SECOND PERIODIC REVIEW REPORT
FINAL

Edman Company Side 1
(aka Cascade Timber #1)
Facility Site ID#: 1204
Cleanup Site ID# 2662

2502 Marine View Drive SW
Tacoma, Washington 98422

Southwest Regional Office

TOXICS CLEANUP PROGRAM

June 2016

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1.0 INTRODUCTION

This document is the second periodic review conducted by the Washington State Department of Ecology (Ecology) of post-cleanup site conditions and monitoring data to ensure that human health and the environment are being protected at the Edman Company Side 1 Marine View Drive site (Site; also known as Cascade Timber 1). Cleanup at this Site was implemented under the Model Toxics Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC). The first periodic review was completed in November of 2007. This periodic review will evaluate the period from December 2007 through June 2016. This review only addresses soil and groundwater contamination at the Site. It is not intended to address issues related to contaminated sediments in the adjacent Hylebos Waterway.

Cleanup activities at this Site were completed under a Consent Decree entered into with Ecology in 1993. The cleanup actions resulted in residual concentrations of metals arsenic, copper, lead and zinc in groundwater and arsenic and lead in soil exceeding MTCA Method A cleanup levels remaining at the Site. The MTCA Method A industrial soil cleanup levels for soil are established under WAC 173-340-745. The groundwater cleanup levels were established as per United States Environmental Protection Agency (EPA) Water Quality Criteria, Marine Chronic Criteria. WAC 173-340-420 (2) requires that Ecology conduct a periodic review of a site every five years under the following conditions:

- Whenever the department conducts a cleanup action.
- Whenever the department approves a cleanup action under an order, agreed order or consent decree.
- Or, as resources permit, whenever the department issues a No Further Action (NFA) opinion.
- And one of the following conditions exists:
    (a) Institutional controls or financial assurance are required as part of the cleanup.
    (b) Where the cleanup level is based on a practical quantitation limit.
    (c) Where, in the department's judgment, modifications to the default equations or assumptions using site-specific information would significantly increase the concentration of hazardous substances remaining at the site after cleanup or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.

When evaluating whether human health and the environment are being protected, the factors the department shall consider include [WAC 173-340-420(4)]:

(a) The effectiveness of ongoing or completed cleanup actions.
(b) New scientific information for individual hazardous substances of mixtures present at the Site.
(c) New applicable state and federal laws for hazardous substances present at the Site.
(d) Current and projected site use.
(e) Availability and practicability of higher preference technologies.

(f) The availability of improved analytical techniques to evaluate compliance with cleanup levels.

The department shall publish a notice of all periodic reviews in the Site Register and provide an opportunity for public comment.

2.0 SUMMARY OF SITE CONDITIONS

2.1 Site History

The Edman Company Site is a wood chipping and log exporting facility located at 2502 Marine View Drive in the Tideflats area of Tacoma, Washington. The Site is approximately 8.1 acres and divided into Lot 1 and Lot 2. Lot 1 (Parcel No. 0321268000) is owned by Domestic Realty Company, Inc. Lot 2 (Parcel No. 0321268001) is owned by Edman Holdings, LLC. A Vicinity Map and a Site Plan are available as Appendix 6.1 and Appendix 6.2, respectively.

The Site is located along Hylebos Waterway and is in the Commencement Bay Nearshore/Tideflats (CBN/T) Supefund site. In 1982, the CBN/T was added to the National Priorities List (also known as Superfund list) under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The CBN/T site includes the head of Hylebos Waterway and those upland sites that are believed to contribute contamination to the waterway. The United States Environmental Protection Agency (EPA) is responsible for cleanup of waterway sediment, while Ecology is responsible for cleanup of the upland areas that are sources of contamination to the waterway.

The entire Site (Lots 1 and 2) was formerly owned by Cascade Pole Company, which leased it to Cascade Timber Company from 1977 to 1981. Cascade Timber Company used the property as a log sort yard. Cascade Pole Company transferred the property to McFarland Holdings, Inc. (MCHI) in 1986. Since around 1981 the property has not been used for any purpose other than storage. Lot 1 was served from the property by a formal recorded short plat. In 1997 Edman Holdings, LLC, purchased Lot 2 from MCHI.

From at least 1977 to 1981, slag, a product of the ore smelting process produced at the ASARCO smelting facility in Tacoma, Washington, was placed on the Site as ballast to keep heavy equipment from sinking into the soft soil. The primary component of the log-yard is log dock debris, a combination of wood waste, soil, and crushed slag.

ASARCO had been responsible for the McFarland Site until December 9, 2009. On that date, the United States Bankruptcy Court for the Southern District of Texas entered an order associated with ASARCO's bankruptcy, Case No. 05-21207, that approved a Settlement Agreement establishing the ASARCO Multi-State Custodial Trust for certain ASARCO owned sites, including "McFarland Designated Property" (i.e., the Site), approval of the appointment of a Custodial Trust, approval of a Custodial Trust Agreement, and for the conveyance of the Site to the ASARCO Multi-State Custodial Trust.

2.2 Site Investigations

Ecology conducted a surface water investigation at the Site between November 1983 and June 1984. The study found the following metals in surface water runoff: arsenic, copper, lead, and zinc, which were found at concentrations as high as 7,280 micrograms per liter (µg/L), 695 µg/L, 710 µg/L, and 3,000 µg/L, respectively. The study theorized that the cause of contamination was the use of slag as yard ballast.

Further investigation conducted by MCHI's contractor, Applied Geotechnology, Inc., in 1998 found arsenic, copper, lead, and zinc at concentrations up to 1,200 µg/L, 2,600 µg/L, 15 µg/L, and 6,200 µg/L, respectively, in surface water on the Site. On November 6, 1989, Ecology issued an Agreed Order that named MCHI and Cascade Pole Company as potentially liable parties under the MTCA. The mutual objective of the Agreed Order was to provide a framework for a Remedial Investigation/Feasibility Study (RI/FS) and the draft Cleanup Action Plan (CAP) for the Site.

After the Agreed Order was issued by Ecology, an RI/FS was conducted, during which four rounds of groundwater sampling were conducted. All samples were analyzed for total and dissolved metals. Soil samples were collected for analysis for metals. This investigation demonstrated that arsenic, copper, lead, and zinc were present at elevated levels in surface soil samples. Samples from the slag/soil interface showed a maximum soil concentration of 180 milligrams per kilogram (mg/kg) arsenic.

A Consent Decree No. 932100995, was issued by the State of Washington Department of Ecology for this Site in October 1993 with MCHI, Cascade Pole Company, and ASARCO Incorporated. Under this Consent Decree, materials containing levels of contaminants exceeding the cleanup standards set for the Site were excavated and consolidated for containment with a double barrier cap system. Groundwater monitoring wells also were installed, and maintenance of the containment system and monitoring of stormwater runoff from the entire Site was performed.

In 1997, a Prospective Purchaser Agreement was executed between the EPA and Edman Holdings, LLC, Edman Company, and F. Talmage Edman for Lot 2 to allow for the redevelopment of the property. In this document, it was stated that ASARCO is fully responsible for all CERCLA and MTCA sediment cleanup costs and for all natural resource damage claims relating to sediment contamination caused by the release of hazardous substances from ASARCO slag at the Site. ASARCO remained responsible for monitoring surface and groundwater wells at the several parcel, Lot 1, and surface water is to be monitored at the property by MCHI. Lot 2 currently used by Edman Company as a wood chipping and log exporting facility.

2.3 Cleanup Levels and Point of Compliance

2.3.1 Soil and Groundwater Cleanup Levels

The following cleanup levels and point of compliance identified in the Consent Decree are the following:

- MTCA Method A industrial soil cleanup standards are for arsenic of 200 mg/kg and for lead of 1,000 mg/kg. Copper and zinc concentrations were evaluated and determined not to be present on Site at levels that would present a human health (direct contact) hazard.

- As groundwater cannot be used for drinking water due to salinity and as the Site is immediately adjacent to Hylebos Waterway and groundwater discharges to this waterway, the groundwater cleanup levels were set to surface water standards protective of sediment and water column quality. For these reasons, state and federal marine chronic ambient surface water quality criteria were applied to groundwater at the Site to protect the adjacent Hylebos Waterway. The cleanup standards for groundwater at the Site were set for arsenic at 36 µg/L, for copper at 2.9 µg/L, for lead at 8.5 µg/L, and for zinc at 86 µg/L.

