID: <b>LCS-182712</b>	Client ID:	Units: <b>mg/L</b>	Prep Date: <b>10/25/2013</b>	Run No: <b>254711</b>							
SampleType: <b>LCS</b>	TestCode: <b>METALS, DISSOLVED SW6010C</b>	BatchID: <b>182712</b>	Analysis Date: <b>10/25/2013</b>	Seq No: <b>5348352</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc 1.074 0.0200 1.000 107 80 120

Sample ID: <b>1310154-007BMS</b>	Client ID: <b>DUP</b>	Units: <b>mg/L</b>	Prep Date: <b>10/25/2013</b>	Run No: <b>254711</b>							
SampleType: <b>MS</b>	TestCode: <b>METALS, DISSOLVED SW6010C</b>	BatchID: <b>182712</b>	Analysis Date: <b>10/25/2013</b>	Seq No: <b>5348357</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc 16.61 0.0200 1.000 16.80 -18.7 75 125 S

Sample ID: <b>1310154-007BMSD</b>	Client ID: <b>DUP</b>	Units: <b>mg/L</b>	Prep Date: <b>10/25/2013</b>	Run No: <b>254711</b>							
SampleType: <b>MSD</b>	TestCode: <b>METALS, DISSOLVED SW6010C</b>	BatchID: <b>182712</b>	Analysis Date: <b>10/25/2013</b>	Seq No: <b>5348359</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc 16.68 0.0200 1.000 16.80 -12.4 75 125 16.61 0.380 20 S

<b>Qualifiers:</b>	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

**Client:** PPM Consultants, Inc.  
**Project Name:** Metal Plate - ATL  
**Workorder:** 1310154

**ANALYTICAL QC SUMMARY REPORT**

**BatchID: 182838**

Sample ID: <b>MB-182838</b>	Client ID:	Units: <b>mg/L</b>	Prep Date: <b>10/24/2013</b>	Run No: <b>254707</b>							
SampleType: <b>MBLK</b>	TestCode: <b>METALS, TOTAL SW6010C</b>	BatchID: <b>182838</b>	Analysis Date: <b>10/25/2013</b>	Seq No: <b>5348270</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc BRL 0.0200

Sample ID: <b>LCS-182838</b>	Client ID:	Units: <b>mg/L</b>	Prep Date: <b>10/24/2013</b>	Run No: <b>254707</b>							
SampleType: <b>LCS</b>	TestCode: <b>METALS, TOTAL SW6010C</b>	BatchID: <b>182838</b>	Analysis Date: <b>10/25/2013</b>	Seq No: <b>5348268</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc 0.9892 0.0200 1.000 98.9 80 120

Sample ID: <b>1310154-001AMS</b>	Client ID: <b>MW-2</b>	Units: <b>mg/L</b>	Prep Date: <b>10/24/2013</b>	Run No: <b>254707</b>							
SampleType: <b>MS</b>	TestCode: <b>METALS, TOTAL SW6010C</b>	BatchID: <b>182838</b>	Analysis Date: <b>10/25/2013</b>	Seq No: <b>5348280</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc 16.59 0.0200 1.000 15.70 89.2 75 125

Sample ID: <b>1310154-001AMSD</b>	Client ID: <b>MW-2</b>	Units: <b>mg/L</b>	Prep Date: <b>10/24/2013</b>	Run No: <b>254707</b>							
SampleType: <b>MSD</b>	TestCode: <b>METALS, TOTAL SW6010C</b>	BatchID: <b>182838</b>	Analysis Date: <b>10/25/2013</b>	Seq No: <b>5348281</b>							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Zinc 16.54 0.0200 1.000 15.70 84.2 75 125 16.59 0.304 20

**Qualifiers:** > Greater than Result value < Less than Result value B Analyte detected in the associated method blank  
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix