VRP Ninth Progress Report

(PR-9)

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

HSI No. 10204

Tax Parcel 14F-0082-LL-0346

Submitted:

April 14, 2017

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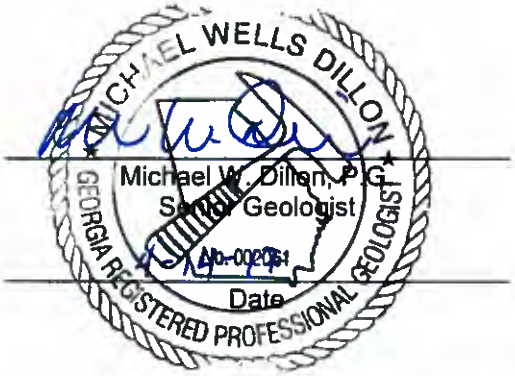
CERTIFICATION

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.



Michael W. Dillon, P.G.
Senior Geologist

No. 002051

Date

1.0 INTRODUCTION

This Progress Report (PR-9) addresses surface and groundwater sampling occurring since PR-8, improvements to the stormwater management system of the Metalplate facility, the results of the attached study on solubility and treatability of zinc in sediments, and the attached Final Remediation and Implementation Plan required by Metalplate's 2014 Consent Order with EPD.

Surface water sampling shows continuing reductions in zinc concentrations since Metalplate began treating its stormwater with its state-of-the-art electrocoagulator for NPDES permitting purposes. The electrocoagulator became fully operational in late 2014, and from the May 2014 surface water sampling event to the October 2016 sampling event, the average detected zinc concentration has decreased by approximately 58 percent.

At the same time, the October 2016 groundwater sampling event showed that zinc concentrations in all wells remain below Type 4 RRS, and the average zinc concentration dropped by nearly 27% since October 2015, with two wells now showing non-detect results. The fact that groundwater concentrations continue to drop with the operation of the electrocoagulator confirms prior indications that the reduction of zinc in stormwater discharges has the additional benefit of lowering zinc concentrations in groundwater. *See* Appendix A for the report on the October 2016 groundwater and surface water sampling event.

The October 2016 sampling event improved the understanding of the conceptual site model because, taking these sample results together, surface water zinc concentrations were orders of magnitude higher than the zinc concentrations of upgradient stormwater discharged from the electrocoagulator and also significantly higher than groundwater zinc concentrations. And the sampling occurred during an extended dry spell, meaning that the zinc detected would have been unlikely to be the result of rain washing either environmental zinc from areas other than the facility and/or zinc from activities not within the jurisdiction of the VRP or HSRA (e.g., lawful air emissions) into surface waters. Under this set of circumstances, the apparent potential driver for the observed surface water zinc concentrations was sediment.

Metalplate then undertook a sediment solubility analysis, which indicated that zinc concentrations present in Site sediments have the potential, under certain lower pH conditions, to result in zinc concentrations similar to those observed in surface water in the field. Metalplate further confirmed that similar lower pH conditions have been observed in certain locations at the Site, principally areas associated with relatively stagnant water and decaying organic materials. Metalplate then undertook a sediment treatability analysis, which indicated that reagents, including Enviroblend products and calcium carbonate, have the ability to lower surface water zinc concentrations by stabilizing zinc in-situ. The report on the solubility and treatability studies is attached as Appendix B.

Metalplate then retained PPM and Enviroquatics to develop the Final Remediation and Implementation Plan required by the Consent Order. The Plan is attached as Appendix C.

2.0 ACTIONS TAKEN SINCE LAST SUBMITTAL

2.1 Surface Water and Groundwater Sampling

Surface Water and Groundwater Sampling Report, dated April 14, 2017, is included as Appendix A. Conclusions of the surface water and groundwater sampling report are:

- Groundwater flow at the site is generally toward the southeast with a hydraulic gradient between monitoring wells MW-1 and MW-4 estimated at 0.036 ft/ft and flow velocity is estimated at 62.5 ft/year.

- The Lower South Ditch functions as a groundwater divide and Selig Pond functions as a surface impoundment. Both of these features impact the pattern of groundwater flow in the immediate vicinity.

- During the latest groundwater sampling event (October 2016), total zinc concentrations did not exceed the Type 4 RRS for total zinc (31 mg/L) in any well. Total zinc concentrations decreased on average since the last sampling event, with average zinc concentration decreasing from 7.39 mg/L to 5.44 mg/L and two wells reflecting non-detect results.

- Dissolved zinc concentrations in surface water continued to decrease since baseline sampling conducted prior to October 2014 startup of the electrocoagulation system. The average dissolved zinc concentration for the seven surface water samples decreased from May 2014 to October 2016 by 58 percent, indicating that significant gains have been made as the result of the electrocoagulator.

- Effectiveness of the corrective action will continue to be monitored during annual sampling events as required under the Consent Order.

2.2 Sediment Zinc Solubility and Treatability Studies

A2E and PPM performed solubility and treatability studies on zinc in Site sediments and a copy of the resulting report is included as Appendix B. Conclusions of the solubility and treatability studies are:

- The surface water data collected in October 2016 confirms an apparent relationship between pH and dissolved zinc in Site surface waters. Samples SW-2A and SW-6A had dissolved zinc concentrations of 120 and 127 mg/L, respectively, at a pH below 4. Samples SW-3A and SW-4A had dissolved zinc concentrations of 14 and 37.8, respectively (an order of magnitude lower), at a pH of approximately 6.

- The solubility study results indicate that the historic accumulation of zinc in

certain sediments at the Site, when considered in conjunction with the range of pH observed in the field, is resulting, in whole or in part, in elevated surface water zinc concentrations. Specifically, given an adequate supply of zinc in sediments, as in sample LS-4, a dissolved concentration of zinc of 145 mg/L was observed at an equilibrium pH of 3.57. This is consistent with conditions present in the vicinity of surface water sample locations SW-2A and SW-6A (see Table 3) and other areas where low pH in stagnant waters may exist. Conversely, as the equilibrium pH approached 5.5, as in samples LS-1 and LS-2, the solubility of zinc approached 10 mg/L. This latter case is consistent with conditions present in the vicinity of surface water sample locations SW-3A and SW-5, where zinc is present in sediments but pH is greater than 5.

- Three reagents were evaluated to assess their ability to stabilize zinc in sediments in situ by increasing pH and, in some cases, also changing the zinc to a less soluble form. The results of the treatability study thus support a Final Remediation and Implementation Plan that relies on in-situ stabilization of zinc by the field application of one or more of the tested reagents in a phased approach that allows an ongoing evaluation of the relative beneficial effect of the various reagents, application rates, and application approaches in the field.

2.3 Final Remediation and Implementation Plan (the "Plan")

- The Plan is included as Appendix C. It is the Final Remediation and Implementation Plan required by the 2014 Consent Order and includes an evaluation of corrective action alternatives.

- As previously reported, Site soils have been certified to meet applicable Risk Reduction Standards (RRSs), and groundwater also meets RRSs with the application of institutional controls. Ecological risk has also been evaluated and EPD has concurred that no corrective action is required in any media due to such risk. The remaining Consent Order/VRP obligation is to ensure that surface water concentrations if any caused by the Release do not exceed instream water quality standards, and that is the objective of the work described in the Plan.

- After assessing a variety or remedial approaches, the selected remedial approach to meet that objective is to control the effects of the HSRA/VRP-regulated release on surface water dissolved zinc concentrations by limiting zinc solubility through the phased application of stabilization agent(s) at key locations associated with groundwater/surface water interface(s), as further described in the Plan.

- There are available sources of zinc in the environment in this area unassociated with the Release. These sources include zinc concentrations in permitted stormwater discharges (particularly historical) and historical and ongoing lawful air emissions from the facility. These sources also include other zinc in the environment not associated with the Metalplate facility. While Plan implementation may address in part some of these other zinc sources at key locations where they have the potential to affect surface water quality and

otherwise may interact with the HSRA/VRP-regulated release, it is neither practicable nor required to address them all.

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

As described in PR-6, this and future progress reports will omit comments that have been resolved or completed.

3.1 Cost Estimate and Financial Assurance (Condition 1)

See Section 2.2.5 of PR-5. Metalplate intends to remove discussion of this item from future Progress Reports.

3.2 Outstanding Items from EPD Comment Letter dated February 14, 2011 (Condition 2)

The following addresses outstanding items contained in EPD's comment letter of February 14, 2011.

3.2.1 Conceptual Site Model, Impact of sediments on surface water and groundwater concentrations (Item 3) – The solubility and treatability study summarized above and attached continued Metalplate's effort to address this issue, as will the intended implementation of the Plan. Metalplate still expects O.C.G.A. 12-8-107(g)(2) to apply with respect to zinc concentrations in groundwater.

3.2.2 Soil, continuation with corrective action on tax parcel ID 14-0059-LL-017, Aston Investment Property (Item 4) – This issue and potential engagement with Aston will be revisited now that the Plan has been developed and submitted to EPD. *See also* PR-6, Section 3.2.4; PR-5, Section 2.2.6; PR-4, Section 2.4.6; PR-3, Section 2.1.6.

3.2.3 Groundwater, additional monitoring well in the vicinity of the detention basin (Item 8) – Based on (1) the solubility and treatability study results, (2) the presence of zinc in surface water at concentrations significantly higher than concentrations in groundwater, and (3) EPD's agreement that the groundwater plume has been delineated, Metalplate respectfully suggests that the requested additional monitoring well is unneeded at this time. It is possible that need for it could be revisited after Plan implementation.

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.

Metalplate intends to remove discussion of this item from future Progress Reports but will nonetheless remain aware of this EPD indication.

3.4 Payment of Fees (Condition 4)

Metalplate has paid all outstanding fees within sixty days of receipt of an invoice with supporting detail 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 18, 2016, for the amount of $1,612.50.

3.5 Investigation of Aston property (Condition 5) – This issue and potential engagement with Aston will be revisited now that the Plan has been developed and submitted to EPD. *See also* PR-6, Section 3.5.

4.0 STATUS OF FUTURE REQUIREMENTS

4.1 Progress reports annually through February 14, 2019.

4.2 February 14, 2019 - Compliance status report including certifications.

5.0 PROJECT SCHEDULE

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

6.0 COST SUMMARY

6.1 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)	$ 453,415.07
Total VRP-related Cost	$ 499,736.14

6.2 Total Project Cost

The total project cost to date (Initial HSI listing through January 31, 2016)	$ 1,139,655.32

TABLES

TABLE 1

SUMMARY OF INVOICED SERVICES

Table 1
Metalplate Galvanizing Facility
Cost Summary as of March 31, 2017

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
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	$305.77
October-12	$25.00	$0.00	$305.77
November-12	$0.00	$0.00	$305.77
December-12	$0.00	$330.00	$305.77
January-13	$1,244.33	$275.00	$305.77
February-13	$21,794.86	$7,135.00	$305.77
March-13	$4,995.00	$0.00	$305.77
April-13	$0.00	$0.00	$305.77
May-13	$270.00	$0.00	$305.77
June-13	$135.00	$0.00	$305.77
July-13	$0.00	$2,197.50	$305.77
August-13	$1,147.50	$860.00	$305.77
September-13	$7,482.40	$5,345.00	$305.77
October-13	$1,012.50	$226.47	$912.50
November-13	$135.00	$2,590.00	$912.50
December-13	$4,737.50	$1,077.50	$912.50

VRP application (pre-approval)	**TOTAL**
February 2010 - January 2011	**$46,321.07**

Table 1
Metalplate Galvanizing Facility
Cost Summary as of March 31, 2017

Month/Yr	Engineering/ Testing	Legal	Administrative (EPD)
January-14	$337.50	$4,340.00	$212.50
February-14	$10,082.43	$1,677.00	$212.50
March-14	$0.00	$0.00	$212.50
April-14	$0.00	$192.50	$212.50
May-14	$0.00	$2,508.50	$212.50
June-14	$0.00	$2,171.50	$212.50
July-14	$0.00	$532.50	$25.00
August-14	$0.00	$0.00	$25.00
September-14	$3,511.19	$349.00	$25.00
October-14	$0.00	$0.00	$43.75
November-14	$0.00	$0.00	$43.75
December-14	$0.00	$88.50	$43.75
January-15	$405.00	$984.00	$43.75
February-15	$0.00	$2,611.50	$43.75
March-15	$11,244.66	$0.00	$43.75
April-15	$0.00	$0.00	$37.50
May-15	$0.00	$0.00	$37.50
June-15	$0.00	$0.00	$37.50
July-15	$0.00	$0.00	$100.00
August-15	$0.00	$0.00	$100.00
September-15	$0.00	$0.00	$100.00
October-15	$0.00	$206.50	$84.38
November-15	$0.00	$0.00	$84.38
December-15	$5,861.04	$0.00	$84.38
January-16	$1,872.37	$7,350.50	$84.38
February-16	$0.00	$4,538.50	$84.38
March-16	$19,368.58	$1,587.50	$84.38
April-16	$0.00	$109.50	$84.38
May-16	$0.00	$0.00	$84.38
June-16	$5,265.00	$5,342.50	$806.25
July-16	$135.00	$365.00	$806.25
August-16	$0.00	$571.00	$0.00
September-16	$810.00	$0.00	$0.00
October-16	$135.00	$3,279.00	$0.00
November-16	$135.00	$766.50	$0.00
December-16	$5,839.75	$0.00	$0.00
January-17	$0.00	$2,367.00	$0.00
February-17	$2,310.00	$6,248.00	$0.00
March-17	$18,335.25	$0.00	$0.00

VRP Project (post-approval)	**TOTAL**
February 2011 - January 2016	**$453,415.07**

Total VRP-Related Cost	**$499,736.14**

Project Cost From Initial	**TOTAL**
HSI Listing (1994) thru Mar '17	**$1,139,655.32**

TABLE 2

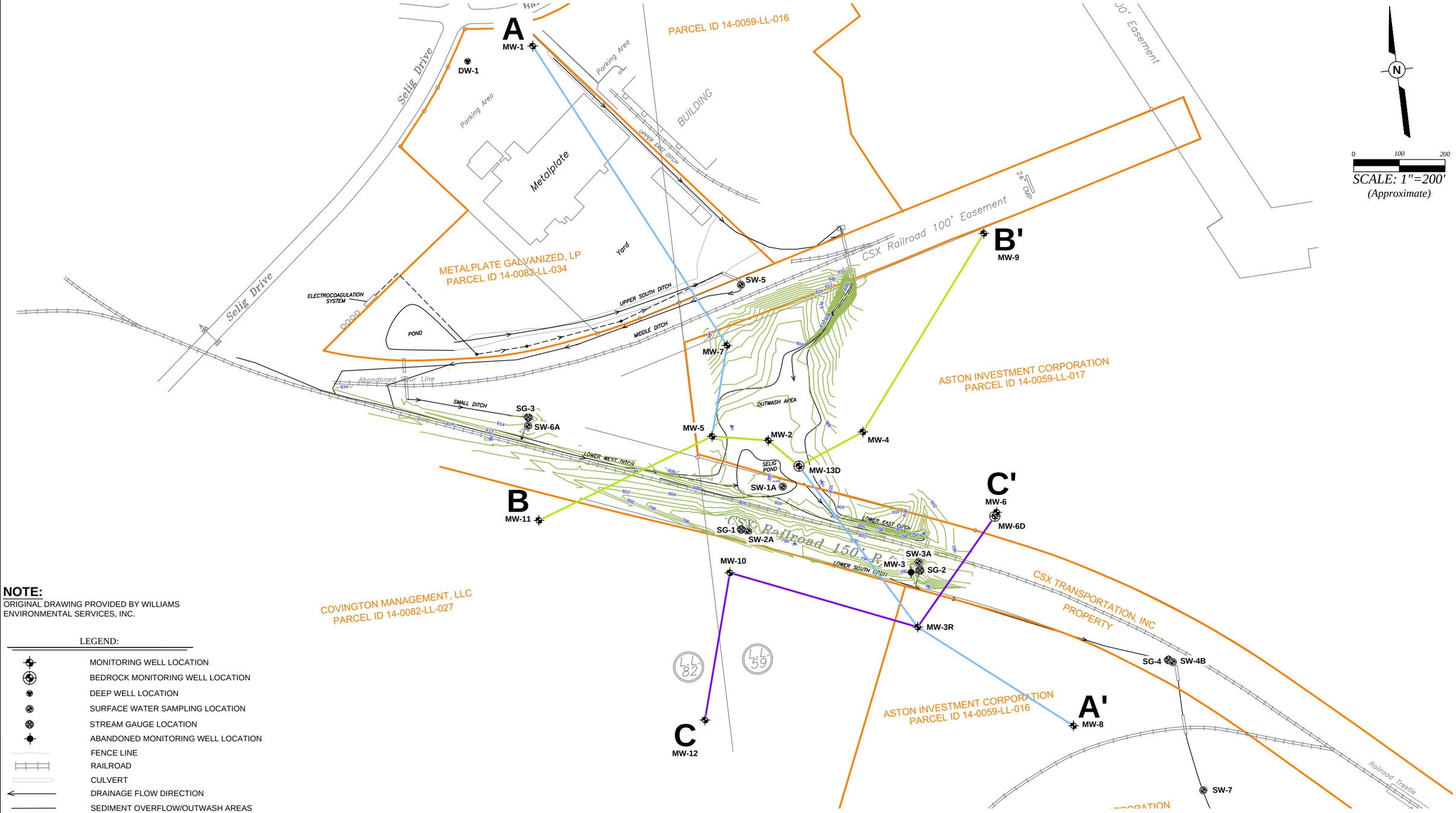
PROJECT SCHEDULE

Attachment A
Updated VIRP Milestone Schedule
Metalplate Galvanizing Facility, HSI 10204
May 13, 2014

Projected Date	Area	Action
May 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. (Final groundwater and surface water sampling event before start-up date of storm water treatment system.)
February 14, 2015	VRP	Progress Report (PR-7). Should include May and October 2014 sampling events.
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).
February 14, 2016	VRP	(PR-8). Should include results of sediment evaluation.
October 2016	Sampling	Post Implementation Sampling Event #2 (groundwater and surface water sampling with elevation measurements).
February 14, 2017	VRP	(PR-9). Should include and evaluation of Corrective Action and submittal of Final Remediation and Implementation Plan.
October 2017	Sampling	Post Implementation Sampling Event #3 (groundwater and surface water sampling with elevation measurements).
February 14, 2018	VRP	(PR-10). Should include and evaluation of Corrective Action progress.
October 2018	Sampling	Post Implementation Sampling Event #4.
February 14, 2019	VRP-CSR	Submittal of VRP CSR certifying compliance with applicable VRP 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 clearly and convincingly 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
- SURFACE WATER SAMPLING LOCATION
- STREAM GAUGE LOCATION
- ABANDONED MONITORING WELL LOCATION
- FENCE LINE
- RAILROAD
- CULVERT
- DRAINAGE FLOW DIRECTION
- SEDIMENT OVERFLOW/OUTWASH AREAS

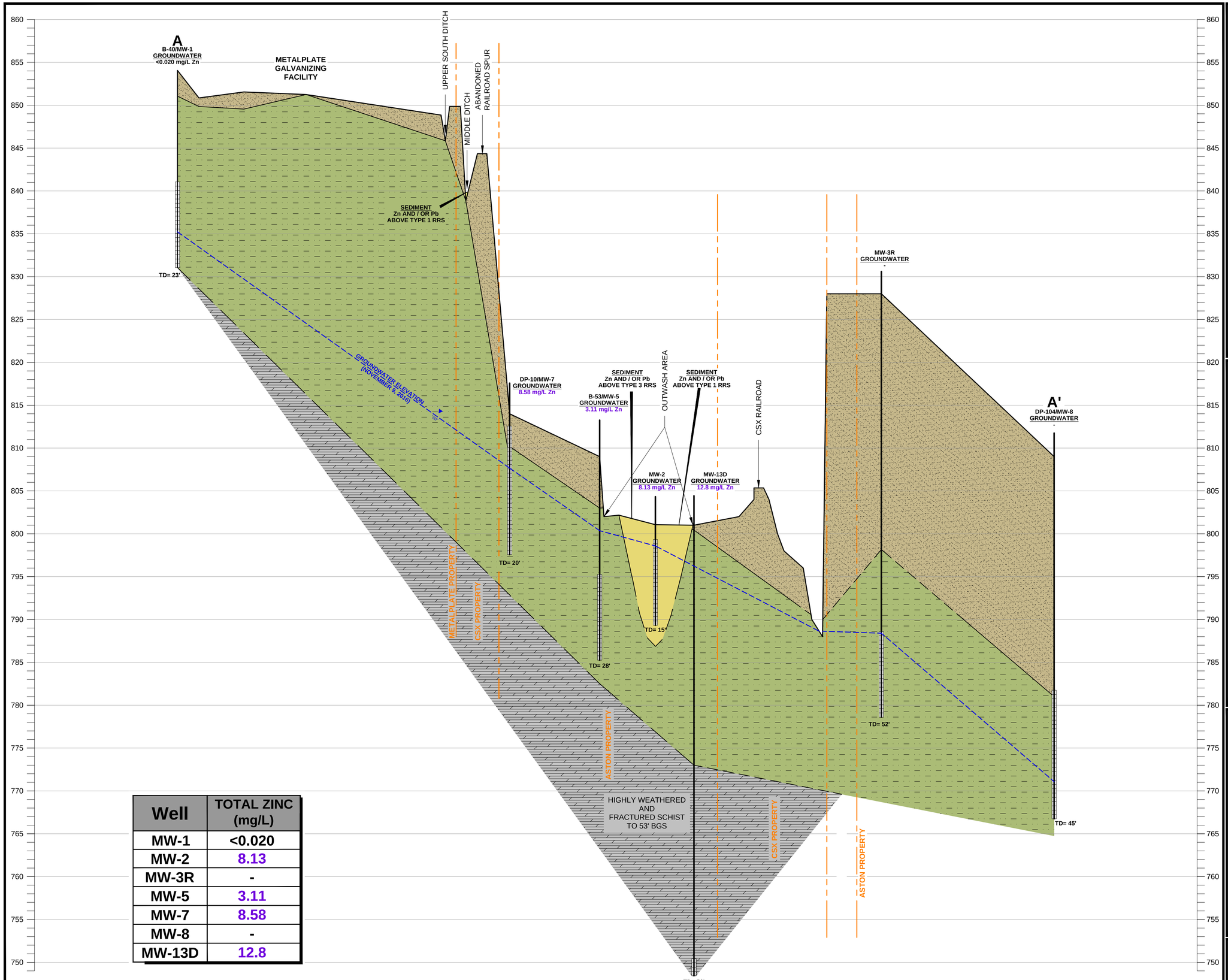
PPM CONSULTANTS, INC.
www.ppmco.com

DRAWN BY:	DRAWN DATE:
BWH	04/14/17
PROJECT NUMBER:	BILLING GROUP:
494501	PR9

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	<0.020
MW-2	8.13
MW-3R	-
MW-5	3.11
MW-7	8.58
MW-8	-
MW-13D	12.8

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.)
8.13 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. EXAGERATION: x20

METALPLATE GALVANIZING, L.P.

METALPLATE FACILITY/SELIG POND
505 SELIG DRIVE SW
ATLANTA, GEORGIA

CONCEPTUAL SITE MODEL - CROSS-SECTION A-A'

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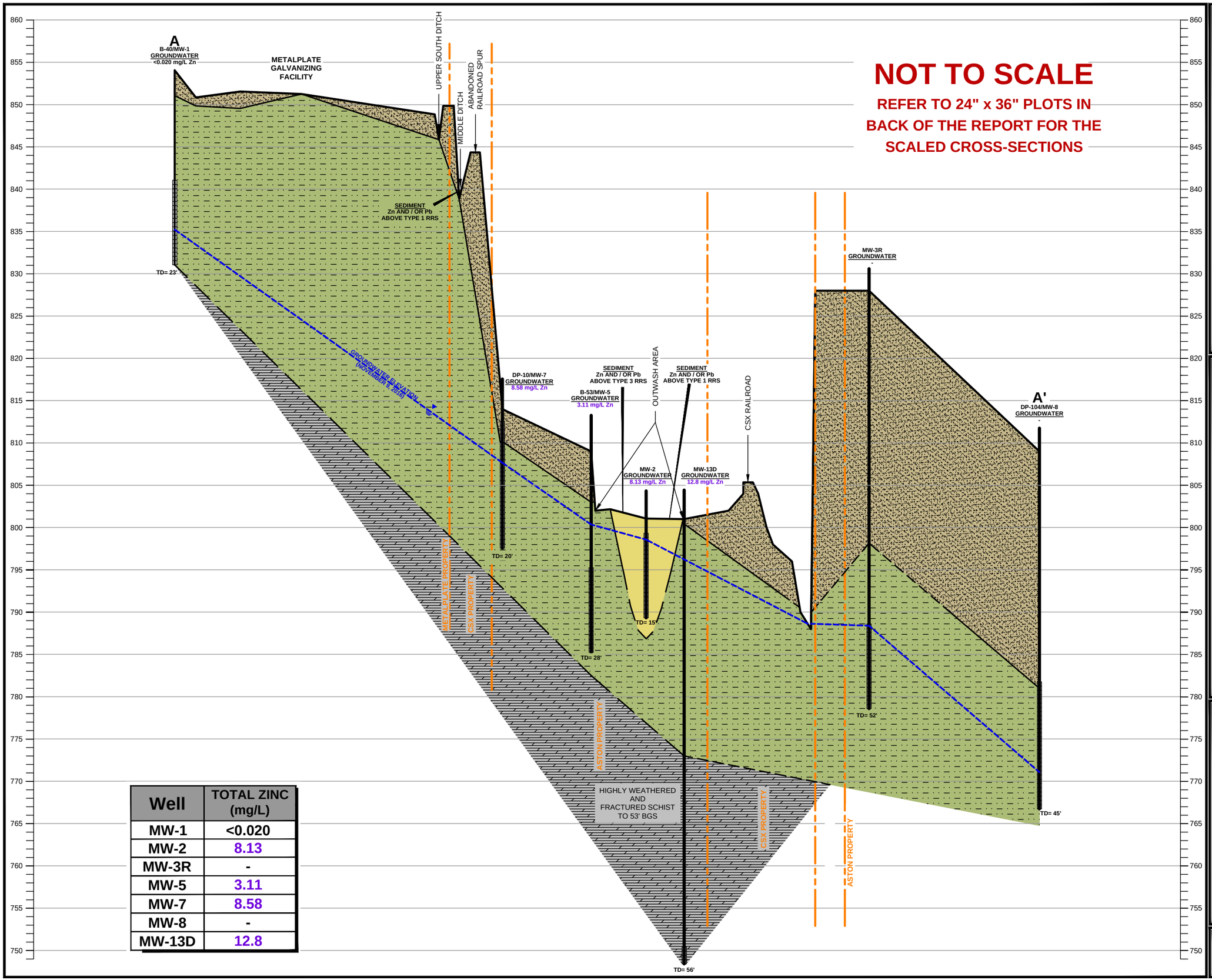
PROJECT NUMBER:	BILLING GROUP:	FIGURE NUMBER:
494501	PR9	2



NOT TO SCALE

REFER TO 24" x 36" PLOTS IN BACK OF THE REPORT FOR THE SCALED CROSS-SECTIONS

Well	TOTAL ZINC (mg/L)
MW-1	<0.020
MW-2	8.13
MW-3R	-
MW-5	3.11
MW-7	8.58
MW-8	-
MW-13D	12.8

Notes:

1. UPPER CONTACT LINES SHOW GENERALIZED SURFACE TOPOGRAPHY.
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LEGEND:

B-40/MW-1	SOIL BORING/MONITORING WELL LOCATION
	SEDIMENT
	NATURAL UNCONSOLIDATED SOIL OR FILL MATERIAL
	CLAYEY SILT SAPROLITE
	BEDROCK
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RRS	RISK REDUCTION STANDARD

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

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

CONCEPTUAL SITE MODEL - CROSS-SECTION A-A'

PPM CONSULTANTS, INC.
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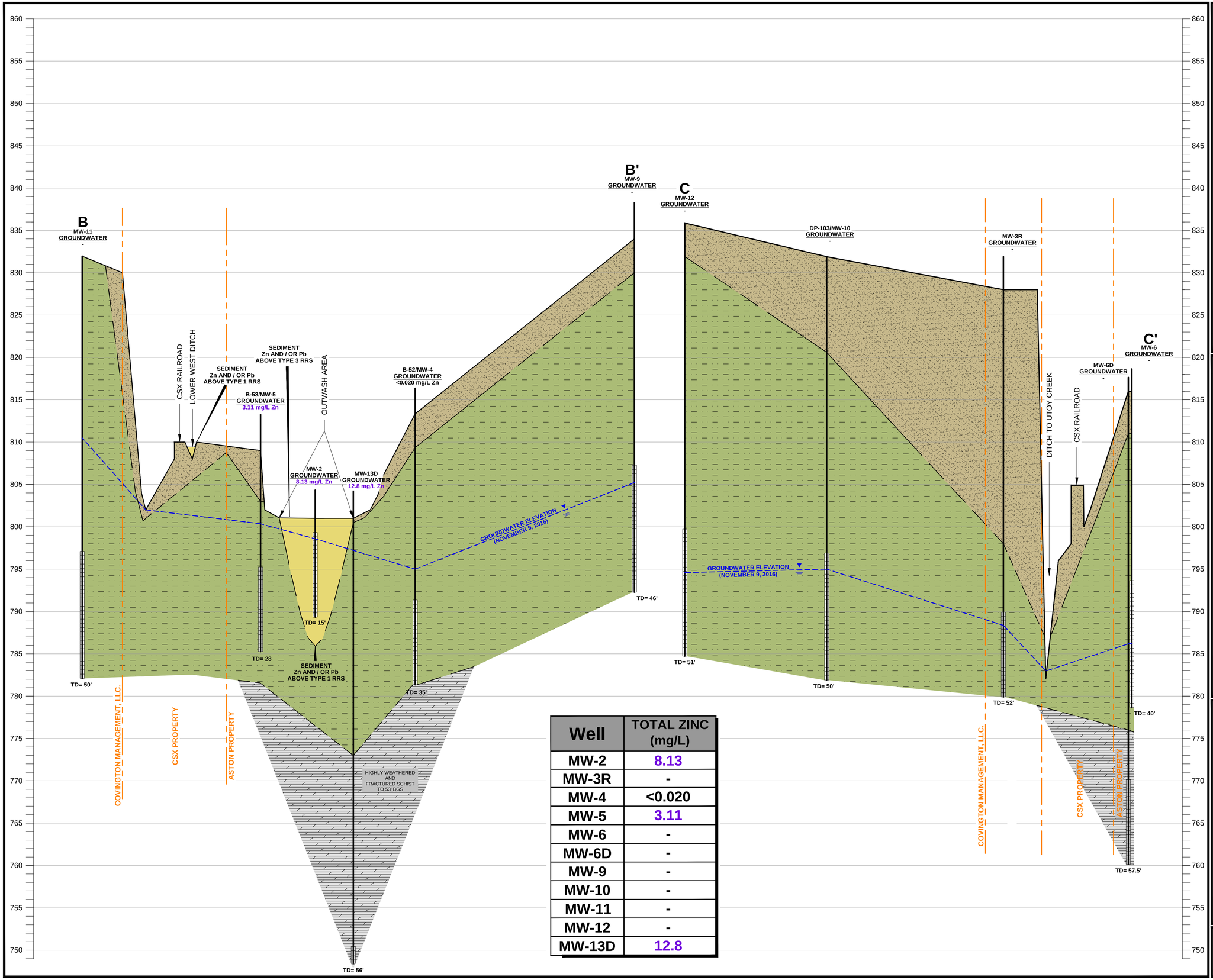
PROJECT NUMBER:	BILLING GROUP:	FIGURE NUMBER:
494501	PR9	2



Well	TOTAL ZINC (mg/L)
MW-2	8.13
MW-3R	-
MW-4	<0.020
MW-5	3.11
MW-6	-
MW-6D	-
MW-9	-
MW-10	-
MW-11	-
MW-12	-
MW-13D	12.8

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.)
8.13 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. EXAGERATION: 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'

PPM CONSULTANTS, INC.
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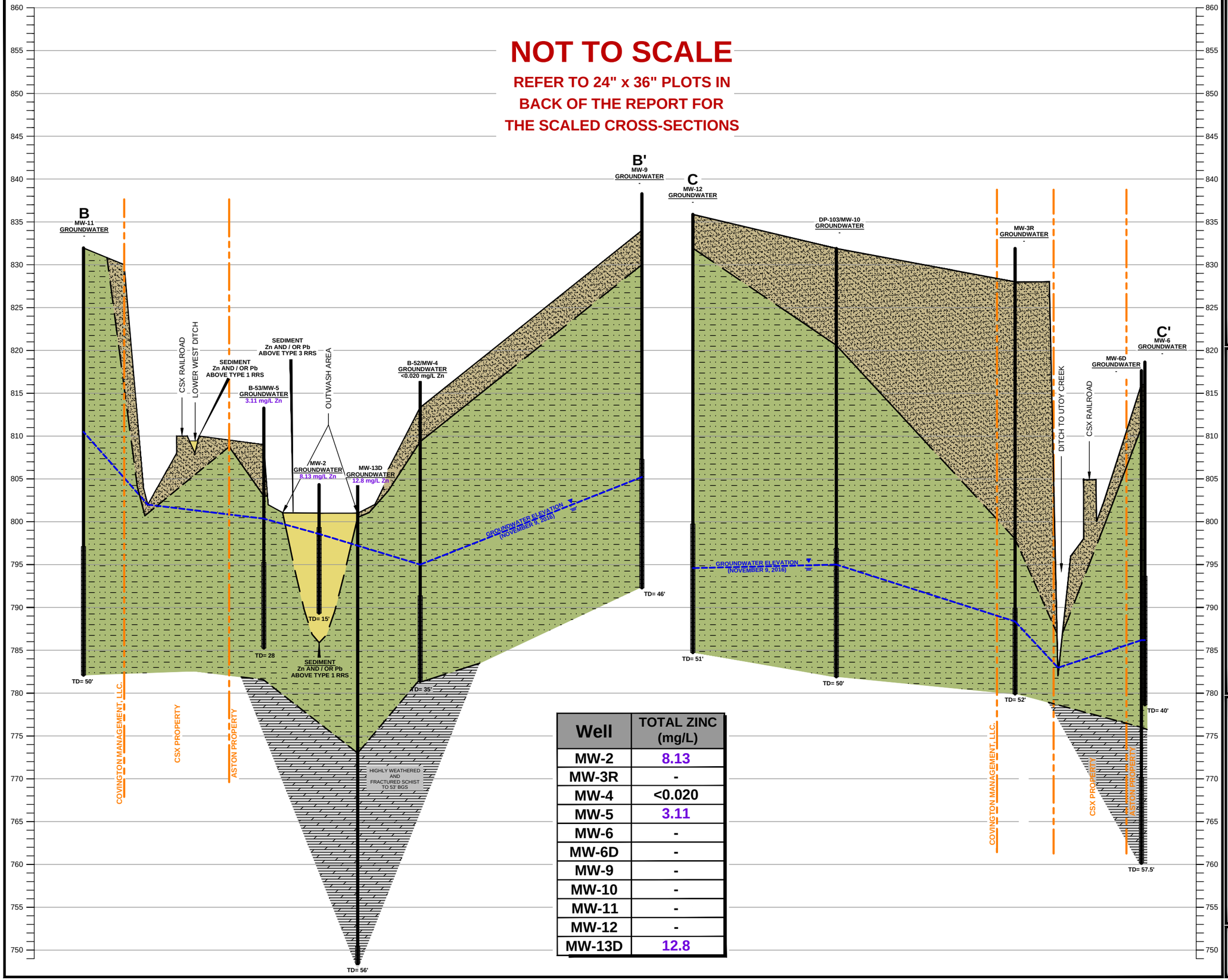
PROJECT NUMBER: 494501
BILLING GROUP: PR9
FIGURE NUMBER: 3

NOT TO SCALE

REFER TO 24" x 36" PLOTS IN BACK OF THE REPORT FOR THE SCALED CROSS-SECTIONS



Well	TOTAL ZINC (mg/L)
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MW-4	<0.020
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MW-6	-
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MW-9	-
MW-10	-
MW-11	-
MW-12	-
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Notes:
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LEGEND:

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

HORIZ. SCALE: 1"=100'
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METALPLATE GALVANIZING, L.P.

METALPLATE FACILITY/SELIG POND
505 SELIG DRIVE SW
ATLANTA, GEORGIA

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

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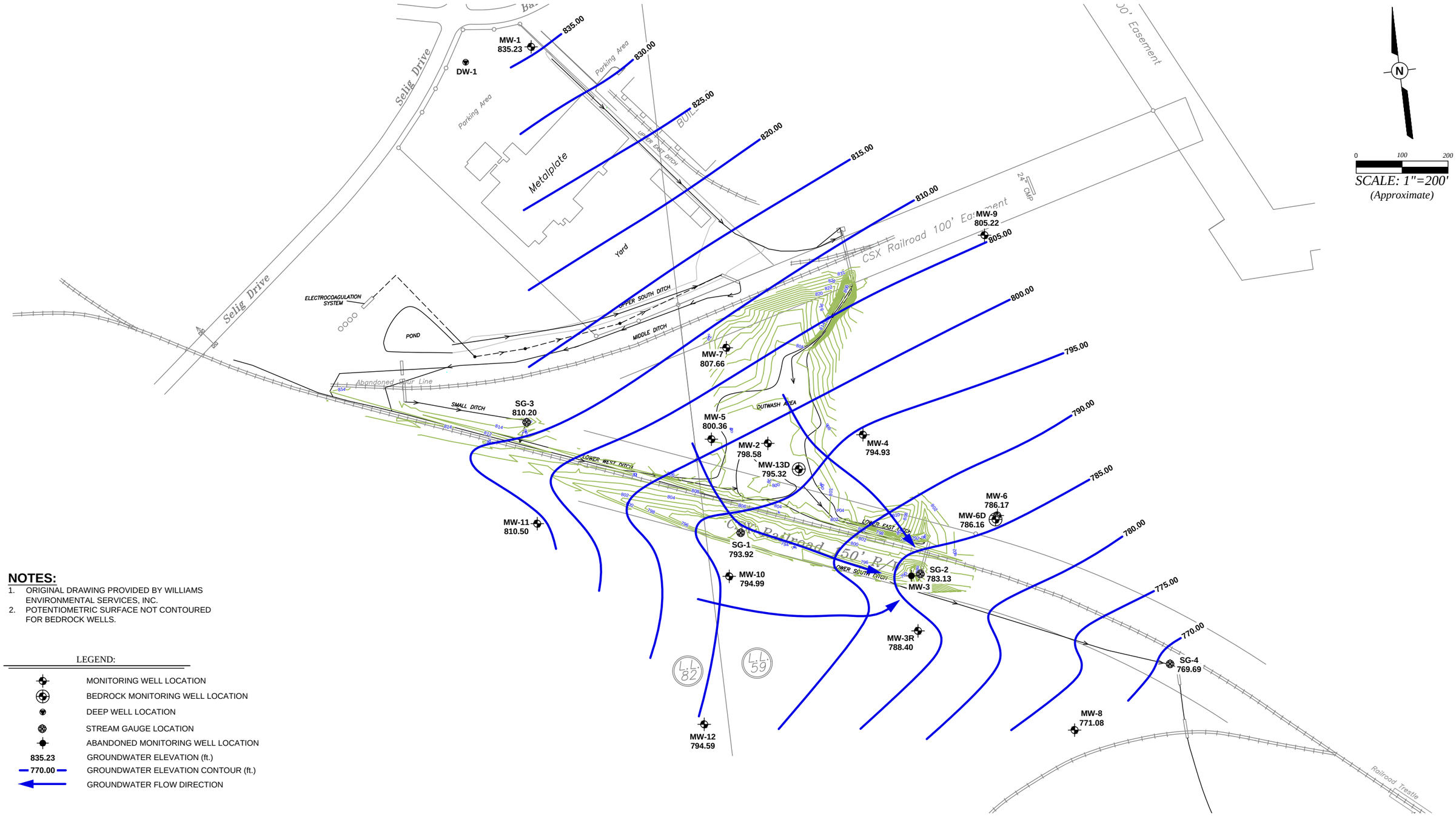
PROJECT NUMBER: 494501
BILLING GROUP: PR9
FIGURE NUMBER: 3



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
	STREAM GAUGE LOCATION
	ABANDONED MONITORING WELL LOCATION
835.23	GROUNDWATER ELEVATION (ft.)
770.00	GROUNDWATER ELEVATION CONTOUR (ft.)
	GROUNDWATER FLOW DIRECTION

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

GROUNDWATER / SURFACE WATER ELEVATION MAP
(NOVEMBER 9, 2016)

FIGURE NUMBER
4

NOTE:
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LEGEND:

⊕	MONITORING WELL LOCATION
◉	BEDROCK MONITORING WELL LOCATION
▼	DEEP WELL LOCATION
◎	SURFACE WATER SAMPLING LOCATION
✱	ABANDONED MONITORING WELL LOCATION
8.13	TOTAL ZINC CONCENTRATION (mg/L)
2	ESTIMATED HORIZONTAL EXTENT OF ZINC IN GROUNDWATER EXCEEDING THE TYPE 1 RRS (2 mg/L)
NS	NOT SAMPLED

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

TOTAL ZINC ISOCONCENTRATION MAP - GROUNDWATER
(OCTOBER 4, 2016)

FIGURE NUMBER
5

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

LEGEND:

- MONITORING WELL LOCATION
- BEDROCK MONITORING WELL LOCATION
- DEEP WELL LOCATION
- SURFACE WATER SAMPLING LOCATION
- ABANDONED MONITORING WELL LOCATION
- 41.1 DISSOLVED ZINC CONCENTRATION (mg/L)

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PROJECT NUMBER:	BILLING GROUP:
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505 SELIG DRIVE SW
ATLANTA, GEORGIA

DISSOLVED ZINC CONCENTRATION MAP - SURFACE WATER (OCTOBER 5, 2016)

FIGURE NUMBER
6

APPENDICES

APPENDIX A

SURFACE WATER AND GROUNDWATER SAMPLING REPORT

APRIL 14, 2017

ANNUAL GROUNDWATER AND SURFACE WATER 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-GWM16

APRIL 14, 2017

Environmental Science
and Engineering

PPM CONSULTANTS

ANNUAL GROUNDWATER/SURFACE WATER 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-GWM16

APRIL 14, 2017

PREPARED BY:

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

REVIEWED BY:

WALTER B. HENLEY, JR., P.G.
SENIOR GEOLOGIST

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

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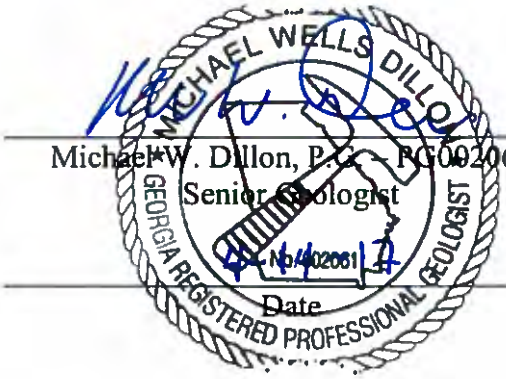
FIGURES (Appendix A)

TABLES (Appendix C)

APPENDICES

CERTIFICATION

I certify that I am a qualified groundwater 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.



Michael W. Dillon, P.G. - PG002061
Senior Geologist

4/4/2017
Date

1.0 INTRODUCTION

PPM Consultants, Inc. (PPM) was retained by Metalplate Galvanizing, L. P. (Metalplate) to conduct annual groundwater and surface water sampling and to prepare an annual corrective action effectiveness report for the Metalplate Galvanizing Facility/Selig Pond site located at 505 Selig Drive Southwest, Atlanta, Fulton County, Georgia (Georgia Hazardous Site Inventory Number 10204). These activities were conducted in accordance with 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 corrective action on site soils, which included source removal and subsequent site restoration, and ongoing treatment of the facility's storm water with the use of an electrocoagulation system. The electrocoagulation system was installed and began operation in October 2014. 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 2016 groundwater/surface water sampling event. The constituent of interest (COI) for the site groundwater and surface water is 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 Selig 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 site's recent history:

2.4.1 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.

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/or 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, May 29, 2008.

2.4.2 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 Best Management Practice (BMP) for the facility's Storm Water Pollution Prevention Plan (SWPPP). These measures are expected to decrease sediment loads leaving the property and decrease COI concentrations in storm water, surface water, and groundwater.

2.4.3 Voluntary Investigation and Remediation Plan and Application

A Voluntary Investigation and Remediation Plan 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 (VRP).

2.4.4 Screening Level Ecological Risk Assessment

By a June 29, 2012, letter, EPD concurred that ecological considerations would not require corrective action on sediments.

2.4.5 Groundwater Monitoring

Baseline groundwater monitoring was conducted at the site between September 8, 2008 and September 10, 2008, shortly after the soil removal corrective action activities were complete. The sampling was conducted 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.

Periodic groundwater monitoring events have been conducted to monitor plume stability and effectiveness of the corrective action. The results of these events have been presented in groundwater monitoring/corrective action effectiveness reports and VRP progress reports.

In correspondence dated November 8, 2013, the EPD provided a proposed VRP schedule after meeting with Metalplate representatives on October 21, 2013. The schedule (EPD Proposed Milestone Dates for Project Implementation, November 8, 2013) requested surface water sampling and collection of water elevation data to be conducted in April 2014. The schedule requested annual groundwater sampling, surface water sampling, and water elevation data collection to be conducted in October each year through 2018. Annual VRP Progress Reports were required to 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 should be submitted. The schedule was adopted in the 2014 Consent Order discussed in **Section 2.4.8**. Results of the groundwater and surface water sampling activities conducted during each previous period are included in the annual progress reports. During the annual groundwater sampling events, groundwater from monitoring wells MW-1, MW-2, MW-4, MW-5, MW-7, and MW13D are sampled and analyzed.

2.4.6 2014 Consent Order and New Storm Water Treatment Plan

As a result of discussions between EPD and Metalplate regarding the company's commitment to install a state-of-the-art electrocoagulation storm water treatment system, and that system's potential impact on the appropriate timing of VRP-related obligations, Metalplate and EPD entered a Consent Order revising and extending VRP milestones through February 14, 2019. The Consent Order became effective on September 4, 2014. The facility installed the electrocoagulation system in the fall of 2014, and it began operating in October 2014. As a result, the facility has seen significant reductions of zinc in its discharged storm water, consistently below applicable thresholds.

3.0 INVESTIGATIVE METHODOLOGY

3.1 GROUNDWATER/SURFACE WATER ELEVATION SURVEY

Site groundwater flow direction was estimated through groundwater and surface water elevation surveys conducted on November 9, 2016. Depth to groundwater measurements within the wells 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. Surface water elevations were measured at select locations of the site with the aid of stream gauges.

3.2 GROUNDWATER SAMPLING

Groundwater samples were collected from monitoring wells MW-1, MW-2, MW-4, MW-5, MW-7, and MW-13D on October 4, 2016. The wells were sampled in general accordance with Region 4 EPA Science and Ecosystem Support 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 could be below the top of screen. In these cases, the intake was placed approximately at the center of the screened water column. Purging rates were less than or equal to 0.1 gallons per minute (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). Field measurements were recorded on groundwater sampling field logs found in **Appendix B, Groundwater**

Sampling Field Logs and are summarized in **Table 1, Intrinsic Groundwater Parameters, Appendix C, Tables**.

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_3) 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 SURFACE WATER SAMPLING

Surface water samples were collected from sample locations SW-1A, SW-2A, SW-3A, SW-4B, SW-5, SW-6A, and SW-7 on October 5, 2016. Surface water was sampled in general accordance with Region 4 EPA Science and Ecosystem Support Division operating procedure No. SESDPROC-201-R3.

Surface water samples were collected from downstream to upstream locations by directly dipping the sample container into the water at each sampling location. The sample containers were dipped into the stream in the upstream direction of sampling personnel. Precautions were made to ensure that bottom sediment was not disturbed and that samples collected were representative of the surface water body. The weather condition during the time of sampling was sunny and 65 °F.

3.4 LABORATORY ANALYSIS

Analytical Environmental Services, Inc. (AES) of Atlanta, Georgia (NELAC Certification No. E87582) analyzed the groundwater and surface water samples. Samples were submitted using chain-of-custody protocol. Groundwater samples were analyzed for total zinc and dissolved zinc per EPA Method 6010D. Surface water samples were analyzed for dissolved zinc per EPA Method 6010D and total hardness per EPA Method 2340B.

4.0 FINDINGS

4.1 GROUNDWATER/SURFACE ELEVATIONS

Groundwater elevations, surface water elevations, and known ground surface elevations were utilized to contour the top of groundwater and determine groundwater flow direction. The elevations and groundwater flow pattern are shown on **Figure 3, Groundwater/Surface Water Elevation Map (November 9, 2016)**. The groundwater flow on November 9, 2016, was to the southeast at an average gradient of 0.036 feet per foot (ft/ft) (measured from MW-1 to MW-4). Groundwater elevations are provided in the **Table 2, Groundwater/Surface Water Elevation Summary**, 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 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 = 0.036 (average from monitoring well MW-1 to MW-4 on November 9, 2016)
- 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 0.171 feet per day (ft/day) or 62.5 feet per year (ft/year).

4.2 TOTAL ZINC CONCENTRATIONS IN GROUNDWATER

Total zinc concentrations for the baseline groundwater sampling event conducted at the time of the Soil Removal (September 2008) and the two latest groundwater sampling events are summarized below and included in **Table 3, Groundwater Analytical**

Summary. Groundwater analytical reports are included in **Appendix D, Groundwater/Surface Water Analytical Results**.

Total Zinc Concentrations in Groundwater for Baseline and Current Sampling Events (mg/L)

Well I.D.	September 2008 (Baseline)	October 2015	October 2016
MW-1	0.372	0.0916	<0.020
MW-2	11.0	6.55	8.13
MW-3*	**62.5**	--	--
MW-3R	--	--	--
MW-4	<0.020	0.0206	<0.020
MW-5	14.1	0.357	3.11
MW-6	0.028	--	--
MW-6D	0.0493	--	--
MW-7	**48.8**	8.82	8.58
MW-8	<0.020	--	--
MW-9	<0.020	--	--
MW-10	<0.020	--	--
MW-11	<0.020	--	--
MW-12	<0.020	--	--
MW-13D	9.12	28.5	12.8

Bold – indicates above a Type 4 RRS [31 milligrams per liter (mg/L)]
* -- indicates well abandoned due to integrity concerns.

Total zinc concentrations decreased on average since the last sampling event, with average zinc concentration decreasing from 7.39 mg/L to 5.44 mg/L and two wells reflecting non-detect results.

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 to the west by MW-5. The Lower South Ditch also appears to function as a hydraulic divide (or barrier) to the southeast, south, and southwest.

Total zinc concentrations in groundwater for the October 2016 event are shown on **Figure 4, Total Zinc Isoconcentration Map - Groundwater (October 4, 2016)**. A graph showing total zinc concentrations versus time is shown on **Figure 5, Total Zinc Concentration vs. Time - Groundwater**.

4.3 DISSOLVED ZINC CONCENTRATIONS IN SURFACE WATER

Dissolved zinc concentrations for surface water sampling events conducted on October 29, 2015, and October 5, 2016, are provided below and are included in **Table 4, Surface Water Analytical Summary**. Analytical reports are included in **Appendix D, Groundwater/Surface Water Analytical Results**.

Dissolved Zinc Concentrations in Surface Water for Baseline and Current Sampling Events (mg/L)

Sample I.D.	May 2014 (Baseline)	October 2015	October 2016
SW-1A	211	15.3	41.1
SW-2A	180	138	120
SW-3A	36.2	22.9	14.0
SW-4A	78.8	--	--
SW-4B	--	10.0	37.8
SW-5	128	18.1	5.53
SW-6	235	--	--
SW-6A	--	159	127
SW-7	38.4	41.8	34.5

Dissolved zinc concentrations in surface water decreased overall since the last sampling event, with average zinc concentration dropping further below the 130 mg/L baseline to 54.3 mg/L. Dissolved zinc concentrations for the surface water sampling events are shown on **Figure 6, Dissolved Zinc Concentration Map – Surface Water (October 5, 2016)**. A graph showing dissolved zinc concentrations versus time is shown on **Figure 7, Dissolved Zinc Concentration vs. Time – Surface Water**.

5.0 CONCLUSIONS

As described above, zinc concentrations in groundwater decreased since the last sampling event. Zinc concentrations in groundwater have been below Type 4 RRS since April 2012.

Following the soil removal conducted in August 2008, the concentration of total zinc at the upgradient portion of the plume (MW-7) decreased and the concentration has remained relatively stable and significantly below the Type 4 RRS since June 2009. The zinc concentrations in the central portion of the plume, at MW-2 and MW-5, fluctuated following the soil removal in 2008 until 2013 when the concentration decreased and has

remained relatively stable and significantly below the Type 4 RRS since. The zinc concentration at MW-2 has been below the Type 4 RRS since April 2012. The zinc concentration in the deep well MW-13D increased following the soil removal but remained below the Type 4 RRS.

Dissolved zinc concentrations in surface water further decreased since the last sampling event. Since May 2014, the average dissolved zinc concentration for the seven surface water samples has decreased by 58 percent, indicating that significant gains have been made as the result of the electrocoagulator.

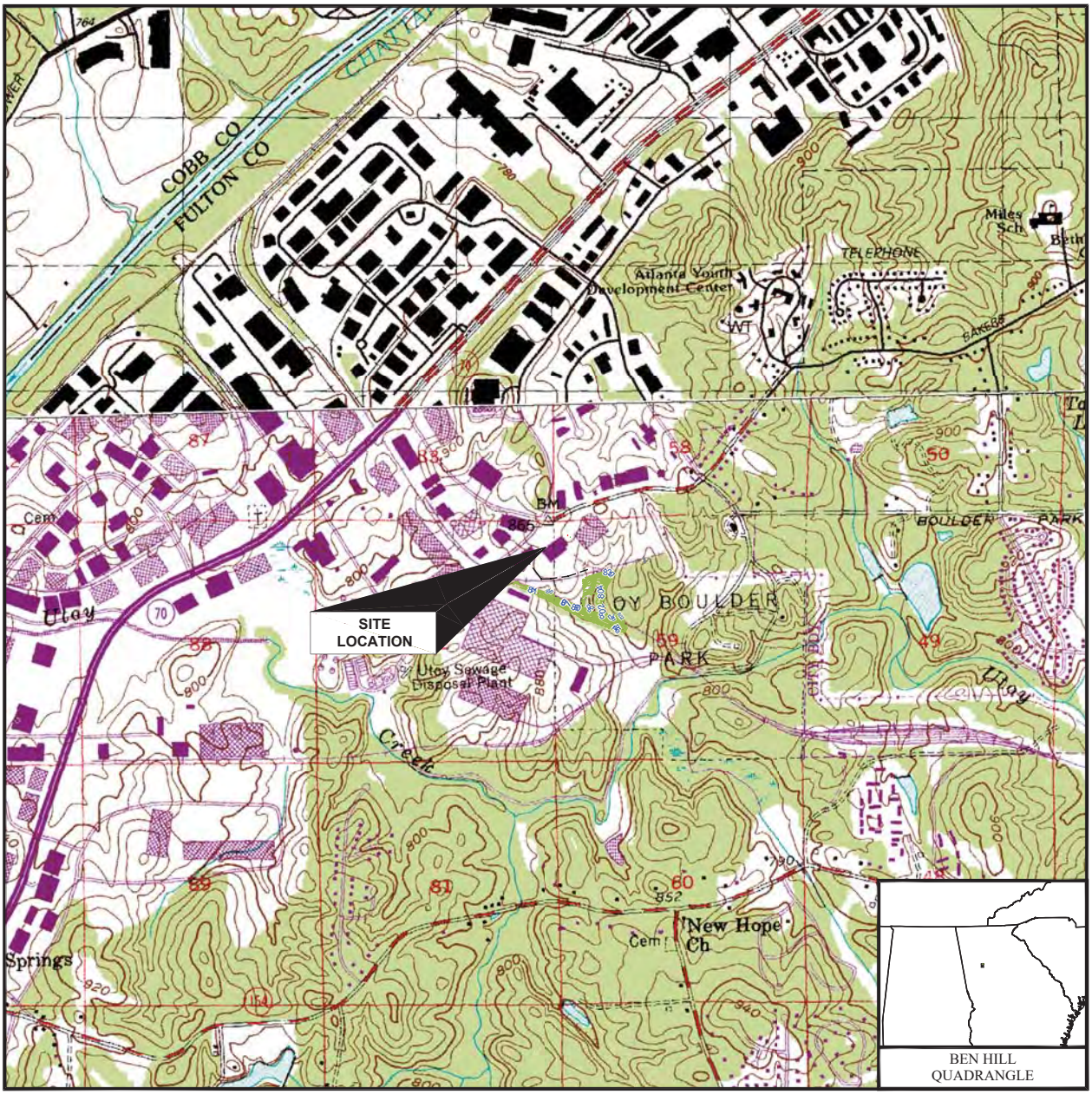
The general direction of groundwater flow at the site is toward the southeast. The hydraulic gradient between monitoring wells MW-1 and MW-4 is estimated at 0.036 ft/ft and flow velocity is estimated at 62.5 ft/year. The Lower South Ditch functions as a groundwater divide and the Selig Pond functions 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**.

6.0 RECOMMENDATIONS

PPM recommends continuation of annual groundwater and surface water sampling in accordance with the 2014 Consent Order.

APPENDICES

APPENDIX A – FIGURES



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1 0 KILOMETER 1 2

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PPM CONSULTANTS, INC. www.ppmco.com		METALPLATE GALVANIZING, L.P. **METALPLATE FACILITY/SELIG POND** 505 SELIG DRIVE SW ATLANTA, GEORGIA	SITE LOCATION MAP
DRAWN BY: BWH	DRAWN DATE: 11/16/16		FIGURE NUMBER 1
PROJECT NUMBER: 494501	BILLING GROUP: GWM16		

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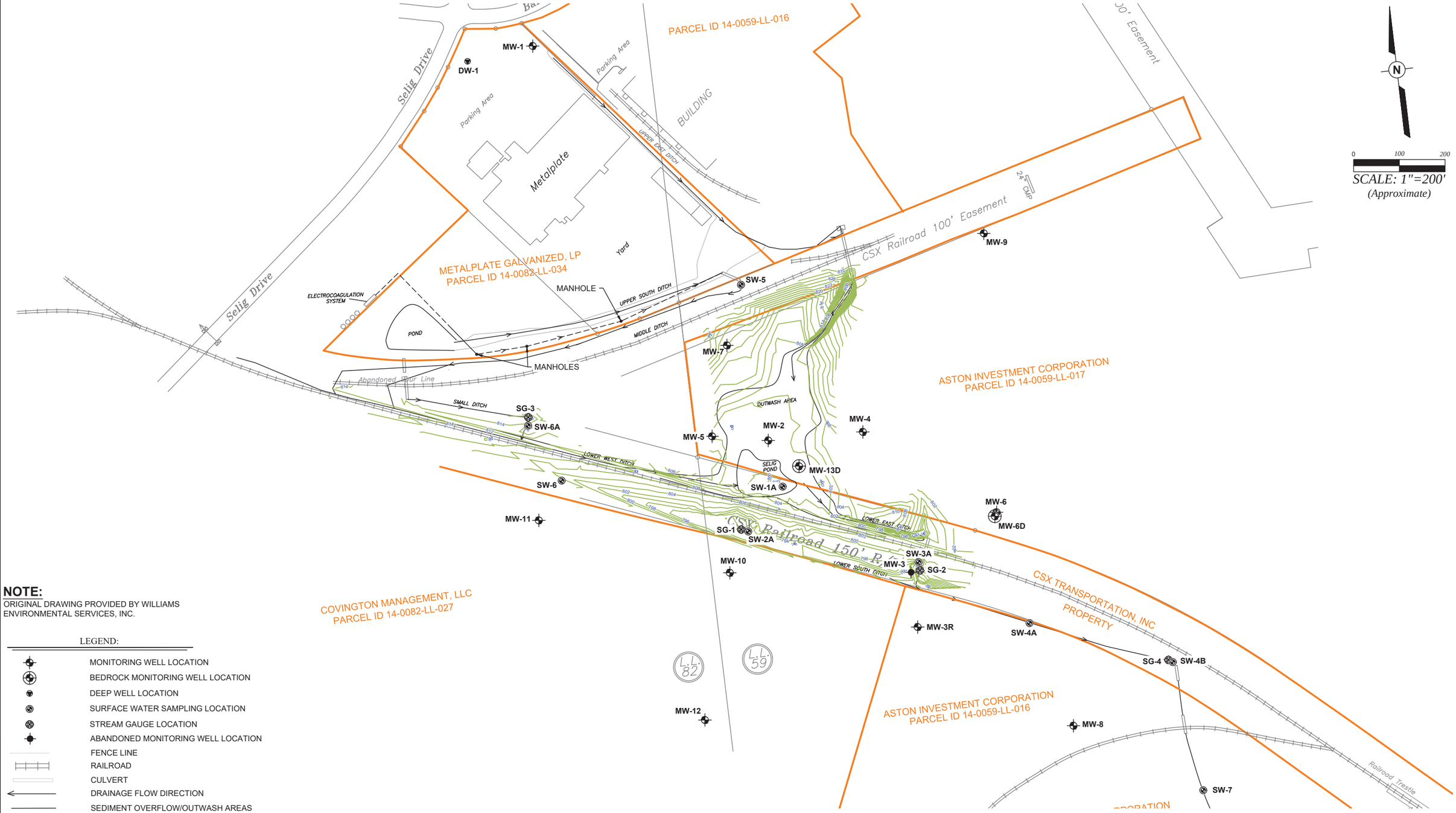

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- FENCE LINE
- RAILROAD
- CULVERT
- DRAINAGE FLOW DIRECTION
- SEDIMENT OVERFLOW/OUTWASH AREAS

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BWH	11/16/16
PROJECT NUMBER:	BILLING GROUP:
494501	GWM16