2.3.2 Point of Compliance

Points of Compliance included the following:

The point of compliance for groundwater cleanup standards was at the edge of the containment facility. All wells completed to sample the uppermost aquifer system.

Monitoring storm water runoff for the metals of concern was at the post-remediation point of surface water discharge to the Hylebos Waterway.

The Site soils remaining outside the containment system must comply with soil cleanup standards.

2.4 Summary of Cleanup Actions

After the Agreed Order was issued by Ecology in November 1989, an RI/FS was conducted. Four rounds of groundwater sampling were conducted during the RI/FS, and all samples were analyzed for total and dissolved metals. Concentrations of the metals of concern were low and did not indicate that groundwater was a pathway of contaminant migration.

Surface soil samples were collected from across the Site during the RI/FS. Arsenic was measured and found in 24 samples. Concentrations ranged from 36 mg/kg to 1,900 mg/kg and averaged 467 mg/kg. Copper was measured and found in four samples at concentration ranging from 39 mg/kg to 190 mg/kg. Lead concentrations from eight sampling locations ranged from

46 mg/kg to 1,400 mg/kg. Zinc concentrations from four sample locations ranged from 160 mg/kg to 390 mg/kg.

A Final Remedial Design Report completed in December 1993 included plans for the installation of a containment cell and cap, the installation of storm water collection system, and monitoring of surface water and groundwater. As per the Consent Decree, a Restrictive Covenant limiting the use of most of the Site to industrial purposes was to be filed.

ASARCO has removed all soils and material containing ASARCO slag or related hazardous substances that exceeded MTCA industrial cleanup standards for soil and placed these materials in the containment cell constructed on Lot 1. In July 1995, MCHI and ASARCO executed a Settlement and Indemnification Agreement resolving the Hylebos Waterway sediments litigation between them, pursuant to which ASARCO is fully responsible for all CERCLA and MTCA sediment cleanup costs and for all natural resource damage claims relating to sediment contamination caused by the release of hazardous substances from ASARCO slag at the Site.

The containment cell is approximately 0.5-acres and contains the consolidated wood waste/slag material that is above the cleanup levels from the remainder of the Site. The containment cell consists of a single bottom flexible membrane liner and a leachate collection and recovery system and has a multi-layer cover. The containment system/facility details are shown on Figure 2-2 in Appendix 6.4. Surface water runoff from rainfall on the cell is diverted to one discharge point at the southwest corner of the Site. Four monitoring wells (MCW-1, MCW-2, MCW-3, and MCW-4) were installed at the four sides of the containment cell. These wells were to be completed in the dredged fill; however, actual placement could not be confirmed. As a component of capping activities, Ecology blocks (i.e., large concrete blocks) were placed around the perimeter of the cap, forming a berm.

2.5 Groundwater and Surface Water Monitoring

Groundwater monitoring from May 2011 through May 2015 indicates the following:

- Dissolved arsenic was measured below the Site MTCA Method A cleanup level (0.005 mg/L) in three monitoring wells (MCW-1 through MCW-3) during each monitoring events from May 2011 through May 2015 monitoring period. The dissolved arsenic concentrations ranged from 0.001 mg/L to 0.0026 mg/L which are below 0.005 mg/L. However, the dissolved arsenic concentrations exceeded its cleanup level of 0.005 mg/L in monitoring well MCW-4 during December 2011, January 2014, and May 2015 sampling events. The arsenic concentrations ranged from 0.0060 mg/L to 0.0071 mg/L. However, all the detected concentrations are below the Surface Water Quality Standard (Marne Chronic) of 0.036 mg/L during May 2011 through May 2015 sampling period.

- Dissolved lead concentrations were all below the Site MTCA Method A cleanup level of 0.015 mg/L in all wells every monitoring episode during the sampling period from May 2011 through May 2015. The lead concentrations ranged from <0.001 mg/L to 0.00025

mg/L. These concentrations were also below the MTCA Surface Water Quality Standard (Marine Chronic) of 0.081 mg/L.

- Dissolved copper concentrations were all below the Site MTCA Method B cleanup level of 0.64 mg/L in all wells very monitoring event during the sampling period from May 2011 through May 2015. The copper concentrations during this sampling period ranged from 0.00023 mg/L to 0.002 mg/L. Also these copper concentrations were all below the MTCA Surface Water Quality Standard of 0.64 mg/L.

- Dissolved zinc was detected below the MTCA Method B cleanup level of 0.4.8 mg/L for all wells in every monitoring events during the above monitoring period. The zinc concentrations ranged from 0.0014 mg/L to 0.0095 mg/L.

The groundwater monitoring well locations and table of results from May 2011 through May 2015 are presented in Appendix 6.3.

No surface water cleanup standards were set for this Site since the proposed remedial action eliminated surface water as a contaminant pathway. However, surface water was monitored for the same parameters as groundwater to ensure the efficacy of the cleanup and to determine whether an individual NPDES permit and/or additional cleanup is required. Surface water runoff from the cap was being monitored at two locations (MSW-1 and MSW-2) concurrently with groundwater monitoring. Surface water monitoring since September of 1994 indicates the following:

- Dissolved arsenic, lead, and zinc were measured below the Site cleanup level (0.036 mg/L) in all surface water samples in every monitoring episode since the beginning of the monitoring program.

- Dissolved copper was detected above the cleanup level in one sampling event (0.009 mg/L) at sampling location MSW-2 during March 1995 sampling event.

In March 1998, Ecology reduced the groundwater monitoring requirements from quarterly to annually since groundwater had been meeting the cleanup standards. Ecology also approved the discontinuation of surface runoff monitoring at MSW-2 since surface water had been meeting the cleanup standards.

2.6 Restrictive Covenant

Institutional controls required in the form of Restrictive Covenant were included with the Consent Decree. The Restrictive Covenant was determined to be required at the Site because the cleanup action at the Site would result in residual concentrations of arsenic and lead exceeding the MTCA Method A cleanup levels for industrial soil. The Restrictive Covenant No. 9609100214 was recorded in the Pierce County on September 10, 1996 for Lot 1, where the containment cell and cap are located and included the following three limitations:

- The property may be used only for industrial uses as defined in and allowed under the City of Tacoma's zoning regulations codified in the Tacoma City Codes;

- Activities on the property that interfere with or reduce the effectiveness of the cleanup action or any operation, maintenance, or monitoring required by the Decree are prohibited; and

- Activities on the property that may result in the release of a hazardous substance that was contained as a part of the cleanup action are prohibited, and continued maintenance of the containment system must be prohibited for.

The Restrictive Covenant for Lot 2 (file number 9609100213) was filed in Pierce County, Washington, on September 10, 1996 and included the following two limitations:

- The property may be used only for industrial uses as defined in and allowed under the City of Tacoma's zoning regulations, codified in the Tacoma City Code as of the Restrictive Covenant; and

- Activities on the property that interfere with the continuing obligation of surface water monitoring required by the Consent Decree are prohibited.

The Restrictive Covenants are available as Appendix 6.5.

3.0 PERIODIC REVIEW

3.1 Effectiveness of completed cleanup actions

Based upon the Site visit conducted on March 17, 2016, the asphalt cap, berm, and monitoring wells observed to be in good condition. No cracks and/or pot holes in the cap were observed. The ecology block berm was observed to surround the three sides of the cap that were visible. The excavation and containment of contaminated soils has effectively eliminated the risk of human and wildlife exposure to the contaminated soils/sediment. The cap also prevents storm water from coming in contact with these contaminated soils. In 1997, Ecology removed the Edman Company Side 1 (a.k.a. Cascade Timber 1) Site from the State's Hazardous Sites List after determining that the Site no longer presented a threat to human health and the environment. A photo log is available as Appendix 6.6.

The Restrictive Covenants for the Site were recorded and are still in place. This Restrictive Covenant prohibits activities that will result in the release of contaminants contained as part of the cleanup without Ecology's approval, and prohibits any use of the property that is inconsistent with the Covenant. This Restrictive Covenant serves to ensure the long term integrity of the remedial actions.

