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Global Specialists in the Environment

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March 3, 2011

Earl Liverman, On-Scene Coordinator
United States Environmental Protection Agency
1910 Northwest Blvd, Suite 208
Coeur D'Alene, Idaho 83814

Re: Contract Number EP-S7-06-02, Technical Direction Document Number 10-08-0001
Removal Site Evaluation Report, Orofino Asbestos Site, Orofino, Clearwater County, Idaho

Dear Mr. Liverman:

Enclosed please find the final removal site evaluation report for the Orofino Asbestos Site in Orofino, Clearwater County, Idaho. If you have any questions regarding this submittal, please call me at (206) 920-1739.

Sincerely,

ECOLOGY AND ENVIRONMENT, INC.

Steven G. Hall
START-3 Project Leader

cc: Daniel Wright, START-3 Project Manager, E & E, Seattle, Washington

REMOVAL SITE EVALUATION REPORT

Orofino Asbestos Site
Orofino, Clearwater County, Idaho
TDD: 10-08-0001

Prepared for:

U.S. Environmental Protection Agency, Region 10
1910 Northwest Boulevard, Suite 208
Coeur d'Alene, Idaho 83814

Prepared by:

Ecology and Environment, Inc.
720 Third Avenue, Suite 1700
Seattle, Washington 98104

March 2011

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List of Abbreviations

Abbreviation	Definition
%	percent
%R	percent recovery
ACM	asbestos-containing material
ACP	asbestos-cement pipe
AHERA	Asbestos Hazard Emergency Response Act
CARB	California Air Resources Board
District	Riverside Water and Sewer District
DQOs	data quality objectives
E & E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
NESHAP	National Emission Standards for Hazardous Air Pollutants
OSC	On-Scene Coordinator
PLM	polarized light microscopy
QA	quality assurance
QC	quality control
RSE	removal site evaluation
RPD	relative percent difference
SSSP	Site-specific sampling plan
START	Superfund Technical Assessment and Response Team
TDD	Technical Direction Document
TEM	transmission electron microscopy

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Executive Summary

In August 2010, the United States Environmental Protection Agency (EPA) tasked Ecology and Environment, Inc., to perform a removal site evaluation (RSE) in Orofino, Clearwater County, Idaho, under the Superfund Technical Assistance and Response Team (START) contract number EP-S7-06-02, Technical Direction Document (TDD) number 10-08-0001. The RSE was performed to determine whether excavated soil containing asbestos-cement pipe (ACP) was placed as fill material at several locations in the City of Orofino or immediately outside the City limits in Clearwater County.

EPA/START visited six locations where excavated soil suspected to contain ACP had been placed as fill material. At four locations, EPA/START observed broken pieces of suspected ACP lying on the ground surface that were similar to the ACP observed by EPA during a prior June 2010 Site visit at a different location. The sizes ranged from small fragments to 2- to 3-foot sections of ACP. All ACP pieces appeared weathered and the edges were crumbled. At a fifth location, EPA/START did not observe ACP on the ground surface, and at a sixth location, EPA/START observed several small pieces of suspected transite siding (cement-asbestos board).

START collected four bulk samples of the suspected ACP, one bulk sample of the suspected transite siding, and four surface soil samples from the five locations where the suspected asbestos-containing materials were observed and submitted the samples to an off-Site analytical laboratory. The samples were analyzed using polarized light microscopy (PLM) and transmission electron microscopy (TEM) to determine asbestos form variety and area concentration.

The data for four ACP samples showed chrysotile asbestos concentrations of 7 percent (%), 16.68%, 16.82%, and 20%; for the four soil samples, the data showed non-detect for two samples and 0.25% and 0.75% chrysotile for two samples; and the one transite siding sample showed 3% chrysotile. With time and exposure to damaging mechanical forces and weather, the ACP and transite siding can continue to become friable thus releasing asbestos fibers to the environment.

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1 Introduction

In May of 2010, the United States Environmental Protection Agency (EPA) received a complaint alleging that soil excavated as part of the 2009 Riverside Water and Sewer District (District) Phase III water line improvement project was contaminated with asbestos-cement pipe (ACP) and that contaminated soil was placed as fill material on a vacant lot in the City of Orofino. EPA investigated the complaint and collected three samples of the suspected ACP. The samples were analyzed using polarized light microscopy (PLM) to determine asbestos form variety and area concentration. The data showed asbestos concentrations of 8 percent (%), 9%, and 9% chrysotile mineral fibers (E & E 2011).

EPA continued to investigate the original complaint and identified six additional locations where excavated soil suspected to contain ACP was placed as fill material. EPA returned to Orofino in August 2010 to perform a removal site evaluation (RSE) of these properties. During the RSE, EPA learned that suspected ACP-contaminated fill had been placed on some properties in 2008, during Phase II of the District water line improvement project.

To assist with the RSE, EPA tasked Ecology and Environment, Inc. (E & E), under Superfund Technical Assessment and Response Team (START)-3 contract number EP-S7-06-02, Technical Direction Document (TDD) number 10-08-0001, to provide technical assistance, sampling support, and to provide written and photographic documentation. Photographs taken during the RSE are presented in Appendix A.

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2 Site Description and Background

2.1 Site Location

Site Name	Orofino Asbestos Site
Owner	Multiple
SSID #	10JN
CERCLIS #	IDN001002885
Location	Orofino, Clearwater County, Idaho
Latitude	46° 28.41' 11" N
Longitude	116° 15.10' 57" W

2.2 Site Layout

Orofino is a rural community located in the North Central Region of Idaho along Orofino Creek and the Clearwater River (Figure 2-1). The population is approximately 3,300, and the City is the county seat for Clearwater County.

The locations of the six properties are indicated on Figure 2-1. Three properties are single family residences [redacted] (b) (6) [redacted] one property is a church (291 118th Street); one property is adjacent to a commercial recreation vehicle park (14228 Highway 12); and one property is a county-owned solid waste transfer station (4753 Transfer Station Road).

2.3 Surrounding Land Uses

All locations are situated in mixed neighborhoods composed of commercial, residential, and religious properties. There are no known vulnerable or sensitive populations, habitats, or natural resources or potential historical landmarks and/or structures with historical significance identified where excavated soil containing ACP and transite (cement-asbestos board) siding was placed.

2.4 Site History, Operations, and Ownership

2.4.1 Riverside Water and Sewer District

In 2008 and 2009, the District awarded contracts for the construction of water line improvements in the City of Orofino and the surrounding area. The contract document for the 2009 phase noted that "Category II, Non-Friable Transite (Asbestos-Cement)" pipe was located on the project, and that the pipe was to be buried in the trench (Riverside Water and Sewer District 2009). While some of the ACP was buried in the trench, some of the excavated soil contaminated with ACP was placed as fill material at various locations throughout the community.

2.4.2 Property Owners of Sites that Received Contaminated Fill

At each of the six locations investigated as part of this RSE, the property owners/caretakers stated they had acquired the asbestos-contaminated fill material on their properties resulting from the 2008 and/or 2009 District water line improvements project. The property owners/caretakers also stated that the contractor raised no concerns about the fill material.

The owner of [redacted] (b) (6) [redacted] reported acquiring five truck loads of fill material in 2009 to add as landscaping material for the driveway. (For the purpose of this report, a truck load is assumed to consist of 10 cubic yards of material.) After the material was unloaded, the property owner attempted to spread the fill material evenly, and discovered several large sections of ACP in the fill material.

The owners of (b) (6) [redacted] had requested several truckloads of fill material to level a depression in his backyard. The owners estimated that 10 truck loads of fill material were delivered to the property in the summer of 2009.

The caretaker of the 291 118th Street property reportedly received several dozen truck loads of fill material in 2008 and 2009 which was used to create an additional unpaved parking lot area for parishioners.