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

SITE MAP

FIGURE NUMBER
2

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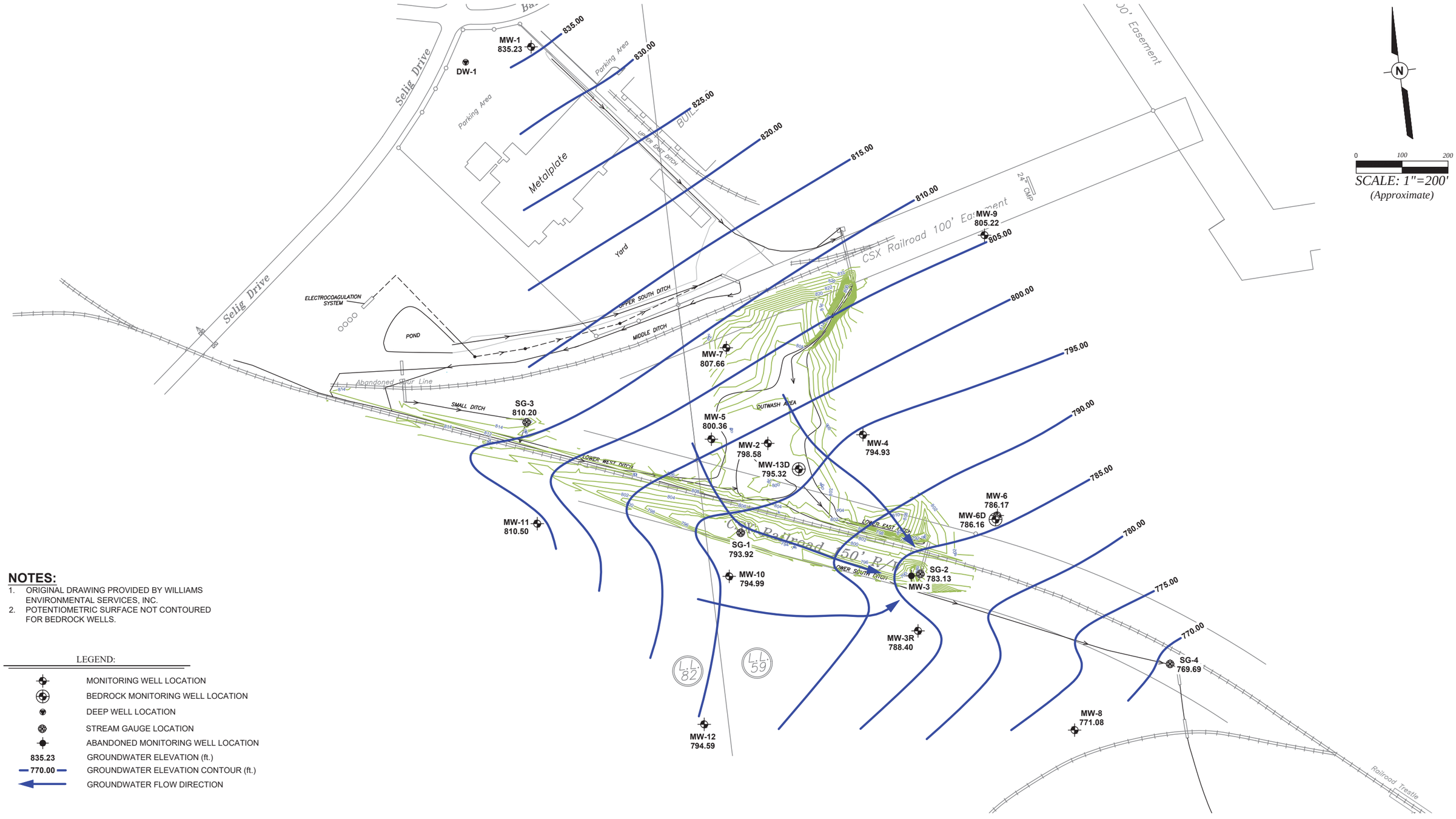

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- 770.00 — GROUNDWATER ELEVATION CONTOUR (ft.)
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PROJECT NUMBER: 494501	BILLING GROUP: GWM16

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

GROUNDWATER / SURFACE WATER ELEVATION MAP
(NOVEMBER 9, 2016)

FIGURE NUMBER
3

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

TOTAL ZINC ISOCONCENTRATION MAP - GROUNDWATER
(OCTOBER 4, 2016)

FIGURE NUMBER
4

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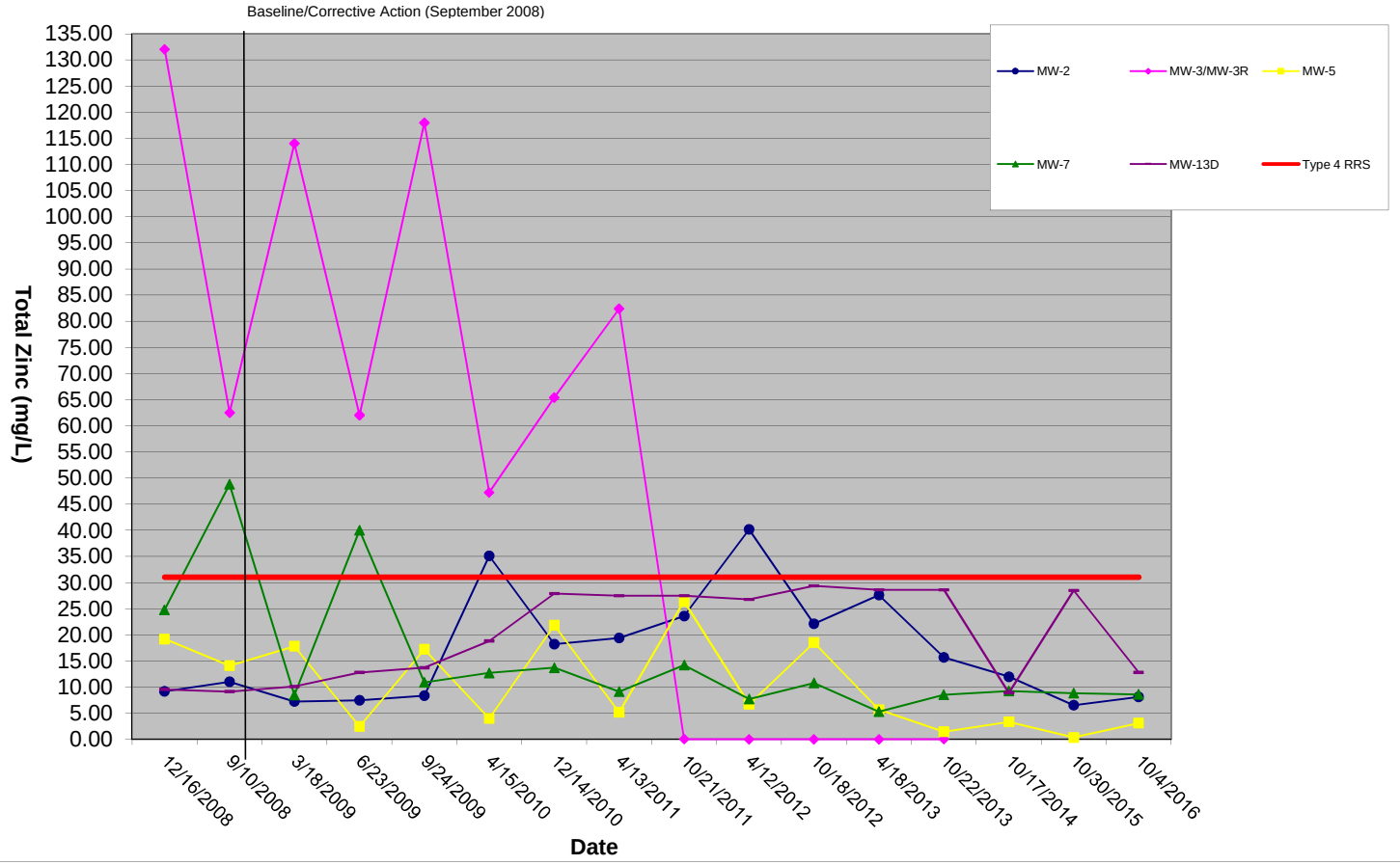
FIGURE 5
Total Zinc Concentration vs Time - Groundwater



	Baseline															
	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	Oct-14	Oct-15	Oct-16
MW-2	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	12.0	6.55	8.13
MW-3/MW-3R	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	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	3.33	0.357	3.11
MW-7	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	9.26	8.82	8.58
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	8.90	28.5	12.8
Type 4 RRS	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31

Not Applicable

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

LEGEND:

- MONITORING WELL LOCATION
- BEDROCK MONITORING WELL LOCATION
- DEEP WELL LOCATION
- SURFACE WATER SAMPLING LOCATION
- ABANDONED MONITORING WELL LOCATION
- **41.1** DISSOLVED ZINC CONCENTRATION (mg/L)

PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 11/16/16
PROJECT NUMBER: 494501	BILLING GROUP: GWM16

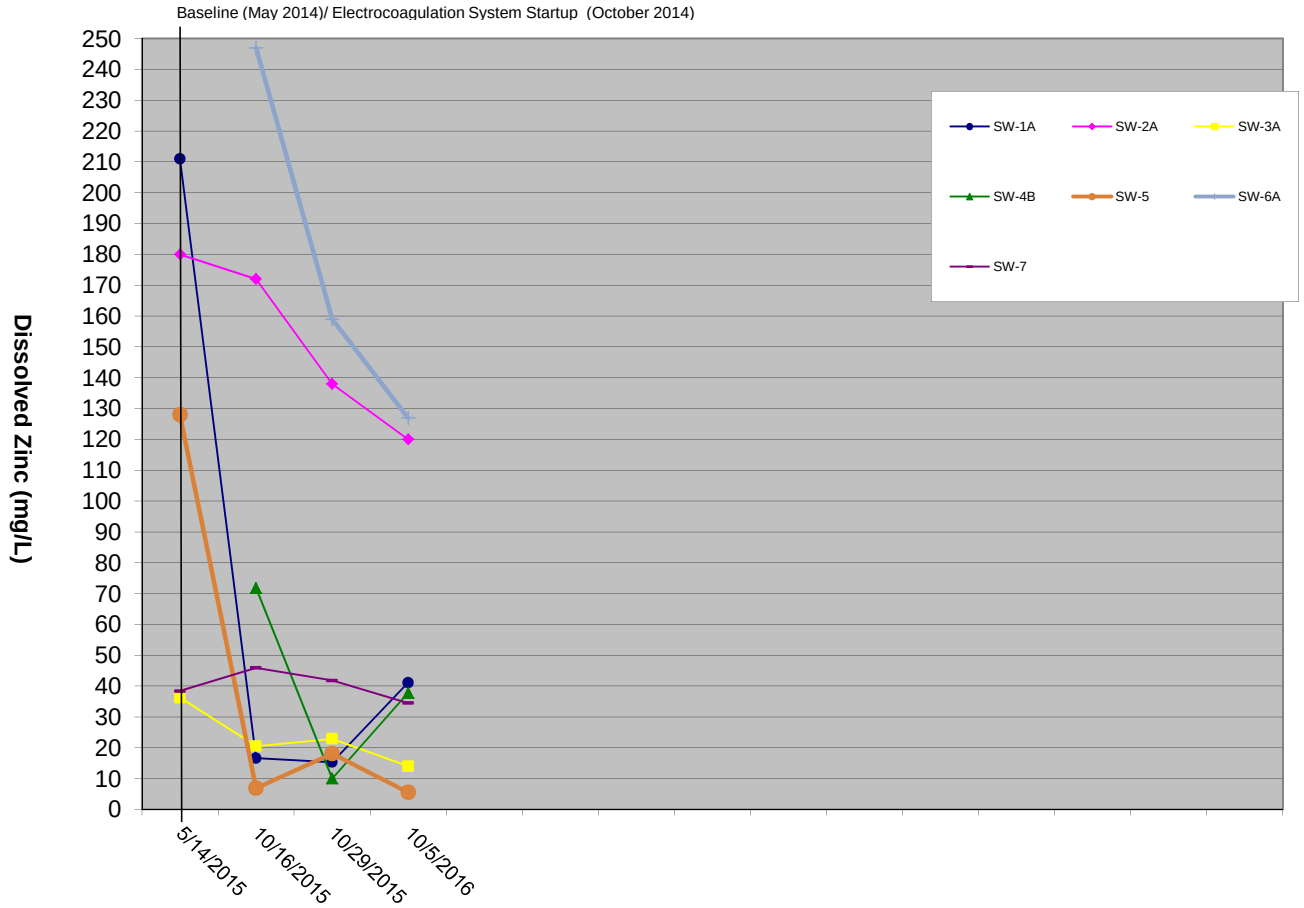
METALPLATE GALVANIZING, L.P.
METALPLATE FACILITY/SELIG POND
505 SELIG DRIVE SW
ATLANTA, GEORGIA

DISSOLVED ZINC CONCENTRATION MAP - SURFACE WATER (OCTOBER 5, 2016)

FIGURE NUMBER
6

Z:\Metalplate Galvanizing, L.P\494501 - Metalplate Facility Selig Pond\Gwm16\494501-Gwm16.dwg, 6 Zinc, 4/12/2017 9:47:46 AM, brian.hicks

FIGURE 7
Dissolved Zinc Concentration vs Time - Surface Water



			Baseline													
	May-15	Oct-15	Oct-15	Oct-16												
SW-1A	211	16.6	15.3	41.1												
SW-2A	180	172	138	120												
SW-3A	36.2	20.5	22.9	14												
SW-4B		71.8	10	37.8												
SW-5	128	6.92	18.1	5.53												
SW-6A		247	159	127												
SW-7	38.4	45.9	41.8	34.5												

APPENDIX B – GROUNDWATER SAMPLING FIELD LOGS

GROUNDWATER SAMPLING FIELD LOG

SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	10-4-16
LOCATION:	Atlanta Georgia	WEATHER:	73° Sunny
WELL I.D.:	**MW-1**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	855.16
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	18.21'
Well Depth (ft-BTOC)	23.01'	Well Volume (gal)	0.78
Water Column (ft)	4.80'	Screened Interval (ft-BGS)	13-23

WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-Flow
Pump Type	Peristaltic Pump
Tubing Type	LDPE 1/4" O.D.
Time of Sampling	10:58
Pumping Flow Rate (gpm)	<0.1 GPM
Pump/Tubing depth (ft-BTOC)	20' BTOC

WATER QUALITY PARAMETERS

	Initial						
Time E.T.	10:35	10:40	10:45	10:50	10:55		
Depth to water (ft-BTOC)	18.21'	18.64	18.84	19.02	19.10		
Amount Purged	—	0.50	0.00	0.50	2.0		
Temperature (°C)	20.29	20.31	20.33	20.40	20.47		
Sp. Cond (mS/cm)	0.253	0.097	0.093	0.090	0.089		
pH (S.U.)	5.60	5.57	5.54	5.52	5.52		
ORP (mV)	99.1	92.7	93.1	92.8	93.1		
Turbidity (NTU)	22.7	19.7	16.6	7.4	4.98		

LABORATORY DATA

Sample I.D.	**MW-1**	Sample Time: 10:58	
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-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	10-4-16
LOCATION:	Atlanta Georgia	WEATHER:	79° sunny
WELL I.D.:	**MW-2**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	805.55
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	3.76'
Well Depth (ft-BTOC)	15.39	Well Volume (gal)	
Water Column (ft)		Screened Interval (ft-BGS)	2-12

WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-Flow
Pump Type	Peristaltic Pump
Tubing Type	LDPE 1/4" O.D.
Time of Sampling	13:32
Pumping Flow Rate (gpm)	0.10
Pump/Tubing depth (ft-BTOC)	10'

WATER QUALITY PARAMETERS

	Initial						
Time	13:17	13:22	13:27				
Depth to water (ft-BTOC)	3.76	3.87	3.92				
Amount Purged	—	0.50	1.0				
Temperature (°C)	22.51°	22.81	22.83				
Sp. Cond. (µS/cm)	0.238	0.242	0.243				
pH (S.U.)	4.68	4.62	4.60				
ORP (mV)	134.0	131.7	128.4				
Turbidity (NTU)	22.2	5.82	3.56				

LABORATORY DATA

Sample I.D.	**MW-2**	Sample Time:	13:32	
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-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	NS
LOCATION:	Atlanta Georgia	WEATHER:	72°, Sunny
WELL I.D.:	**MW-3R**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	794.24
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	43.68
Well Depth (ft-BTOC)	51.99	Well Volume (gal)	-
Water Column (ft)	-	Screened Interval (ft-BGS)	1-6

WATER SAMPLE COLLECTION DATA

Method of Sampling	NS
Pump Type	-
Tubing Type	-
Time of Sampling	-
Pumping Flow Rate (gpm)	-
Pump/Tubing depth (ft-BTOC)	-

WATER QUALITY PARAMETERS

	Initial						
Time							
Depth to water (ft-BTOC)							
Amount Purged							
Temperature (°C)							
Sp. Cond. (µS/cm)							
pH (S.U.)							
ORP (mV)							
Turbidity (NTU)							

LABORATORY DATA

Sample I.D.	**MW-3**	Sample Time:	
Analyte	Total Zinc/Dissolved Zinc		
Containers/Preservative	250 ml (Nitric)/ 500 ml (unpreserved)		

REMARKS AND OBSERVATIONS: Not Sampled

GROUNDWATER SAMPLING FIELD LOG

SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	10-4-16
LOCATION:	Atlanta Georgia	WEATHER:	79° sunny
WELL I.D.:	**MW-4**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	814.78
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	20.33'
Well Depth (ft-BTOC)	29.32'	Well Volume (gal)	1.47
Water Column (ft)	8.99'	Screened Interval (ft-BGS)	18-28

WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-Flow
Pump Type	Peristaltic Pump
Tubing Type	LDPE 1/4" O.D.
Time of Sampling	13:03
Pumping Flow Rate (gpm)	0.10
Pump/Tubing depth (ft-BTOC)	25'

WATER QUALITY PARAMETERS

	Initial						
Time E.T.	12:51	12:56	13:01				
Depth to water (ft-BTOC)	20.33'	20.50	20.56				
Amount Purged	—	0.50	1.0				
Temperature (°C)	17.33°	17.16	17.07				
Sp. Cond. (uS/cm)	0.084	0.079	0.073				
pH (S.U.)	6.09	6.03	6.03				
ORP (mV)	42.7	46.8	49.4				
Turbidity (NTU)	15.6	5.58	4.72				

LABORATORY DATA

Sample I.D.	**MW-4**	Sample Time:	13:03
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-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	10-4-16
LOCATION:	Atlanta Georgia	WEATHER:	82' sunny
WELL I.D.:	**MW-5**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	813.26
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	10.24'
Well Depth (ft-BTOC)	27.40'	Well Volume (gal)	2.80
Water Column (ft)	17.16'	Screened Interval (ft-BGS)	15-25

WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-Flow
Pump Type	Peristaltic Pump
Tubing Type	LDPE 1/4" O.D.
Time of Sampling	14:18
Pumping Flow Rate (gpm)	0.10
Pump/Tubing depth (ft-BTOC)	20'

WATER QUALITY PARAMETERS

	Initial						
Time	13:50	13:55	14:00	14:05	14:10	14:15	
Depth to water (ft-BTOC)	10.24'	10.60'	10.71'	10.76'	10.82	10.95	
Amount Purged	—	0.50	1.00	1.50	2.00	2.50	
Temperature (°C)	18.41°	17.92°	17.83	18.00	17.84°	17.91°	
Sp. Cond. (µS/cm)	1.099	0.951	0.949	0.951	0.942	0.940	
pH (S.U.)	5.91	5.47	5.48	5.50	5.50	5.49	
ORP (mV)	-234.1	142.6	139.4	128.4	109.0	105.6	
Turbidity (NTU)	21.11	20.64	12.51	11.40	7.52	5.01	

LABORATORY DATA

Sample I.D.	**MW-5**	Sample Time: 14:18	
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-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	NS
LOCATION:	Atlanta Georgia	WEATHER:	73°, sunny
WELL I.D.:	**MW-6**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	819.53
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	31.08
Well Depth (ft-BTOC)	39.20	Well Volume (gal)	NA
Water Column (ft)	NA	Screened Interval (ft-BGS)	23-38

WATER SAMPLE COLLECTION DATA

Method of Sampling	NS
Pump Type	NA
Tubing Type	NA
Time of Sampling	NA
Pumping Flow Rate (gpm)	NA
Pump/Tubing depth (ft-BTOC)	NA

WATER QUALITY PARAMETERS

	Initial						
Time							
Depth to water (ft-BTOC)							
Amount Purged							
Temperature (°C)							
Sp. Cond. (µS/cm)							
pH (S.U.)							
ORP (mV)							
Turbidity (NTU)							

LABORATORY DATA

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

REMARKS AND OBSERVATIONS: Not Sampled

GROUNDWATER SAMPLING FIELD LOG

SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	NS
LOCATION:	Atlanta Georgia	WEATHER:	72°, Sunny
WELL I.D.:	**MW-6D**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	818.74
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	30.53
Well Depth (ft-BTOC)	42.38	Well Volume (gal)	NA
Water Column (ft)	NA	Screened Interval (ft-BGS)	45-55

WATER SAMPLE COLLECTION DATA

Method of Sampling	NS
Pump Type	NA
Tubing Type	NA
Time of Sampling	NA
Pumping Flow Rate (gpm)	NA
Pump/Tubing depth (ft-BTOC)	NA

WATER QUALITY PARAMETERS

	Initial						
Time							
Depth to water (ft-BTOC)							
Amount Purged							
Temperature (°C)							
Sp. Cond. (µS/cm)							
pH (S.U.)							
ORP (mV)							
Turbidity (NTU)							

LABORATORY DATA

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

REMARKS AND OBSERVATIONS: Not Sampled

GROUNDWATER SAMPLING FIELD LOG

SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	10-4-16
LOCATION:	Atlanta Georgia	WEATHER:	82° partly cloudy
WELL I.D.:	**MW-7**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	818.74
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	9.25'
Well Depth (ft-BTOC)	17.08'	Well Volume (gal)	1.28'
Water Column (ft)	7.83'	Screened Interval (ft-BGS)	5-20

WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-Flow
Pump Type	Peristaltic Pump
Tubing Type	LDPE 1/4" O.D.
Time of Sampling	15:10
Pumping Flow Rate (gpm)	0.10
Pump/Tubing depth (ft-BTOC)	13'

WATER QUALITY PARAMETERS

	Initial						
Time E.T.	14:42	14:47	14:52	15:00	15:05		
Depth to water (ft-BTOC)	9.25'	9.50'	9.59	9.71'	9.89'		
Amount Purged	—	0.50	1.00	1.50	2.00		
Temperature (°C)	19.41°	19.27	19.55	19.37	19.28		
Sp. Cond. (µS/cm)	0.992	0.982	0.981	0.977	0.971		
pH (S.U.)	5.14	5.13	5.12	5.13	5.15		
ORP (mV)	116.7	114.9	119.6	111.7	104.5		
Turbidity (NTU)	28.5	29.2	26.7	14.6	4.94		

LABORATORY DATA

Sample I.D.	**MW-7**	Sample Time:	15:10
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-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	NS
LOCATION:	Atlanta Georgia	WEATHER:	72°, Sunny
WELL I.D.:	**MW-8**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	812.85
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	38.91
Well Depth (ft-BTOC)	45.50	Well Volume (gal)	NA
Water Column (ft)	NA	Screened Interval (ft-BGS)	28-43

WATER SAMPLE COLLECTION DATA

Method of Sampling	NS
Pump Type	NA
Tubing Type	NA
Time of Sampling	NA
Pumping Flow Rate (gpm)	NA
Pump/Tubing depth (ft-BTOC)	NA

WATER QUALITY PARAMETERS

	Initial						
Time							
Depth to water (ft-BTOC)							
Amount Purged							
Temperature (°C)							
Sp. Cond. (µS/cm)							
pH (S.U.)							
ORP (mV)							
Turbidity (NTU)							

LABORATORY DATA

Sample I.D.	**MW-8**	Sample Time:	
Analyte	Total Zinc/Dissolved Zinc		
Containers/Preservative	250 ml (Nitric)/ 500 ml (unpreserved)		

REMARKS AND OBSERVATIONS: Not Sampled

GROUNDWATER SAMPLING FIELD LOG

SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	NS
LOCATION:	Atlanta Georgia	WEATHER:	72°, Sunny
WELL I.D.:	**MW-9**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	839.39
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	32.56
Well Depth (ft-BTOC)	46.50	Well Volume (gal)	NA
Water Column (ft)	NA	Screened Interval (ft-BGS)	21-43

WATER SAMPLE COLLECTION DATA

Method of Sampling	NS
Pump Type	NA
Tubing Type	NA
Time of Sampling	NA
Pumping Flow Rate (gpm)	NA
Pump/Tubing depth (ft-BTOC)	NA

WATER QUALITY PARAMETERS

	Initial						
Time							
Depth to water (ft-BTOC)							
Amount Purged							
Temperature (°C)							
Sp. Cond. (µS/cm)							
pH (S.U.)							
ORP (mV)							
Turbidity (NTU)							

LABORATORY DATA

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

REMARKS AND OBSERVATIONS: Not Sampled

GROUNDWATER SAMPLING FIELD LOG

SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	NS
LOCATION:	Atlanta Georgia	WEATHER:	72, Sunny
WELL I.D.:	**MW-10**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	833
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	39.09
Well Depth (ft-BTOC)	49.96	Well Volume (gal)	NA
Water Column (ft)	NA	Screened Interval (ft-BGS)	35-50

WATER SAMPLE COLLECTION DATA

Method of Sampling	NS
Pump Type	NA
Tubing Type	NA
Time of Sampling	NA
Pumping Flow Rate (gpm)	NA
Pump/Tubing depth (ft-BTOC)	NA

WATER QUALITY PARAMETERS

	Initial						
Time							
Depth to water (ft-BTOC)							
Amount Purged							
Temperature (°C)							
Sp. Cond. (µS/cm)							
pH (S.U.)							
ORP (mV)							
Turbidity (NTU)							

LABORATORY DATA

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

REMARKS AND OBSERVATIONS: Not Sampled

GROUNDWATER SAMPLING FIELD LOG

SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	NS
LOCATION:	Atlanta Georgia	WEATHER:	72°, Sunny
WELL I.D.:	**MW-11**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	833.06
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	20.78
Well Depth (ft-BTOC)	49.72	Well Volume (gal)	NA
Water Column (ft)	NA	Screened Interval (ft-BGS)	35-50

WATER SAMPLE COLLECTION DATA

Method of Sampling	NS
Pump Type	NA
Tubing Type	NA
Time of Sampling	NA
Pumping Flow Rate (gpm)	NA
Pump/Tubing depth (ft-BTOC)	NA

WATER QUALITY PARAMETERS

	Initial						
Time							
Depth to water (ft-BTOC)							
Amount Purged							
Temperature (°C)							
Sp. Cond. (µS/cm)							
pH (S.U.)							
ORP (mV)							
Turbidity (NTU)							

LABORATORY DATA

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

REMARKS AND OBSERVATIONS: Not Sampled

GROUNDWATER SAMPLING FIELD LOG

SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	NS
LOCATION:	Atlanta Georgia	WEATHER:	72°, sunny
WELL I.D.:	**MW-12**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	836.98
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	39.91
Well Depth (ft-BTOC)	50.00	Well Volume (gal)	NA
Water Column (ft)	NA	Screened Interval (ft-BGS)	35-50

WATER SAMPLE COLLECTION DATA

Method of Sampling	NS
Pump Type	NA
Tubing Type	NA
Time of Sampling	NA
Pumping Flow Rate (gpm)	NA
Pump/Tubing depth (ft-BTOC)	NA

WATER QUALITY PARAMETERS

	Initial						
Time							
Depth to water (ft-BTOC)							
Amount Purged							
Temperature (°C)							
Sp. Cond. (µS/cm)							
pH (S.U.)							
ORP (mV)							
Turbidity (NTU)							

LABORATORY DATA

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

REMARKS AND OBSERVATIONS: Not Sampled

GROUNDWATER SAMPLING FIELD LOG

SITE INFORMATION

CLIENT:	Metalplate Galvanizing	PROJECT NO.:	494501-GWM16
SITE NAME:	Metalplate	SAMPLING DATE:	10-4-16
LOCATION:	Atlanta Georgia	WEATHER:	79° sunny
WELL I.D.:	**MW-13D**		
SAMPLER'S NAME:	JC/HW		

WELL CONSTRUCTION AND LIQUID LEVEL DATA

Casing Material	PVC	Reference Pt. (TOC)	805.55
Casing Diameter (in.)	2"	Depth to Water (ft-BTOC)	7.52'
Well Depth (ft-BTOC)	56.17'	Well Volume (gal)	7.93
Water Column (ft)	48.65'	Screened Interval (ft-BGS)	51-53

WATER SAMPLE COLLECTION DATA

Method of Sampling	Low-Flow
Pump Type	~~Peristaltic Pump~~ Subm. pump
Tubing Type	LDPE 1/4" O.D.
Time of Sampling	12:33
Pumping Flow Rate (gpm)	0.10
Pump/Tubing depth (ft-BTOC)	52'

WATER QUALITY PARAMETERS

	Initial						
Time E.T.	12:21	12:26	12:31				
Depth to water (ft-BTOC)	7.52'	7.90'	8.03'				
Amount Purged	—	0.5	1.0				
Temperature (°C)	18.57°	18.38°	18.24°				
Sp. Cond. (µS/cm)	1,084	1,079	1,074				
pH (S.U.)	6.22	6.24	6.29				
ORP (mV)	53	49.8	46.7				
Turbidity (NTU)	5.20	2.35	1.03				

LABORATORY DATA

Sample I.D.	**MW-13D**	Sample Time: 12:33	
Analyte	Total Zinc/Dissolved Zinc		
Containers/Preservative	250 ml (Nitric)/ 500 ml (unpreserved)		

REMARKS AND OBSERVATIONS:

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
	10/17/2014	5.16	18.1	100	169.6	15.8
	10/30/2015	5.74	18.5	116	223.0	20.9
	10/4/2016	5.52	20.5	89	93.1	4.98
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
	10/17/2014	4.33	21.2	327	263.8	2.50
	10/30/2015	4.84	18.3	190	372.2	4.58
	10/4/2016	4.60	22.8	243	128.4	3.56
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
	10/17/2014	NS	NS	NS	NS	NS
	10/30/2015	NS	NS	NS	NS	NS
	10/4/2016	NS	NS	NS	NS	NS
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
	10/17/2014	5.53	15.5	74	120.5	4.89
	10/30/2015	6.14	15.8	50	172.3	3.99
	10/4/2016	6.03	17.1	73	49.4	4.72

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-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
	10/17/2014	5.22	17.4	1,406	104.5	4.67
	10/30/2015	5.80	16.7	1,207	208.2	13.20
	10/4/2016	5.49	17.9	940	105.6	5.01
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
	10/17/2014	NS	NS	NS	NS	NS
	10/30/2015	NS	NS	NS	NS	NS
	10/4/2016	NS	NS	NS	NS	NS
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
	10/17/2014	NS	NS	NS	NS	NS
	10/30/2015	NS	NS	NS	NS	NS
	10/4/2016	NS	NS	NS	NS	NS
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
	10/17/2014	4.85	19.9	1,511	127.5	4.80
	10/30/2015	5.20	18.0	1,268	251.9	4.44
	10/4/2016	5.15	19.3	971	104.5	4.94
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
	10/17/2014	NS	NS	NS	NS	NS
	10/30/2015	NS	NS	NS	NS	NS
	10/4/2016	NS	NS	NS	NS	NS

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-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
	10/17/2014	NS	NS	NS	NS	NS
	10/30/2015	NS	NS	NS	NS	NS
	10/4/2016	NS	NS	NS	NS	NS
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
	10/17/2014	NS	NS	NS	NS	NS
	10/30/2015	NS	NS	NS	NS	NS
	10/4/2016	NS	NS	NS	NS	NS
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
	10/17/2014	NS	NS	NS	NS	NS
	10/30/2015	NS	NS	NS	NS	NS
	10/4/2016	NS	NS	NS	NS	NS
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	4.61
	4/17/2013	5.41	20.2	69	78.3	4.82
	10/21/2013	5.79	20.6	91	157.0	4.09
	10/17/2014	NS	NS	NS	NS	NS
	10/30/2015	NS	NS	NS	NS	NS
	10/4/2016	NS	NS	NS	NS	NS

TABLE 1
INTRINSIC GROUNDWATER PARAMETERS
METALPLATE GALVANIZING FACILITY
ATLANTA, GEORGIA

SAMPLE I.D.	SAMPLE DATE	pH (S.U.)	TEMPERATURE (^{o}C)	SPECIFIC CONDUCTIVITY (µS/cm)	OXIDATION REDUCTION POTENTIAL (mV)	TURBIDITY (NTU)
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	1.49
	10/17/2014	5.96	17.5	1,318	80.7	1.38
	10/30/2015	5.55	16.1	1,310	269.8	3.04
	10/4/2016	6.29	18.2	1,074	46.7	1.03

Notes: *S.U. - Standard Units*
µS/cm - microSiemens/centimeter
^{o}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-GWM16

TABLE 2
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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	854.06	23.1	21.63	832.43
	4/17/2013		23.0	19.87	834.19
	10/21/2013		23.1	17.92	836.14
	5/16/2014		23.1	16.89	837.17
	10/17/2014		23.0	17.99	836.07
	10/29/2015		23.0	18.12	835.94
	11/9/2016		23.0	18.83	835.23
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
	5/16/2014		15.4	3.10	801.23
	10/17/2014		15.4	3.32	801.01
	10/29/2015		15.4	3.05	801.28
	11/9/2016		15.4	5.75	798.58