3.2 New scientific information for individual hazardous substances for mixtures present at the Site

Cleanup levels at the Site were based on regulatory standards. These standards continue to be protective of Site-specific conditions.

3.3 New applicable state and federal laws for hazardous substances present at the Site

The cleanup at the Site was governed by Chapter 173-340 WAC (1991 ed.). WAC 173-340-702(12) (c) [2001 ed.] provides that,

"A release cleaned up under the cleanup levels determined in (a) or (b) of this subsection shall not be subject to further cleanup action due solely to subsequent amendments to the provision in this chapter on cleanup levels, unless the department determines, on a case-by-case basis, that the previous cleanup action is no longer sufficiently protective of human health and the environment."

The marine chronic ambient water quality criteria were revised by Ecology in 2006. These changes were not substantial enough to determine that the previous cleanup action is no longer sufficiently protective of human health and the environment.

The current MTCA Method A industrial soil cleanup standard for arsenic has been reduced from 200 mg/kg to 20 mg/kg since the Consent Decree was issued. Because contaminated soils at the Site have been capped, the modification to the MTCA cleanup standard does not represent an increase in risk to human health or the environment. Several of the state marine chronic surface water quality criteria have also changed since the Enforcement Order was issued. Values for lead and zinc have been reduced to 8.1 µg/L and 81 µg/L, respectively. Overall, the changes to the original standards have not resulted in the need for additional remedial actions at the Site. The Table below presents the original and current cleanup levels:

Soil Cleanup Levels

Compound	Original MTCA Method A-Industrial (mg/kg) [a]	Current MTCA Method A Industrial (mg/kg)
Arsenic	200	20
Copper	…	…
Lead	1,000	1,000
Zinc	…	…

Groundwater Cleanup Levels

Compound	Original Federal / State Surface Water Quality Standard-Marine Chronic (µg/L)	Current Federal / State Surface Water Quality Standard-Marine Chronic (µg/L) [b,c]	Current MTCA Method A/Method B Cleanup Standard (µg/L)
Arsenic	36	36	5
Copper	2.9	3.1	640
Lead	8.5	8.1	15
Zinc	86	81	480

Notes:
[a] Model Toxics Control Act Cleanup Regulations, Chapter 173-340 (2001 edition). Method A Cleanup Levels.
[b] Ambient Water Quality Criteria for Marine Waters. EPA's Quality Criteria for Water Summary, 1994.
[c] Ambient Water Quality Standards for Marine Surface Waters of Washington State

Key:
… - no value cited
mg/kg - milligrams per kilogram
µg/L - micrograms per liter

3.4 Current and projected Site use

The Site is currently used for industrial purposes. The Site will continue to be used as a log storage yard and wood chipping facility. Future use of the Site is not expected to change. These uses are not likely to have a negative impact on the integrity of the Site cap or sediments adjacent to the Site as long as the conditions of the Restrictive Covenant are followed.

3.5 Availability and practicability of higher preference technologies

The implemented remedy included the excavation and capping/containment of hazardous substances, development of a storm water conveyance system, and installation of a groundwater monitoring system. These actions continue to be protective of human health and the environment. While higher preference cleanup technologies may be available, they are still not practicable at this Site.

3.6 Availability of improved analytical techniques to evaluate compliance with cleanup levels

The analytical methods used at the time of the remedial action were capable of detection below the Site specific cleanup levels. The presence of improved analytical techniques would not affect decisions or recommendations made for the Site.

4.0 CONCLUSIONS

- The cleanup actions completed at the Site appear to be protective of human health and the environment.

- Soil cleanup levels have not been met at the Site; however, under WAC 173-340-740(6)(f), the cleanup action is determined to comply with cleanup standards since the long-term integrity of the containment system is ensured, and the requirements for containment technologies in WAC 173-340-360(8) have been met.

- Annual groundwater monitoring is being conducted at the Site. Groundwater concentrations of contaminants of concern have generally decreased after the implementation of the Site remedy. Dissolved copper, lead, and zinc concentrations have been below the Site cleanup levels and/or below the laboratory detection limits in all compliance monitoring wells since May of 2011 sampling event. Only dissolved arsenic concentrations exceed the Site cleanup level in one monitoring well.

- Sufficient compliance groundwater monitoring has been conducted to demonstrate that, as of May 2015, the remedy has effectively contained metals contamination in soils.

- Annual cap inspection, containment cell and general Site improvements (monitoring wells, vent pipes, drainage channels, fences, etc.) are being conducted to identify items requiring repair (i.e., damaged wells, clogged drains, damaged gates and fences etc.). The cap, monitoring wells, drains, and perimeter fence are all in good condition and do not require any repairs at this time.

- The Restrictive Covenant for the property is in place and will be effective in protecting public health and the environment from exposure to hazardous substances and protecting the integrity of the cleanup action.

Based on this periodic review, the Department of Ecology has determined that the requirements of the Consent Decree and the Restrictive Covenant are being satisfactorily met. The cap, drains, and perimeter fence are all in satisfactory condition and no repairs are needed at this time. The surface cover is in satisfactory condition, and Site activities do not pose a risk of exposing contaminated soils at the Site. It is the property owner's responsibility to continue to inspect the Site to ensure that the integrity of the cap is maintained and to continue groundwater monitoring.

4.1 Next Review

The next review for the Site will be scheduled five years from the date of this periodic review. In the event that additional cleanup actions or institutional controls are required, the next periodic review will be scheduled five years from the completion of those activities.

5.0 REFERENCES

Applied Geotechnology, Inc. Remedial Investigation – Cascade Timber Yard No. 1. December 8, 1989.

Department of Ecology. Consent Decree No. 93-2-10099-5. October 12, 1993.

Hydrometrics, Inc. Final Remedial Design Report, Cascade Timber No. 1 Remediation, Tacoma, Washington. December 10, 1993.

Pierce County. Restrictive Covenant, 2502 Marine View Drive-Lot 1. September 10, 1996a.

Pierce County. Restrictive Covenant, 2502 Marine View Drive-Lot 2. September 10, 1996b.

Hydrometrics, Inc. Third Quarter 1997 Status Report-Cascade Timber 1. December 10, 1997.

Hydrometrics, Inc. September Status Report-Cascade Timbers 1. September 9, 1998.

Department of Ecology. 1996. Restrictive Covenant, 2502 Marine View Drive, Tacoma, Washington.