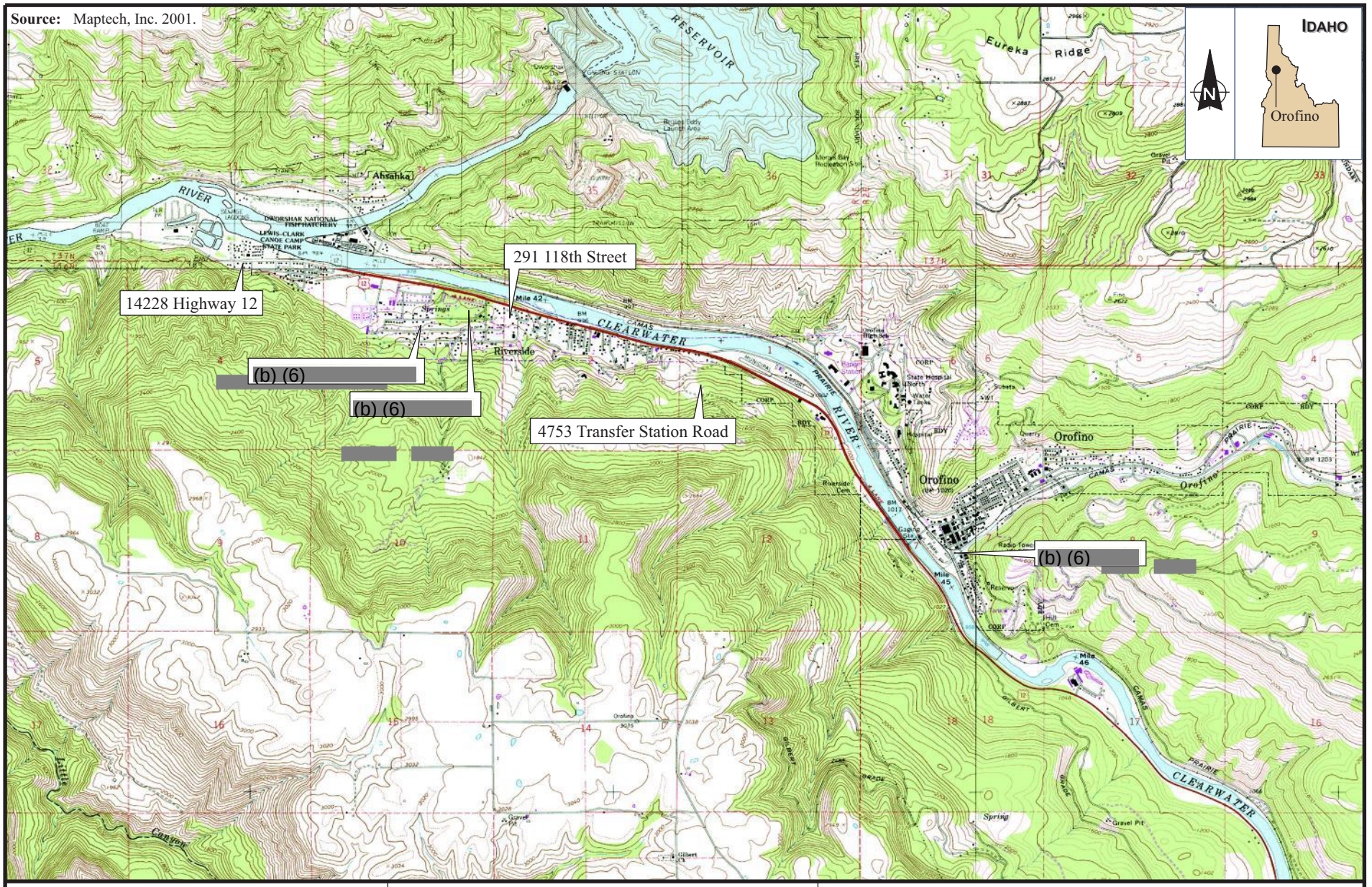
The owner of 14228 Highway 12 received an unknown amount of fill material to be deposited on an adjacent vacant lot next to a recreational vehicle park.

The owner of [redacted] (b) (6) [redacted] stated that three truck loads of fill material were received and placed behind his residence. EPA did not observe any ACP, but pieces of transite siding (cement-asbestos board) were observed in the piles of fill material.

The Clearwater County Transfer Station at 4753 Transfer Station Road reportedly received approximately 50 truck loads of excavated soil containing ACP in 2009 and an unknown amount in 2008.

2.5 Regulatory and Enforcement History

There are no known prior regulatory or enforcement actions at the Site prior to EPA's initial Site visit in June 2010. A summary of the June 2010 site visit mentioned in Section 1 is provided in a separate Trip Report (E & E 2011).



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OROFINO ASBESTOS SITE
Orofino, Idaho

0 2000 4000
Approximate Scale in Feet

Figure 2-1
SITE LOCATION MAP

Date:	Drawn by:	
2/22/11	AES	10:START-3\10080001\fig 2-1

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3 Sampling Activities

On August 9-10, 2010, START collected a total of nine samples of soil and bulk materials (suspected pieces of asbestos-containing materials [ACM]) to determine if asbestos was present at five of the six investigated locations. No samples were collected from the sixth location at 4753 Transfer Station Road because no ACP or other suspect ACM was observed on the ground.

From the five locations where suspect ACM was observed, START collected four samples of ACP, four samples of soil, and one sample of transite siding. Sample locations were biased; pieces of suspect ACM were picked up wherever observed, and soil samples were collected from underneath and around the piece of suspect ACM. Summaries of the samples and matrices by property are provided below, and the sample locations for each property are identified on Figures 3-1 through 3-5. Photographs documenting the sampling activities are included in Appendix A.

[redacted] (b) (6) [redacted] (Figure 3-1): Large sections of ACP are visible in photograph P8090010 (Appendix A). START collected two samples, one ACP sample (10080001) and one soil sample (10080002).

(b) (6) [redacted] (Figure 3-2): START collected two samples, one ACP sample (10080003) and one soil sample (10080004).

291 118th Street (Figure 3-3): The parking lot constructed from the contaminated fill was covered with a layer of pea gravel and is visible in photograph P809015 (Appendix A). Several chunks of ACP were visible on the ground in the gravel lot. START collected two samples, one soil sample (10080005) and one ACP sample (10080006).

14228 Highway 12 (Figure 3-4): Several pieces of ACP were visible in the vacant lot near Highway 12. START collected two samples, one ACP sample (10080007) and one soil sample (10080008).

[redacted] (b) (6) [redacted] (Figure 3-5): This property received three truck loads of soil; each truckload was segregated into a distinct pile, as visible in photograph P8090020 (Appendix A). The third pile, nearest to 2nd Street, had one piece of transite siding on the surface. START collected a sample (10080009) of the transite siding.

4753 Transfer Station Road: The On-Scene Coordinator (OSC) and START conducted a visual inspection of the fill material at this location. Construction debris including concrete and asphalt were observed, but no ACP or other suspect ACM was observed on the ground. No samples were collected at this location.

The samples were collected with dedicated sampling equipment and analyzed in accordance with the Site-specific sampling plan (SSSP; E & E 2010b) and sample plan alteration form (E & E

2010a). The samples were submitted to Lab/Cor Portland, Inc., of Portland, Oregon. Analytical data reports and quality assurance (QA) memos are presented in Appendix B.

The results of the asbestos analyses are presented in Table 3-1. The sample results for each property are included in the individual property figures (Figures 3-1 through 3-5). The results for all samples are also included in the area-wide summary figure (Figure 3-6).