TABLE 2
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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
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
	5/16/2014		52.0	40.51	790.09
	10/17/2014		52.0	41.70	788.90
	10/29/2015		52.0	42.24	788.36
	11/9/2016		52.0	42.20	788.40
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	816.35	34.6	22.23	794.12
	4/17/2013		34.5	17.87	798.48
	10/21/2013		30.4	18.59	797.76
	5/16/2014		30.4	15.61	800.74
	10/17/2014		29.3	19.35	797.00
	10/29/2015		29.3	19.00	797.35
	11/9/2016		29.3	21.42	794.93

TABLE 2
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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
	5/16/2014		27.5	9.09	803.07
	10/17/2014		27.4	9.73	802.43
	10/29/2015		27.4	9.32	802.84
	11/9/2016		27.4	11.80	800.36
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	818.43	39.4	32.50	785.93
	4/17/2013		39.4	30.06	788.37
	10/21/2013		39.4	30.27	788.16
	5/16/2014		39.4	27.82	790.61
	10/17/2014		39.2	30.92	787.51
	10/29/2015		39.2	30.30	788.13
	11/9/2016		39.2	32.26	786.17

TABLE 2
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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	817.64	57.5	31.77	785.87
	4/17/2013		57.5	29.35	788.29
	10/21/2013		57.5	29.64	788.00
	5/16/2014		57.5	27.28	790.36
	10/17/2014		-	30.32	787.32
	10/29/2015		-	29.84	787.80
	11/9/2016		-	31.48	786.16
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	817.57	16.8	10.42	807.15
	4/17/2013		16.8	8.09	809.48
	10/21/2013		17.5	8.34	809.23
	5/16/2014		17.5	7.81	809.76
	10/17/2014		17.4	9.02	808.55
	10/29/2015		17.1	8.48	809.09
	11/9/2016		17.1	9.91	807.66

TABLE 2
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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	811.75	45.6	40.67	771.08
	4/17/2013		45.7	39.92	771.83
	10/21/2013		45.7	40.00	771.75
	5/16/2014		45.7	39.41	772.34
	10/17/2014		45.5	40.28	771.47
	10/29/2015		45.5	38.60	773.15
	11/9/2016		45.5	40.67	771.08
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	838.29	46.7	37.03	801.26
	4/17/2013		46.7	35.66	802.63
	10/21/2013		46.8	32.17	806.12
	5/16/2014		46.8	29.89	808.40
	10/17/2014		46.5	32.63	805.66
	10/29/2015		46.5	31.99	806.30
	11/9/2016		46.5	33.07	805.22

TABLE 2
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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	831.90	50.1	38.11	793.79
	4/17/2013		50.1	37.73	794.17
	10/21/2013		49.5	36.40	795.50
	5/16/2014		49.5	35.45	796.45
	10/17/2014		50.0	36.49	795.41
	10/29/2015		50.0	34.82	797.08
	11/9/2016		50.0	36.91	794.99
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	831.96	49.8	21.88	810.08
	4/17/2013		49.8	19.93	812.03
	10/21/2013		49.8	20.25	811.71
	5/16/2014		49.8	19.49	812.47
	10/17/2014		49.8	20.83	811.13
	10/29/2015		49.7	20.12	811.84
	11/9/2016		49.7	21.46	810.50

TABLE 2
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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
	5/16/2014		50.0	39.98	795.90
	10/17/2014		50.0	40.53	795.35
	10/29/2015		50.0	39.04	796.84
	11/9/2016		50.0	41.29	794.59
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	804.43	56.3	9.26	795.17
	4/17/2013		56.2	6.01	798.42
	10/21/2013		56.2	6.37	798.06
	5/16/2014		56.2	4.86	799.57
	10/17/2014		56.2	6.51	797.92
	10/29/2015		56.2	6.10	798.33
	11/9/2016		56.2	9.11	795.32

TABLE 2
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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)
SG-1	5/16/2014	793.92	-	0.50	794.42
	10/17/2014		-	0.55	794.47
	10/29/2015	798.44	-	3.12	795.32
	11/9/2016		-	4.52	793.92
SG-2	5/16/2014	782.86	-	1.20	784.06
	10/17/2014		-	0.85	783.71
	10/29/2015	786.50	-	2.87	783.63
	11/9/2016		-	3.37	783.13
SG-3	10/17/2014	812.50	-	0.70	813.20
	10/29/2015	814.67	-	3.61	811.06
	11/9/2016		-	4.47	810.20
SG-4	10/17/2014	774.48	-	0.40	774.88
	10/29/2015	772.52	-	2.35	770.17
	11/9/2016		-	2.83	769.69

Notes: *ft-BTOC - feet below top of casing*
SG - stream gauge

Source: *Williams Environmental Services, Inc.*
PPM Consultants, Inc.
PPM Project No. 494501-GWM16

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)	pH (S.U.)	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	5.22	1.63
	12/14/2010	-	<0.020	<0.020	5.10	0.00
	4/13/2011	-	0.0328	<0.020	5.04	4.24
	10/21/2011	-	<0.020	<0.020	5.28	5.28
	4/12/2012	-	<0.020	0.0393	5.29	4.08
	10/18/2012	-	0.109	-	5.23	57.0
	4/18/2013	-	0.0631	<0.020	4.62	7.99
	10/22/2013	-	0.0209	<0.020	5.03	0.90
	10/17/2014	-	<0.020	<0.020	5.16	15.8
	10/30/2015	-	0.0916	0.0614	5.74	20.9
	10/4/2016	-	<0.020	<0.020	5.52	4.98
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**	4.27	0.75
	12/14/2010	-	18.2	18.4	4.09	0.00
	4/13/2011	-	19.4	19.8	4.04	1.36
	10/21/2011	-	23.6	25.3	4.23	1.05
	4/12/2012	-	**40.2**	**43.6**	4.10	3.52
	10/18/2012	-	22.1	22.5	4.14	2.54
	4/18/2013	-	27.6	29.3	3.93	2.52
	10/22/2013	-	15.7	16.7	4.10	0.55
	10/17/2014	-	12.0	12.2	4.33	2.50
	10/30/2015	-	6.55	6.55	4.84	4.58
	10/4/2016	-	8.13	8.27	4.60	3.56

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)	pH (S.U.)	TURBIDITY (NTUs)
Type 4 RRS		**-**	**31**	**31**		-
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**	-	4.17	476
	12/14/2010	-	**65.4**	-	3.99	254
	4/13/2011	-	**82.4**	-	4.10	2,481
MW-3R	8/16/2011	-	0.110	0.0675	6.10	192
	10/21/2011	-	0.0387	<0.020	6.26	238
	4/11/2012	-	<0.020	<0.020	6.42	12.1
	10/17/2012	-	<0.020	<0.020	6.38	64.3
	4/17/2013	-	<0.020	<0.020	6.03	17.1
	10/22/2013	-	0.0251	<0.020	6.29	18.1
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-
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	5.56	7.93
	12/14/2010	-	<0.020	<0.020	5.21	0.00
	4/13/2011	-	<0.020	<0.020	5.05	2.21
	10/21/2011	-	<0.020	<0.020	5.45	5.32
	4/12/2012	-	<0.020	<0.020	5.53	16.3
	10/18/2012	-	<0.020	<0.020	5.43	4.60
	4/18/2013	-	<0.020	<0.020	4.68	4.23
	10/22/2013	-	0.0265	<0.020	5.24	2.33
	10/17/2014	-	<0.020	<0.020	5.53	4.89
	10/30/2015	-	0.0206	<0.020	6.14	3.99
	10/4/2016	-	<0.020	<0.020	6.03	4.72

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)	pH (S.U.)	TURBIDITY (NTUs)
Type 4 RRS		**-**	**31**	**31**		-
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	5.19	9.23
	12/14/2010	-	21.8	14.90	4.85	10.3
	4/13/2011	-	5.19	4.36	4.99	7.98
	10/21/2011	-	26.4	27.1	4.55	2.95
	4/12/2012	-	6.71	7.02	5.13	31.4
	10/18/2012	-	18.5	19.5	4.56	4.99
	4/18/2013	-	5.67	5.60	4.74	4.99
	10/22/2013	-	1.44	1.67	5.07	25.8
	10/17/2014	-	3.33	3.81	5.22	4.67
	10/30/2015	-	0.357	0.252	5.80	13.20
	10/4/2016	-	3.11	2.91	5.49	5.01
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	5.44	46.4
	12/13/2010	-	<0.020	<0.020	5.34	1.68
	4/13/2011	-	<0.020	<0.020	5.36	6.35
	10/21/2011	-	0.0242	<0.020	5.74	3.37
	4/12/2012	-	<0.020	<0.020	5.70	5.63
	10/18/2012	-	0.0272	<0.020	5.56	9.80
	4/18/2013	-	<0.020	<0.020	5.03	20.0
	10/22/2013	-	<0.020	<0.020	5.32	3.42
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-
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	5.84	46.1
	12/13/2010	-	<0.020	<0.020	5.73	40.1
	4/13/2011	-	<0.020	<0.020	5.77	1.16
	10/21/2011	-	<0.020	<0.020	5.65	5.19
	4/12/2012	-	<0.020	<0.020	6.07	4.14
	10/18/2012	-	<0.020	<0.020	5.84	4.36
	4/18/2013	-	<0.020	<0.020	5.25	8.42
	10/22/2013	-	<0.020	<0.020	5.72	1.23
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-

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)	pH (S.U.)	TURBIDITY (NTUs)
Type 4 RRS		**-**	**31**	**31**		-
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	4.94	5.05
	12/14/2010	-	13.7	13.8	4.70	315
	4/13/2011	-	9.13	8.55	4.90	17.3
	10/21/2011	-	14.2	15.3	4.69	5.28
	4/12/2012	-	7.70	11.2	5.03	16.7
	10/18/2012	-	10.8	10.4	4.56	8.52
	4/18/2013	-	5.33	5.36	4.82	105
	10/22/2013	-	8.54	8.79	4.83	17.4
	10/17/2014	-	9.26	9.58	4.85	4.80
	10/30/2015	-	8.82	9.02	5.20	4.44
	10/4/2016	-	8.58	9.43	5.15	4.94
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	6.55	9.75
	12/13/2010	-	<0.020	<0.020	6.47	0.00
	4/13/2011	-	<0.020	<0.020	6.54	1.73
	10/20/2011	-	<0.020	<0.020	7.07	5.05
	4/11/2012	-	<0.020	<0.020	6.67	2.71
	10/17/2012	-	<0.020	<0.020	6.72	2.62
	4/17/2013	-	0.0228	<0.020	6.21	0.49
	10/22/2013	-	0.0230	<0.020	6.42	1.51
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-
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	5.56	2.85
	12/14/2010	-	<0.020	<0.020	5.56	1.81
	4/13/2011	-	0.0296	<0.020	5.54	8.87
	10/21/2011	-	<0.020	<0.020	5.71	3.61
	4/12/2012	-	<0.020	<0.020	5.87	2.23
	10/18/2012	-	<0.020	<0.020	5.61	3.02
	4/18/2013	-	<0.020	<0.020	4.96	2.92
	10/22/2013	-	<0.020	<0.020	5.58	5.34
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-

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)	pH (S.U.)	TURBIDITY (NTUs)
Type 4 RRS		**-**	**31**	**31**		-
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	6.24	30.8
	12/13/2010	-	0.0768	<0.020	5.47	>1,100
	4/12/2011	-	<0.020	<0.020	5.87	4.12
	10/20/2011	-	<0.020	<0.020	6.61	10.6
	4/11/2012	-	<0.020	<0.020	6.04	14.5
	10/17/2012	-	<0.020	<0.020	5.82	40.1
	4/17/2013	-	<0.020	<0.020	5.32	11.4
	10/22/2013	-	<0.020	<0.020	5.43	6.18
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-
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	5.95	4.00
	12/13/2010	-	<0.020	<0.020	5.97	4.61
	4/12/2011	-	0.0229	<0.020	5.77	5.37
	10/20/2011	-	<0.020	<0.020	6.81	18.3
	4/11/2012	-	<0.020	<0.020	6.04	5.87
	10/17/2012	-	0.0344	0.0224	5.99	2.24
	4/17/2013	-	0.0293	<0.020	5.59	3.59
	10/22/2013	-	0.0246	<0.020	5.80	4.99
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-
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	NL
	12/13/2010	-	<0.020	<0.020	5.67	3.85
	4/12/2011	-	<0.020	<0.020	5.74	3.65
	10/20/2011	-	<0.020	<0.020	6.74	2.18
	4/11/2012	-	<0.020	<0.020	6.07	9.51
	10/17/2012	-	0.0230	<0.020	5.87	46.1
	4/17/2013	-	<0.020	<0.020	5.41	4.82
	10/22/2013	-	<0.020	<0.020	5.79	4.09
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-

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)	pH (S.U.)	TURBIDITY (NTUs)
Type 4 RRS		**-**	**31**	**31**		-
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	5.29	7.14
	12/14/2010	-	27.9	26.8	5.05	0.00
	4/13/2011	-	27.5	26.5	4.99	7.93
	10/21/2011	-	27.5	29.3	5.14	4.35
	4/12/2012	-	26.8	29.0	5.24	4.70
	10/18/2012	-	29.4	29.4	5.13	2.93
	4/18/2013	-	28.6	28.7	4.88	1.23
	10/22/2013	-	28.6	31.3	5.01	1.49
	10/17/2014	-	8.90	9.18	5.96	1.38
	10/30/2015	-	28.5	27.3	5.55	3.04
	10/4/2016	-	12.8	13.0	6.29	1.03
DUPLICATE RESULTS						
DUP (MW-2)	10/18/2012	-	22.0	23.0	4.14	2.54
DUP (MW-2)	4/18/2013	-	28.6	28.6	3.93	2.52
DUP (MW-2)	10/22/2013	-	16.0	16.8	4.10	0.55
DUP (MW-5)	10/17/2014	-	3.21	3.83	5.22	4.67
DUP (MW-5)	10/30/2015	-	6.55	6.56	5.80	13.20

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-GWM16

TABLE 4
SURFACE WATER ANALYTICAL SUMMARY
METALPLATE GALVANIZING FACILITY
ATLANTA, GEORGIA

SAMPLE I.D.	DATE	DISSOLVED ZINC (mg/L)	TOTAL HARDNESS (mg/L)
SW-1A	5/5/2014	211	805
	10/16/2014	16.6	107
	10/29/2015	15.3	117
	10/5/2016	41.1	213
SW-2A	5/5/2014	180	841
	10/16/2014	172	873
	10/29/2015	138	652
	10/5/2016	120	743
SW-3A	5/5/2014	36.2	260
	10/16/2014	20.5	156
	10/29/2015	22.9	149
	10/5/2016	14.0	296
SW-4A	5/5/2014	78.8	493
SW-4B	10/16/2014	71.8	459
	10/29/2015	10.0	132
	10/5/2016	37.8	326
SW-5	5/5/2014	128	221
	10/16/2014	6.92	60.8
	10/29/2015	18.1	81.7
	10/5/2016	5.53	60.1
SW-6	5/5/2014	235	902
SW-6A	10/16/2014	247	862
	10/29/2015	159	511
	10/5/2016	127	579
SW-7	5/5/2014	38.4	233
	10/16/2014	45.9	286
	10/29/2015	41.8	227
	10/5/2016	34.5	364

Notes: *mg/L - milligrams per liter*

Source(s): *PPM Consultants, Inc.*
PPM Project No. 494501-GWM16

APPENDIX D – GROUNDWATER/SURFACE WATER ANALYTICAL RESULTS

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

October 11, 2016

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

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

RE: Metal Plate Galvanizing

Dear Mike Dillon: Order No: 1610220

Analytical Environmental Services, Inc. received 6 samples on 10/4/2016 4:38:00 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's accreditations are as follows:
-NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
-NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
-NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Tara Westervelt
Project Manager

ANALYTICAL ENVIRONMENTAL SERVICES, INC

3080 Presidential Drive, Atlanta GA 30340-3704
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1610220

Date: 10-4-16 Page 1 of 1

COMPANY:	ADDRESS:
PPM Consultants	5555 Bankhead HWY Birmingham AL 35216
PHONE: 205-836-5650	FAX:
SAMPLED BY: HW/JL	SIGNATURE:

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	ANALYSIS REQUESTED: Dissolved zinc	Total zinc	PRESERVATION (See codes): H	N	REMARKS	No # of Containers
1	MW-1	10-4-16	10:58			GW		/		/		2
2	MW-2	10-4-16	13:32			GW		/		/		2
3	MW-4	10-4-16	13:03			GW		/		/		2
4	MW-5	10-4-16	14:18			GW		/		/		2
5	MW-7	10-4-16	15:10			GW		/		/		2
6	MW-13D	10-4-16	12:33			GW		/		/		2
7												
8												
9												
10												
11												
12												
13												
14												

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
1:	10-4-16 04:00	1: Fy oct-4-16	4:00PM
2: Fy oct-4-2016	4:38	2: Jamin Ahully	10/4/16 4:38 pm
3:		3:	

PROJECT INFORMATION

PROJECT NAME: Metal Plate Galvanizing
PROJECT #: 494501-GWM16
SITE ADDRESS: 505 Selig Drive SW Atlanta GA
SEND REPORT TO: Mike Dillon
INVOICE TO: (IF DIFFERENT FROM ABOVE)
QUOTE #: PO#:

RECEIPT

Total # of Containers

Turnaround Time Request

- ☐ Standard 5 Business Days
- ☐ 2 Business Day Rush
- ☐ Next Business Day Rush
- ☐ Same Day Rush (auth req.)
- ☐ Other

STATE PROGRAM (if any):
E-mail? Fax?
DATA PACKAGE: I ○ II ○ III ○ IV ○

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD:
OUT / / VIA:
IN / / VIA:
CLIENT FedEx UPS MAIL (COURIER)
GREYHOUND OTHER

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY. IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.

SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water WW = Waste Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)

PRESERVATIVE CODES: H+I = 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

Analytical Environmental Services, Inc **Date:** 11-Oct-16

Client:	PPM Consultants, Inc.	**Client Sample ID:**	MW-1
Project Name:	Metal Plate Galvanizing	**Collection Date:**	10/4/2016 10:58:00 AM
Lab ID:	1610220-001	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, DISSOLVED SW6010D (SW3005A)								
Zinc	BRL	0.0200		mg/L	230570	1	10/06/2016 12:06	IO
METALS, TOTAL SW6010D (SW3010A)								
Zinc	BRL	0.0200		mg/L	230651	1	10/07/2016 19:59	JL

Qualifiers:

*	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:** 11-Oct-16

Client:	PPM Consultants, Inc.	**Client Sample ID:**	MW-2
Project Name:	Metal Plate Galvanizing	**Collection Date:**	10/4/2016 1:32:00 PM
Lab ID:	1610220-002	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, DISSOLVED SW6010D (SW3005A)								
Zinc	8.27	0.0200		mg/L	230570	1	10/06/2016 12:10	IO
METALS, TOTAL SW6010D (SW3010A)								
Zinc	8.13	0.0200		mg/L	230651	1	10/07/2016 20:02	JL

Qualifiers:

*	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:** 11-Oct-16

Client:	PPM Consultants, Inc.	**Client Sample ID:**	MW-4
Project Name:	Metal Plate Galvanizing	**Collection Date:**	10/4/2016 1:03:00 PM
Lab ID:	1610220-003	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, DISSOLVED SW6010D (SW3005A)								
Zinc	BRL	0.0200		mg/L	230570	1	10/06/2016 12:13	IO
METALS, TOTAL SW6010D (SW3010A)								
Zinc	BRL	0.0200		mg/L	230651	1	10/07/2016 20:06	JL

Qualifiers:

*	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:** 11-Oct-16

Client:	PPM Consultants, Inc.	**Client Sample ID:**	MW-5
Project Name:	Metal Plate Galvanizing	**Collection Date:**	10/4/2016 2:18:00 PM
Lab ID:	1610220-004	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, DISSOLVED SW6010D (SW3005A)								
Zinc	2.91	0.0200		mg/L	230570	1	10/06/2016 12:17	IO
METALS, TOTAL SW6010D (SW3010A)								
Zinc	3.11	0.0200		mg/L	230651	1	10/07/2016 20:09	JL

Qualifiers:

*	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:** 11-Oct-16

Client:	PPM Consultants, Inc.	**Client Sample ID:**	MW-7
Project Name:	Metal Plate Galvanizing	**Collection Date:**	10/4/2016 3:10:00 PM
Lab ID:	1610220-005	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, DISSOLVED SW6010D (SW3005A)								
Zinc	9.43	0.0200		mg/L	230570	1	10/06/2016 12:21	IO
METALS, TOTAL SW6010D (SW3010A)								
Zinc	8.58	0.0200		mg/L	230651	1	10/07/2016 20:12	JL

Qualifiers:

*	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:** 11-Oct-16

Client:	PPM Consultants, Inc.	**Client Sample ID:**	MW-13D
Project Name:	Metal Plate Galvanizing	**Collection Date:**	10/4/2016 12:33:00 PM
Lab ID:	1610220-006	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, DISSOLVED SW6010D (SW3005A)								
Zinc	13.0	0.100		mg/L	230570	5	10/07/2016 13:57	IO
METALS, TOTAL SW6010D (SW3010A)								
Zinc	12.8	0.0200		mg/L	230651	1	10/07/2016 20:16	JL

Qualifiers:

*	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 HHI Consultants Work Order Number 1610120

Checklist completed by Alan Yi 10/4/2016
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? (0°≤6°C)* Yes ✓ No __

Cooler #1 0.3°C 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 AD

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.

\\Aes_server\l\Sample Receipt\My Documents\COCs and pH Adjustment Sheet\Sample_Cooler_Recipt_Checklist_Rev1.rtf

Client: PPM Consultants, Inc.
Project Name: Metal Plate Galvanizing
Workorder: 1610220

ANALYTICAL QC SUMMARY REPORT

BatchID: 230570

Sample ID: **MB-230570**	Client ID:			Units: **mg/L**	Prep Date: **10/05/2016**	Run No: **326824**
SampleType: **MBLK**	TestCode: **METALS, DISSOLVED**	**SW6010D**		BatchID: **230570**	Analysis Date: **10/06/2016**	Seq No: **7082833**

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: **LCS-230570**	Client ID:			Units: **mg/L**	Prep Date: **10/05/2016**	Run No: **326824**
SampleType: **LCS**	TestCode: **METALS, DISSOLVED**	**SW6010D**		BatchID: **230570**	Analysis Date: **10/06/2016**	Seq No: **7082834**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Zinc	1.025	0.0200	1.000		103	80	120				

Sample ID: **1609R03-013DMS**	Client ID:			Units: **mg/L**	Prep Date: **10/05/2016**	Run No: **326824**
SampleType: **MS**	TestCode: **METALS, DISSOLVED**	**SW6010D**		BatchID: **230570**	Analysis Date: **10/06/2016**	Seq No: **7082836**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Zinc	1.379	0.0200	1.000	0.3557	102	75	125				

Sample ID: **1609R03-013DMSD**	Client ID:			Units: **mg/L**	Prep Date: **10/05/2016**	Run No: **326824**
SampleType: **MSD**	TestCode: **METALS, DISSOLVED**	**SW6010D**		BatchID: **230570**	Analysis Date: **10/07/2016**	Seq No: **7087071**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Zinc	1.445	0.0200	1.000	0.3557	109	75	125	1.379	4.64	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 Galvanizing
Workorder: 1610220

ANALYTICAL QC SUMMARY REPORT

BatchID: 230651

Sample ID: **MB-230651**	Client ID:			Units: **mg/L**	Prep Date: **10/06/2016**	Run No: **327016**
SampleType: **MBLK**	TestCode: **METALS, TOTAL** **SW6010D**			BatchID: **230651**	Analysis Date: **10/07/2016**	Seq No: **7088335**

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: **LCS-230651**	Client ID:			Units: **mg/L**	Prep Date: **10/06/2016**	Run No: **327016**
SampleType: **LCS**	TestCode: **METALS, TOTAL** **SW6010D**			BatchID: **230651**	Analysis Date: **10/07/2016**	Seq No: **7088336**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Zinc	0.9761	0.0200	1.000		97.6	80	120				

Sample ID: **1610145-001CMS**	Client ID:			Units: **mg/L**	Prep Date: **10/06/2016**	Run No: **327016**
SampleType: **MS**	TestCode: **METALS, TOTAL** **SW6010D**			BatchID: **230651**	Analysis Date: **10/07/2016**	Seq No: **7088338**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Zinc	0.9798	0.0200	1.000	0.01334	96.6	75	125				

Sample ID: **1610145-001CMSD**	Client ID:			Units: **mg/L**	Prep Date: **10/06/2016**	Run No: **327016**
SampleType: **MSD**	TestCode: **METALS, TOTAL** **SW6010D**			BatchID: **230651**	Analysis Date: **10/07/2016**	Seq No: **7088339**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Zinc	0.9713	0.0200	1.000	0.01334	95.8	75	125	0.9798	0.868	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		

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

October 13, 2016

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

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

RE: Metal Plate Galvanizing

Dear Mike Dillon: Order No: 1610280

Analytical Environmental Services, Inc. received 7 samples on 10/5/2016 12:46:00 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's accreditations are as follows:
-NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
-NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
-NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Tara Westervelt
Project Manager

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3080 Presidential Drive, Atlanta GA 30340-3704
AES TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1610280

Date: 10-5-16 Page 1 of 1

COMPANY: PPM Consultants

ADDRESS: 5555 Bankhead HWY Birmingham AL 35210

PHONE: 205-836-5650

FAX:

SAMPLED BY: James Caudill

SIGNATURE:

ANALYSIS REQUESTED: Dissolved Zinc; Total Hardness

PRESERVATION (See codes): I; #1

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	I	#1	REMARKS	No # of Containers
1	SW-7	10-5-16	10:37	✓		SW	✓	✓		2
2	SW-4B	10-5	10:47	✓		SW	✓	✓		2
3	SW-3A	10-5	10:57	✓		SW	✓	✓		2
4	SW-1A	10-5	11:04	✓		SW	✓	✓		2
5	SW-2A	10-5	11:10	✓		SW	✓	✓		2
6	SW-6A	10-5	11:14	✓		SW	✓	✓		2
7	SW-5	10-5	11:24	✓		SW	✓	✓		2
8										
9										
10										
11										
12										
13										
14										

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
1:	10-5-16 11:37	1:	10/5/16 11:40
2:	10/5/16 12:40	2: Tara Weston	10/5/16 12:46
3:		3:	

PROJECT INFORMATION

PROJECT NAME: Metal plate Galvanizing

PROJECT #: 494501-GWM16

SITE ADDRESS: 505 Selig Drive SW, Atlanta GA

SEND REPORT TO: Mike Dillon

INVOICE TO: (IF DIFFERENT FROM ABOVE)

QUOTE #: PO#:

RECEIPT

Total # of Containers

Turnaround Time Request

- ☐ Standard 5 Business Days
- ☐ 2 Business Day Rush
- ☐ Next Business Day Rush
- ☐ Same Day Rush (auth req.)
- ☐ Other

STATE PROGRAM (if any):

E-mail? Fax?

DATA PACKAGE: I ○ II ○ III ○ IV ○

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD:

OUT / / VIA:

IN / / VIA:

CLIENT FedEx UPS MAIL COURIER

GREYHOUND OTHER

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY. IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.

SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water WW = Waste Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)

PRESERVATIVE CODES: H+I = 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

Analytical Environmental Services, Inc **Date:** 13-Oct-16

Client:	PPM Consultants, Inc.	**Client Sample ID:**	SW-7
Project Name:	Metal Plate Galvanizing	**Collection Date:**	10/5/2016 10:37:00 AM
Lab ID:	1610280-001	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, DISSOLVED SW6010D					**(SW3005A)**			
Zinc	34.5	0.400		mg/L	230915	20	10/11/2016 21:45	JL
HARDNESS SM2340 B					**(SM2340B)**			
Hardness, Calcium/Magnesium (As CaCO3)	364	1.00		mg/L CaCO3	230651	1	10/07/2016 20:19	JL

Qualifiers:

*	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:** 13-Oct-16

Client:	PPM Consultants, Inc.	**Client Sample ID:**	SW-4B
Project Name:	Metal Plate Galvanizing	**Collection Date:**	10/5/2016 10:47:00 AM
Lab ID:	1610280-002	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, DISSOLVED SW6010D					**(SW3005A)**			
Zinc	37.8	0.400		mg/L	230915	20	10/11/2016 22:01	JL
HARDNESS SM2340 B					**(SM2340B)**			
Hardness, Calcium/Magnesium (As CaCO3)	326	1.00		mg/L CaCO3	230651	1	10/07/2016 20:29	JL

Qualifiers:

*	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:** 13-Oct-16

Client:	PPM Consultants, Inc.	**Client Sample ID:**	SW-3A
Project Name:	Metal Plate Galvanizing	**Collection Date:**	10/5/2016 10:57:00 AM
Lab ID:	1610280-003	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, DISSOLVED SW6010D					**(SW3005A)**			
Zinc	14.0	0.200		mg/L	230915	10	10/11/2016 22:05	JL
HARDNESS SM2340 B					**(SM2340B)**			
Hardness, Calcium/Magnesium (As CaCO3)	296	1.00		mg/L CaCO3	230651	1	10/07/2016 20:32	JL

Qualifiers:

*	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:** 13-Oct-16

Client:	PPM Consultants, Inc.	**Client Sample ID:**	SW-1A
Project Name:	Metal Plate Galvanizing	**Collection Date:**	10/5/2016 11:04:00 AM
Lab ID:	1610280-004	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, DISSOLVED SW6010D					**(SW3005A)**			
Zinc	41.1	0.400		mg/L	230915	20	10/11/2016 22:08	JL
HARDNESS SM2340 B					**(SM2340B)**			
Hardness, Calcium/Magnesium (As CaCO3)	213	1.00		mg/L CaCO3	230651	1	10/07/2016 20:35	JL

Qualifiers:

*	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:** 13-Oct-16

Client:	PPM Consultants, Inc.	**Client Sample ID:**	SW-2A
Project Name:	Metal Plate Galvanizing	**Collection Date:**	10/5/2016 11:10:00 AM
Lab ID:	1610280-005	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, DISSOLVED SW6010D					**(SW3005A)**			
Zinc	120	0.800		mg/L	230915	40	10/11/2016 22:18	JL
HARDNESS SM2340 B					**(SM2340B)**			
Hardness, Calcium/Magnesium (As CaCO3)	743	1.00		mg/L CaCO3	230651	1	10/10/2016 18:07	JL

Qualifiers:

*	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:** 13-Oct-16

Client:	PPM Consultants, Inc.	**Client Sample ID:**	SW-6A
Project Name:	Metal Plate Galvanizing	**Collection Date:**	10/5/2016 11:14:00 AM
Lab ID:	1610280-006	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, DISSOLVED SW6010D					**(SW3005A)**			
Zinc	127	2.00		mg/L	230915	100	10/11/2016 22:21	JL
HARDNESS SM2340 B					**(SM2340B)**			
Hardness, Calcium/Magnesium (As CaCO3)	579	1.00		mg/L CaCO3	230651	1	10/10/2016 18:10	JL

Qualifiers:

*	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:** 13-Oct-16

Client:	PPM Consultants, Inc.	**Client Sample ID:**	SW-5
Project Name:	Metal Plate Galvanizing	**Collection Date:**	10/5/2016 11:24:00 AM
Lab ID:	1610280-007	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, DISSOLVED SW6010D					**(SW3005A)**			
Zinc	5.53	0.100		mg/L	230915	5	10/11/2016 22:24	JL
HARDNESS SM2340 B					**(SM2340B)**			
Hardness, Calcium/Magnesium (As CaCO3)	60.1	1.00		mg/L CaCO3	230651	1	10/07/2016 20:45	JL

Qualifiers:

*	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 1610280

Checklist completed by [signature] 10/5/16
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? (0°≤6°C)* Yes ✓ No __

Cooler #1 0.8 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 AD

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.