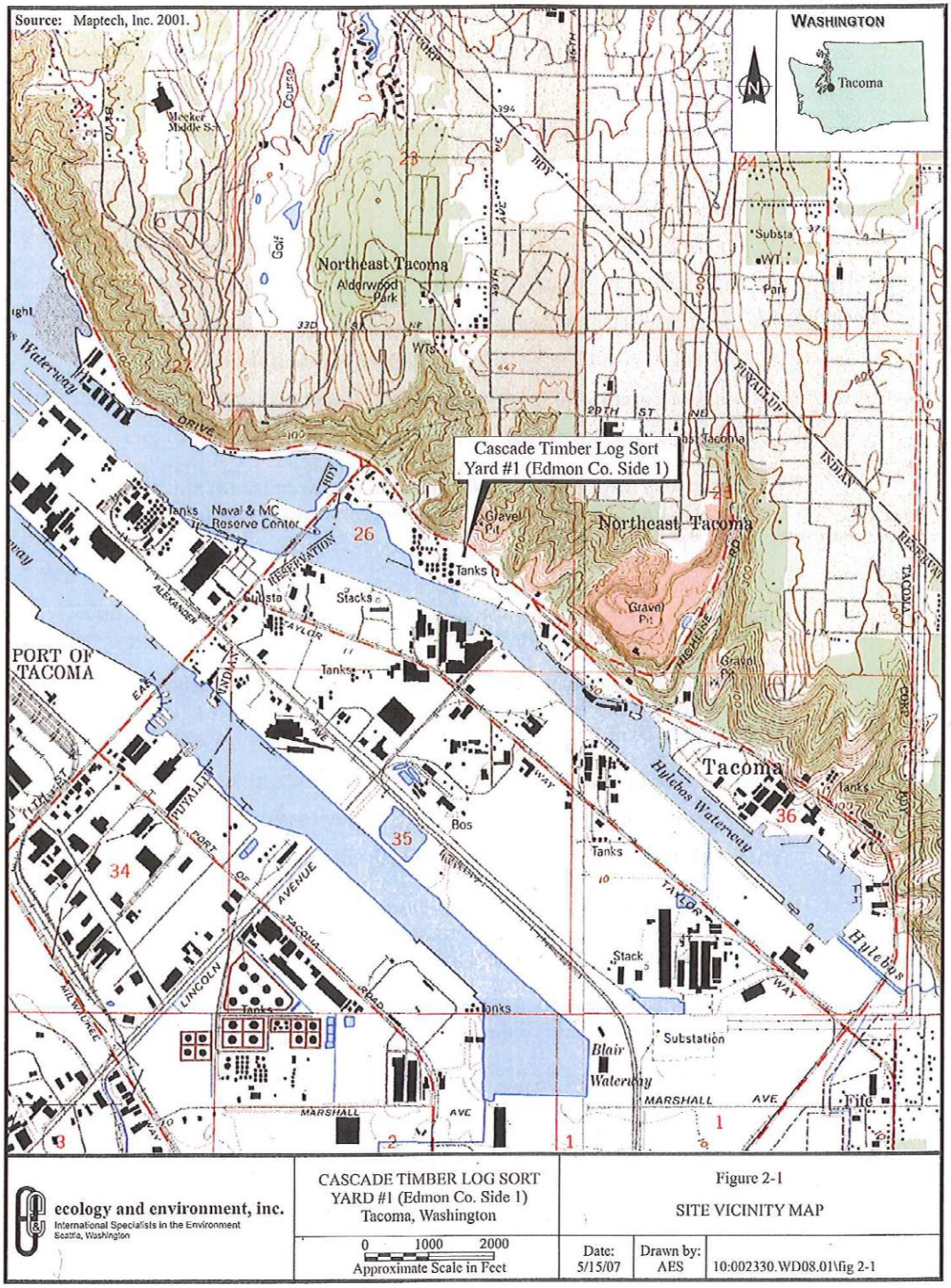
RAMBOLL ENVIRON. Annual Groundwater Monitoring and O&M Reports, Cascade Timber #1 (a.k.a MacFarland, WA) Site. May 2011 through May 2015.

Department of Ecology. Final Periodic Review Report, Edman Company Side 1 (a.k.a. Cascade Timber No. 1), 2502 Marine View Drive, Tacoma, Washington. May 2011.

Department of Ecology. Site Visit. March 17, 2016.

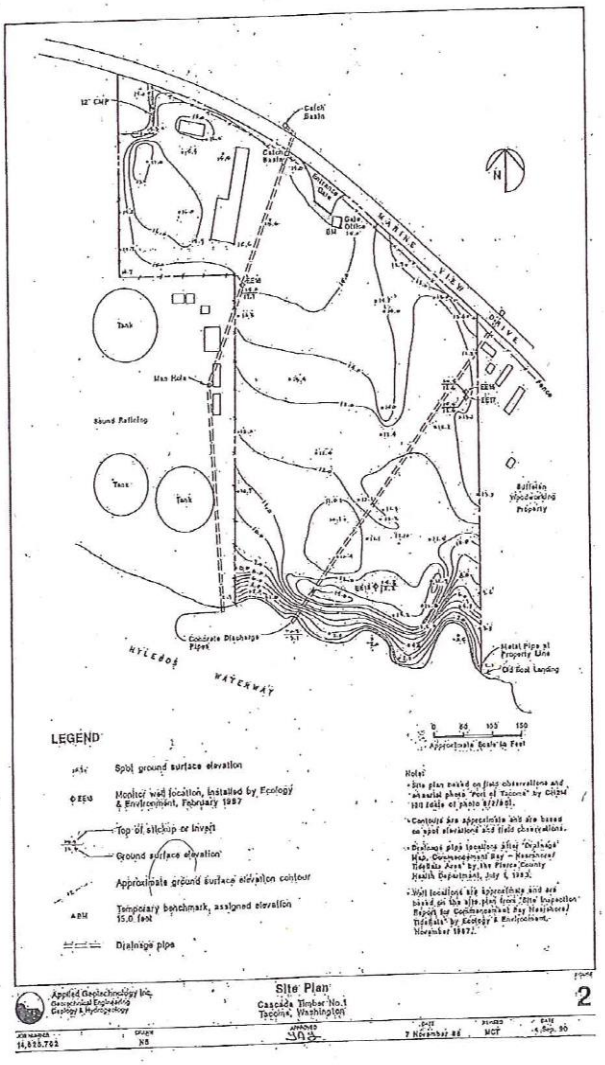
6.0 APPENDICES

6.1 Vicinity Map

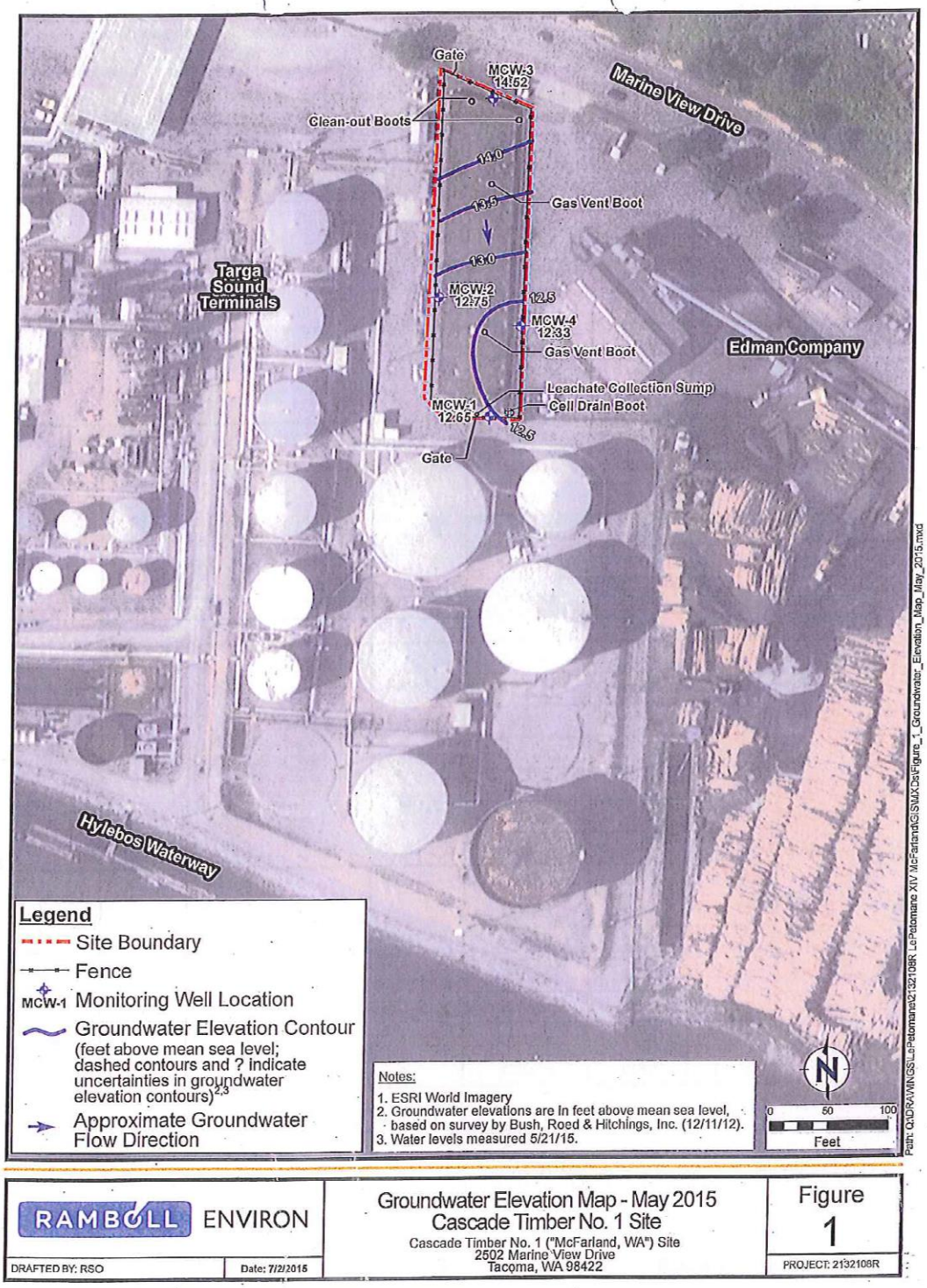


2-6

6.2 Site Plan


Catch Basin
MARINE VIEW DRIVE
Tank
Man Hole
Sound Railing
Railroad Woodworking Property
Concrete Discharge Pipes
Metal Pipe at Property Line
Old Boat Landing
HYLEBOS WATERWAY
LEGEND
Spot ground surface elevation
Monitor well location, installed by Ecology & Environment, February 1987
Top of silt-up or invert
Ground surface elevation
Approximate ground surface elevation contour
Temporary benchmark, assigned elevation 15.0 feet
Drainage pipe
Approximate Scale in Feet
Site Plan
Cascade Timber No.1
Tacoma, Washington
2