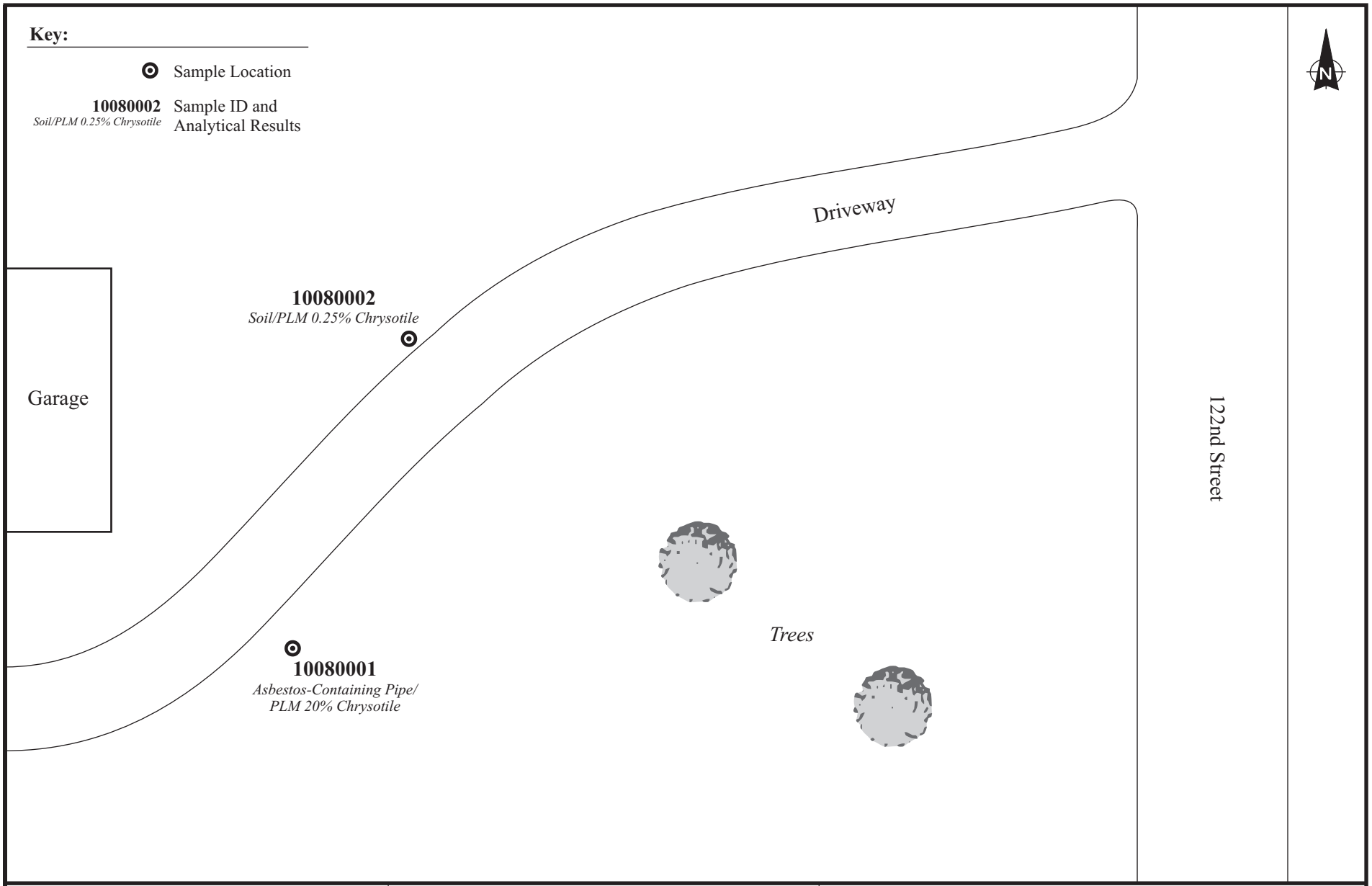
The bulk samples of suspected ACM were analyzed by either PLM or TEM. PLM is a relatively inexpensive, optical testing method that is specified for the determination of ACM under the Asbestos Hazard Emergency Response Act (AHERA; 40 CFR Part 763) and the National Emission Standards for Hazardous Air Pollutants (NESHAPS; 40 CFR Part 61). The results for two of the ACP samples indicated chrysotile asbestos concentrations of 7% and 20% by PLM (visual area estimate). When analyzed by the more precise and sensitive TEM gravimetric method, two additional ACP samples revealed 16.68% and 16.82% chrysotile, by weight. The bulk sample of transite contained 3% chrysotile by PLM. These results confirm that the suspect materials sampled during the RSE (ACP and transite siding) were ACM because they contained more than 1% asbestos as determined by PLM and thus are subject to federal regulations for handling and disposal.

The soil samples were analyzed for asbestos by the California Air Resources Board (CARB) 435 method and PLM. The CARB 435 method is a sample preparation step designed for rocks and soil that involves crushing the sample followed by a 400 point count analysis for asbestos. The CARB 435 method was used to prepare the soil samples for analysis because asbestos fibers can be difficult to detect in soil samples by the PLM method alone. Two of the four soil samples did not contain asbestos, while two samples contained 0.25% and 0.75% chrysotile.

Table 3-1
Summary of Asbestos Testing Results
Orofino Asbestos Site
Orofino, Idaho

Sample Number	Date Collected	Sample Location	Sample Media	Test Method:	Asbestos Result (%)	Type of Asbestos
10080001	8/9/2010	(b) (6)	Bulk - ACP	PLM-Area Estimate	20	Chrysotile
10080002	8/9/2010	(b) (6)	Soil	CARB 435 / PLM-Area Estimate	0.25	Chrysotile
10080003	8/9/2010	(b) (6)	Bulk - ACP	TEM-Gravimetric	16.68	Chrysotile
10080004	8/9/2010	(b) (6)	Soil	CARB 435 / PLM-Area Estimate	NAD	Chrysotile
10080005	8/9/2010	291 118th Street	Soil	CARB 435 / PLM-Area Estimate	0.75	Chrysotile
10080006	8/9/2010	291 118th Street	Bulk - ACP	TEM-Gravimetric	16.82	Chrysotile
10080007	8/10/2010	14228 Highway 12	Bulk - ACP	PLM-Area Estimate	7	Chrysotile
10080008	8/10/2010	14228 Highway 12	Soil	CARB 435 / PLM-Area Estimate	NAD	Chrysotile
10080009	8/10/2010	(b) (6)	Bulk - Transite	PLM-Area Estimate	3	Chrysotile

Key:
% = percent
ACP = asbestos-containing pipe
CARB = California Air Resources Board
NAD = no asbestos detected
PLM = polarized light microscopy
TEM = transmission electron microscopy