\\Aes_server\I\Sample Receipt\My Documents\COCs and pH Adjustment Sheet\Sample_Cooler_Recipt_Checklist_Rev1.rtf

Client: PPM Consultants, Inc.
Project Name: Metal Plate Galvanizing
Workorder: 1610280

ANALYTICAL QC SUMMARY REPORT

BatchID: 230915

Sample ID: **MB-230915**	Client ID:			Units: **mg/L**	Prep Date: **10/11/2016**	Run No: **327166**
SampleType: **MBLK**	TestCode: **METALS, DISSOLVED**	**SW6010D**		BatchID: **230915**	Analysis Date: **10/11/2016**	Seq No: **7092568**

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: **LCS-230915**	Client ID:			Units: **mg/L**	Prep Date: **10/11/2016**	Run No: **327166**
SampleType: **LCS**	TestCode: **METALS, DISSOLVED**	**SW6010D**		BatchID: **230915**	Analysis Date: **10/11/2016**	Seq No: **7092569**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Zinc	0.9695	0.0200	1.000		96.9	80	120				

Sample ID: **1610280-001AMS**	Client ID: **SW-7**			Units: **mg/L**	Prep Date: **10/11/2016**	Run No: **327166**
SampleType: **MS**	TestCode: **METALS, DISSOLVED**	**SW6010D**		BatchID: **230915**	Analysis Date: **10/11/2016**	Seq No: **7093710**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Zinc	45.58	0.400	1.000	41.49	409	75	125				S

Sample ID: **1610280-001AMSD**	Client ID: **SW-7**			Units: **mg/L**	Prep Date: **10/11/2016**	Run No: **327166**
SampleType: **MSD**	TestCode: **METALS, DISSOLVED**	**SW6010D**		BatchID: **230915**	Analysis Date: **10/11/2016**	Seq No: **7093711**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Zinc	46.49	0.400	1.000	41.49	500	75	125	45.58	1.98	20	S

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		

APPENDIX B

SEDIMENT ZINC SOLUBILITY AND TREATABILITY STUDIES

APRIL 13, 2017

April 13, 2017

Mr. Adam Brown
Metalplate Galvanizing
1120 39th Street North
Birmingham, Alabama 35234

Re: Solubility & Treatability Studies Report
Metalplate Galvanizing
Selig Drive Facility

Dear Mr. Brown:

Applied Aquaculture and Environmental Technologies, LLC (A2E), in conjunction with PPM Consultants, Inc. (PPM), completed a Solubility Study followed by a Treatability Study at the above referenced Site. The results of these studies are presented in this letter report.

Background

Much is known and published on the solubility of various metals including zinc. Zinc, as with many of the metals, is amphoteric meaning that its solubility is higher at both ends of the pH scale and lower in slightly to moderately alkaline pH ranges where precipitates are formed. This can be seen in the EPA graph presented as Figure 1 in the attachments. Through their experimental data, EPA determined in a study on wastewater that zinc's minimum solubility is 0.18 mg/L, occurring at a pH of approximately 10.2 (standard units). EPA did not report solubility above 100 mg/L and consequently presented no data below a pH of 7. Note, however, that zinc solubility can vary a great deal depending on site-specific conditions, such as the relative composition of competing electrolytes in site media.

The most recent surface water sampling event (October 5, 2016) revealed zinc concentrations at seven prescribed sample locations ranging from 5.53 to 127 mg/L. As of this event, the pH had not been monitored during the surface water sampling events. PPM was on site on November 9, 2016, and measured the pH at four of the seven sample locations. This data, as presented in Table 1, confirms a relationship between pH and dissolved zinc in Site surface waters. Samples SW-2A and SW-6A had dissolved zinc concentrations of 120 and 127 mg/L, respectively at a pH below 4. Samples SW-3A and SW-4A had dissolved zinc concentrations of 14 and 37.8, respectively (an order of magnitude lower), at a pH of approximately 6. Review of groundwater monitoring data indicated typical pH ranging in the upper 5's and zinc concentrations, if any, at concentrations well below that measured in some of the surface waters. With the exception of occasional pH measurements in MW-2, which is located beneath the footprint of Selig Pond, Site waters with low pH (less than 4) are limited to surface waters in areas of stagnant water. In these areas, the decreased pH is believed to be principally due to the decay of organic debris in low alkalinity native soils.

Solubility Study

Based on the above, A2E and PPM were retained to develop and implement a Site-specific solubility study to test the reasonable assumption that elevated zinc concentrations in Site surface waters result from existing zinc in sediments dissolving into slightly to moderately acidic surface waters at the Site.

This hypothesis was focused on because (1) groundwater zinc concentrations are substantially lower than most of the surface water zinc concentrations detected, suggesting that dissolved zinc concentrations in groundwater seeping to surface water is not the primary cause of the zinc concentrations observed in surface water and (2) surface water zinc concentrations remained elevated even during drought conditions in late 2016, suggesting that surface water concentrations likely could not be attributed to storm events washing zinc otherwise present in the environment into the surface waters.

PPM and A2E personnel visited the Site on December 8, 2016, to collect sediment samples for the solubility study. A hand auger was used to collect grab sediment samples from seven locations across the drainage areas as is presented in Figure 2. Two of the samples, LS-3 and LS-4, were collected at the edge of the Small Ditch impoundment and Selig Pond (surface waters), respectively. One sample, LS-5, was collected from the upper region of the Lower West Ditch, across the railroad from the Small Ditch. With the exception of LS-3 and LS-4, no other samples were collected from ditch sediments in or around visible surface water. All samples were wet due to recent rains and were allowed to drain of excess liquid before placing in bowls and mixing by hand to ensure homogeneity. Homogenized samples were placed in 1-gallon freezer bags and screened for total zinc using an XRF analyzer. Multiple shots were taken for each sample to account for any heterogeneity in the sample. Note that the XRF readings were not corrected for moisture, although expected to be biased low, as the exact zinc concentration in each sample was not at issue. The samples were screened with the XRF only to ensure that sufficient zinc was present to saturate the solution and not give a false low result. XRF results are presented in Table 2. As presented, samples LS-1, LS-3 and LS-4 demonstrated the highest average zinc concentrations and were selected for laboratory analysis on that basis.

The sediment samples were shipped under chain-of-custody record to Sutherland Environmental Company, Inc. (Southerland) in Birmingham, Alabama to perform the solubility analyses. For ease of communication with the lab, the solubility studies were performed using modification to the TCLP protocol. Specifically, 150 gram aliquots of each of the three samples were tumbled for 24 hours in TCLP extraction fluids 2 and 1, and deionized water, respectively. At the end of the extraction, the lab measured and reported the pH of the filtered extract and the dissolved zinc in solution, determining the leachability of sediments from the Site under these laboratory conditions.

The solubility study results, as presented in Table 3, indicate that the historic accumulation of zinc in certain sediments at the Site, when considered in conjunction with the range of pH observed in the field, is resulting, in whole or in part, in the elevated surface water zinc concentrations that have been observed. Specifically, given an adequate supply of zinc in sediments, as in sample LS-4, a dissolved concentration of zinc of 145 mg/L was observed at an equilibrium pH of 3.57. This is consistent with conditions present in the vicinity of surface water sample locations SW-2A and SW-6A (see Table 3) and other areas where low pH in stagnant waters may exist. Conversely, as the equilibrium pH approached 5.5, as in samples LS-1 and LS-2, the solubility of zinc approached 10 mg/L. This latter case is consistent with conditions present in the vicinity of surface water sample locations SW-3A and SW-5, where zinc is present in sediments but pH is greater than 5.

Treatability Study

As demonstrated in the solubility study, increased pH stabilizes zinc, in situ, and therefore would be expected to significantly reduce the amount of zinc that dissolves into surface and ground waters. Increasing the alkalinity, e.g., carbonate alkalinity, in these waters adds buffering capacity, i.e., a

resistance to changes in pH. Introducing alkalinity in or up gradient of the low pH areas will tend to increase the pH in these areas and reduce the dissolved zinc concentrations.

The most common source of carbonate alkalinity is agricultural lime or calcium carbonate. Other commercially available stabilization additives function by not only increasing the alkalinity or buffering capacity of the waters, but by also inducing a chemical reaction that changes the zinc to a less soluble form. A Site-specific treatability study was performed to (1) determine how effective these available reagents might be in stabilizing zinc and therefore reducing zinc loading in surface waters and (2), if effective, allow evaluation of potential application methodologies for the various hydrologic settings at the Site

A2E and PPM were retained to design and implement such a treatability study. This demonstration was performed using sediments and surface water obtained from the Site in order to simulate actual field conditions to the extent possible. A2E and PPM representatives collected sediment and surface water samples to be used in the treatability study and to conduct a comprehensive pH survey of surface waters in the area. Two sediment grab samples, SED-1 and SED-2, were collected near the overflows of Selig Pond and the small surface impoundment at the base of the Small Ditch (SW-6A) as depicted in Figure 2. In each case the bulk sample was collected using a hand auger and placed in a stainless-steel strainer and allowed to partially drain of free liquids before placing the samples in 1-gallon freezer bags.

Twelve 500 mL plastic sample containers (provided by the Lab) were filled with surface water at each of the two sample locations. In addition, three 1-quart mason jars were collected from the Sed-2 location for use as additional make-up water in the event that it was needed. The pH of the surface water at each location, Sed-1 and Sed-2, was measured and recorded using a portable meter (probe), properly calibrated in accordance with the manufacturer's instruction. Once completed, the entire drainage area, from the facility to the crossover culvert at SW-3A, was inspected and the pH of surface waters measured and recorded at 12 locations. The locations and results of pH measurements are presented in Figure 3 and Table 4.

The bulk sample Sed-1 and Sed-2 were partially oven dried to facilitate homogenization, and treatability samples were prepared in accordance with the sample matrix provided in Table 5. Three reagents were investigated at each of the two locations. Reagents 1 and 2 were EnviroBlend products described below and Reagent 3 was Agricultural (hydrated) Lime obtained from a local lime plant.

- Reagent 1 EnviroBlend 80/20 Coarse 80% MgO; 20% (Ca)TSP
- Reagent 2 EnviroBlend CS $MgO/Mg(OH)_2$ Blend
- Reagent 3 Agricultural Lime $CaCO_3$ (< 300 mesh)

Samples were prepared by adding 25 grams of sediments in the prepared 500 ml sample containers filled with the corresponding Site surface water. Various doses of reagents 1, 2 or 3 were then measured and added to the sample containers. The sample containers were then filled to the top with the respective Site water and tightly sealed to minimize head space. Two samples containing no reagent and three containing no sediment were prepared as control samples. The samples were stored at the PPM office and were periodically mixed by inverting the containers and mixing the materials that had settled to the bottom. In effect the residence or contact time under these conditions for the samples was approximately two weeks. This two week exposure time with occasional agitation was likely substantially more conservative than expected field conditions as it significantly increased the sediment-

surface water contact time and exposure as compared to expected field conditions. This study feature was expected to result in higher zinc concentrations in the samples than would be seen in the field.

The samples were delivered to Sutherland for analysis. Sutherland completed the laboratory analyses and submitted its report (attached). Analytical results (pH and dissolved zinc) are included in Table 5 and presented in Figure 4.

Conclusion and Recommendations

As shown on Figure 4, each of the reagents at each dose achieved an equilibrium pH greater than 7. In all cases the dissolved zinc concentrations were reduced. It should be noted however that zinc concentrations in untreated samples, Sed-1-0 and Sed-2-0 were higher than those observed in past surface water sampling events. It is also noted that these treatability samples varied from the trends observed in previous Site sampling, i.e., zinc concentrations approaching 10 mg/L as the pH approached 5.5. This is unsurprising given the manner in which the samples were prepared and held prior to lab analysis, as discussed above. Therefore, Figure 4 likely overstates the pH (at approximately 8) necessary to control dissolved zinc concentrations in surface water. Actual measurements from the field indicate that zinc concentrations are substantially reduced at pH levels significantly below 8 under the less severe contact and exposure time conditions found in the field.

The results of the treatability study thus support a Final Remediation and Implementation Plan that relies on in-situ stabilization of zinc by the field application of one or more of the tested reagents in a phased approach that allows an ongoing evaluation of the relative beneficial effect of the various reagents, application rates, and application approaches in the field.

We anticipate the greatest consistent effect on surface water concentrations will result from increasing the pH of stagnant surface water before and as it percolates through high zinc concentration sediments before reemerging as surface water in downgradient locations. Here there will be a constant migration of surface water down and through the reagents. The pH will be buffered and zinc concentrations will be lowered consistently as surface water passes through the reagent and becomes groundwater. Also, in the case of the surface water bodies associated with Sed-1 and Sed-2, there is some mixing occurring during storm events followed by extended stagnant periods. During the stagnant periods, there is some diffusion of zinc up and into the water column. Simultaneously, the reagent is expected to be similarly affected by these mixing and upward diffusion dynamics and beneficially affect zinc concentrations even under those conditions.

Both A2E and PPM appreciate the opportunity to assist in this matter. Should you have questions or comments please contact me.

Sincerely,
Applied Aquaculture and Environmental Technologies, LLC

Thomas Schmittou, P.E.

Attachments

Attachment 1

Treatability/Solubility Study Report

April 13, 2017

TABLES

Table 1 - October 2016 Surface Water Sampling Results

Location	Dissolved Zn (mg/L)	pH (s.u.)
SW-1A	41.1	-
SW-2A	120	3.58
SW-3A	14	5.95
SW-4A	37.8	6.01
SW-5	5.53	-
SW-6A	127	3.47
SW-7	34.5	-

Note pH measured at select locations November, 2016

Table 2 - XRF Screening Results - Solubility Study

		XRF Zn (mg/Kg wet)			
Sample ID	Average	shot 1	shot 2	shot 3	shot 4
LS-1	**1089**	**1540**	**1152**	**750**	**913**
LS-2	327	315	373	398	220
LS-3	**1393**	**1468**	**1140**	**1030**	**1934**
LS-4	**3708**	**3078**	**4002**	**3973**	**3778**
LS-5	400	344	416	374	467
LS-6	385	595	397	153	396
LS-7	301	287	347	236	333

Table 3 - Site-Specific Solubility Data

Sample ID	Total Zn (mg/Kg)	Extraction Fluid	Initial pH (s.u.)	Final pH (s.u.)	Dissolved Zn (mg/L)
LS-1	1345	TCLP Fluid 2	2.93	**3.48**	**49**
		TCLP Fluid 1	4.98	**4.98**	**49**
		D.I. Water	5.5	**5.5**	**12**
LS-3	2503	TCLP Fluid 2	2.93	**3.26**	**72**
		TCLP Fluid 1	4.98	**4.86**	**59**
		D.I. Water	5.5	**5.49**	**14**
LS-4	5181	TCLP Fluid 2	2.93	**3.57**	**145**
		TCLP Fluid 1	4.98	**4.88**	**89**
		D.I. Water	5.5	**5.28**	**29**

Table 4 - Comprehensive pH Survey -February 27, 2017

Sample ID	pH	Description
pH-1	3.5	Selig Pond (Sed-1)
pH-2	3.3	Small Ditch Impoundment (Sed-2)
pH-3	5.5	Head of Outwash Ditch
pH-4	5.15	Outwash Ditch at transition to Outwash Area
pH-5	5.25	Pool at Crossover Culvert - SW-3A
pH-6	3.7	Lower South Ditch at SW-3A
pH-7	3.8	Seep Area SW-2A
pH-8	3.65	Lower South Ditch
pH-9	3.54	Seep under RR
pH-10	3.73	Sed-2 - repeat measurement
pH-11	4.55	Lower West Ditch
pH-12	4.98	Former Stormwater Retention Pond

Table 5 - Treatability Sample Composition and Analytical Results

Sample ID	Container	Water (ml)	Sediment (g)	Reagent (g)	R:S	Analyses Required	pH	Zn
Sed-1-0	500 ml-plastic	500	25	0	0	filtered pH, dissolved Zn	4.66	170
Sed-2-0	500 ml-plastic	500	25	0	0	filtered pH, dissolved Zn	4.16	281
Sed-1-R1-10	500 ml-plastic	500	25	2.5	10%	filtered pH, dissolved Zn	9.95	0.14
Sed-1-R1-3	500 ml-plastic	500	25	0.75	3%	filtered pH, dissolved Zn	9.05	BDL
Sed-1-R1-5	500 ml-plastic	500	25	1.25	5%	filtered pH, dissolved Zn	9.69	BDL
Sed-1-R2-10	500 ml-plastic	500	25	2.5	10%	filtered pH, dissolved Zn	10.13	BDL
Sed-1-R2-3	500 ml-plastic	500	25	0.75	3%	filtered pH, dissolved Zn	9.7	BDL
Sed-1-R2-5	500 ml-plastic	500	25	1.25	5%	filtered pH, dissolved Zn	10.11	BDL
Sed-1-R3-10	500 ml-plastic	500	25	2.5	10%	filtered pH, dissolved Zn	7.36	52
Sed-1-R3-3	500 ml-plastic	500	25	0.75	3%	filtered pH, dissolved Zn	7.33	51
Sed-1-R3-5	500 ml-plastic	500	25	1.25	5%	filtered pH, dissolved Zn	7.17	50
Sed-2-R1-1	500 ml-plastic	500	25	0.25	1%	filtered pH, dissolved Zn	7.17	96
Sed-2-R1-3	500 ml-plastic	500	25	0.75	3%	filtered pH, dissolved Zn	8.3	1.49
Sed-2-R1-5	500 ml-plastic	500	25	1.25	5%	filtered pH, dissolved Zn	9.17	BDL
Sed-2-R2-1	500 ml-plastic	500	25	0.25	1%	filtered pH, dissolved Zn	7.62	30
Sed-2-R2-3	500 ml-plastic	500	25	0.75	3%	filtered pH, dissolved Zn	9.32	BDL
Sed-2-R2-5	500 ml-plastic	500	25	1.25	5%	filtered pH, dissolved Zn	9.86	BDL
Sed-2-R3-1	500 ml-plastic	500	25	0.25	1%	filtered pH, dissolved Zn	7.02	158
Sed-2-R3-3	500 ml-plastic	500	25	0.75	3%	filtered pH, dissolved Zn	7.12	159
Sed-2-R3-5	500 ml-plastic	500	25	1.25	5%	filtered pH, dissolved Zn	7.1	184
R-1-Water-5g	500 ml-plastic	500	0	5		filtered pH, dissolved Zn	8.88	BDL
R-2-Water-5g	500 ml-plastic	500	0	5		filtered pH, dissolved Zn	10.1	BDL
R-3-Water-5g	500 ml-plastic	500	0	5		filtered pH, dissolved Zn	7.19	165
Sed-1	2 oz glass					Total Zn		2,910
Sed-2	2 oz glass					Total Zn		1,620

Attachment 2

Treatability/Solubility Study Report

April 13, 2017

FIGURES

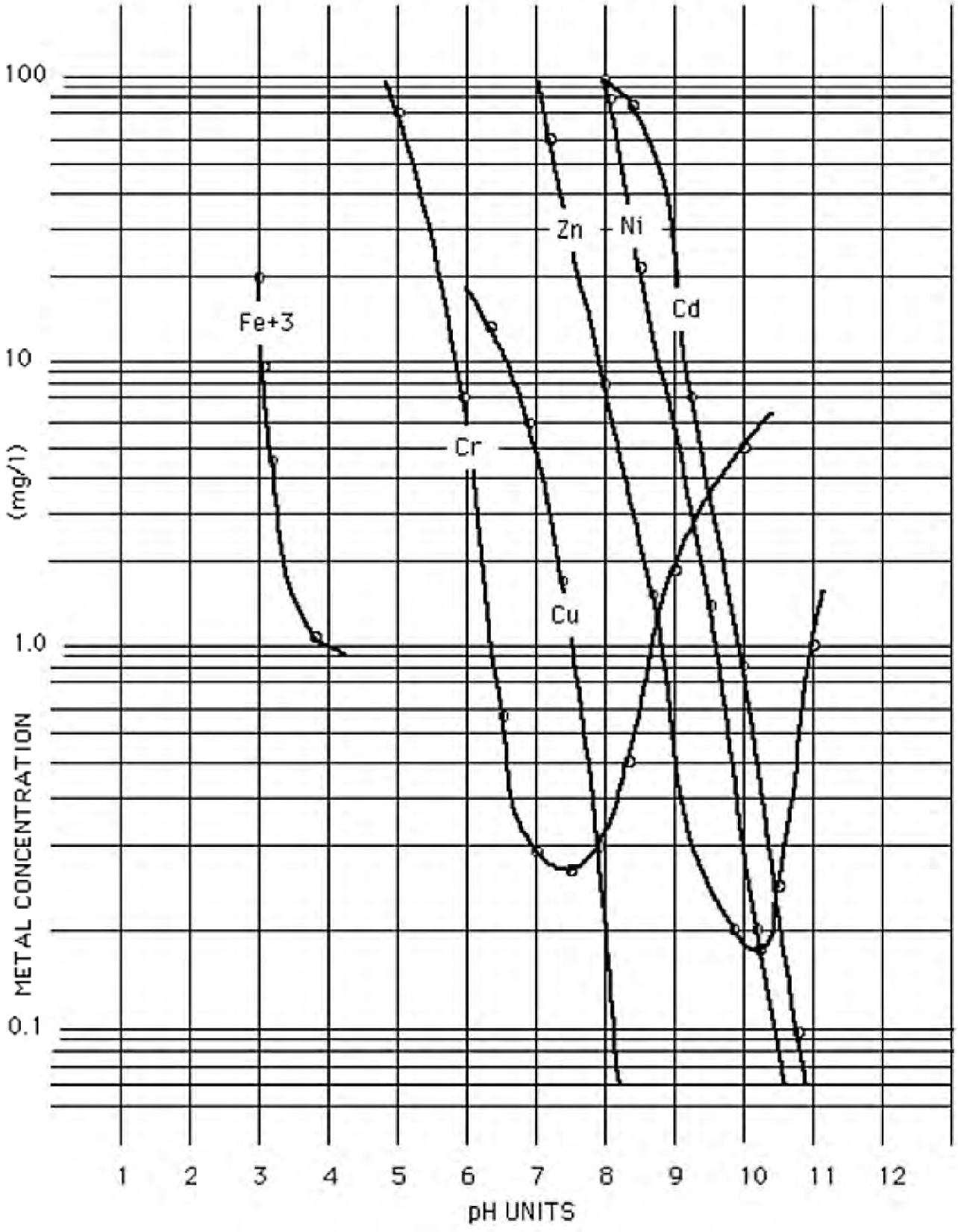


Figure 1
A graph of pH vs. Metal Concentrations in wastewater

Source: EPA Technology Transfer

Figure 2
Solubility/Treatability Sample Locations

A2E

Legend

Solubility/Treatability Locations
- LS Samples
- SED samples

Rail
Ditches
Surface Water Locations

1 centimeter = 26 meters

Meters
0 15 30 60 90 120

Figure 3
Surface Water pH Survey – 27 February 2017

A2E

Legend

- pH Surface Water Samples
- Surface Water Locations
- Rail
- Ditches

1 centimeter = 26 meters

Meters

0 15 30 60 90 120

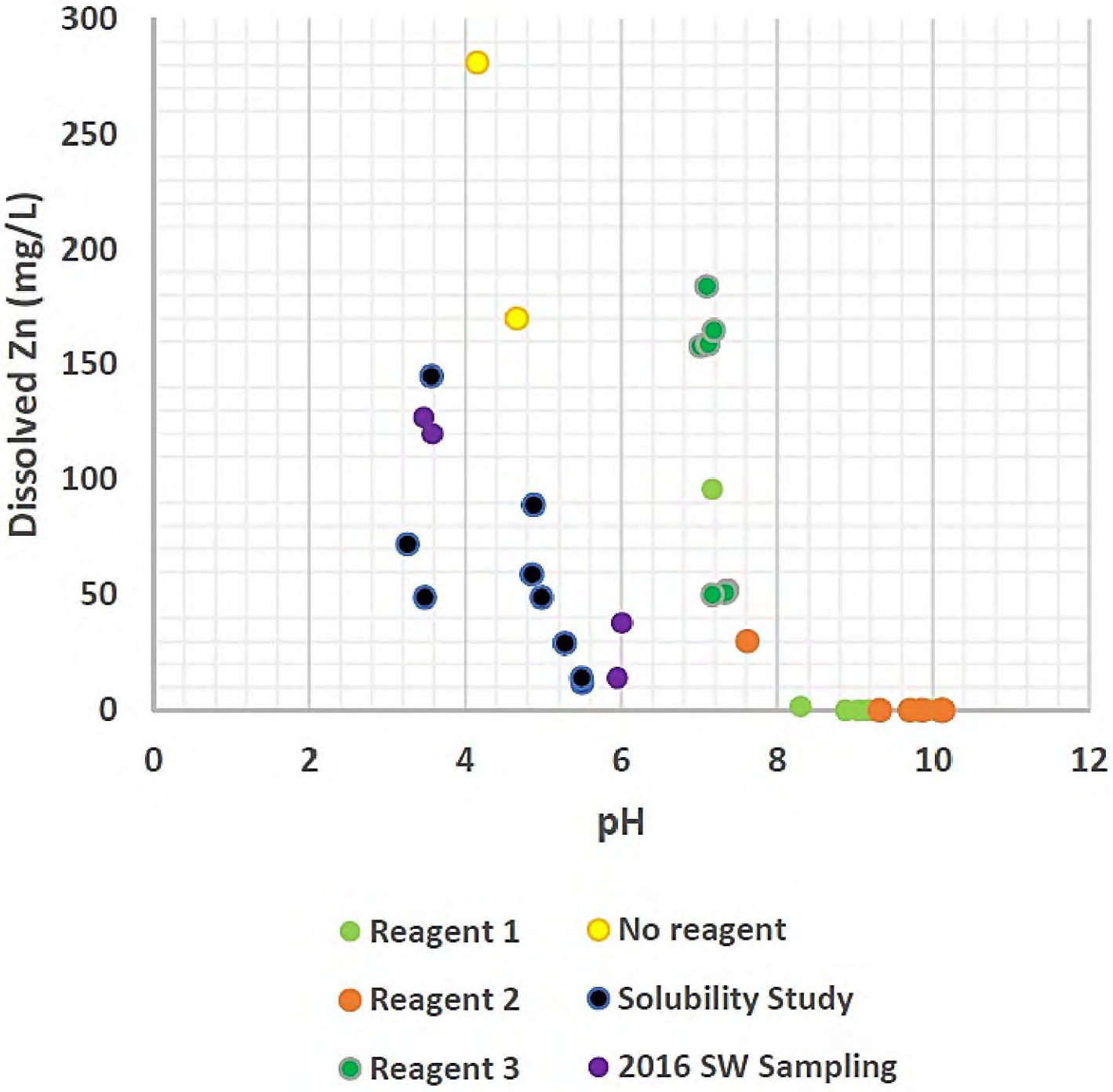


Figure 4
Dissolved Zinc v. pH for All Datasets

A2E

Attachment 3

Treatability/Solubility Study Report

April 13, 2017

LABORATORY REPORTS

Sutherland

Environmental Company, Inc.

2515 5th Avenue South
Birmingham, AL 35233
205-581-9500

Client:	PPM Consultants c/o Metalplate	Report Date:	January 13, 2017
Attention:	Mr. Mike Dillon	Reference #	36415
Address:	5555 Bankhead Hwy.	P.O. #	494501-LS
	Birmingham, AL 35210	Project ID:	Selig Pond/ Solubility Curves

Sample Matrix:	soil	Analytical	
Date Collected:	12/8/16	Analyst:	Kevin Doriety
Time Collected:	NA	Date Received:	1/5/17
Sample Collector:	M. Dillon	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	LS-1						
Analyte, mg/Kg Total	LAB ID 180061-063*	Detection Limit, mg/Kg	Analysis Date	Analysis Time			
Zinc	1345	1.0	1/12/17	1328			

Sample Matrix:	soil	Analytical	
Date Collected:	12/8/16	Analyst:	Kevin Doriety
Time Collected:	NA	Date Received:	1/5/17
Sample Collector:	M. Dillon	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	LS-3						
Analyte, mg/Kg Total	LAB ID 180064-066*	Detection Limit, mg/Kg	Analysis Date	Analysis Time			
Zinc	2503	1.0	1/12/17	1328			

* Composite Sample
NA = Not Available
BDL = Below Detection Limit, Practical
Detection Limit, Practical
All results expressed as PPM mg/Kg of total analyte

Sutherland

Environmental Company, Inc.

2515 5th Avenue South
Birmingham, AL 35233
205-581-9500

Client:	PPM Consultants c/o Metalplate	Report Date:	January 13, 2017
Attention:	Mr. Mike Dillon	Reference #	36415
Address:	5555 Bankhead Hwy.	P.O. #	494501-LS
	Birmingham, AL 35210	Project ID:	Selig Pond/ Solubility Curves

Sample Matrix:	soil	Analytical	
Date Collected:	12/8/16	Analyst:	Kevin Doriety
Time Collected:	NA	Date Received:	1/5/17
Sample Collector:	M. Dillon	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	LS-4						
Analyte, mg/Kg Total	LAB ID	Detection	Analysis	Analysis			
	180067-069*	Limit, mg/Kg	Date	Time			
Zinc	5181	1.0	1/12/17	1328			

* Composite Sample
NA = Not Available
BDL = Below Detection Limit, Practical
Detection Limit, Practical
All results expressed as PPM mg/Kg of total analyte

MH / QAQC

ADEM # 41470
EPA Laboratory ID AL01084

Respectfully submitted,

Kevin Doriety
Analytical Chemist

Sutherland

Environmental Company, Inc.

2515 5th Avenue South
Birmingham, AL 35233
205-581-9500

Client:	PPM Consultants c/o Metalplate	Report Date:	January 13, 2017
Attention:	Mr. Mike Dillon	Reference #	36415
Address:	5555 Bankhead Hwy.	P.O. #	494501-LS
	Birmingham, AL 35210	Project ID:	Selig Pond/ Solubility Curves

Sample Matrix:	soil	Analytical	
Date Received:	1/5/17	Analyst:	Kevin Doriety
Date Collected:	12/8/16	Date of Analysis:	1/12/17
Sample Collector:	M. Dillon	Method:	***Modified* SW846 1311/6010B***

METALLIC ANALYTES IN MODIFIED TCLP EXTRACT

	FIELD ID	FIELD ID	FIELD ID				
	LS-1A E.F. #1	LS-1B E.F. #2	LS-1C DI H_2O				
Analyte, mg/L in TCLP extract	LAB ID 180061	LAB ID 180062	LAB ID 180063				Detection Limit, mg/L
Zinc	49	49	12				0.10

Sample Matrix:	soil	Analytical	
Date Received:	1/5/17	Analyst:	Michael Heard
Date Collected:	12/8/16	Date of Analysis:	1/11/17
Sample Collector:	M. Dillon	Method:	***SW846 1311 filtered leachate***

Filtered pH

	FIELD ID	FIELD ID	FIELD ID				
	LS-1A E.F. #1	LS-1B E.F. #2	LS-1C DI H_2O				
Analyte, S.U. filtered, post tumble	LAB ID 180061	LAB ID 180062	LAB ID 180063				Standard Units, S.U.
pH	4.98	3.48	5.50				1-14

LS-1A: E.F. #1 = Extraction Fluid #1 pH = 4.98
LS-1B: E.F. #2 = Extraction Fluid #2 pH = 2.93
LS-1C: DI H_2O = Deionized Water pH = 6.55
$Tumble_{start}$ = 1/10/17 @ 1400 $Tumble_{stop}$ = 1/11/17 @ 1415
* Modified using 150-g sample and 1000-mL leachate
BDL = Below Detection Limit
Detection Limit is Practical Quantitation Limit
All results expressed as mg/L of analyte in filtrate, unless otherwise noted from Toxicity Characteristic Leaching Procedure (TCLP)

Sutherland

Environmental Company, Inc.