6.3 Groundwater Monitoring Well Locations and Table of Results



		MTCA Method A/B[1]	MCW-1						
			05/19/2011	12/06/2011	06/07/2012	12/11/2012	6/6/2013	1/14/2014	6/21/2015
		mg/l	mg/l						
Arsenic	Total	0.005/ 0.0048	< 0.001	<0.001	0.0027	<0.001	0.0037	<0.001	0.0017 J
	Dissolved		< 0.001	<0.001	0.0026	<0.001	0.0038	<0.001	0.0014 J
Copper	Total	0.64	< 0.002	0.0065 JB	0.001	0.0027	0.00046	0.00069 J	< 0.0030
	Dissolved		< 0.002	0.0096 JB	0.00056 J	0.0020	0.00071 J	0.00093 J	< 0.0030
Lead	Total	0.015	< 0.001	0.00005 J	0.00079	0.00026 J	0.00013 J	0.00036 J	0.00028 J
	Dissolved		< 0.001	<0.0004	0.000064 J	0.000098 J	0.000092 J	0.00025 J	< 0.00017
Zinc	Total	4.8	< 0.01	<0.0014	0.0054	0.0020	<0.0014	< 0.004	< 0.0095
	Dissolved		< 0.01	0.0018	0.0016	0.0028	0.0068	0.0028 J	< 0.0095
Calcium	Total	--	11.4	18	14	14 B	15 B	17	12
Magnesium	Total	--	3.19	5.3	4.6	4.1	5.0	5.1 J	< 15
Potassium	Total	--	2.28	2.9 J	1.9 J	2.4 J	2.0 J	2.5 J	1.9 J
Sodium	Total	--	15.2	18 B	14	14	14	15	14
Hardness	Total	--	41.5	71	52	49	69	68	39
Hydroxide Alkalinity	Total	--	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0	< 5.0
Carbonate Alkalinity	Total	--	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0	< 5.0
Bicarbonate Alkalinity	Total	--	50.2	66	70	61	69	81	69
Chloride	Total	--	1.8	1.8	3.6	2.01	1.5 B	1.7	0.78 J
Sulfate	Total	--	6.67	11	6.5	11.3	5.3	8.8	3.9
TPH-Gx	--	1	--	< 0.094	--	--	--	--	--
TPH-Dx	--	0.5	--	< 0.24	--	--	--	--	--
TPH-Oil	--	0.5	--	< 0.47	--	--	--	--	--

Notes
[1] MTCA - Model Toxics Control Act Cleanup Regulation Standard
mg/l milligrams per liter
dup duplicate
-- criteria not established
TPH-Gx gasoline range petroleum hydrocarbons
TPH-Dx diesel range petroleum hydrocarbons (>C12-C24)
TPH-Oil motor oil range petroleum hydrocarbons
Bold values and cells shaded grey represent an exceedance of the MTCA Method A/B criteria.

		MTCA Method A/B[1]	MCW-2											
			05/19/2011	05/18/2011 (dup)	12/06/2011	12/6/2011 (dup)	6/7/2012	6/7/2012 (dup)	12/11/2012	12/11/2012 (dup)	6/6/2013	6/6/2013 (dup)	1/14/2014	5/21/2015
		mg/l	mg/l											
Arsenic	Total	0.005/ 0.0048	0.00138	<0.001	0.0026	0.0019	<0.001	<0.001	0.0013	0.0014	<0.001	<0.001	0.0013	< 0.0014
	Dissolved		0.00116	<0.001	0.0018	0.0017	<0.001	<0.001	0.00096 J	<0.0010	<0.001	<0.001	0.0012	< 0.0014
Copper	Total	0.64	< 0.002	< 0.002	0.00022 J	0.0021 J	<0.001	0.0003 J	0.00056 J	0.00052 J	0.00013 J	<0.001	<0.001	< 0.0030
	Dissolved		< 0.002	< 0.002	0.00011 J	0.0032 J	0.00027 J	0.00018 J	0.00026 J	0.00070 J	0.00011 J	<0.001	0.00037 J	< 0.0030
Lead	Total	0.015	< 0.001	< 0.001	0.00004 J	0.00004 J	<0.0004	0.000052 J	0.00020 J	0.00016 J	0.0012	0.000057 J	0.00016 J	< 0.00017
	Dissolved		< 0.001	< 0.001	<0.0004	<0.0004	<0.0004	<0.0004	<0.00040	0.000073 J	<0.0004	<0.0004	0.00030 J	< 0.00017
Zinc	Total	4.8	< 0.01	< 0.01	0.0013 J	0.0013 J	0.00092 J	<0.0014	0.0015	0.0019	<0.0014	<0.0014	<0.004	< 0.0095
	Dissolved		<0.01	0.0101	0.0014	0.0015	<0.0014	0.00091 J	<0.0014	0.0030	0.0015	<0.0014	<0.004	< 0.0095
Calcium	Total	--	24.4	25.6	26	26	26	26	30 B	28 B	26 B	25 B	27	29
Magnesium	Total	--	10.1	10.6	13	13	10	10	12	12	10	10	12	< 15
Potassium	Total	--	4.43	4.84	4	4.2	4.8	4.8	6.2	5.7	5.4	5.2	4.9	5.1
Sodium	Total	--	10.5	11	12 B	12 B	11	11	12	11	12	11	11	12
Hardness	Total	--	103	107	140	150	130	130	150	150	110 B	110 B	120	120
Hydroxide Alkalinity	Total	--	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	< 5.0
Carbonate Alkalinity	Total	--	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	< 5.0
Bicarbonate Alkalinity	Total	--	128	127	140	140	130	130	140	140	140	140	140	140
Chloride	Total	--	5.52	5.49	9.6	8.7	6	6.1	9.06	8.77	7.0 B	8.1 B	6.4	6.0
Sulfate	Total	--	< 1.0	<1.0	<1.2	<1.2	<1.2	<1.2	0.77	<0.5	<1.0	<1.0	<1.2	< 0.40
TPH-Gx	--	1	--	--	< 0.094	< 0.094	--	--	--	--	--	--	--	--
TPH-Dx	--	0.5	--	--	< 0.24	< 0.24	--	--	--	--	--	--	--	--
TPH-Oil	--	0.5	--	--	< 0.47	< 0.47	--	--	--	--	--	--	--	--

Notes
[1] MTCA - Model Toxics Control Act Cleanup Regulation Standard
mg/l milligrams per liter
dup duplicate
-- criteria not established
TPH-Gx gasoline range petroleum hydrocarbons
TPH-Dx diesel range petroleum hydrocarbons (>C12-C24)
TPH-Oil motor oil range petroleum hydrocarbons
Bold values and cells shaded grey represent an exceedance of the MTCA Method A/B criteria.