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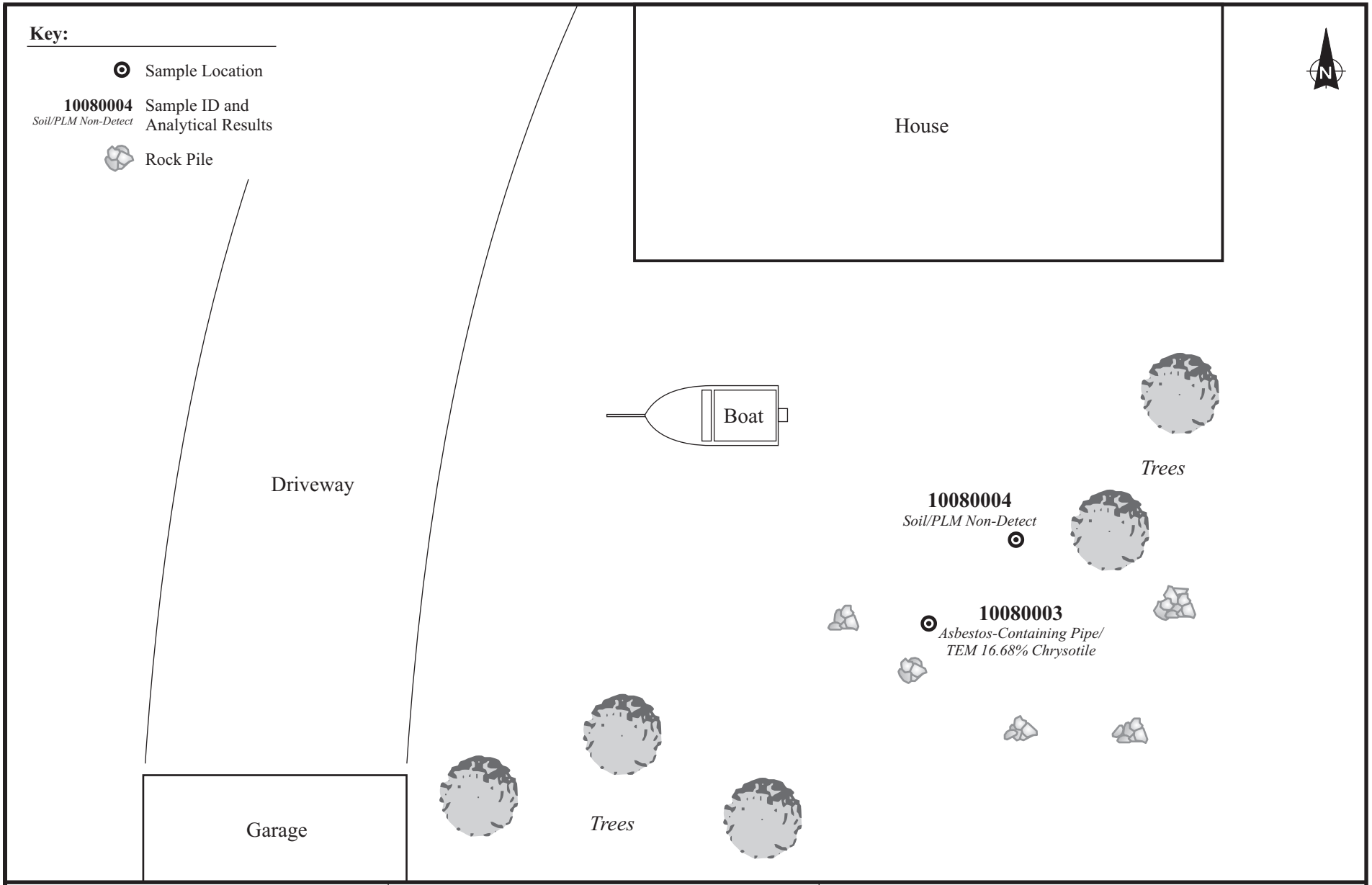
OROFINO ASBESTOS SITE
Orofino, Idaho