2515 5th Avenue South
Birmingham, AL 35233
205-581-9500

Client:	PPM Consultants c/o Metalplate	Report Date:	January 13, 2017
Attention:	Mr. Mike Dillon	Reference #	36415
Address:	5555 Bankhead Hwy.	P.O. #	494501-LS
	Birmingham, AL 35210	Project ID:	Selig Pond/ Solubility Curves

Sample Matrix:	soil	Analytical	
Date Received:	1/5/17	Analyst:	Kevin Doriety
Date Collected:	12/8/16	Date of Analysis:	1/12/17
Sample Collector:	M. Dillon	Method:	***Modified* SW846 1311/6010B***

METALLIC ANALYTES IN MODIFIED TCLP EXTRACT

	FIELD ID	FIELD ID	FIELD ID				
	LS-3A	LS-3B	LS-3C				
	E.F. #1	E.F. #2	DI H_2O				
Analyte, mg/L	LAB ID	LAB ID	LAB ID				Detection
in TCLP extract	180064	180065	180066				Limit, mg/L
Zinc	59	72	14				0.10

Sample Matrix:	soil	Analytical	
Date Received:	1/5/17	Analyst:	Michael Heard
Date Collected:	12/8/16	Date of Analysis:	1/11/17
Sample Collector:	M. Dillon	Method:	***SW846 1311 filtered leachate***

Filtered pH

	FIELD ID	FIELD ID	FIELD ID				
	LS-3A	LS-3B	LS-3C				
	E.F. #1	E.F. #2	DI H_2O				
Analyte, S.U.	LAB ID	LAB ID	LAB ID				Standard
filtered, post tumble	180064	180065	180066				Units, S.U.
pH	4.86	3.26	5.49				1-14

LS-3A: E.F. #1 = Extraction Fluid #1 pH = 4.98
LS-3B: E.F. #2 = Extraction Fluid #2 pH = 2.93
LS-3C: DI H_2O = Deionized Water pH = 6.55
Tumble $_{start}$ = 1/10/17 @ 1400 Tumble $_{stop}$ = 1/11/17 @ 1415
* Modified using 150-g sample and 1000-mL leachate
BDL = Below Detection Limit
Detection Limit is Practical Quantitation Limit
All results expressed as mg/L of analyte in filtrate, unless otherwise noted from Toxicity Characteristic Leaching Procedure (TCLP)

Sutherland

Environmental Company, Inc.

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205-581-9500

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Sample Matrix:	soil	Analytical	
Date Received:	1/5/17	Analyst:	Kevin Doriety
Date Collected:	12/8/16	Date of Analysis:	1/12/17
Sample Collector:	M. Dillon	Method:	***Modified* SW846 1311/6010B***

METALLIC ANALYTES IN MODIFIED TCLP EXTRACT

	FIELD ID	FIELD ID	FIELD ID				
	LS-4A	LS-4B	LS-4C				
	E.F. #1	E.F. #2	DI H_2O				
Analyte, mg/L	LAB ID	LAB ID	LAB ID				Detection
in TCLP extract	180067	180068	180069				Limit, mg/L
Zinc	89	145	29				0.10

Sample Matrix:	soil	Analytical	
Date Received:	1/5/17	Analyst:	Michael Heard
Date Collected:	12/8/16	Date of Analysis:	1/11/17
Sample Collector:	M. Dillon	Method:	***SW846 1311 filtered leachate***

Filtered pH

	FIELD ID	FIELD ID	FIELD ID				
	LS-4A	LS-4B	LS-4C				
	E.F. #1	E.F. #2	DI H_2O				
Analyte, S.U.	LAB ID	LAB ID	LAB ID				Standard
filtered, post tumble	180067	180068	180069				Units, S.U.
pH	4.88	3.57	5.28				1-14

LS-4A: E.F. #1 = Extraction Fluid #1 pH = 4.98
LS-4B: E.F. #2 = Extraction Fluid #2 pH = 2.93
LS-4C: DI H_2O = Deionized Water pH = 6.55
$Tumble_{start}$ = 1/10/17 @ 1400 $Tumble_{stop}$ = 1/11/17 @ 1415
* Modified using 150-g sample and 1000-mL leachate
BDL = Below Detection Limit
Detection Limit is Practical Quantitation Limit
All results expressed as mg/L of analyte in filtrate, unless otherwise noted from Toxicity Characteristic Leaching Procedure (TCLP)

MH / QAQC
ADEM # 41470
EPA Laboratory ID AL01084

Respectfully submitted,

Kevin Doriety
Analytical Chemist

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3080 Presidential Drive, Atlanta GA 30340-3704
AES TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY 36415

Work Order: 1612A05

TO: TARA WESTERVELT

Date: 12-8-16 Page 1 of 1

COMPANY: METALPLATE / PPM CONSULTANTS
ADDRESS: 5555 BANKHEAD HWY, BHAM, AL 35210
PHONE: 205-789-3016
FAX:
SAMPLED BY: MIKE DILLON
SIGNATURE: Mike W Dillon

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No # of Containers
1	LS-1 1800061-0063	12-8-16	NA	X		SE	NA	pH 4.0, 5.5, 7.0	2
2	LS-3 1800064-0066	↓	NA	X		SE	NA	↓	2
3	LS-4 1800061-0069	↓	NA	X		SE	NA	↓	2
4								CALL MIKE DILLON	
5								205-789-3016	
6								FP QUESTIONS	
7									
8									
9									
10									
11									
12									
13									
14									

ANALYSIS REQUESTED: LEACHATE Zn; TOTAL Zn (Dry wt.); HARDNESS

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

RELINQUISHED BY: DATE/TIME:
1: Mike W. Dillon 12-8-16
2: Andreng Stephens 12/9/16 4:00pm
3:

RECEIVED BY: DATE/TIME:
1: [illegible] 12/9/16 11:10
2:
3: [illegible] 12/15/16 9:00

PROJECT INFORMATION (SELIG)
PROJECT NAME: METALPLATE FACILITY / SELIG POND
PROJECT #: 4C14501-LS
SITE ADDRESS: 505 SELIG DR SW, ATL, GA
SEND REPORT TO: MIKE.DILLON@PPMCO.COM
INVOICE TO: (IF DIFFERENT FROM ABOVE)
QUOTE #: PO#:

RECEIPT
Total # of Containers

Turnaround Time Request
- ☐ Standard 5 Business Days
- ☐ 2 Business Day Rush
- ☐ Next Business Day Rush
- ☐ Same Day Rush (auth req.)
- ☒ Other ASAP

STATE PROGRAM (if any):
E-mail? Fax?
DATA PACKAGE: I ○ II ○ III ○ IV ○

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD:
OUT / / VIA:
IN / / VIA:
CLIENT FedEx UPS MAIL COURIER
GREYHOUND OTHER

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY. IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water WW = Waste Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)
PRESERVATIVE CODES: H+I = 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

Sutherland

Environmental Company, Inc.

2515 5th Avenue South
Birmingham, AL 35233
205-581-9500

Client:	PPM Consultants	Report Date:	March 16, 2017
Attention:	Mr. Mike Dillon	Reference #	36779
Address:	5555 Bankhead Hwy.	P.O. #	494501-FRP
	Birmingham, AL 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	water	Analytical	
Date Received:	3/10/17	Analyst:	M. Heard
Date Collected:	2/27/17	Date of Analysis:	3/15/17
Sample Collector:	M.D./T.S.	Method:	***Standard Method 4500-H+***

pH, Filtered

FIELD ID	LAB ID	Filtered pH*	
Sed-1-0	182210	4.66	
Sed-2-0	182211	4.16	
Sed-1-R1-10	182212	9.95	
Sed-1-R1-3	182213	9.05	
Sed-1-R1-5	182214	9.69	
Sed-1-R2-10	182215	10.31	
Sed-1-R2-3	182216	9.70	
Sed-1-R2-5	182217	10.11	
Sed-1-R3-10	182218	7.36	
Sed-1-R3-3	182219	7.33	
Sed-1-R3-5	182220	7.33	
Sed-2-R1-1	182221	7.17	
Sed-2-R1-3	182222	8.30	
Sed-2-R1-5	182223	9.17	
Sed-2-R2-1	182224	7.62	
Sed-2-R2-3	182225	9.32	
Sed-2-R2-5	182226	9.86	
Sed-2-R3-1	182227	7.02	
Sed-2-R3-3	182228	7.12	
Sed-2-R3-5	182229	7.10	
R-1-Water-5g	182230	8.88	
R-2-Water-5g	182231	10.10	
R-3-Water-5g	182232	7.19	

*Samples filtered through 45um filter prior to analyzing for pH.
BDL = Below Detection Limit
N/A = Not Available

/ QAQC

EPA Laboratory ID AL01084

Respectfully submitted,

Kevin Doriety
Analytical Chemist

Sutherland

Environmental Company, Inc.

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Birmingham, AL 35233
205-581-9500

Client:	PPM Consultants	Report Date:	March 16, 2017
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Address:	5555 Bankhead Hwy.	P.O. #	494501-FRP
	Birmingham, Alabama 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-1-0	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182210	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	170	0.010	none	0.010	3/16/17	1216	

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-2-0	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182211	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	281	0.010	none	0.010	3/16/17	1216	

*Samples filtered at laboratory
BDL = Below Detection Limit, Method
Reporting Limit is Practical Detection Limit
All results expressed as PPM mg/L of total analyte

ADEM # 41470

EPA Laboratory ID AL01084

Sutherland

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Attention:	Mr. Mike Dillon	Reference #	36779
Address:	5555 Bankhead Hwy.	P.O. #	494501-FRP
	Birmingham, Alabama 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-1-R1-10	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182212	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	**0.14**	0.010	none	0.010	3/16/17	1216	

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-1-R1-3	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182213	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	BDL	0.010	none	0.010	3/16/17	1216	

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BDL = Below Detection Limit, Method
Reporting Limit is Practical Detection Limit
All results expressed as PPM mg/L of total analyte

ADEM # 41470

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Attention:	Mr. Mike Dillon	Reference #	36779
Address:	5555 Bankhead Hwy.	P.O. #	494501-FRP
	Birmingham, Alabama 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-1-R1-5	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182214	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	BDL	0.010	none	0.010	3/16/17	1216	

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-1-R2-10	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182215	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	BDL	0.010	none	0.010	3/16/17	1216	

*Samples filtered at laboratory
BDL = Below Detection Limit, Method
Reporting Limit is Practical Detection Limit
All results expressed as PPM mg/L of total analyte

ADEM # 41470

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Attention:	Mr. Mike Dillon	Reference #	36779
Address:	5555 Bankhead Hwy.	P.O. #	494501-FRP
	Birmingham, Alabama 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-1-R2-3	Method					
Analyte, mg/L	**LAB ID**	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	**182216**	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	BDL	0.010	none	0.010	3/16/17	1216	

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-1-R2-5	Method					
Analyte, mg/L	**LAB ID**	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	**182217**	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	BDL	0.010	none	0.010	3/16/17	1216	

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Attention:	Mr. Mike Dillon	Reference #	36779
Address:	5555 Bankhead Hwy.	P.O. #	494501-FRP
	Birmingham, Alabama 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-1-R3-10	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182218	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	52	0.010	none	0.010	3/16/17	1216	

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-1-R3-3	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182219	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	51	0.010	none	0.010	3/16/17	1216	

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Reporting Limit is Practical Detection Limit
All results expressed as PPM mg/L of total analyte

ADEM # 41470

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	Birmingham, Alabama 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-1-R3-5	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182220	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	50	0.010	none	0.010	3/16/17	1216	

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-2-R1-1	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182221	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	96	0.010	none	0.010	3/16/17	1216	

*Samples filtered at laboratory
BDL = Below Detection Limit, Method
Reporting Limit is Practical Detection Limit
All results expressed as PPM mg/L of total analyte

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	Birmingham, AL 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-2-R1-3	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182222	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	**1.49**	0.010	none	0.010	3/16/17	1216	

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-2-R1-5	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182223	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	BDL	0.010	none	0.010	3/16/17	1216	

*Samples filtered at laboratory
BDL = Below Detection Limit, Method
Reporting Limit is Practical Detection Limit
All results expressed as PPM mg/L of total analyte

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Address:	5555 Bankhead Hwy.	P.O. #	494501-FRP
	Birmingham, AL 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-2-R2-1	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182224	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	30	0.010	none	0.010	3/16/17	1216	

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-2-R2-3	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182225	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	BDL	0.010	none	0.010	3/16/17	1216	

*Samples filtered at laboratory
BDL = Below Detection Limit, Method
Reporting Limit is Practical Detection Limit
All results expressed as PPM mg/L of total analyte

ADEM # 41470

EPA Laboratory ID AL01084

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Attention:	Mr. Mike Dillon	Reference #	36779
Address:	5555 Bankhead Hwy.	P.O. #	494501-FRP
	Birmingham, AL 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-2-R2-5	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182226	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	BDL	0.010	none	0.010	3/16/17	1216	

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-2-R3-1	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182227	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	158	0.010	none	0.010	3/16/17	1216	

*Samples filtered at laboratory
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Reporting Limit is Practical Detection Limit
All results expressed as PPM mg/L of total analyte

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Address:	5555 Bankhead Hwy.	P.O. #	494501-FRP
	Birmingham, AL 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-2-R3-3	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182228	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	159	0.010	none	0.010	3/16/17	1216	

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-2-R3-5	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182229	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	184	0.010	none	0.010	3/16/17	1216	

*Samples filtered at laboratory
BDL = Below Detection Limit, Method
Reporting Limit is Practical Detection Limit
All results expressed as PPM mg/L of total analyte

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	Birmingham, AL 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	R-1-Water-5g	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182230	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	BDL	0.010	none	0.010	3/16/17	1216	

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	R-2-Water-5g	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182231	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	BDL	0.010	none	0.010	3/16/17	1216	

*Samples filtered at laboratory
BDL = Below Detection Limit, Method
Reporting Limit is Practical Detection Limit
All results expressed as PPM mg/L of total analyte

ADEM # 41470

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	Birmingham, AL 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	water	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	R-3-Water-5g	Method					
Analyte, mg/L	LAB ID	Detection	Dilution	Reporting	Analysis	Analysis	
Dissolved*	182232	Limit, mg/L	Factor	Limit, mg/L	Date	Time	
Zinc	165	0.010	none	0.010	3/16/17	1216	

*Samples filtered at laboratory
BDL = Below Detection Limit, Method
Reporting Limit is Practical Detection Limit
All results expressed as PPM mg/L of total analyte

/ QAQC

ADEM # 41470

EPA Laboratory ID AL01084

Respectfully submitted,

Kevin Doriety
Analytical Chemist

Sutherland

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Address:	5555 Bankhead Hwy.	P.O. #	494501-FRP
	Birmingham, AL 35210	Project ID:	Metalplate Galvanizing/Selig Pond

Sample Matrix:	sediment	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-1						
Analyte, mg/Kg Total	LAB ID	Detection Limit, mg/Kg	Dilution Factor	Reporting Limit, mg/Kg	Analysis Date	Analysis Time	
	182233						
Zinc	2,910	1.0	none	1.0	3/15/17	1354	

Sample Matrix:	sediment	Analytical	
Date Collected:	2/27/17	Analyst:	Kevin Doriety
Time Collected:	N/A	Date Received:	3/10/17
Sample Collector:	M.D./T.S.	Method:	***EPA Method 6010B***

METALLIC ANALYTES

	FIELD ID						
	Sed-2						
Analyte, mg/Kg Total	LAB ID	Detection Limit, mg/Kg	Dilution Factor	Reporting Limit, mg/Kg	Analysis Date	Analysis Time	
	182234						
Zinc	1,620	1.0	none	1.0	3/15/17	1354	

N/A = Not Available
BDL = Below Detection Limit, Practical
Detection Limit, Practical
All results expressed as PPM mg/Kg of total analyte

/ QAQC

ADEM # 41470
EPA Laboratory ID AL01084

Respectfully submitted,

Kevin Doriety
Analytical Chemist

Sutherland

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CHAIN OF CUSTODY
ANALYSIS REQUEST

SEND REPORT TO: **Invoice #** 36779

Name: Mike Dillon

Company: PPM Consultants

Address: 5555 Bankhead Hwy.

Birmingham, AL 35210

Page 1 of 3

Phone#: (205) 836-5650 Cell #

E-mail: mike.dillon@ppmco.com

Client P.O. # 494501-FRP

PDF Results: yes no Fax #:

CLIENT: PPM Consultants, Inc.

PROJECT: Metalplate Galvanizing/Selig Pond

SAMPLER(S): (print) Mike Dillon/Tom Schmittou

DATE DELIVERED: 6/25/13

LAB ID	FIELD ID	DATE Collected	TIME Collected	SAMPLE DESCRIPTION (matrix)	Dissolved Zn	Filtered pH	Total Zn						Number of sample containers
					ANALYSIS REQUESTED / METHOD								
18220	Sed-1-0	2/27/17	NA	Water	1	1							1
18221	Sed-2-0	2/27/17	NA	Water	1	1							1
18222	Sed-1-R1-10	2/27/17	NA	Water	1	1							1
18223	Sed-1-R1-3	2/27/17	NA	Water	1	1							1
18224	Sed-1-R1-5	2/27/17	NA	Water	1	1							1
18225	Sed-1-R2-10	2/27/17	NA	Water	1	1							1
18226	Sed-1-R2-3	2/27/17	NA	Water	1	1							1
18227	Sed-1-R2-5	2/27/17	NA	Water	1	1							1
18228	Sed-1-R3-10	2/27/17	NA	Water	1	1							1
18229	Sed-1-R3-3	2/27/17	NA	Water	1	1							1
18230	Sed-1-R3-5	2/27/17	NA	Water	1	1							1
18231	Sed-2-R1-1	2/27/17	NA	Water	1	1							1
Preservative: (a)HCL, (b)HNO, (c)H_2SO_4, (d)NaOH, (e)Zn Acetate				**Preservative:**	a	b	a						Last revised
Container type: (a) Amber, (g) Glass, (p) Plastic, (v) VOC Vial, (t) Tedlar bag				**Container:**	v	p	a						3/2/12

Relinquished by Sampler:	Date	Time	Received by:	Date	Time
Signed:	3-10-17	8:42 am	Signed:		
Relinquished by:	Date	Time	Received by:	Date	Time
Signed:	3-10-17	10:00	Signed:	3/10/17	10:00
Relinquished by:	Date	Time	Received in Laboratory by:	Date	Time
Signed:			Signed:		

Turn Around Time (please note)

Standard X ***RUSH, mark below** _____

*3-Day *2-Day *Next Day *Same Day

Remarks:

Refrigerated upon receipt: yes no

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Name: Mike Dillon
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Address: 5555 Bankhead Hwy.
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Phone#: (205) 836-5650 Cell #
E-mail: mike.dillon@ppmco.com
PDF Results: yes no Fax #:

Client P.O. # 494501-FRP

CLIENT: PPM Consultants, Inc.
PROJECT: Metalplate Galvanizing/Selig Pond
SAMPLER(S): (print) Mike Dillon/Tom Schmittou

DATE DELIVERED: 6/25/13

LAB ID	FIELD ID	DATE Collected	TIME Collected	SAMPLE DESCRIPTION (matrix)	ANALYSIS REQUESTED / METHOD: Dissolved Zn	Filtered pH	Total Zn						Number of sample containers
182227	Sed-2-R1-3	2/27/17	NA	Water	1	1							1
182228	Sed-2-R1-5	2/27/17	NA	Water	1	1							1
182229	Sed-2-R2-1	2/27/17	NA	Water	1	1							1
182225	Sed-2-R2-3	2/27/17	NA	Water	1	1							1
182226	Sed-2-R2-5	2/27/17	NA	Water	1	1							1
182227	Sed-2-R3-1	2/27/17	NA	Water	1	1							1
182228	Sed-2-R3-3	2/27/17	NA	Water	1	1							1
182229	Sed-2-R3-5	2/27/17	NA	Water	1	1							1
182230	R-1-Water-5g	2/27/17	NA	Water	1	1							1
182231	R-2-Water-5g	2/27/17	NA	Water	1	1							1
182232	R-3-Water-5g	2/27/17	NA	Water	1	1							1
182233	Sed-1	2/27/17	NA	Sediment			1						1
Preservative: (a)HCL, (b)HNO$_3$, (c)H$_2$SO$_4$, (d)NaOH, (e)Zn Acetate				**Preservative:**	a	b	a						Last revised
Container type: (a) Amber, (g) Glass, (p) Plastic, (v) VOC Vial, (t) Tedlar bag				**Container:**	v	p	a						3/2/12

Relinquished by Sampler:	Date	Time	Received by:	Date	Time
Signed:	3-10-17	8:42AM	Signed:		
Relinquished by:	Date	Time	Received by:	Date	Time
Signed:	3-10-17	10:00	Signed:	3/10/17	10:00
Relinquished by:	Date	Time	Received in Laboratory by:	Date	Time
Signed:			Signed:		

Turn Around Time (please note)
Standard X ***RUSH, mark below** _____
*3-Day *2-Day *Next Day *Same Day

Remarks:

Refrigerated upon receipt: yes no

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PROJECT: Metalplate Galvanizing/Selig Pond
SAMPLER(S): (print) Mike Dillon/Tom Schmittou

DATE DELIVERED: 6/25/13

LAB ID	FIELD ID	DATE Collected	TIME Collected	SAMPLE DESCRIPTION (matrix)	ANALYSIS REQUESTED / METHOD: Dissolved Zn	Filtered pH	Total Zn						Number of sample containers
182234	Sed-2	2/27/17	NA	Sediment			1						1

Preservative: (a)HCL, (b)HNO$_3$, (c)H$_2$SO$_4$, (d)NaOH, (e)Zn Acetate **Preservative:** a b a — Last revised
Container type: (a) Amber, (g) Glass, (p) Plastic, (v) VOC Vial, (t) Tedlar bag **Container:** v p a — 3/2/12

Relinquished by Sampler:	Date	Time	Received by:	Date	Time
Signed: Mike W. Dillon	3-10-17	8:42AM	Signed:		
Relinquished by:	Date	Time	Received by:	Date	Time
Signed:	3-10-17	10:00	Signed:	3/10/17	10:00
Relinquished by:	Date	Time	Received in Laboratory by:	Date	Time
Signed:			Signed:		

Turn Around Time (please note)
Standard X ***RUSH, mark below**
*3-Day *2-Day *Next Day *Same Day

Remarks:

Refrigerated upon receipt: yes no

36779

Sample ID	Container	Water (ml)	Sediment (g)	Reagent (g)	R:S	Analyses Required
Sed-1-0	500 ml-plastic	500	25	0	0	filtered pH, dissolved Zn
Sed-2-0	500 ml-plastic	500	25	0	0	filtered pH, dissolved Zn
Sed-1-R1-10	500 ml-plastic	500	25	2.5	10%	filtered pH, dissolved Zn
Sed-1-R1-3	500 ml-plastic	500	25	0.75	3%	filtered pH, dissolved Zn
Sed-1-R1-5	500 ml-plastic	500	25	1.25	5%	filtered pH, dissolved Zn
Sed-1-R2-10	500 ml-plastic	500	25	2.5	10%	filtered pH, dissolved Zn
Sed-1-R2-3	500 ml-plastic	500	25	0.75	3%	filtered pH, dissolved Zn
Sed-1-R2-5	500 ml-plastic	500	25	1.25	5%	filtered pH, dissolved Zn
Sed-1-R3-10	500 ml-plastic	500	25	2.5	10%	filtered pH, dissolved Zn
Sed-1-R3-3	500 ml-plastic	500	25	0.75	3%	filtered pH, dissolved Zn
Sed-1-R3-5	500 ml-plastic	500	25	1.25	5%	filtered pH, dissolved Zn
Sed-2-R1-1	500 ml-plastic	500	25	2.5	10%	filtered pH, dissolved Zn
Sed-2-R1-3	500 ml-plastic	500	25	0.75	3%	filtered pH, dissolved Zn
Sed-2-R1-5	500 ml-plastic	500	25	1.25	5%	filtered pH, dissolved Zn
Sed-2-R2-1	500 ml-plastic	500	25	2.5	10%	filtered pH, dissolved Zn
Sed-2-R2-3	500 ml-plastic	500	25	0.75	3%	filtered pH, dissolved Zn
Sed-2-R2-5	500 ml-plastic	500	25	1.25	5%	filtered pH, dissolved Zn
Sed-2-R3-1	500 ml-plastic	500	25	2.5	10%	filtered pH, dissolved Zn
Sed-2-R3-3	500 ml-plastic	500	25	0.75	3%	filtered pH, dissolved Zn
Sed-2-R3-5	500 ml-plastic	500	25	1.25	5%	filtered pH, dissolved Zn
R-1-Water-5g	500 ml-plastic	500	0	5		filtered pH, dissolved Zn
R-2-Water-5g	500 ml-plastic	500	0	5		filtered pH, dissolved Zn
R-3-Water-5g	500 ml-plastic	500	0	5		filtered pH, dissolved Zn
Sed 1	4 oz glass					Total Zn
Sed 2	4 oz glass					Total Zn

APPENDIX C

FINAL REMEDIATION AND IMPLEMENTATION PLAN

APRIL 14, 2017

EVALUATION OF CORRECTIVE ACTION AND FINAL REMEDIATION AND IMPLEMENTATION PLAN

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

HSI NO. 10204

PPM PROJECT NO. 494501-FRP

APRIL 14, 2017

Environmental Science
and Engineering

PPM CONSULTANTS

EVALUATION OF CORRECTIVE ACTION AND FINAL REMEDIATION AND IMPLEMENTATION PLAN

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-FRP

APRIL 14, 2017

PREPARED BY:

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

REVIEWED BY:

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FIGURES (Appendix A)

TABLES (Appendix B)

APPENDICES

CERTIFICATION

I certify that this Evaluation of Corrective Action and Final Remediation and Implementation Plan for the Metalplate Galvanizing Facility, located at 505 Selig Drive SW, Atlanta, Georgia, was conducted under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiring of the person or persons who gathered the enclosed information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information

Michael W. Dillon, P.G. – PG002061
Senior Geologist

Date

1.0 INTRODUCTION

Applied Aquaculture and Environmental Technologies, LLC (A2E) and PPM Consultants, Inc. (PPM) were retained by Metalplate Galvanizing, L.P. (Metalplate) to conduct an evaluation of corrective action and prepare a Final Remediation and Implementation Plan for the Metalplate Galvanizing Facility/Selig Pond site located at 505 Selig Drive Southwest, Atlanta, Fulton County, Georgia (Georgia Hazardous Site Inventory Number 10204).

Metalplate acquired the facility and subsequently the real property from Atlantic Steel Company ("Atlantic") in the early 1970s. The Site was listed on the Georgia Hazardous Site Inventory as a result of data collected in the 1980s by the company and by the United States (U.S.) Environmental Protection Agency (EPA) relating to Atlantic's historic practice of discharging spent acid wastewater into a ditch system originating on the east side of the facility building (the "Release"). This practice occurred from 1966 until approximately 1973/1974, when a spent acid treatment system was installed by Metalplate after acquiring the facility. U.S.EPA determined that no action was required at the site and removed it from its CERCLIS list in 1995. The Release migrated through two ditch systems leading to Selig Pond. The Site was listed on the Hazardous Site Inventory (HSI) under the Hazardous Site Response Act (HSRA) due to lead concentrations in soils associated with the Release; the Reportable Quantities Screening Method (RQSM) score for the groundwater pathway did not exceed the RQSM threshold.

Since the Site was listed on the HSI in 1994, iterative investigation work has been performed, along with soil removal work from certain of the ditches into which the Release had been discharged. This HSRA work was initially undertaken by Atlantic and Metalplate jointly, but shortly after the work began, Atlantic filed for bankruptcy, leaving Metalplate to perform the work alone.

Metalplate applied to enroll the Site in the Georgia Voluntary Remediation Program ("VRP"), and that application was granted in February 2011. Metalplate and the Georgia Environmental Protection Division (EPD) have also worked together to coordinate Metalplate's VRP project with significant investments Metalplate has made, in connection with its stormwater permit, to substantially reduce zinc loadings in stormwater discharges from the facility. Metalplate has installed, and since late 2014 has operated, an industry-leading, state of the art stormwater treatment system (employing electrocoagulation technology) to treat all facility stormwater before discharge. The company has also constructed significant stormwater containment to detain water for treatment. This step, in

addition to prior soil removals, has had a beneficial effect, including on the conditions caused by the Release.

In light of Metalplate's commitment to this electrocoagulation technology and its potential beneficial impact on conditions being addressed under the VRP, EPD and Metalplate entered Consent Order No. EPD-VRP-10 in September 2014 to among other things extend the schedule for submission of a Final Remediation and Implementation Plan.

This is the Final Remediation and Implementation Plan required by the 2014 Consent Order. As previously reported, Site soils have been certified to meet applicable Risk Reduction Standards (RRSs), and groundwater also meets RRSs with the application of institutional controls. Ecological risk has also been evaluated and EPD has concurred that no corrective action is required in any media due to such risk.

The remaining Consent Order/VRP obligation is to ensure that surface water concentrations, if any, caused by the Release do not exceed instream water quality standards, and that is the objective of the work described in this Plan. To measure the effectiveness of corrective action as it relates to surface water, in October 2011 EPD and Metalplate reached an understanding that Metalplate has the flexibility to evaluate this issue using the intersection of the ditch leading to Utoy Creek and the downgradient property line for an adjacent subparcel of property over which Metalplate proposes to acquire requisite control (the "Surface Water Measurement Point").

The selected remedial approach to meet this objective is to control the effects of the Release on surface water dissolved zinc concentrations by limiting zinc solubility through the application of stabilization agent(s) at key locations associated with groundwater/surface water interface(s), as further described in this Plan.

Importantly, there are available sources of zinc in the environment in this area unassociated with the Release. These sources include zinc concentrations in permitted stormwater discharges (particularly historical) and historical and ongoing lawful air emissions from the facility. These sources also include other zinc in the environment not associated with the Metalplate facility. While Plan implementation may address in part some of these other zinc sources at key locations where they have the potential to affect surface water quality and otherwise may interact with the Release, it is neither practicable nor required to address them all. Therefore, whether the implementation of this Plan will result in zinc concentrations at levels below instream water quality standards at the Surface Water

Measurement Point in light of these other zinc sources is uncertain, but such implementation is expected to have a significant beneficial effect.

This Plan provides a summary of relevant environmental activities conducted at the Site to date and a description of the proposed strategy for site remediation.

2.0 SITE 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, Lower East Ditch, Seep Area, Lower South Ditch, and Cross-Over Culvert 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 Selig Pond, which 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 RECENT SITE HISTORY

Following is a brief summary of the Site's recent history:

2.4.1 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 RQSM threshold score for soil. The RQSM threshold was not exceeded for groundwater.

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 constituent of interest (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/or 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, May 29, 2008.

2.4.2 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 Best Management Practice (BMP) for the facility's Storm Water Pollution Prevention Plan (SWPPP). These

measures were expected to decrease sediment loads leaving the property and decrease COI concentrations in storm water, surface water, and groundwater.

2.4.3 Voluntary Investigation and Remediation Plan and Application

A Voluntary Investigation and Remediation Plan 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 VRP.

2.4.4 Screening Level Ecological Risk Assessment

By a June 29, 2012, letter, EPD concurred that ecological considerations would not require corrective action on sediments.

2.4.5 Groundwater Monitoring

Baseline groundwater monitoring was conducted at the Site between September 8, 2008, and September 10, 2008, shortly after the soil removal corrective action activities were complete. The sampling was conducted 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.

Periodic groundwater monitoring events have been conducted to monitor plume stability and effectiveness of the corrective action. The results of these events have been presented in groundwater monitoring/corrective action effectiveness reports and VRP progress reports.

In correspondence dated November 8, 2013, the EPD provided a proposed VRP schedule after meeting with Metalplate representatives on October 21, 2013. The schedule (EPD Proposed Milestone Dates for Project Implementation, November 8, 2013) requested surface water sampling and collection of water elevation data to be conducted in April 2014. The schedule requested annual groundwater sampling, surface water sampling, and water elevation data collection to be conducted in October each year through 2018. Annual VRP Progress Reports were required to 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 should be submitted. The schedule was adopted in the 2014 Consent Order discussed in **Section 2.4.8**. Results of the groundwater and surface water

sampling activities conducted during each previous period are included in the annual progress reports. During the annual groundwater sampling events, groundwater from monitoring wells MW-1, MW-2, MW-4, MW-5, MW-7, and MW13D are sampled and analyzed.