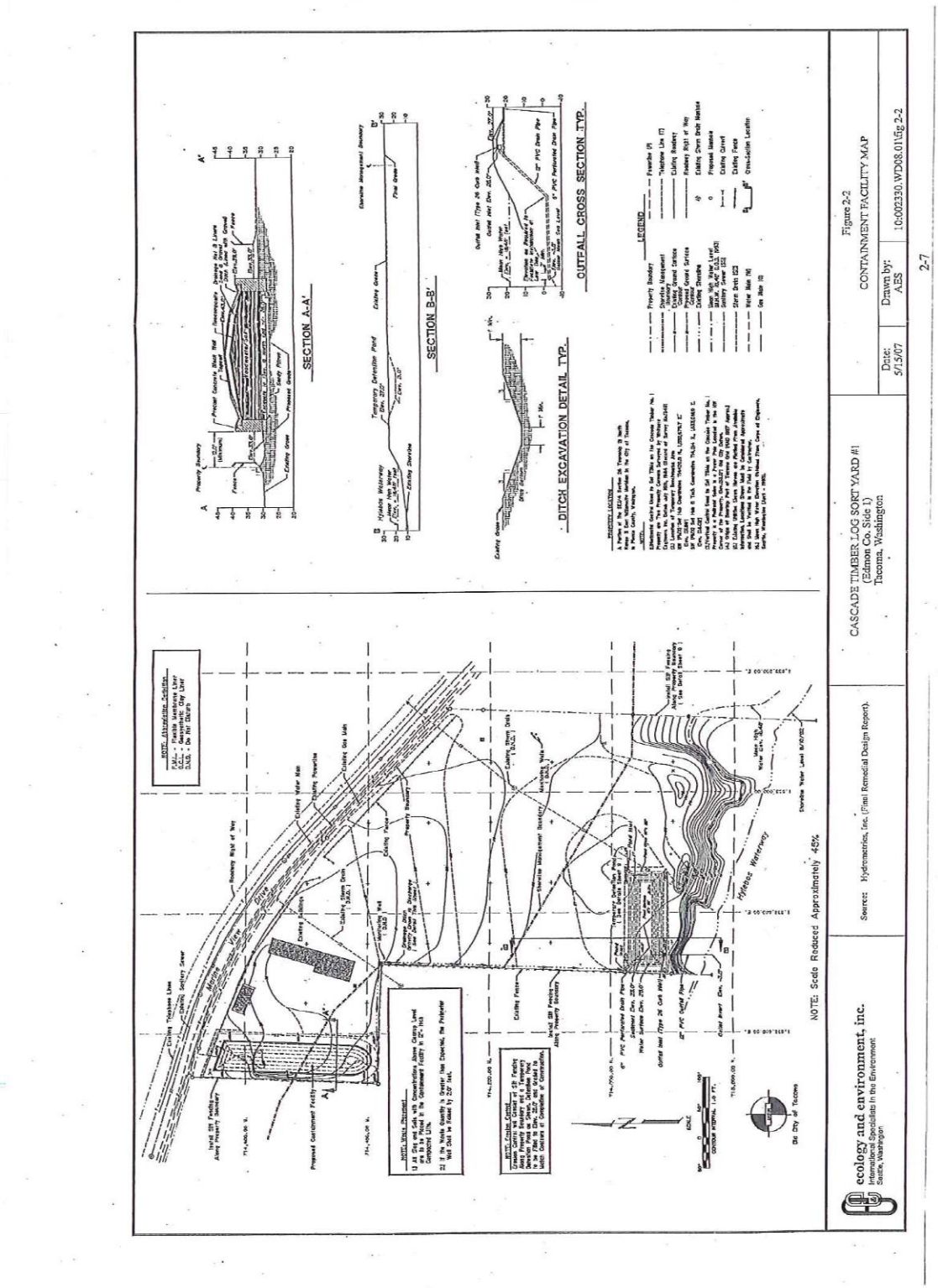
		MTCA Method A/B[1]	MCW-3							
			6/18/2011	12/6/2011	6/7/2012	12/11/2012	6/6/2013	1/14/2014	1/14/2014 (dup)	6/21/2015
		mg/l	mg/l							
Arsenic	Total	0.005/ 0.0048	0.00189	0.0063	0.0025	0.0020	0.0028	0.0018	0.0017	0.0028 J
	Dissolved		0.00197	0.0017	0.0022	0.0018	0.0023	0.0017	0.0017	0.0020 J
Copper	Total	0.64	< 0.002	0.00034 J	0.00056 J	0.00043 J	0.00068 J	<0.001	<0.001	< 0.0030
	Dissolved		< 0.002	0.00025 J	0.00023 J	0.00022 J	0.00016 J	0.00047 J	<0.001	< 0.0030
Lead	Total	0.015	< 0.001	0.00021 J	0.00017 J	0.00018 J	0.00052	0.000068 J	0.000085 J	< 0.00017
	Dissolved		< 0.001	<0.004	0.000043 J	0.000091 J	<0.0004	0.00008 J	0.000065 J	< 0.00017
Zinc	Total	4.8	< 0.01	0.0011 J	<0.0014	0.0011 J	0.0011 J	<0.004	<0.004	< 0.0095
	Dissolved		< 0.01	0.0017	<0.0014	0.0023	0.0010 J	0.0029J	<0.004	< 0.0095
Calcium	Total	--	24.1	24	20	22 B	17 B	20	21	22
Magnesium	Total	--	15.8	16	12	14	11	13	13	< 15
Potassium	Total	--	2.08	2.4 J	1.9 J	2.3 J	2.1 J	1.9 J	1.9 J	2.0 J
Sodium	Total	--	11.0	12 B	9.7	11	8.9	9.4	9.5	9.3
Hardness	Total	--	125	140	120	120	89 B	110	130	110
Hydroxide Alkalinity	Total	--	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Carbonate Alkalinity	Total	--	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bicarbonate Alkalinity	Total	--	135	140	120	130	110	120	120	120
Chloride	Total	--	14.6	7.5	9.2	7.9	6.1 B	7.4	7.4	6.5
Sulfate	Total	--	< 1.0	<1.2	<1.2	<0.5	<1.0	<1.2	<1.2	< 0.40
TPH-Gx	--	1	--	< 0.094	--	--	--	--	--	--
TPH-Dx	--	0.5	--	< 0.24	--	--	--	--	--	--
TPH-Oil	--	0.5	--	< 0.47	--	--	--	--	--	--

Notes
[1] MTCA - Model Toxics Control Act Cleanup Regulation Standard
mg/l milligrams per liter
dup duplicate
-- criteria not established
TPH-Gx gasoline range petroleum hydrocarbons
TPH-Dx diesel range petroleum hydrocarbons (>C12-C24)
TPH-Oil motor oil range petroleum hydrocarbons
Bold values and cells shaded grey represent an exceedance of the MTCA Method A/B criteria.

		MTCA Method A/B[1]	MCW-4							
			6/18/2011	12/6/2011	6/7/2012	12/11/2012	6/6/2013	1/14/2014	6/21/2015	6/21/2015 (dup)
		mg/l	mg/l							
Arsenic	Total	0.005/ 0.0048	0.00435	0.0045	0.0025	0.0063	0.0051	0.007	0.0071	0.0061
	Dissolved		0.00444	0.0050	0.0023	0.0041	0.0024	0.0059	0.0064	0.0071
Copper	Total	0.64	< 0.002	0.00019 J	0.00025 J	0.00094 J	0.00027 J	0.00022 J	< 0.0030	< 0.0030
	Dissolved		< 0.002	0.00029 J	0.00023 J	0.001	0.0011	0.00052 J	< 0.0030	< 0.0030
Lead	Total	0.015	< 0.001	0.00004 J	0.000064 J	0.00042	0.00043	0.00015 J	< 0.00017	< 0.00017
	Dissolved		< 0.001	<0.0004	<0.0004	0.00016 J	<0.0004	0.00018 J	< 0.00017	< 0.00017
Zinc	Total	4.8	< 0.01	0.0014	<0.0014	0.0023	<0.0014	<0.004	< 0.0095	< 0.0095
	Dissolved		< 0.01	0.0032	0.0011 J	0.0041	0.00093 J	0.0029 J	< 0.0095	< 0.0095
Calcium	Total	--	31.6	35	28	36 B	28 B	30	29	29
Magnesium	Total	--	15.1	14	12	14	11	14	< 15	< 15
Potassium	Total	--	3.57	4.8	4.4	4.4	3.9	3.6	3.5	3.7
Sodium	Total	--	13.5	14 B	14	14	11	14	11	11
Hardness	Total	--	141	180	150	160	120 B	320	130	130
Hydroxide Alkalinity	Total	--	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Carbonate Alkalinity	Total	--	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bicarbonate Alkalinity	Total	--	176	170	150	140	140	150	140	140
Chloride	Total	--	7.82	10	8.6	11.2	9.6 B	7.7	6.9	6.8
Sulfate	Total	--	< 1.0	<1.2	<1.2	<0.5	0.25 J	<1.2	< 0.40	< 0.40
TPH-Gx	--	1	--	< 0.094	--	--	--	--		--
TPH-Dx	--	0.5	--	< 0.24	--	--	--	--		--
TPH-Oil	--	0.5	--	< 0.47	--	--	--	--		--

Notes
[1] MTCA - Model Toxics Control Act Cleanup Regulation Standard
mg/l milligrams per liter
dup duplicate
-- criteria not established
TPH-Gx gasoline range petroleum hydrocarbons
TPH-Dx diesel range petroleum hydrocarbons (>C12-C24)
TPH-Oil motor oil range petroleum hydrocarbons
Bold values and cells shaded grey represent an exceedance of the MTCA Method A/B criteria.