Not to Scale

Figure 3-1
(b) (6)
SAMPLE LOCATION MAP

Date:	Drawn by:	
2/22/11	AES	10:START-3\10080001\fig 3-1



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Seattle, Washington

OROFINO ASBESTOS SITE
Orofino, Idaho

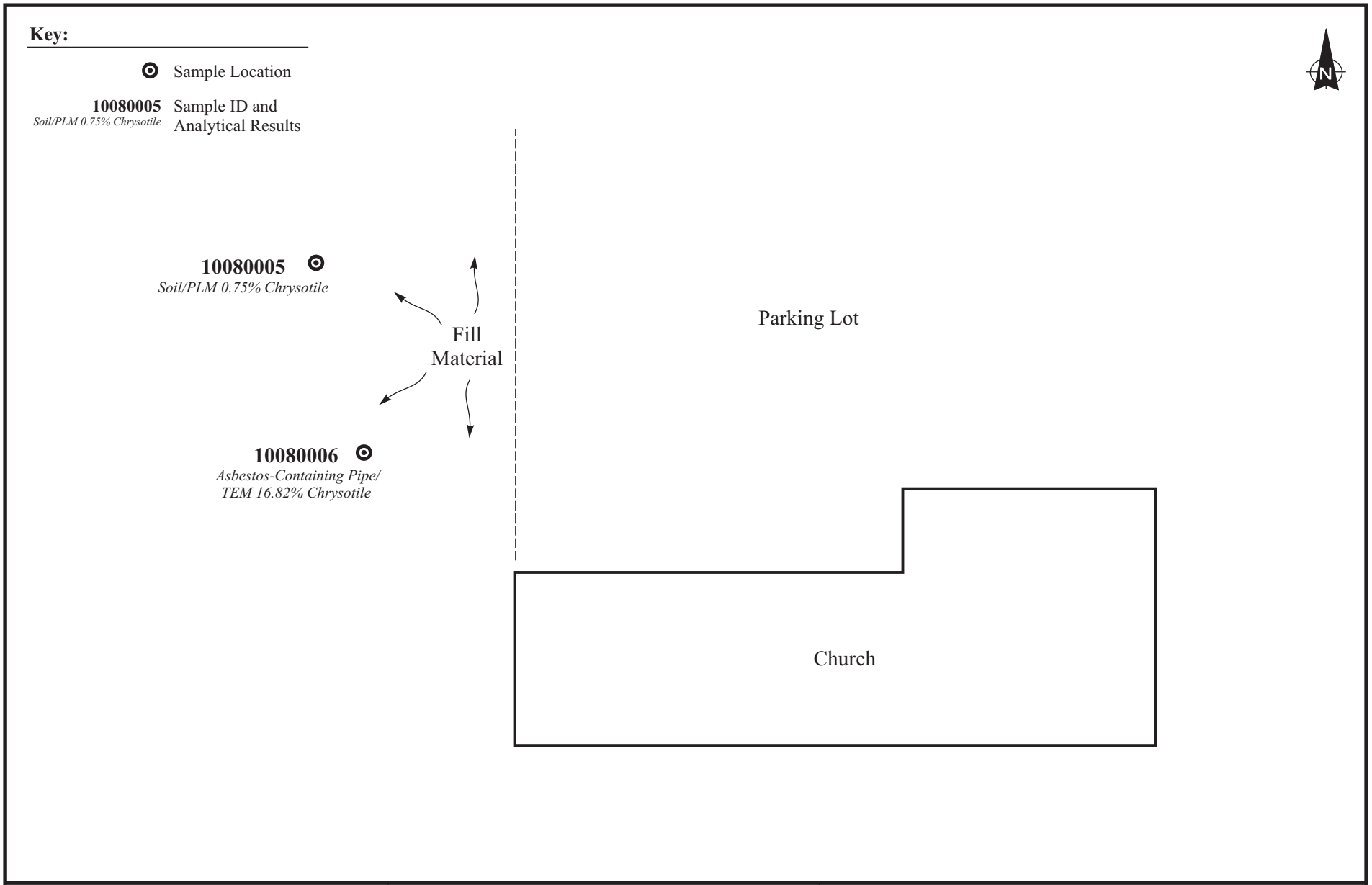
Not to Scale

Figure 3-2
(b) (6)
SAMPLE LOCATION MAP

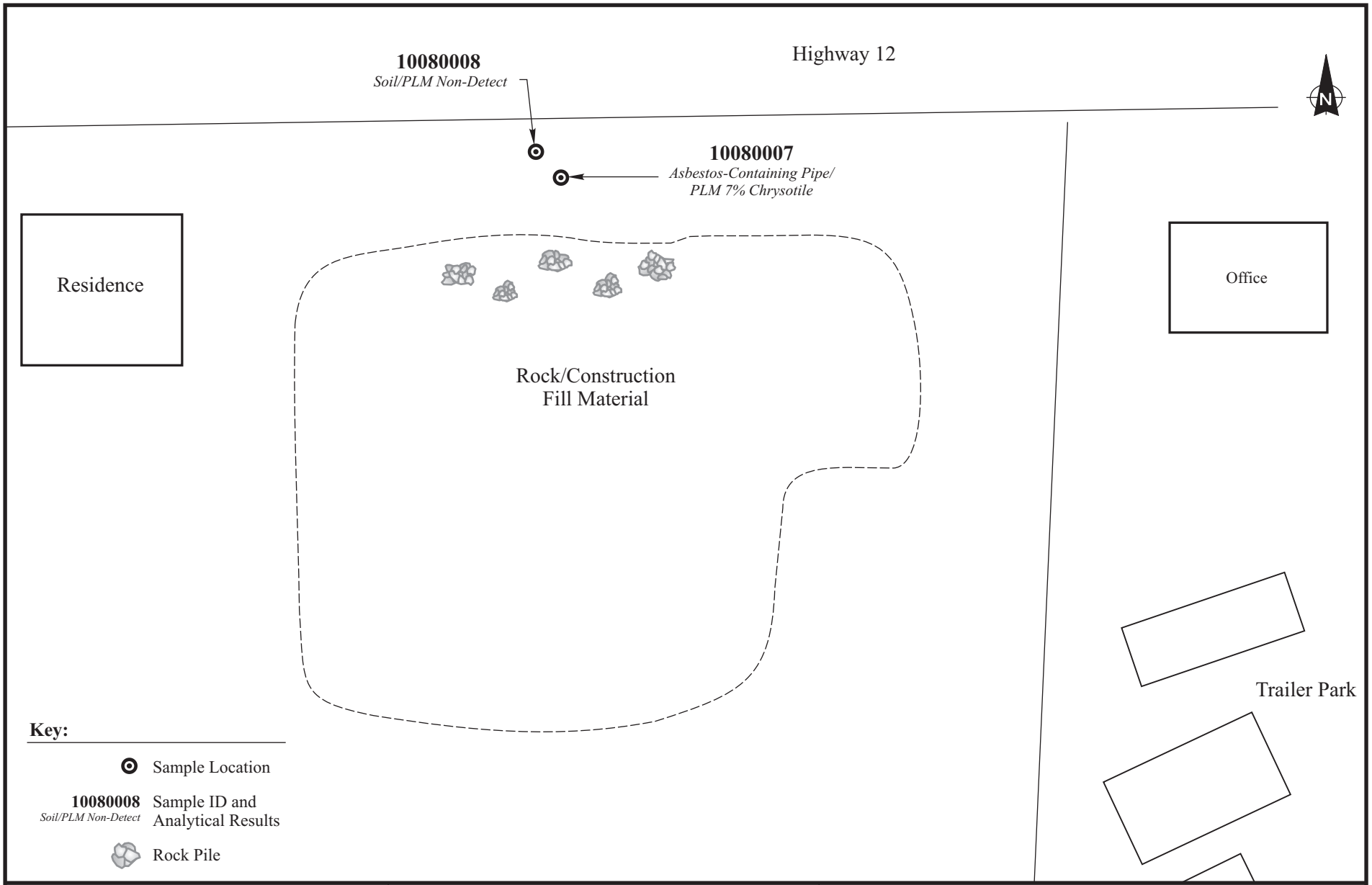
Date: 2/22/11

Drawn by: AES

10:START-3\10080001\fig 3-2



ecology and environment, inc. Global Specialists in the Environment Seattle, Washington	OROFINO ASBESTOS SITE Orofino, Idaho	Figure 3-3 291 118th STREET SAMPLE LOCATION MAP		
	Not to Scale	Date: 2/22/11	Drawn by: AES	10:START-3\10080001\fig 3-3



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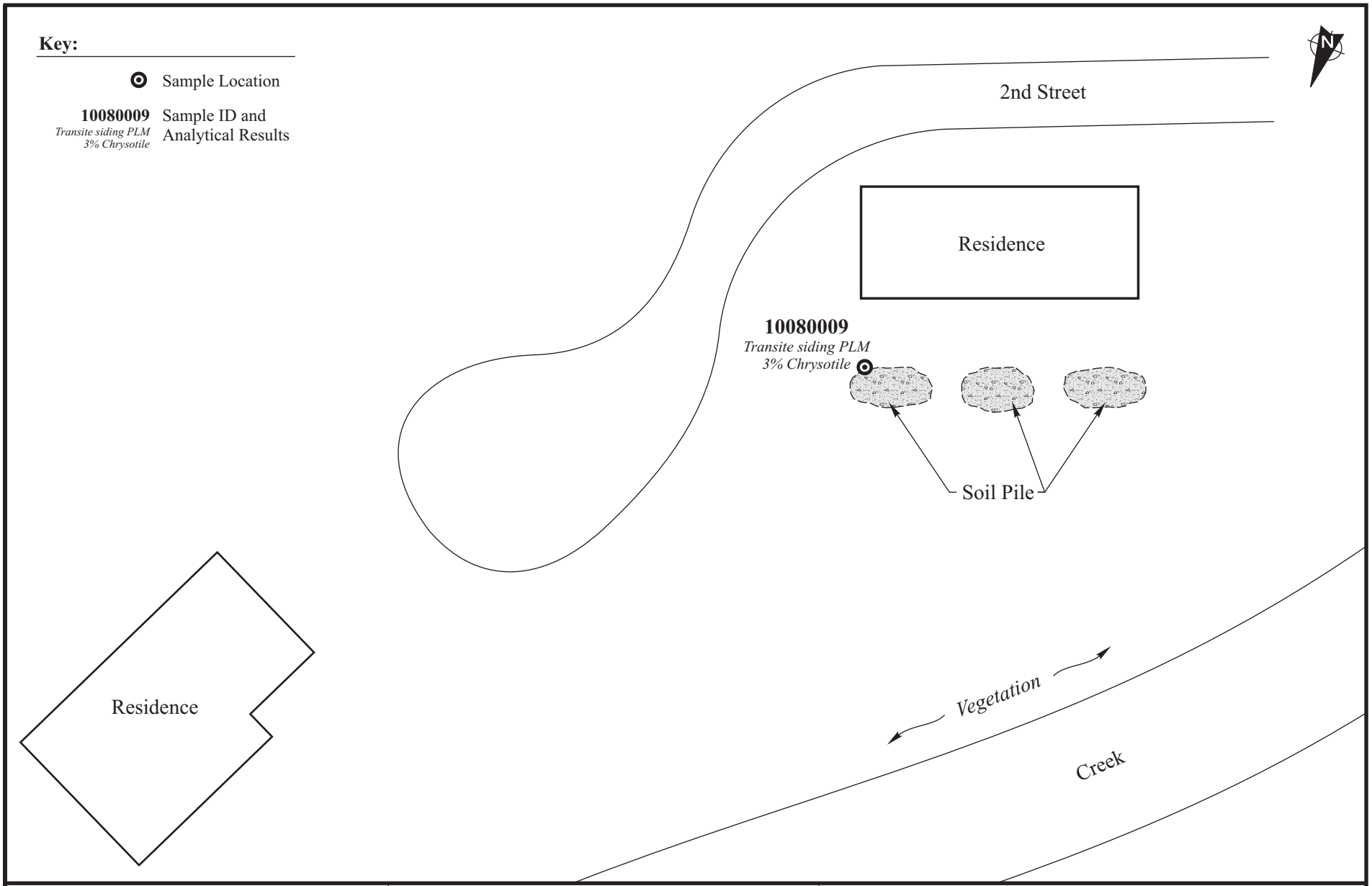
OROFINO ASBESTOS SITE
Orofino, Idaho

Not to Scale

Figure 3-4
14228 HIGHWAY 12
SAMPLE LOCATION MAP

Date:	Drawn by:	
2/22/11	AES	10:START-3\10080001\fig 3-4



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OROFINO ASBESTOS SITE
Orofino, Idaho