2.4.6 2014 Consent Order and New Storm Water Treatment Plan

As a result of discussions between EPD and Metalplate regarding the company's commitment to install a state-of-the-art electrocoagulation storm water treatment system and that system's potential impact on the appropriate timing of VRP-related obligations, Metalplate and EPD entered a Consent Order revising and extending VRP milestones through February 14, 2019. The Consent Order became effective on September 4, 2014. The facility installed the electrocoagulation system in the fall of 2014 and it began operating in October 2014. As a result, the facility has seen significant reductions of zinc in its discharged storm water, consistently below applicable thresholds.

2.4.7 Additional Sediments Evaluation

A2E conducted an Additional Sediments Evaluation at the Site for the purposes of obtaining a more accurate estimate of sediment volume and to better understand the distribution or layering of zinc within the sediments located in the area of Selig Pond. The evaluation was conducted in April and July 2015. A report was submitted to the EPD in February 2016 as an appendix to the VRP 8th Project Status Report. Additional evaluations of sediments, particularly regarding site-specific zinc solubility and treatability of the zinc, have been conducted since that report to support this Plan. The results of those evaluations are detailed in the Solubility & Treatability Studies Report, submitted as Appendix B under the VRP Ninth Progress Report, April 14, 2017.

2.5 CONCEPTUAL SITE MODEL

2.5.1 Site Geology

Site sediment, soil, and bedrock have been identified and described during the CSI, Screening Level Ecological Risk Assessment (SLERA), and Additional Sediments Evaluation. According to the Georgia Geological Survey, Geologic Map of Georgia, the area of the Site is underlain by the Ben Hill Granite which is a coarse-grained, porphyritic granite batholith that intrudes rock formations of the Atlanta Group. An exposure of Ben Hill Granite can be seen northwest of the Metalplate facility, across the intersection of Selig Drive and Bakers Ferry Road Southwest. A majority of the Site, however, is

immediately underlain by highly weathered and foliated mica schist. The schist is exposed in the Outwash Ditch and is present below much of the Site as evidenced by the characteristic relict foliation found in Site soil (or saprolite). Schist bedrock was encountered at a depth of approximately 28 feet below ground surface (BGS) in the area of Selig Pond at MW-13D; however, the rock below 28 feet to as deep as 53 feet was soft and highly weathered indicating that the depth to competent bedrock in the area of Selig Pond is deeper than 53 feet BGS. Further to the east, at MW-6D, competent bedrock was encountered at 40 feet BGS and continued to boring termination at 55 feet BGS.

The Site soil is primarily saprolite formed by weathering of the schist and as previously mentioned exhibits relict foliation of the former rock. The soil is comprised of clayey silt, clayey sandy silt, and clayey silty sand containing mica, quartz and feldspar sand, quartz and feldspar gravel, and quartz cobbles. Surface soils throughout the Site drainage area contain elevated zinc concentrations.

Sediments containing zinc are located in many locations throughout the drainage ditches, including in and around the Outwash Area and Selig Pond. The sediment deposits are described as medium to coarse-grained sand, fine to medium-grained sand, and clayey silty sand. In the Outwash Area, the top 2 to 3 feet of sediment are generally comprised of medium to coarse-grained sand. Beneath the medium to coarse-grained sand appear to be softer sediments containing higher concentrations of zinc to estimated depths ranging between 3.5 to 10 feet BGS. The softer sediments are likely composed of finer-grained sand and silt.

2.5.2 Groundwater

Groundwater flow is toward the southeast over a majority of the Site. The hydraulic gradient is approximately 0.033 feet per feet and the groundwater flow velocity is approximately 58.1 feet per year. Just south of Selig Pond and the CSXT railroad tracks is a groundwater divide that trends northwest/southeast. The groundwater divide effectively prevents groundwater in the Outwash Area from migrating beyond the divide because it discharges to ditches. Groundwater is directly connected to the ground surface and surface water in areas along the divide and in other areas of the Site. There are five prominent areas of ponded surface water at the Site where groundwater intercepts the ground surface. These are the Small Ditch, Selig Pond, the Seep Area, the Outwash Ditch, and the Cross-Over Culvert Ditch. The groundwater flow pattern and prominent areas of ponded water where groundwater intercepts the ground surface are shown on **Figure 3, Groundwater/Surface Water Elevation Map (November 9, 2016)**. Groundwater and

surface water elevations are provided in **Table 1, Groundwater/Surface Water Elevation Summary, Appendix B, Tables**.

Total zinc concentrations in shallow groundwater samples collected during the latest groundwater sampling event conducted on October 4, 2016, all complied with potentially applicable RRSs, ranging from non-detect in monitoring wells MW-1 and MW-4 to 8.58 milligrams per liter (mg/L) in MW-8, and to 12.8 mg/L in deeper groundwater at MW-13D. Total zinc concentrations in groundwater for the October 2016 event are shown on **Figure 4, Total Zinc Isoconcentration Map - Groundwater (October 4, 2016)**.

The pH in shallow groundwater ranged from 4.60 Standard Units (SU) in MW-2 to 6.03 SU in MW-4. The pH in MW-13D was 6.29 SU. **Figure 5, pH in Groundwater (Most Current Values)** is a contour map of the most recent pH values measured in groundwater. Total zinc concentrations, dissolved zinc concentrations, and pH in groundwater are provided in **Table 2, Groundwater Analytical Summary**.

2.5.3 Surface Water

Dissolved zinc concentrations detected in surface water during the sampling event conducted on October 5, 2016, ranged from 5.53 mg/L at surface water sampling location SW-5 to 127 mg/L at SW-6A. The average surface water zinc concentration from these locations was 54.3 mg/L. Two surface water areas contained dissolved zinc concentrations that are a magnitude higher than other waters of the Site: the ponded water at the Small Ditch and Seep Area contained dissolved zinc concentrations of 127 mg/L and 120 mg/L, respectively, with corresponding pHs between 3.3 and 3.8 SU, measured on February 27, 2017. Dissolved zinc concentrations in surface water for the October 2016 event are provided in **Figure 6, Dissolved Zinc Concentration Map – Surface Water (October 5, 2016)**.

Of the five prominent areas of ponded surface water where groundwater intercepts the ground surface (**Section 2.5.2** and **Figure 3**), pH measured on February 27, 2017, in three of these areas, the Small Ditch, Selig Pond, and the Seep Area ranged from 3.3 to 3.8 SU, which is substantially lower than the pH measured in surface water at the Outwash Ditch (5.5 SU), the Cross-Over Culvert Ditch (5.3 SU), and in groundwater (4.60 to 6.03 SU). The highest concentrations of zinc in Site surface waters correlate to the low pH conditions found at the Small Ditch and Seep Area. **Figure 7, Prominent Areas of Ponded Surface Water (February 27, 2017)**, shows the pH range in the prominent areas of ponded surface water where groundwater intercepts surface water. A summary of dissolved zinc

concentrations in surface water is provided in **Table 3, Surface Water Analytical Summary**.

3.0 EVALUATION OF CORRECTIVE ACTION

Several remedial alternatives were evaluated in order to select an appropriate remedial approach for ensuring to the extent practicable that surface water concentrations, if any, caused by the Release do not exceed instream water quality standards at the Surface Water Measurement Point. These alternatives included, but are not limited to, excavation of sediments for disposal or treatment and reuse, implementation of engineering controls, and stabilization of the sediment. The applicability of each approach is discussed in the following sections.

3.1 EXCAVATION

Excavation involves removal of the impacted material using mechanical equipment. The excavated material is then either transported off site for disposal, or treated on- or off-site for reuse or disposal. Excavation is an intrusive but often effective remedial approach in that the source of impact to the environment is removed from the site.

Although excavation has been effective on portions of the Metalplate property, it is not practicable for the remaining areas of the Site. This is because of limited access to the area for necessary mechanical equipment, the sensitive nature of the geomorphology of the drainage system, unlikely access to the CSXT property for intrusive activities, and the distribution of zinc in the environment.

The location of the drainage system is such that there is limited access to conduct remedial activities with the large mechanical equipment that would be necessary to conduct excavation activities, most of which would be on CSXT railroad property. CSXT is unlikely to provide access to their property to conduct intrusive activities that will change the storm water flow regime and geomorphology of the drainage system. During times of heavy rain, large volumes of storm water move through the drainage system as evidenced by scouring and erosion of exposed soil and deposition of sediment in the drainages. CSXT has even implemented erosion control along sections of the track.

In the unlikely event that CSXT would allow property access to conduct an excavation, the excavation and subsequent Site restoration would likely change the drainage characteristics

in a way that could lead to negative unforeseen conditions that would be difficult to predict and prevent. Furthermore, because of the distribution of zinc in not only sediments but also surface soils of the Site, and erosion of soil and deposition of new sediment, the permanence of an excavation remedy here would be uncertain.

3.2 ENGINEERING CONTROLS

Engineering controls are physical controls employed to contain, stabilize, or monitor contamination in the environment, or to eliminate potential exposure pathways to the contamination. When utilizing these techniques, corrective action effectiveness monitoring is typically needed to demonstrate continued effectiveness of the controls.

Engineering controls such as installation of a cap covering the ground surface of the impacted area would not be effective because it would not prevent impact to surface water from occurring. Rerouting stormwater around sediments would also not be effective because it would not prevent groundwater from interacting with the sediments or prevent impacts to surface water that do not relate to stormwater. These methods or a combination of these methods would not be practicable for some of the same reasons that apply to excavation including limited access for heavy equipment, property access, and potential to change the stormwater flow regime and geomorphology of the drainage system.

3.3 STABILIZATION

Stabilization is a remedial method that immobilizes contaminants in the environment. This is typically achieved by introducing materials to the environment that chemically bind or encapsulate the contaminant and/or cause a chemical reaction that inhibits dissolving of contaminants into water. Additives are typically mixed into the contaminant source in-situ with mechanical equipment. Corrective action effectiveness monitoring is typically needed to demonstrate continued effectiveness of the treatment. Stabilization is an effective remedial method for metals, including zinc, because, as compared to other types of contaminants, the solubility of such metals can be controlled relatively easily.

Stabilization combined with effectiveness monitoring appears to be the most feasible approach for the Site; however, considerations relating to manner of implementation include limited access for heavy equipment to mix the additives in-situ and obtaining property access for any needed intrusive activities on CSXT property.

To gain a better understanding of the applicability of this approach, a study was conducted to determine the site-specific zinc solubility and treatability of the zinc. For details

regarding that study, see the Solubility & Treatability Studies Report, submitted as Appendix B under the VRP Ninth Progress Report, April 14, 2017. In summary, the results of the treatability study support designing a Final Remediation and Implementation Plan that relies on in-situ stabilization of zinc by the field application of one or more of the tested reagents in a phased approach that allows an ongoing evaluation of the relative beneficial effect of the various reagents, application rates, and application approaches in the field.

4.0 FINAL REMEDIATION AND IMPLEMENTATION PLAN

Stabilization is the selected remedial approach for zinc present in sediments that is associated with the Release and which may leach to surface water.

4.1 PROPERTY ACCESS

The areas of the Site where surface water zinc concentrations are elevated are located mostly on CSXT property (**Figure 7**). Small portions of Selig Pond and the Small Ditch are also located on Aston property. The implementation of this Plan thus depends on obtaining appropriate additional access rights from CSXT and Aston. The terms of access may also affect the ultimate selection of application methods for the stabilization agents.

4.2 UNDERGROUND INJECTION CONTROL

Placement of stabilizing agents within the subsurface of the ground either by injection, mixing, or other means may require a Underground Injection Control (UIC) Permit to be obtained from the EPD prior to conducting these activities. Placement of stabilizing agents on the ground surface or within ponded surface water does not require a UIC Permit. As necessary, UIC Permit(s) will be obtained prior to placing stabilizing materials in the subsurface of the ground.

4.3 PHASE I

As investigated in the Solubility & Treatability Studies Report, two EnviroBlend products and conventional calcium carbonate (hydrated lime) will be used, individually or in combination, in Phase I to control dissolved zinc concentrations in surface waters at select areas of the site. These areas include the Small Ditch Pond, the Seep Area, and the Outwash Ditch, as presented in **Figure 8, Treatment Areas**. Phase I activities are intended to demonstrate the effectiveness of the various additives in the different

hydrologic settings and, more importantly, assist in evaluating the appropriate dosages and application methods for Phase II.

4.3.1 Baseline Sampling

Baseline surface water sampling will begin in May 2017 at the locations shown on **Figure 9, Effectiveness and Compliance Monitoring**, and continue on a monthly basis until such time that statistically adequate baseline data is established (expected fewer than six months). Locations SW-3A and SW-8 are proposed as controls because these areas do not exhibit the same conditions as the areas to be treated (described below). The other sampling locations (SW-1A, SW-2A, SW-4B, and SW-6A) are proposed as effectiveness monitoring locations.

At each event, grab water samples will be collected and submitted to the lab for pH and dissolved zinc analyses. Simultaneously, pH will be measured in the field at all locations. All samples will be collected in a consistent manner by personnel familiar with the project-specific sampling protocols. Samples may be stored under refrigeration.

4.3.2 Corrective Action Implementation

Phase I corrective action, as follows, will be implemented as baseline sampling is completed. Prior to application of the reagent(s) at the Areas described below, the pH will be measured and recorded and a surface water sample collected and archived for future dissolved zinc analysis, potentially as a part of baseline sampling.

4.3.2.1 Area 1

Area 1 (Small Ditch Pond) consists of approximately 1,500 square feet and will be treated with an application of EnviroBlend as investigated in the Treatability Study. At this location, the EnviroBlend will be broadcast evenly across the entire surface of the standing water at a rate of 2 tons per acre (0.1 pounds per square foot). During Phase 1 the dry ditch surface up gradient of the pool will not be treated although some portions of these areas may be included in Phase II.

The reagent will be broadcast by hand and allowed to settle completely. No additional mixing will occur with the initial application. Depending on the outcome of the post treatment monitoring as presented in **Section 4.3.3**, the pond may periodically be mixed using trash pumps to determine the effect and the time required to stabilize after mixing.

4.3.2.2 Area 2

Area 2 (Seep Area) consists of an estimated 5,000 square feet of area directly across the railroad track from Selig Pond and is believed to be caused by the upwelling of groundwater in its vicinity. The area is consistently wet with standing water up to six inches deep and is essentially stagnant with no visible flow. This area will be treated with EnviroBlend at a rate of 4 tons per acre (0.23 pounds per square foot) that will be mixed into the upper 3 to 6 inches of surface sediments and or soils. This dosage is believed higher than necessary but due to access and site preparation limitations is believed prudent in avoiding additional activity in the future.

Prior to the application, and subject to access rights, the area will be prepped by clearing debris and scraping the ditch bottom to ensure constant positive drainage and drying of the area. During this preparatory work, debris will be removed only as needed to dry the area. No other surface materials will be disturbed. Once dry enough to work, the entire area will be scarified to a depth of 3 to 6 inches. EnviroBlend will be broadcast evenly across the scarified surface at the design application rate and the area back dragged and/or graded to incorporate the reagent. Upon completion, the disturbed area will be restored by grass seed and mulch to establish a vegetative cover. Sand bags or crushed limestone check dams may be used, if warranted, to restore the ponded condition of the area.

4.3.2.3 Area 3

Area 3 is a 250-foot reach of the Outwash Ditch beginning at its point of origin and ending at the transition from defined channel into the outwash area of Selig Pond. This area consists of approximately 2,750 square feet of washed gravel and sands and is subject to concentrated flows during storm events. This area has not been included in the surface water sampling program but recent pH measurements and visual inspection indicates that treatment of this area may be beneficial because of its association with Selig Pond. This ditch has measurable flow during certain times of the year and no flow in others.

Area 3 will be treated with finely ground calcium carbonate (minus 200 mesh) and applied at a rate of 3 tons per acre (0.14 pounds per square foot). The reagent will be applied by hand and evenly distributed across the base of the entire reach of ditch. Depending on conditions at the time of application, some or all the reagent may be wetted to force the reagent down into the interstitial space and the coarse sediments. The purpose is to determine if the application of calcium carbonate, in and of itself, demonstrates any beneficial effect in buffering pH and reducing dissolved zinc concentrations. To evaluate,

an interim monitoring location will be established at the base of the treated area where the Outwash Ditch enters Selig Pond. In this location, the pH and zinc up gradient of the treatment zone can be compared in real time with water exiting the treatment zone.

4.3.3 Phase 1 Effectiveness Sampling

Immediately before reagent application, and on a weekly basis thereafter, sampling will occur at the locations shown on **Figure 9**. Sampling will include field measurement of pH and collection of a water grab sample for pH and dissolved zinc analysis at the lab. Post treatment sampling will continue on a weekly basis for four weeks or until such time that the conditions (pH) are stable or it can be concluded that they are unlikely to stabilize. Weekly samples may be stored under refrigeration. All samples will be collected in a consistent manner by personnel familiar with the project-specific sampling protocol.

4.4 PHASE II

4.4.1 Scope

The scope and schedule of Phase II (expected to be the final phase) will be specified based on the review of effectiveness monitoring associated with the Phase I activities. Particular focus is anticipated on Area 4. Area 4 comprises the footprint and apron of sediment deposition in and around Selig Pond. From previous investigations and delineation efforts, this area occupies approximately 42,000 square feet in area and sediment thickness ranging from 2 to 3 feet to upwards of 10 feet. Due to the encroachment of sediments over time, the open water portion of the pond is only a fraction of the total sediment deposit. Due to the size and complexity of the surface water body and the associated sediments, Phase I treatment activities will be used to determine the optimal reagent, dose and application method to be deployed in Area 4. Subject to adjustment as the result of Phase I, the presumptive approach is to utilize Eviroblend and topically apply it across the entire 40,000-square foot footprint of this area.

4.4.2 Phase II Effectiveness Sampling

After implementation of Phase II, the locations indicated on **Figure 9** will be sampled on a monthly basis for a period of four months, until conditions in the area have stabilized, until it is concluded that additional treatment is warranted, or it is concluded that conditions are unlikely to stabilize. After that time, sampling frequency will be reduced to a semiannual basis through the end of 2018 and will continue to the extent needed until Metalplate submits a certification of compliance for the Site.

Sampling will include field measurement of pH and collection of a water grab sample for pH and dissolved zinc analysis at the lab. All samples will be collected in a consistent manner by personnel familiar with the project-specific sampling protocols. Samples may be stored under refrigeration.

4.4.3 Data Evaluation

The collected data will be evaluated, potentially including statistical evaluations, to determine whether the implementation of this Plan has, considering the flexibility provided by the agreement that Metalplate may rely on the Surface Water Measurement Point, prevented surface water concentrations, if any, caused by the Release from exceeding instream water quality standards to the extent practicable.

4.5 SCHEDULE OF IMPLEMENTATION

The following is the tentative schedule of implementation of the elements of the Plan and includes reasonable considerations for the time required to obtain adequate access rights to both CSXT and Aston properties. Where possible this timeline may be accelerated. Metalplate will keep EPD informed if obtaining access rights is requiring more time than anticipated.

- May through August 2017: Baseline sampling.
- July through December 2017: Phase I activities.
- July through December 2017: Phase I effectiveness monitoring.
- December 2017: Refine Phase II remedial activity design.
- January through February 2018: Phase II activities.
- February through December 2018: Phase II effectiveness monitoring, as described above.

4.6 REPORTING

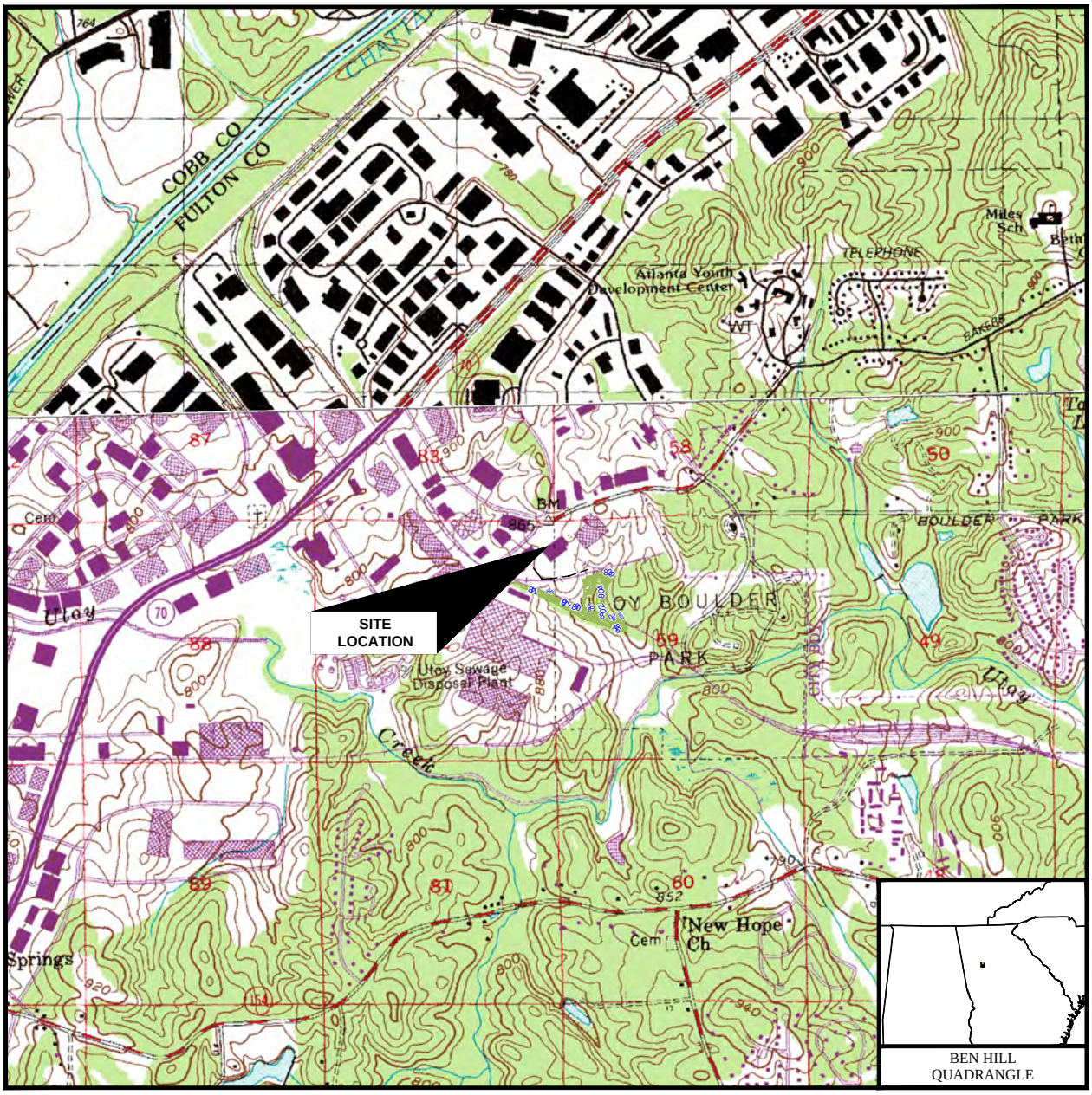
Metalplate will report information to EPD in connection with its annual progress reports and will provide supplemental information to or engage with EPD as warranted.

4.7 SITE HEALTH AND SAFETY

Prior to conducting corrective action activities, a site-specific Health and Safety Plan (HASP) specifically designed for the proposed activities will be prepared for the Site. All project personnel will be familiar with the HASP, and the HASP will be kept on Site during field operations.

APPENDICES

APPENDIX A – FIGURES



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PPM CONSULTANTS, INC. www.ppmco.com		METALPLATE GALVANIZING, L.P. **METALPLATE FACILITY/SELIG POND** 505 SELIG DRIVE SW ATLANTA, GEORGIA	SITE LOCATION MAP
DRAWN BY: BWH	DRAWN DATE: 03/09/17		FIGURE NUMBER 1
PROJECT NUMBER: 494501	BILLING GROUP: FRP		

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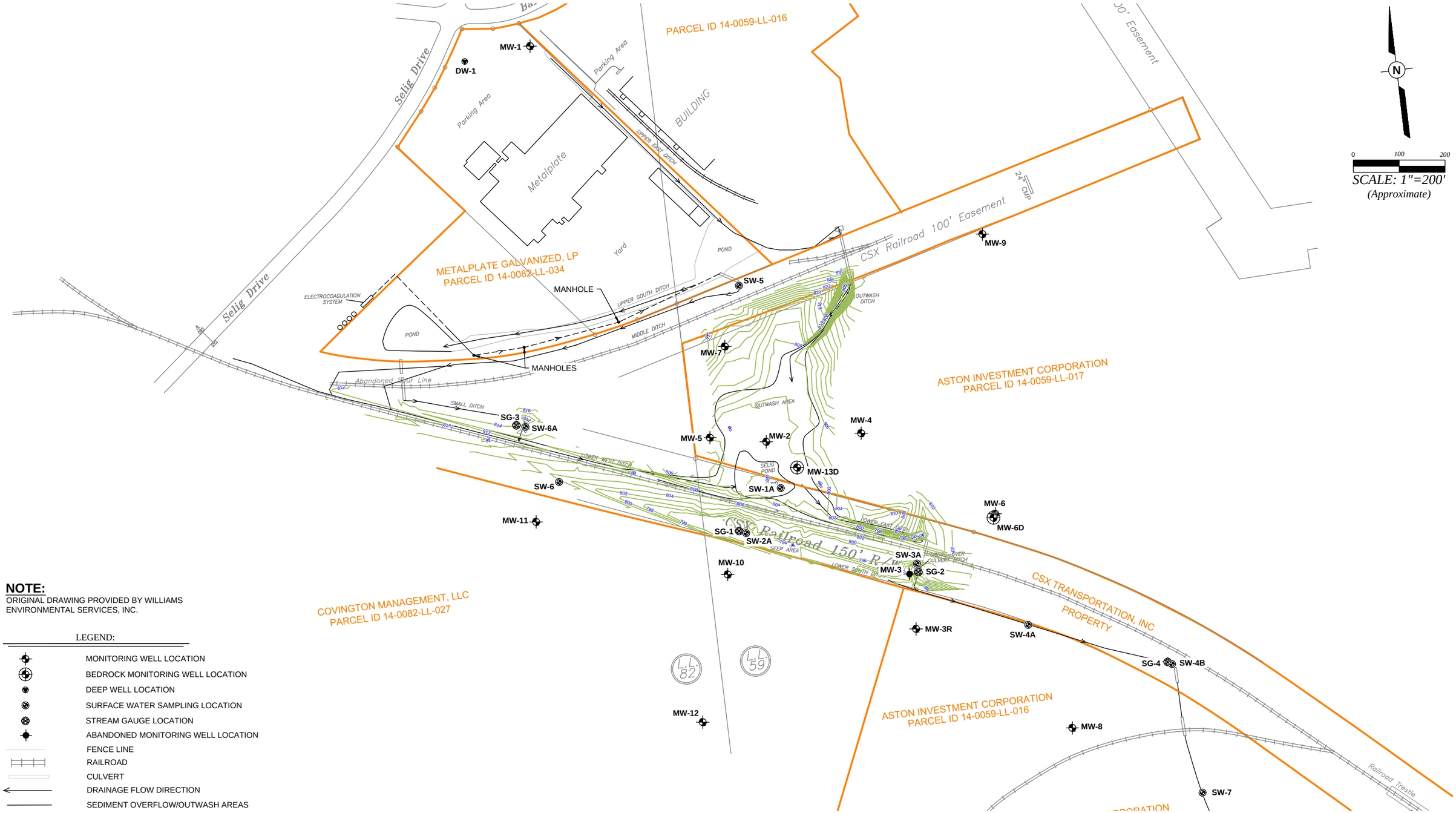

NOTE:
ORIGINAL DRAWING PROVIDED BY WILLIAMS ENVIRONMENTAL SERVICES, INC.