6.4 Containment Facility Map



6.5 Restrictive Covenant

AFTER RECORDING RETURN TO:

RESTRICTIVE COVENANT
2502 Marine View Drive - LOT 1

Notice is hereby given that the property, which is the subject of this Restrictive Covenant, described as, Lot 1 of City of Tacoma Short Plat recorded in the real property records of Pierce County, Washington on April 1, 1996, under Auditor's Recording No. 9604010402, (the "Property") is the subject of remedial action under Chapter 70.105D RCW. The work done to clean up the Property (hereinafter the "Cleanup Action") is described in Washington State Department of Ecology Consent Decree, Pierce County No. 93-2-10099-5, and in exhibits to the Decree. The Consent Decree is filed with the Superior Court of the State of Washington in and for Pierce County.

The restrictions and obligations described in this Restrictive Covenant are intended to run with the land and be binding on any and all persons who acquire an interest in the Property.

Potential purchasers and lessees are further put on notice that,

1. The Property may be used only for Industrial uses as defined in and allowed under the City of Tacoma's Zoning Regulations codified in the Tacoma City Code as of the date of this Restrictive Covenant, attached hereto as Exhibit A.

2. Activities on the Property that interfere with or reduce the effectiveness of the Cleanup Action or any operation, maintenance, or monitoring required by the Decree are prohibited.

3. Activities on the Property that may result in the release of a hazardous substance that was contained as a part of the Cleanup Action are prohibited, and continued maintenance of the containment system must be provided for.

The owner of the Property and owner's assigns and successors in interest reserve the right to record an instrument which provides that this Restrictive Covenant shall no longer limit the use of the Property or be of any further force or effect. However, such an instrument

may be recorded only with the consent of the Department of Ecology or of a successor agency.

Executed as of the ___ day of _____, 1996.

PROPERTY OWNER: _____

By _____
Its _____

Attachments:
Exhibit A - Applicable Zoning Regulations

STATE OF WASHINGTON)
) ss.
COUNTY OF _____)

On this ___ day of _____, 1996, before me, a Notary Public in and for the State of Washington, personally appeared _____, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person who executed this instrument, on oath stated that he/she was authorized to execute the instrument, and acknowledged it as the _____ of _____ to be the free and voluntary act and deed of said corporation for the uses and purposes mentioned in the instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal the day and year first above written.

_____
NOTARY PUBLIC in and for the State of Washington, residing at _____
My appointment expires _____
Print Name _____

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EXHIBIT A (CONT.)

TACOMA MUNICIAL CODE

until the expiration of the appeal period; provided however, that a permit granted by the Hearing Examiner shall not become effective in the event there is an appeal filed within the limits prescribed.

B. Height Regulations. A building, structure or portion thereof erected shall not exceed a height of 100 feet, unless such building or structure is set back on all sides one foot for each four feet such building or structure exceeds 100 feet in height.

C. Area Regulations. A building or structure hereafter built, enlarged or moved shall provide the following yards or lot areas:

1. Front Yard. Where all the frontage is located in the M-2 Heavy Industrial District no front yard is required. Where the frontage is partly in the M-2 Heavy Industrial District and partly in a Dwelling District the front yard requirement of the Dwelling District shall apply in the M-2 Heavy Industrial District.

2. Side Yard. Where the side of a lot in the M-2 Heavy Industrial District abuts the side of a lot in a Dwelling District there shall be a side yard of not less than seven and one-half feet in width. In other cases, a side yard for a commercial or industrial building shall not be required.

3. Rear Yard. Where a lot in the M-2 Heavy Industrial District abuts upon a Dwelling District there shall be a rear yard having a depth of not less than 20 feet for interior lots and 10 feet for corner lots. In other cases a rear yard is not required.

D. Parking and Loading Space Regulations. Parking space for buildings as required in Section 13.06.350.

Loading space as required in Section 13.06.350. (Ord. 25374 § 2; passed Oct. 5, 1993; Ord. 20220 § 10; passed Oct. 1, 1974; Ord. 19858 § 6; passed July 3, 1973; Ord. 19286 § 2; passed Jan. 26, 1971; Ord. 15003; passed May 3, 1954; Ord. 14793 § 26; passed May 18, 1953.)

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AFTER RECORDING RETURN TO:

_____
_____
_____
_____

_____

RESTRICTIVE COVENANT
2502 Marine View Drive - LOT 2

Notice is hereby given that the property, which is the subject of this Restrictive Covenant, legally described as, Lot 2 of City of Tacoma Short Plat recorded in the real property records of Pierce County, Washington on April 1, 1996, under Auditor's Recording No. 9604010402, (the "Property") was the subject of remedial action under Chapter 70.105D RCW. The work done to clean up the Property (hereinafter the "Cleanup Action") is described in Washington State Department of Ecology Consent Decree, Pierce County No. 93-2-10099-5, and in exhibits to the Decree. The Consent Decree is filed with the Superior Court of the State of Washington in and for Pierce County.

The restrictions and obligations described in this Restrictive Covenant are intended to run with the land and be binding on any and all persons who acquire an interest in the Property.

Potential purchasers and lessees are further put on notice that,

1. The Property may be used only for Industrial uses as defined in and allowed under the City of Tacoma's Zoning Regulations codified in the Tacoma City Code as of the date of this Restrictive Covenant, attached hereto as Exhibit A.

2. Activities on the Property that interfere with the continuing obligation of surface water monitoring required by the Decree are prohibited.

The owner of the Property and owner's assigns and successors in interest reserve the right to record an instrument which provides that this Restrictive Covenant shall no longer limit the use of the Property or be of any further force or effect. However, such an instrument may be recorded only with the consent of the Department of Ecology or of a successor agency.

Executed as of the ____ day of _____, 1996.

PROPERTY OWNER: MCFARLAND CASCADE HOLDINGS, INC.

By _____
Its _____

Attachment
Exhibit A - Applicable Zoning Regulations

STATE OF WASHINGTON)
) ss.
COUNTY OF PIERCE)

On this ____ day of _____, 1996, before me, a Notary Public in and for the State of Washington, personally appeared _____, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person who executed this instrument, on oath stated that he was authorized to execute the instrument, and acknowledged it as the _____ of McFarland Cascade Holdings, Inc. to be the free and voluntary act and deed of said corporation for the uses and purposes mentioned in the instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal the day and year first above written.

_____
NOTARY PUBLIC in and for the State of Washington, residing at _____
My appointment expires _____
Print Name _____

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EXHIBIT A

TACOMA MUNICIPAL CODE

13.06.330 M-2 district.

The following are regulations of the M-2 Heavy Industrial District:

A. Use Regulations. A building, structure or land or a building or structure hereafter built, altered or enlarged shall be used for only the following permitted uses:

1. Any use permitted in the M-1 Light Industrial District within or outside a building or fence; provided, however, that all residential uses are prohibited in the M-2 Heavy Industrial Districts except necessary quarters for caretakers and watchmen. Automobile house trailers and mobile homes are allowed for such caretaker and watchman quarters provided a special permit has been approved in accordance with Section 13.06.375; provided further, that group care homes, day care centers and nursery schools are also prohibited from M-2 Heavy Industrial Districts.