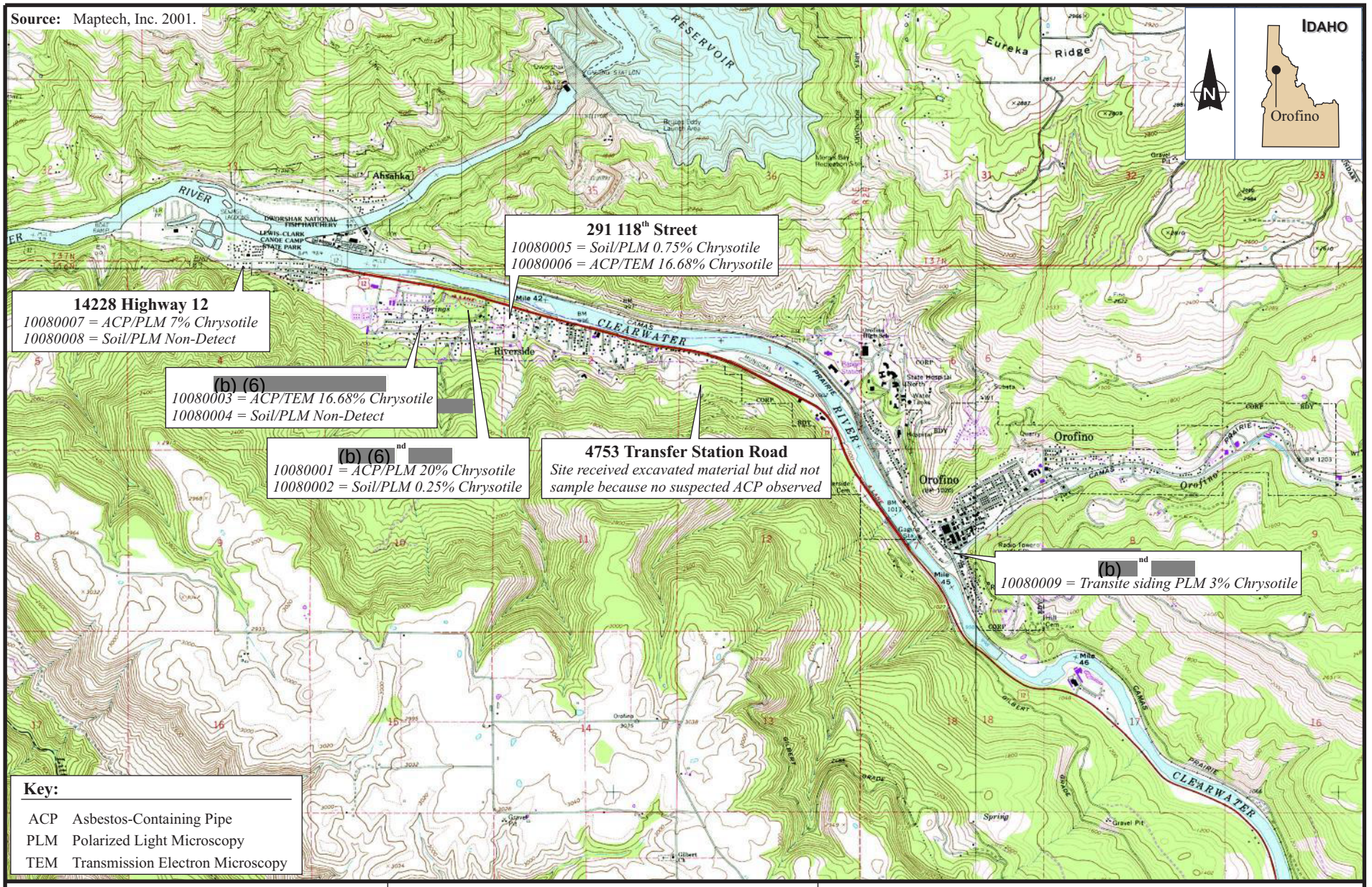
Figure 3-5
(b) (6)
SAMPLE LOCATION MAP

Not to Scale

Date: 3/3/11

Drawn by: AES

10:START-3\10080001\fig 3-5



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OROFINO ASBESTOS SITE
Orofino, Idaho

0 2000 4000
Approximate Scale in Feet

Figure 3-6
SUMMARY SITE LOCATIONS AND SAMPLE RESULTS

Date:	Drawn by:	
2/22/11	AES	10:START-3\10080001\fig 3-6

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4 Quality Assurance/Quality Control

QA / quality control (QC) data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination of sampling equipment, glassware and reagents. Specific QC requirements for laboratory analyses are incorporated in the *Contract Laboratory Program Statement of Work for Inorganic Analyses* (EPA 2007b) and *Contract Laboratory Program Statement of Work for Organic Analyses* (EPA 2007a); equivalent requirements found in the analytical method were followed for analytical work on the project. This section describes the QA/QC measures taken for the project and provides an evaluation of the usability of data presented in this report.

Data from the START-subcontracted commercial laboratory were reviewed by a START chemist. In the absence of other QC guidance, method- and/or SOP-specific QC limits were utilized to apply qualifiers to the data.

4.1 Satisfaction of Data Quality Objectives

The following EPA (EPA 2000) guidance document was used to establish data quality objectives (DQOs) for this project:

- *Guidance for the Data Quality Objectives Process* (EPA QA/G-4), EPA/600/R-96/055.

The EPA OSC determined that definitive data without error and bias determination would be used for the sampling and analyses conducted during the field activities. The data quality achieved during the field work produced sufficient data that met the DQOs stated in the SSSP (E & E 2010b). A detailed discussion of accomplished project objectives is presented in the following sections.

4.2 QA/QC Samples

Trip and rinsate blank QA samples were not collected. Rinsate blank samples were not required as all samples were collected using dedicated sampling equipment. Trip blank samples are not required for asbestos samples. Spike and duplicate samples are not required for asbestos analysis.

4.3 Project-Specific Data Quality Objectives

The laboratory data were reviewed to ensure that DQOs for the project were met. The following subsections describes the laboratories' abilities to meet project DQOs for precision, accuracy and completeness and the field team's ability to meet project DQOs for representativeness and comparability. The laboratories and the field team were able to meet DQOs for the project.

4.3.1 Precision

Precision measures the reproducibility of the sampling and analytical methodology. Laboratory and field precision is defined as the relative percent difference (RPD) between duplicate sample analyses. Duplicates are not required for asbestos analysis.

4.3.2 Accuracy

Accuracy indicates the conformity of the measurements to fact. Laboratory accuracy is defined as the surrogate spike percent recovery (%R) or the spike %Rs for all laboratory analyses. Spikes are not required for asbestos analysis.

4.3.3 Completeness

Data completeness is defined as the percentage of usable data (usable data divided by the total possible data). All laboratory data were reviewed for usability. No sample results were rejected; therefore the project DQO for completeness was met.

4.3.4 Representativeness

Data representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point or environmental condition. The number and selection of samples were determined in the field to account accurately for Site variations and sample matrices. The DQO for representativeness was met.

4.3.5 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared to another. Data produced for this Site followed applicable field sampling techniques and specific analytical methodology. The DQO for comparability was met.

4.4 Laboratory QA/QC Parameters

The laboratory data also were reviewed for holding times/temperatures/sample containers. These QA/QC parameters are summarized below. In general, the laboratory and field QA/QC parameters were considered acceptable.

4.4.1 Holding Times/Temperatures/Sample Containers

All samples were analyzed within QC limits, were collected in acceptable containers, and were maintained at an acceptable temperature.

4.5 Summary of Data Quality

Overall, the data quality achieved during the Orofino Asbestos Site RSE produced data of sufficient quality that met EPA DQOs stated in the SSSP.