LEGEND:

- MONITORING WELL LOCATION
- BEDROCK MONITORING WELL LOCATION
- DEEP WELL LOCATION
- SURFACE WATER SAMPLING LOCATION
- STREAM GAUGE LOCATION
- ABANDONED MONITORING WELL LOCATION
- FENCE LINE
- RAILROAD
- CULVERT
- DRAINAGE FLOW DIRECTION
- SEDIMENT OVERFLOW/OUTWASH AREAS

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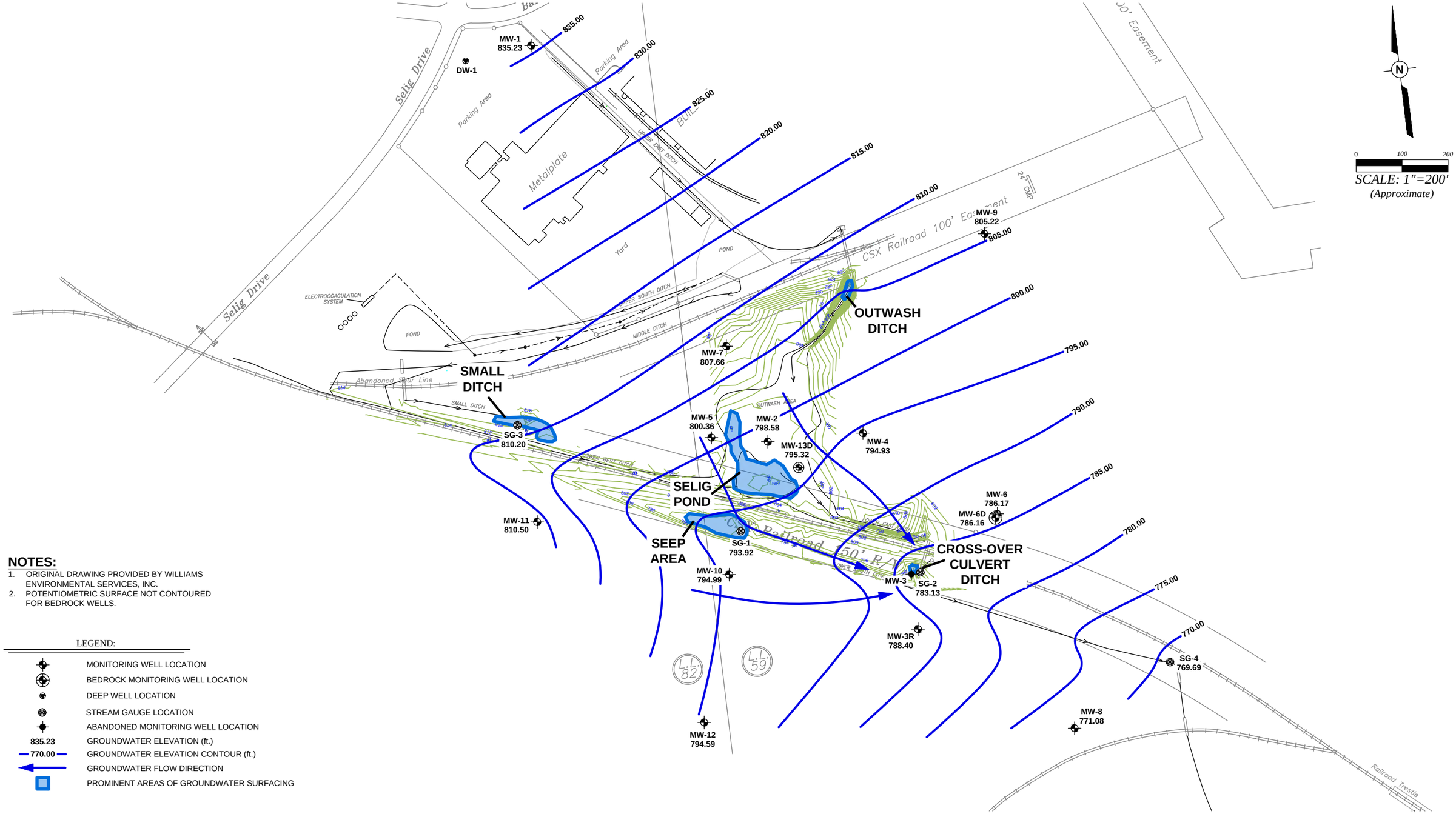
BWH	03/09/17
PROJECT NUMBER:	BILLING GROUP:
494501	FRP

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\Frp\494501-Frp.dwg, 2 sm, 4/14/2017 8:20:44 AM, 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
- STREAM GAUGE LOCATION
- ABANDONED MONITORING WELL LOCATION
- 835.23 — GROUNDWATER ELEVATION (ft.)
- 770.00 — GROUNDWATER ELEVATION CONTOUR (ft.)
- GROUNDWATER FLOW DIRECTION
- PROMINENT AREAS OF GROUNDWATER SURFACING

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

GROUNDWATER / SURFACE WATER ELEVATION MAP
(NOVEMBER 9, 2016)

FIGURE NUMBER 3

Z:\Metalplate Galvanizing, L.P\494501 - Metalplate Facility\Selig Pond\Frp\494501-Frp.dwg, 3 GW, 4/14/2017 8:20:45 AM, brian.hicks

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

LEGEND:

⊕	MONITORING WELL LOCATION
◉	BEDROCK MONITORING WELL LOCATION
▼	DEEP WELL LOCATION
◎	SURFACE WATER SAMPLING LOCATION
⊕	ABANDONED MONITORING WELL LOCATION
8.13	TOTAL ZINC CONCENTRATION (mg/L)
2	ESTIMATED HORIZONTAL EXTENT OF ZINC IN GROUNDWATER EXCEEDING THE TYPE 1 RRS (2 mg/L)
NS	NOT SAMPLED

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BWH	03/09/17
PROJECT NUMBER:	BILLING GROUP:
494501	FRP

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

TOTAL ZINC ISOCONCENTRATION MAP - GROUNDWATER
(OCTOBER 4, 2016)

FIGURE NUMBER
4

Z:\Metalplate Galvanizing, L.P\494501 - Metalplate Facility, Selig Pond\Frp\494501-Frp.dwg, 4 Zinc, 4/14/2017 8:20:46 AM, brian hicks

NOTES:

1. ORIGINAL DRAWING PROVIDED BY WILLIAMS ENVIRONMENTAL SERVICES, INC.
2. pH VALUE AT MW-13D NOT USED TO CONTOUR MAP.

LEGEND:

- MONITORING WELL LOCATION
- BEDROCK MONITORING WELL LOCATION
- DEEP WELL LOCATION
- STREAM GAUGE LOCATION
- ABANDONED MONITORING WELL LOCATION
- 5.52 pH VALUE
- 5.0 pH CONTOUR

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METALPLATE FACILITY/SELIG POND
505 SELIG DRIVE SW
ATLANTA, GEORGIA

pH IN GROUNDWATER
(MOST CURRENT VALUES)

FIGURE NUMBER
5

Z:\Metalplate Galvanizing, L.P\494501 - Metalplate Facility, Selig Pond\Frp\494501-Frp.dwg, 5 pH, 4/14/2017 8:20:47 AM, brian.hicks

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

LEGEND:

- MONITORING WELL LOCATION
- BEDROCK MONITORING WELL LOCATION
- DEEP WELL LOCATION
- SURFACE WATER SAMPLING LOCATION
- ABANDONED MONITORING WELL LOCATION
- **41.1** DISSOLVED ZINC CONCENTRATION (mg/L)

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PROJECT NUMBER: 494501	BILLING GROUP: FRP

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METALPLATE FACILITY/SELIG POND
505 SELIG DRIVE SW
ATLANTA, GEORGIA

DISSOLVED ZINC CONCENTRATION MAP - SURFACE WATER (OCTOBER 5, 2016)

FIGURE NUMBER 6

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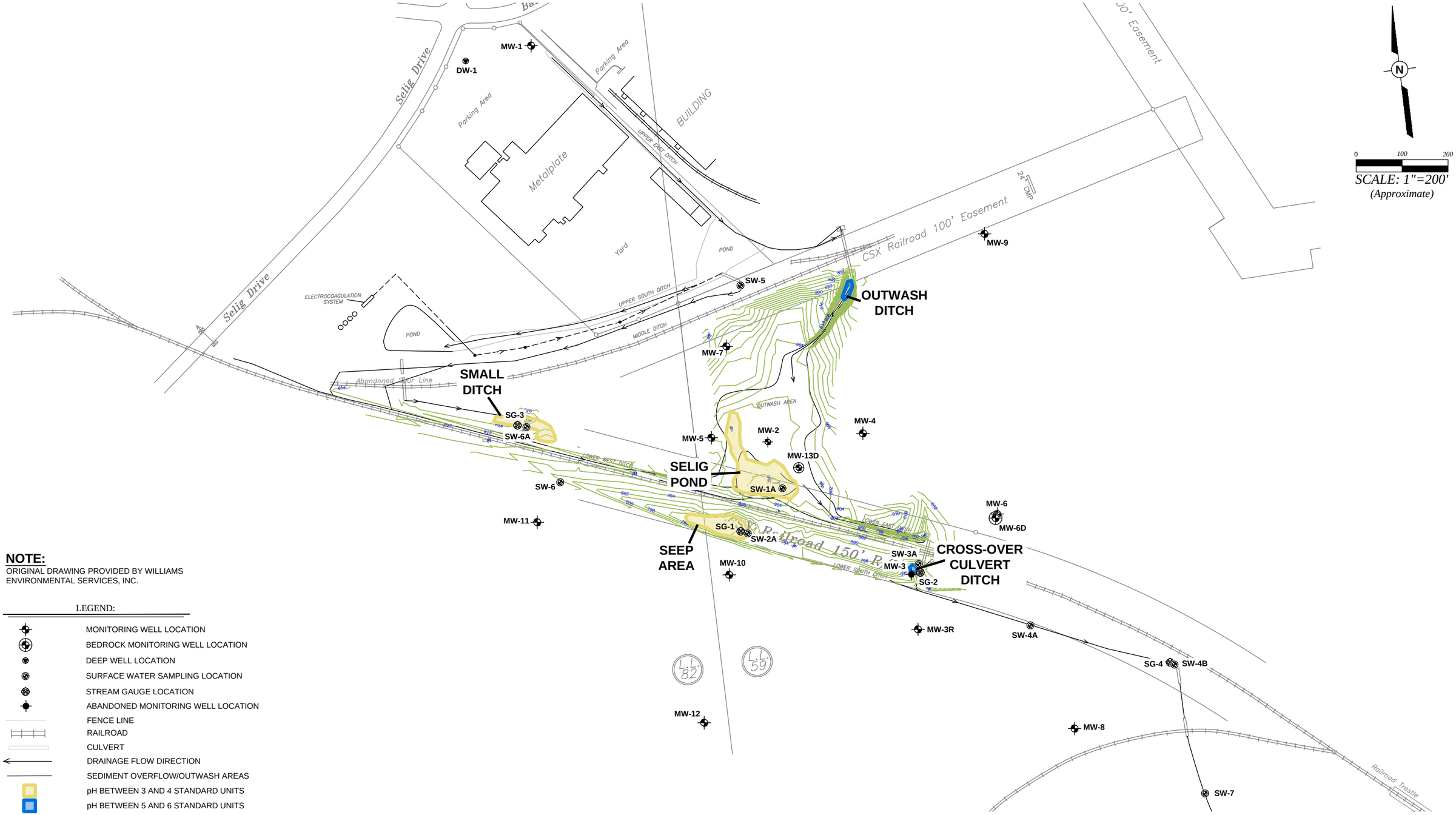

NOTE:
ORIGINAL DRAWING PROVIDED BY WILLIAMS ENVIRONMENTAL SERVICES, INC.

LEGEND:

- MONITORING WELL LOCATION
- BEDROCK MONITORING WELL LOCATION
- DEEP WELL LOCATION
- SURFACE WATER SAMPLING LOCATION
- STREAM GAUGE LOCATION
- ABANDONED MONITORING WELL LOCATION
- FENCE LINE
- RAILROAD
- CULVERT
- DRAINAGE FLOW DIRECTION
- SEDIMENT OVERFLOW/OUTWASH AREAS
- pH BETWEEN 3 AND 4 STANDARD UNITS
- pH BETWEEN 5 AND 6 STANDARD UNITS

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PROJECT NUMBER: 494501	BILLING GROUP: FRP

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

PROMINENT AREAS OF PONDED SURFACE WATER
(FEBRUARY 27, 2017)

FIGURE NUMBER
7

Z:\Metalplate Galvanizing, L.P\494501 - Metalplate Facility Selig Pond\Fin\494501-Fin.dwg, 7 PSW, 4/14/2017 8:20:49 AM, brian.hicks

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

LEGEND:

- MONITORING WELL LOCATION
- BEDROCK MONITORING WELL LOCATION
- DEEP WELL LOCATION
- SURFACE WATER SAMPLING LOCATION
- STREAM GAUGE LOCATION
- ABANDONED MONITORING WELL LOCATION
- FENCE LINE
- RAILROAD
- CULVERT
- DRAINAGE FLOW DIRECTION
- SEDIMENT OVERFLOW/OUTWASH AREAS

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PROJECT NUMBER:	BILLING GROUP:
494501	FRP

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

TREATMENT AREAS

FIGURE NUMBER
8

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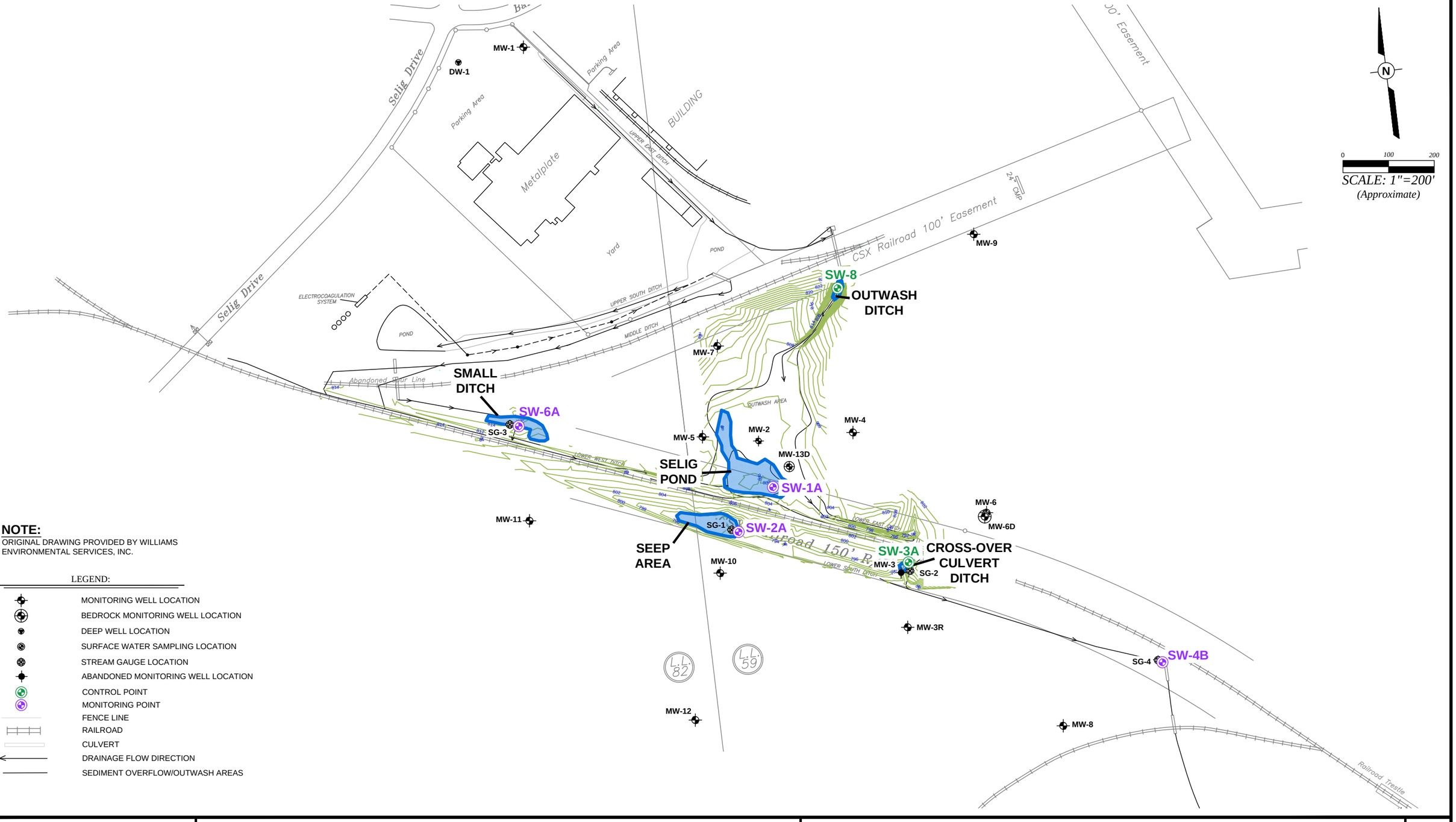

NOTE:
ORIGINAL DRAWING PROVIDED BY WILLIAMS ENVIRONMENTAL SERVICES, INC.

LEGEND:

- MONITORING WELL LOCATION
- BEDROCK MONITORING WELL LOCATION
- DEEP WELL LOCATION
- SURFACE WATER SAMPLING LOCATION
- STREAM GAUGE LOCATION
- ABANDONED MONITORING WELL LOCATION
- CONTROL POINT
- MONITORING POINT
- FENCE LINE
- RAILROAD
- CULVERT
- DRAINAGE FLOW DIRECTION
- SEDIMENT OVERFLOW/OUTWASH AREAS

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BWH	03/09/17
PROJECT NUMBER:	BILLING GROUP:
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METALPLATE GALVANIZING, L.P.
METALPLATE FACILITY/SELIG POND
505 SELIG DRIVE SW
ATLANTA, GEORGIA

EFFECTIVENESS AND COMPLIANCE MONITORING

FIGURE NUMBER
9

Z:\Metalplate Galvanizing, L.P\494501 - Metalplate Facility Selig Pond\Frn\494501-Frn.dwg, 9 Eff&Compl, 4/14/2017 8:20:52 AM, brian hicks

APPENDIX B – TABLES

TABLE 1
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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	854.06	23.1	21.63	832.43
	4/17/2013		23.0	19.87	834.19
	10/21/2013		23.1	17.92	836.14
	5/16/2014		23.1	16.89	837.17
	10/17/2014		23.0	17.99	836.07
	10/29/2015		23.0	18.12	835.94
	11/9/2016		23.0	18.83	835.23
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
	5/16/2014		15.4	3.10	801.23
	10/17/2014		15.4	3.32	801.01
	10/29/2015		15.4	3.05	801.28
	11/9/2016		15.4	5.75	798.58

TABLE 1
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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
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
	5/16/2014		52.0	40.51	790.09
	10/17/2014		52.0	41.70	788.90
	10/29/2015		52.0	42.24	788.36
	11/9/2016		52.0	42.20	788.40
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	816.35	34.6	22.23	794.12
	4/17/2013		34.5	17.87	798.48
	10/21/2013		30.4	18.59	797.76
	5/16/2014		30.4	15.61	800.74
	10/17/2014		29.3	19.35	797.00
	10/29/2015		29.3	19.00	797.35
	11/9/2016		29.3	21.42	794.93

TABLE 1
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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
	5/16/2014		27.5	9.09	803.07
	10/17/2014		27.4	9.73	802.43
	10/29/2015		27.4	9.32	802.84
	11/9/2016		27.4	11.80	800.36
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	818.43	39.4	32.50	785.93
	4/17/2013		39.4	30.06	788.37
	10/21/2013		39.4	30.27	788.16
	5/16/2014		39.4	27.82	790.61
	10/17/2014		39.2	30.92	787.51
	10/29/2015		39.2	30.30	788.13
	11/9/2016		39.2	32.26	786.17

TABLE 1
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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	817.64	57.5	31.77	785.87
	4/17/2013		57.5	29.35	788.29
	10/21/2013		57.5	29.64	788.00
	5/16/2014		57.5	27.28	790.36
	10/17/2014		-	30.32	787.32
	10/29/2015		-	29.84	787.80
	11/9/2016		-	31.48	786.16
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	817.57	16.8	10.42	807.15
	4/17/2013		16.8	8.09	809.48
	10/21/2013		17.5	8.34	809.23
	5/16/2014		17.5	7.81	809.76
	10/17/2014		17.4	9.02	808.55
	10/29/2015		17.1	8.48	809.09
	11/9/2016		17.1	9.91	807.66

TABLE 1
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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	811.75	45.6	40.67	771.08
	4/17/2013		45.7	39.92	771.83
	10/21/2013		45.7	40.00	771.75
	5/16/2014		45.7	39.41	772.34
	10/17/2014		45.5	40.28	771.47
	10/29/2015		45.5	38.60	773.15
	11/9/2016		45.5	40.67	771.08
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	838.29	46.7	37.03	801.26
	4/17/2013		46.7	35.66	802.63
	10/21/2013		46.8	32.17	806.12
	5/16/2014		46.8	29.89	808.40
	10/17/2014		46.5	32.63	805.66
	10/29/2015		46.5	31.99	806.30
	11/9/2016		46.5	33.07	805.22

TABLE 1
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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	831.90	50.1	38.11	793.79
	4/17/2013		50.1	37.73	794.17
	10/21/2013		49.5	36.40	795.50
	5/16/2014		49.5	35.45	796.45
	10/17/2014		50.0	36.49	795.41
	10/29/2015		50.0	34.82	797.08
	11/9/2016		50.0	36.91	794.99
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	831.96	49.8	21.88	810.08
	4/17/2013		49.8	19.93	812.03
	10/21/2013		49.8	20.25	811.71
	5/16/2014		49.8	19.49	812.47
	10/17/2014		49.8	20.83	811.13
	10/29/2015		49.7	20.12	811.84
	11/9/2016		49.7	21.46	810.50

TABLE 1
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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-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
	5/16/2014		50.0	39.98	795.90
	10/17/2014		50.0	40.53	795.35
	10/29/2015		50.0	39.04	796.84
	11/9/2016		50.0	41.29	794.59
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	804.43	56.3	9.26	795.17
	4/17/2013		56.2	6.01	798.42
	10/21/2013		56.2	6.37	798.06
	5/16/2014		56.2	4.86	799.57
	10/17/2014		56.2	6.51	797.92
	10/29/2015		56.2	6.10	798.33
	11/9/2016		56.2	9.11	795.32

TABLE 1
GROUNDWATER/SURFACE WATER ELEVATION SUMMARY
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)
SG-1	5/16/2014	793.92	-	0.50	794.42
	10/17/2014		-	0.55	794.47
	10/29/2015	798.44	-	3.12	795.32
	11/9/2016		-	4.52	793.92
SG-2	5/16/2014	782.86	-	1.20	784.06
	10/17/2014		-	0.85	783.71
	10/29/2015	786.50	-	2.87	783.63
	11/9/2016		-	3.37	783.13
SG-3	10/17/2014	812.50	-	0.70	813.20
	10/29/2015	814.67	-	3.61	811.06
	11/9/2016		-	4.47	810.20
SG-4	10/17/2014	774.48	-	0.40	774.88
	10/29/2015	772.52	-	2.35	770.17
	11/9/2016		-	2.83	769.69

Notes: *ft-BTOC - feet below top of casing*
SG - stream gauge

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

TABLE 2
GROUNDWATER ANALYTICAL SUMMARY
METALPLATE GALVANIZING FACILITY
ATLANTA, GEORGIA

SAMPLE I.D.	DATE	TOTAL LEAD (mg/L)	TOTAL ZINC (mg/L)	DISSOLVED ZINC (mg/L)	pH (S.U.)	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	5.22	1.63
	12/14/2010	-	<0.020	<0.020	5.10	0.00
	4/13/2011	-	0.0328	<0.020	5.04	4.24
	10/21/2011	-	<0.020	<0.020	5.28	5.28
	4/12/2012	-	<0.020	0.0393	5.29	4.08
	10/18/2012	-	0.109	-	5.23	57.0
	4/18/2013	-	0.0631	<0.020	4.62	7.99
	10/22/2013	-	0.0209	<0.020	5.03	0.90
	10/17/2014	-	<0.020	<0.020	5.16	15.8
	10/30/2015	-	0.0916	0.0614	5.74	20.9
	10/4/2016	-	<0.020	<0.020	5.52	4.98
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**	4.27	0.75
	12/14/2010	-	18.2	18.4	4.09	0.00
	4/13/2011	-	19.4	19.8	4.04	1.36
	10/21/2011	-	23.6	25.3	4.23	1.05
	4/12/2012	-	**40.2**	**43.6**	4.10	3.52
	10/18/2012	-	22.1	22.5	4.14	2.54
	4/18/2013	-	27.6	29.3	3.93	2.52
	10/22/2013	-	15.7	16.7	4.10	0.55
	10/17/2014	-	12.0	12.2	4.33	2.50
	10/30/2015	-	6.55	6.55	4.84	4.58
	10/4/2016	-	8.13	8.27	4.60	3.56

TABLE 2
GROUNDWATER ANALYTICAL SUMMARY
METALPLATE GALVANIZING FACILITY
ATLANTA, GEORGIA

SAMPLE I.D.	DATE	TOTAL LEAD (mg/L)	TOTAL ZINC (mg/L)	DISSOLVED ZINC (mg/L)	pH (S.U.)	TURBIDITY (NTUs)
Type 4 RRS		**-**	**31**	**31**		-
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**	-	4.17	476
	12/14/2010	-	**65.4**	-	3.99	254
	4/13/2011	-	**82.4**	-	4.10	2,481
MW-3R	8/16/2011	-	0.110	0.0675	6.10	192
	10/21/2011	-	0.0387	<0.020	6.26	238
	4/11/2012	-	<0.020	<0.020	6.42	12.1
	10/17/2012	-	<0.020	<0.020	6.38	64.3
	4/17/2013	-	<0.020	<0.020	6.03	17.1
	10/22/2013	-	0.0251	<0.020	6.29	18.1
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-
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	5.56	7.93
	12/14/2010	-	<0.020	<0.020	5.21	0.00
	4/13/2011	-	<0.020	<0.020	5.05	2.21
	10/21/2011	-	<0.020	<0.020	5.45	5.32
	4/12/2012	-	<0.020	<0.020	5.53	16.3
	10/18/2012	-	<0.020	<0.020	5.43	4.60
	4/18/2013	-	<0.020	<0.020	4.68	4.23
	10/22/2013	-	0.0265	<0.020	5.24	2.33
	10/17/2014	-	<0.020	<0.020	5.53	4.89
	10/30/2015	-	0.0206	<0.020	6.14	3.99
	10/4/2016	-	<0.020	<0.020	6.03	4.72

TABLE 2
GROUNDWATER ANALYTICAL SUMMARY
METALPLATE GALVANIZING FACILITY
ATLANTA, GEORGIA

SAMPLE I.D.	DATE	TOTAL LEAD (mg/L)	TOTAL ZINC (mg/L)	DISSOLVED ZINC (mg/L)	pH (S.U.)	TURBIDITY (NTUs)
Type 4 RRS		**-**	**31**	**31**		-
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	5.19	9.23
	12/14/2010	-	21.8	14.90	4.85	10.3
	4/13/2011	-	5.19	4.36	4.99	7.98
	10/21/2011	-	26.4	27.1	4.55	2.95
	4/12/2012	-	6.71	7.02	5.13	31.4
	10/18/2012	-	18.5	19.5	4.56	4.99
	4/18/2013	-	5.67	5.60	4.74	4.99
	10/22/2013	-	1.44	1.67	5.07	25.8
	10/17/2014	-	3.33	3.81	5.22	4.67
	10/30/2015	-	0.357	0.252	5.80	13.20
	10/4/2016	-	3.11	2.91	5.49	5.01
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	5.44	46.4
	12/13/2010	-	<0.020	<0.020	5.34	1.68
	4/13/2011	-	<0.020	<0.020	5.36	6.35
	10/21/2011	-	0.0242	<0.020	5.74	3.37
	4/12/2012	-	<0.020	<0.020	5.70	5.63
	10/18/2012	-	0.0272	<0.020	5.56	9.80
	4/18/2013	-	<0.020	<0.020	5.03	20.0
	10/22/2013	-	<0.020	<0.020	5.32	3.42
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-
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	5.84	46.1
	12/13/2010	-	<0.020	<0.020	5.73	40.1
	4/13/2011	-	<0.020	<0.020	5.77	1.16
	10/21/2011	-	<0.020	<0.020	5.65	5.19
	4/12/2012	-	<0.020	<0.020	6.07	4.14
	10/18/2012	-	<0.020	<0.020	5.84	4.36
	4/18/2013	-	<0.020	<0.020	5.25	8.42
	10/22/2013	-	<0.020	<0.020	5.72	1.23
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-

TABLE 2
GROUNDWATER ANALYTICAL SUMMARY
METALPLATE GALVANIZING FACILITY
ATLANTA, GEORGIA

SAMPLE I.D.	DATE	TOTAL LEAD (mg/L)	TOTAL ZINC (mg/L)	DISSOLVED ZINC (mg/L)	pH (S.U.)	TURBIDITY (NTUs)
Type 4 RRS		**-**	**31**	**31**		-
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	4.94	5.05
	12/14/2010	-	13.7	13.8	4.70	315
	4/13/2011	-	9.13	8.55	4.90	17.3
	10/21/2011	-	14.2	15.3	4.69	5.28
	4/12/2012	-	7.70	11.2	5.03	16.7
	10/18/2012	-	10.8	10.4	4.56	8.52
	4/18/2013	-	5.33	5.36	4.82	105
	10/22/2013	-	8.54	8.79	4.83	17.4
	10/17/2014	-	9.26	9.58	4.85	4.80
	10/30/2015	-	8.82	9.02	5.20	4.44
	10/4/2016	-	8.58	9.43	5.15	4.94
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	6.55	9.75
	12/13/2010	-	<0.020	<0.020	6.47	0.00
	4/13/2011	-	<0.020	<0.020	6.54	1.73
	10/20/2011	-	<0.020	<0.020	7.07	5.05
	4/11/2012	-	<0.020	<0.020	6.67	2.71
	10/17/2012	-	<0.020	<0.020	6.72	2.62
	4/17/2013	-	0.0228	<0.020	6.21	0.49
	10/22/2013	-	0.0230	<0.020	6.42	1.51
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-
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	5.56	2.85
	12/14/2010	-	<0.020	<0.020	5.56	1.81
	4/13/2011	-	0.0296	<0.020	5.54	8.87
	10/21/2011	-	<0.020	<0.020	5.71	3.61
	4/12/2012	-	<0.020	<0.020	5.87	2.23
	10/18/2012	-	<0.020	<0.020	5.61	3.02
	4/18/2013	-	<0.020	<0.020	4.96	2.92
	10/22/2013	-	<0.020	<0.020	5.58	5.34
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-

TABLE 2
GROUNDWATER ANALYTICAL SUMMARY
METALPLATE GALVANIZING FACILITY
ATLANTA, GEORGIA

SAMPLE I.D.	DATE	TOTAL LEAD (mg/L)	TOTAL ZINC (mg/L)	DISSOLVED ZINC (mg/L)	pH (S.U.)	TURBIDITY (NTUs)
Type 4 RRS		**-**	**31**	**31**		-
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	6.24	30.8
	12/13/2010	-	0.0768	<0.020	5.47	>1,100
	4/12/2011	-	<0.020	<0.020	5.87	4.12
	10/20/2011	-	<0.020	<0.020	6.61	10.6
	4/11/2012	-	<0.020	<0.020	6.04	14.5
	10/17/2012	-	<0.020	<0.020	5.82	40.1
	4/17/2013	-	<0.020	<0.020	5.32	11.4
	10/22/2013	-	<0.020	<0.020	5.43	6.18
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-
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	5.95	4.00
	12/13/2010	-	<0.020	<0.020	5.97	4.61
	4/12/2011	-	0.0229	<0.020	5.77	5.37
	10/20/2011	-	<0.020	<0.020	6.81	18.3
	4/11/2012	-	<0.020	<0.020	6.04	5.87
	10/17/2012	-	0.0344	0.0224	5.99	2.24
	4/17/2013	-	0.0293	<0.020	5.59	3.59
	10/22/2013	-	0.0246	<0.020	5.80	4.99
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-
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	NL
	12/13/2010	-	<0.020	<0.020	5.67	3.85
	4/12/2011	-	<0.020	<0.020	5.74	3.65
	10/20/2011	-	<0.020	<0.020	6.74	2.18
	4/11/2012	-	<0.020	<0.020	6.07	9.51
	10/17/2012	-	0.0230	<0.020	5.87	46.1
	4/17/2013	-	<0.020	<0.020	5.41	4.82
	10/22/2013	-	<0.020	<0.020	5.79	4.09
	10/17/2014	-	-	-	-	-
	10/30/2015	-	-	-	-	-
	10/4/2016	-	-	-	-	-

TABLE 2
GROUNDWATER ANALYTICAL SUMMARY
METALPLATE GALVANIZING FACILITY
ATLANTA, GEORGIA

SAMPLE I.D.	DATE	TOTAL LEAD (mg/L)	TOTAL ZINC (mg/L)	DISSOLVED ZINC (mg/L)	pH (S.U.)	TURBIDITY (NTUs)
Type 4 RRS		**-**	**31**	**31**		-
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	5.29	7.14
	12/14/2010	-	27.9	26.8	5.05	0.00
	4/13/2011	-	27.5	26.5	4.99	7.93
	10/21/2011	-	27.5	29.3	5.14	4.35
	4/12/2012	-	26.8	29.0	5.24	4.70
	10/18/2012	-	29.4	29.4	5.13	2.93
	4/18/2013	-	28.6	28.7	4.88	1.23
	10/22/2013	-	28.6	31.3	5.01	1.49
	10/17/2014	-	8.90	9.18	5.96	1.38
	10/30/2015	-	28.5	27.3	5.55	3.04
	10/4/2016	-	12.8	13.0	6.29	1.03
DUPLICATE RESULTS						
DUP (MW-2)	10/18/2012	-	22.0	23.0	4.14	2.54
DUP (MW-2)	4/18/2013	-	28.6	28.6	3.93	2.52
DUP (MW-2)	10/22/2013	-	16.0	16.8	4.10	0.55
DUP (MW-5)	10/17/2014	-	3.21	3.83	5.22	4.67
DUP (MW-5)	10/30/2015	-	6.55	6.56	5.80	13.20

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-FRP

TABLE 3
SURFACE WATER ANALYTICAL SUMMARY
METALPLATE GALVANIZING FACILITY
ATLANTA, GEORGIA

SAMPLE I.D.	DATE	DISSOLVED ZINC (mg/L)	TOTAL HARDNESS (mg/L)
SW-1A	5/5/2014	211	805
	10/16/2014	16.6	107
	10/29/2015	15.3	117
	10/5/2016	41.1	213
SW-2A	5/5/2014	180	841
	10/16/2014	172	873
	10/29/2015	138	652
	10/5/2016	120	743
SW-3A	5/5/2014	36.2	260
	10/16/2014	20.5	156
	10/29/2015	22.9	149
	10/5/2016	14.0	296
SW-4A	5/5/2014	78.8	493
SW-4B	10/16/2014	71.8	459
	10/29/2015	10.0	132
	10/5/2016	37.8	326
SW-5	5/5/2014	128	221
	10/16/2014	6.92	60.8
	10/29/2015	18.1	81.7
	10/5/2016	5.53	60.1
SW-6	5/5/2014	235	902
SW-6A	10/16/2014	247	862
	10/29/2015	159	511
	10/5/2016	127	579
SW-7	5/5/2014	38.4	233
	10/16/2014	45.9	286
	10/29/2015	41.8	227
	10/5/2016	34.5	364

Notes: *mg/L - milligrams per liter*

Source(s): *PPM Consultants, Inc.*
PPM Project No. 494501-FRP