1.5. Automobile house trailers and mobile homes as temporary office space in accordance with provisions of Section 13.06.375.

2. Alcohol manufacture or liquor distillery.

3. Asbestos products manufacture.

4. Asphalt manufacture and creosote manufacture and treatment plants.

5. Bag cleaning.

6. Brick, tile, terra cotta and pottery manufacture.

7. Carborundum and abrasive manufacture.

8. Cloth, cord, rope and thread manufacture.

9. Chemicals manufacture but excluding acid manufacture.

10. Concrete and concrete products manufacture.

11. Coke ovens.

12. Felt manufacture.

13. Fish curing, smoking and canning.

14. Flour, feed and cereal manufacture.

15. Gutta percha, tar and rubber goods manufacture.

16. Iron, steel, brass, copper and other metals, foundry and fabrication but excluding smelter and blast furnace.

17. Lampblack, paint, varnish, oil and turpentine manufacture.

18. Linoleum and oil cloth manufacture.

19. Meat and food manufacture, and processing but excluding the slaughter of animals and rendering of fat.

20. Mining, rock quarry and rock, sand and gravel cleaning, crushing and processing.

21. Railroad repair and classification yard.

22. Rolling mill.

23. Petroleum and petroleum products aboveground storage in excess of 1,000 gallons.

24. Plastics manufacture.

25. Saltworks.

26. Saw and planing mill.

27. Soap manufacture.

28. Shipyard.

29. Tobacco products manufacture.

30. Wool pulling or scouring.

31. Accessory uses when located on the same lot.

32. Conditional Uses. When authorized by the Hearing Examiner after a duly advertised public hearing, the following uses shall also be permitted in an M-2 District:

a. Construction/demolition/land-clearing debris recycling. Application for a conditional use permit shall be made to the Public Works Department, and shall include site development plans showing all existing and proposed structures, existing and proposed drainage, existing and proposed topography circulation, access drives/fire lanes, equipment and/or material storage location and size, parking and loading areas, and natural or environmentally sensitive features. This application shall be accompanied by filing fees as set forth in Sections 13.06.471 and 13.06.473.

The intent and purpose of this section, and criteria for granting of conditional use permits by the Hearing Examiner, shall be the same as those stated in Section 13.06.375 of this chapter regarding special use permits.

In authorizing a conditional use the Hearing Examiner may attach thereto such conditions as are authorized under Section 13.03.070 of this title.

A conditional use permit so authorized shall expire as provided in Section 13.06.474 hereof if no substantial development has taken place in accordance with plans for which such conditional uses were authorized.

Conditional use permits authorized under this section shall not become effective until expiration of the appeal period following the granting thereof by the Hearing Examiner, and shall be subject to the appellate procedures set forth in Section 13.06.485 hereof, and shall not become effective

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EXHIBIT A (CONT.)

TACOMA MUNICIAL CODE

until the expiration of the appeal period; provided, however, that a permit granted by the Hearing Examiner shall not become effective in the event there is an appeal filed within the limits prescribed.

B. Height Regulations. A building, structure or portion thereof erected shall not exceed a height of 100 feet, unless such building or structure is set back on all sides one foot for each four feet such building or structure exceeds 100 feet in height.

C. Area Regulations. A building or structure hereafter built, enlarged or moved shall provide the following yards or lot areas:

1. Front Yard. Where all the frontage is located in the M-2 Heavy Industrial District no front yard is required. Where the frontage is partly in the M-2 Heavy Industrial District and partly in a Dwelling District the front yard requirement of the Dwelling District shall apply in the M-2 Heavy Industrial District.

2. Side Yard. Where the side of a lot in the M-2 Heavy Industrial District abuts the side of a lot in a Dwelling District there shall be a side yard of not less than seven and one-half feet in width. In other cases, a side yard for a commercial or industrial building shall not be required.

3. Rear Yard. Where a lot in the M-2 Heavy Industrial District abuts upon a Dwelling District there shall be a rear yard having a depth of not less than 20 feet for interior lots and 10 feet for corner lots. In other cases a rear yard is not required.

D. Parking and Loading Space Regulations. Parking space for buildings as required in Section 13.06.350.

Loading space as required in Section 13.06.350. (Ord. 25374 § 2; passed Oct. 5, 1993; Ord. 20220 § 10; passed Oct. 1, 1974; Ord. 19858 § 6; passed July 3, 1973; Ord. 19286 § 2; passed Jan. 26, 1971; Ord. 15003; passed May 3, 1954; Ord. 14793 § 26; passed May 18, 1953.)

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6.6 Photo Log

Photo 1: Edman Company Log Yard and Asphalt Cap – From Southeast

Photo 2: Edman Company Log Yard and Asphalt Cap– From South

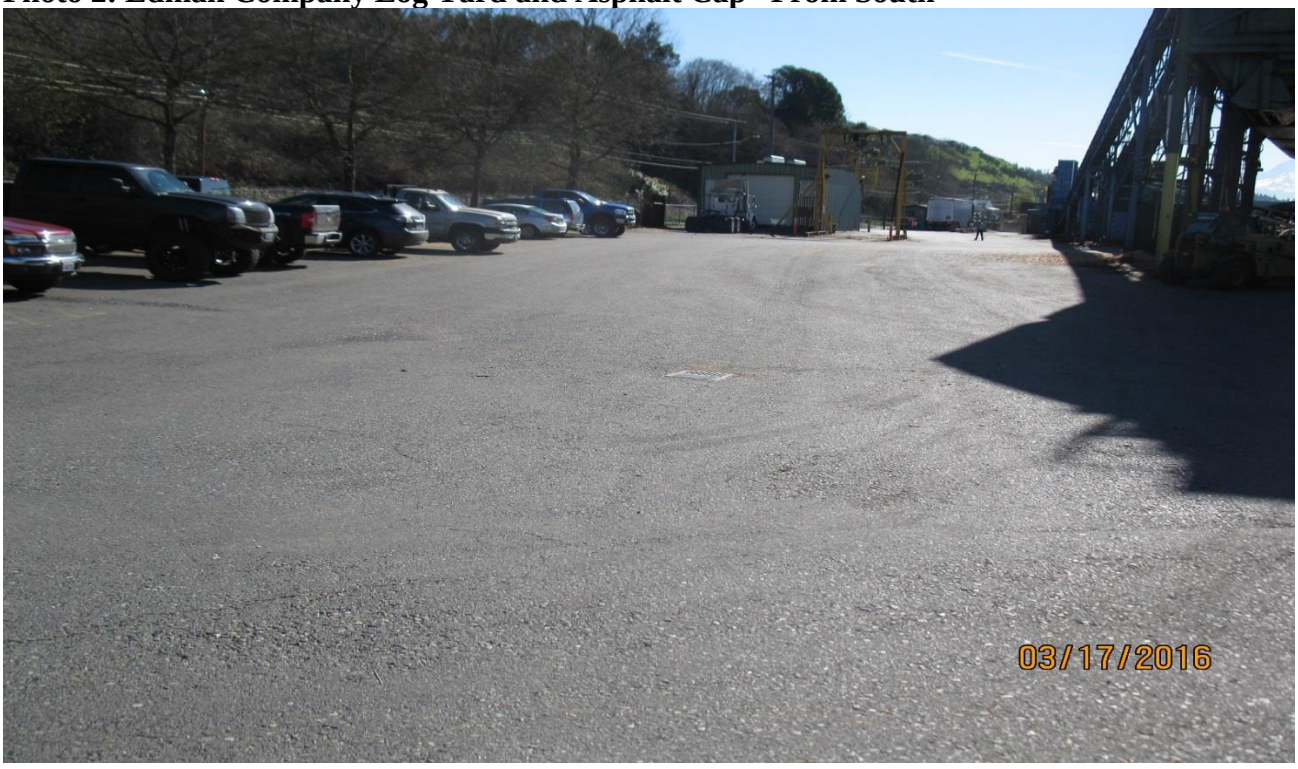

Photo 3: Edman Company Log Yard, Repaired Asphalt Cap– From South

Photo 4: Edman Parcel with Containment Cell Ecology Blocks – From Northeast

Photo 5: Edman Company Containment Cell – From North

Photo 6: Edman Company Containment Cell – From West