5 Summary and Conclusions

In August 2010, EPA performed a RSE to determine whether excavated soil containing ACP was placed as fill material at six locations in the City of Orofino or immediately outside the City limits in Clearwater County.

START collected four bulk samples of the suspected ACP, one bulk sample of the suspected transite siding, and four surface soil samples at five locations and submitted the samples to an off-Site analytical laboratory for analysis to determine asbestos form variety and percent concentration. The data for four ACP samples showed chrysotile asbestos concentrations of 7%, 16.68%, 16.82%, and 20%; for four soil samples, the data showed non-detect for two samples and 0.25% and 0.75% chrysotile for the two remaining samples; and the one transite siding sample showed 3% chrysotile. Data quality for the sampling and analysis achieved project DQOs.

The analytical results show that asbestos fibers, ACP, and transite siding are present on the ground at five of the six locations. With time and exposure to damaging mechanical forces and weather, the ACP and transite siding can continue to become friable thus releasing asbestos fibers to the environment.

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6 References

Ecology and Environment, Inc., (E & E), January 10, 2011, Trip Report, Riverview Construction Asbestos Site, Orofino, Idaho, prepared for the United States Environmental Protection Agency, Seattle, Washington, under Contract No. EP-S7-06-02, TDD No. 10-08-0001.

_____, October 27, 2010a, Sample Plan Alteration Form, Riverview Construction Site, prepared for the United States Environmental Protection Agency, Seattle, Washington, under Contract No. EP-S7-06-02, TDD No. 10-08-0001.

_____, June 29, 2010b, Site-Specific Sampling Plan, Owhyee Construction Site [now Riverview Construction Site], prepared for the United States Environmental Protection Agency, Seattle, Washington, under Contract No. EP-S7-06-02.

Riverside Water and Sewer District, 2009, Water System Improvements, Phase III Construction Contract.

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Appendix A Photographs

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PHOTO DOCUMENTATION

Site: Orofino Asbestos Site	**Lat/Long:** 46.779098, -116.254835	**Date:** 8/9/2010-8/10/2010
Location: Orofino, Idaho	**Camera:** Olympus 850 SW	**Photographer:** Bryce Robbert, WSI

Description: Intersection of Hartford and 122nd Street.

Date: 8/9/2010 **Direction: Northeast**

Time: 13:13

Photo No: P8090001

Description: Section of asbestos-cement pipe (ACP) partially buried.

Date: 8/9/2010 **Direction: Down**

Time: 13:13

Photo No: P8090002

PHOTO DOCUMENTATION

Site: Orofino Asbestos Site	**Lat/Long:** 46.779098, -116.254835	**Date:** 8/9/2010-8/10/2010
Location: Orofino, Idaho	**Camera:** Olympus 850 SW	**Photographer:** Bryce Robbert, WSI

Description: EPA and Riverside Water and Sewer District investigating partially buried ACP at the [redacted] (b) (6) [redacted] property.

Date: 8/9/2010 **Direction: West**

Time: 13:27

Photo No: P8090003

Description: ACP sample number 10080001 collected at the 131 122nd property.

Date: 8/9/2010 **Direction: Down**

Time: 13:30

Photo No: P8090004

PHOTO DOCUMENTATION

Site: Orofino Asbestos Site	**Lat/Long:** 46.779098, -116.254835	**Date:** 8/9/2010-8/10/2010
Location: Orofino, Idaho	**Camera:** Olympus 850 SW	**Photographer:** Bryce Robbert, WSI

Description: Concrete START collecting ACP sample number 10080001 at the [redacted] (b) (6) [redacted] property.

Date: 8/9/2010 **Direction: Down**

Time: 13:33

Photo No: P8090005

Description: START collecting ACP sample number 10080001 at the [redacted] (b) (6) [redacted] property.

Date: 8/9/2010 **Direction: Down**

Time: 13:34

Photo No: P8090006

PHOTO DOCUMENTATION

Site: Orofino Asbestos Site	**Lat/Long:** 46.779098, -116.254835	**Date:** 8/9/2010-8/10/2010
Location: Orofino, Idaho	**Camera:** Olympus 850 SW	**Photographer:** Bryce Robbert, WSI

Description: START collecting soil sample number 10080002 at the [redacted] (b) property.

Date: 8/9/2010 **Direction: Down**

Time: 13:58

Photo No: P8090007

Description: Shards of ACP mixed with surface soil at the [redacted] (b) property.

Date: 8/9/2010 **Direction: Down**

Time: 13:59

Photo No: P8090008

PHOTO DOCUMENTATION

Site: Orofino Asbestos Site	**Lat/Long:** 46.779098, -116.254835	**Date:** 8/9/2010-8/10/2010
Location: Orofino, Idaho	**Camera:** Olympus 850 SW	**Photographer:** Bryce Robbert, WSI

Description: ACP visible in the hillside at the [redacted] (b) (6) property.

Date: 8/9/2010 **Direction: West**

Time: 13:59

Photo No: P8090009

Description: Section of ACP collected and stacked in the front yard at the [redacted] (b) (6) property.

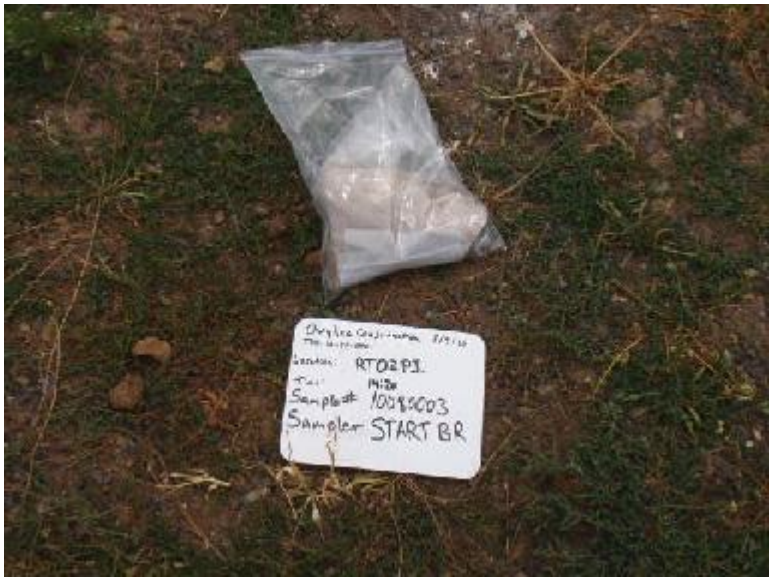
Date: 8/9/2010 **Direction: East**

Time: 14:00

Photo No: P8090010

PHOTO DOCUMENTATION

Site: Orofino Asbestos Site	**Lat/Long:** 46.779098, -116.254835	**Date:** 8/9/2010-8/10/2010
Location: Orofino, Idaho	**Camera:** Olympus 850 SW	**Photographer:** Bryce Robbert, WSI



Description: ACP sample number 10080003 from the (b) (6) [redacted] property.

Date: 8/9/2010 **Direction: Down**

Time: 14:24

Photo No: P8090011

Description: ACP sample number 10080003 from the (b) (6) [redacted] property.

Date: 8/9/2010 **Direction: Down**

Time: 14:24

Photo No: P8090012

PHOTO DOCUMENTATION

Site: Orofino Asbestos Site	**Lat/Long:** 46.779098, -116.254835	**Date:** 8/9/2010-8/10/2010
Location: Orofino, Idaho	**Camera:** Olympus 850 SW	**Photographer:** Bryce Robbert, WSI

Description: Soil sample number 10080004 collected by START from the (b) (6) property.

Date: 8/9/2010 **Direction: Down**

Time: 14:29

Photo No: P8090013

Description: Soil sample number 10080005 collected by START from the 291 118th Street property.

Date: 8/9/2010 **Direction: Down**

Time: 14:59

Photo No: P8090014

PHOTO DOCUMENTATION

Site: Orofino Asbestos Site	**Lat/Long:** 46.779098, -116.254835	**Date:** 8/9/2010-8/10/2010
Location: Orofino, Idaho	**Camera:** Olympus 850 SW	**Photographer:** Bryce Robbert, WSI

Description: ACP-contaminated fill material deposited in the parking lot at the 291 118th Street property.

Date: 8/9/2010 **Direction: East**

Time: 15:01

Photo No: P8090015

Description: ACP sample number 10080006 collected by START from the 291 118th Street property.

Date: 8/9/2010 **Direction: Down**

Time: 15:02

Photo No: P8090016

PHOTO DOCUMENTATION

Site: Orofino Asbestos Site	**Lat/Long:** 46.779098, -116.254835	**Date:** 8/9/2010-8/10/2010
Location: Orofino, Idaho	**Camera:** Olympus 850 SW	**Photographer:** Bryce Robbert, WSI

Description: ACP sample number 10080007 collected by START from the 14228 Highway 12 property.

Date: 8/10/2010 **Direction: West**

Time: 8:14

Photo No: P8090017

Description: Soil sample number 10080008 collected by START from the 14228 Highway 12 property.

Date: 8/10/2010 **Direction: West**

Time: 8:21

Photo No: P8090018

PHOTO DOCUMENTATION

Site: Orofino Asbestos Site	**Lat/Long:** 46.779098, -116.254835	**Date:** 8/9/2010-8/10/2010
Location: Orofino, Idaho	**Camera:** Olympus 850 SW	**Photographer:** Bryce Robbert, WSI

Description: ACP shards and debris at 14228 Highway 12 property.

Date: 8/10/2010 **Direction: Down**

Time: 08:22

Photo No: P8090019

Description: Piles of fill dirt with transite (cement-asbestos board) on the surface at the (b) (6) [redacted] property.

Date: 8/10/2010 **Direction: Down**

Time: 10:24

Photo No: P8090020

PHOTO DOCUMENTATION

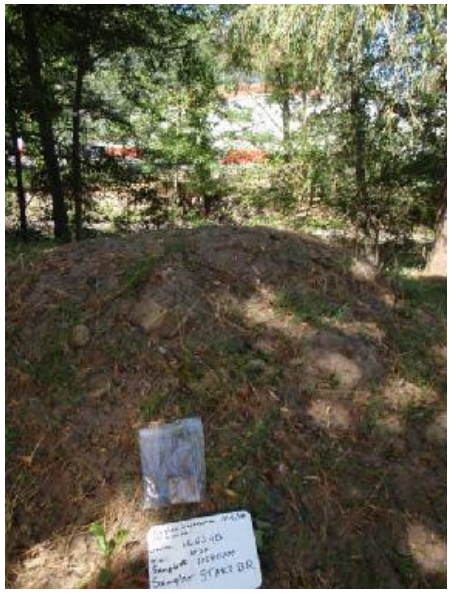
Site: Orofino Asbestos Site	**Lat/Long:** 46.779098, -116.254835	**Date:** 8/9/2010-8/10/2010
Location: Orofino, Idaho	**Camera:** Olympus 850 SW	**Photographer:** Bryce Robbert, WSI

Description: Transite (cement-asbestos board) sample number 10080009 collected by START at the (b) (6) [redacted] property.

Date: 8/10/2010 **Direction: Down**

Time: 10:33

Photo No: P8090021



Description: Transite (cement-asbestos board) sample number 10080009 from the (b) (6) [redacted] property.

Date: 8/10/2010 **Direction: Down**

Time: 10:33

Photo No: P8090022

Appendix B Analytical Results

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ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: August 27, 2010

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, WA MW

SUBJ: **Data Quality Assurance Review, Riverview Construction Site, Orofino, Idaho**

REF: TDD: 10-08-0001 PAN: 002233.0591.01SF

The data quality assurance review of 9 solid samples collected from the Riverview Construction site in Orofino, Idaho, has been completed. Transmission electron microscopy (TEM) (EPA 600-R-93-116 Bulk Semi Quantitative), polarized light microscopy (PLM), and/or CARB Method 435 asbestos analyses were performed by Lab/Cor Portland, Inc., Portland, Oregon.

The samples were numbered:

10080001	10080002	10080003	10080004	10080005
10080006	10080007	10080008	10080009	

Data Qualifications:

The samples were analyzed by August 18, 2010. No discrepancies were noted in the laboratory case narrative.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan, the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), and the analytical method. Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample detection limits but greater than the instrument detection limits or because quality control criteria limits were not met.

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.

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Portland, OR 97239

Analysis Report Cover

Final Report

Asbestos and Environmental Analysis

Phone: (503) 224-5055
Fax: (503) 228-8282
http://www.labcorpdx.net

Job Number: 101736 **PDX**

Report Number: 101736R01
Report Date: 8/26/2010

Client: Ecology & Environment, Inc.
Address: 720 Third Ave
Suite 1700
Seattle, WA 98104
Project Name: Site #: 10JG
Project No.:
PO Number:
Sub Project:
Reference No.:

Enclosed please find results for samples submitted to our laboratory. A list of samples and analyses follows:

Lab/Cor Sample #	Client Sample # and Description	Analysis	Analysis Notes	Date Received:
101736 - S3	10080003 -	EPA 600-R-93-116 - TEM - Bulk Semi-Quantitative	Sample as received weight: 2124.2g	8/17/2010
101736 - S6	10080006 -	EPA 600-R-93-116 - TEM - Bulk Semi-Quantitative	Sample as received weight: 2031.4g	8/17/2010

EPA 600-R-93-116 - TEM - Bulk Semi-Quantitative

Preparation of the above sample was conducted in accordance with the EPA protocol EPA/600/R 93/116 for the identification of regulated asbestiform minerals in bulk building materials. Briefly, each sample was taken from at least three randomly selected areas. The sample was then weighed (Original Sample Weight) on an analytical balance (0.01 milligram sensitivity), ashed in a muffle furnace to remove the organic component, and weighed (Particulate After Ash). After a brief dissolution in concentrated hydrochloric acid, the suspension was immediately diluted in 20 ml of laboratory reagent water. The suspension was then filtered onto a dry, pre weighed 0.1 micron polycarbonate (PC) filter and a series of 0.22 micron mixed cellulose ester (MCE) filter. After drying, the filter was weighed again (Hydrolysis Adjusted Weight). The sample was coated with a thin film of carbon in a vacuum evaporator. After dissolution of the filter debris in N,N-dimethylformamide and acetone, the sample was placed on a 200 mesh copper TEM grid and examined by TEM microscopy. After confirmation of the principal mineral type by diffraction and EDS chemistry, a visual estimate of the concentration of asbestiform regulated minerals relative to the non-asbestos was determined. Fibers with an aspect ratio of at least 20:1, greater than 5 micrometers in length, and with proper diffraction and chemistry were counted as regulated asbestiform mineral types. "Trace" is reported for those samples whose percent asbestos is below 1.0%

This test report relates only to the items tested in this report. The scope of this analysis is to differentiate purified regulated asbestiform minerals that have been added to bulk building materials. Samples such as soils, sediments or raw ores may require further mineralogical analysis to differentiate mineral species. Interpretation of these results is the sole responsibility of the client. Results are subject to the variation in the layers of the sample, the accuracy of the balance, the visual estimate on the microscope as well as other variations within the procedure.

Disclaimer

The results reported relate only to the samples tested or analyzed. Interpretation of these results is the sole responsibility of the client.

If further clarification of these results is needed, please call us. Thank you for allowing the staff at Lab/Cor Portland, Inc. the opportunity to provide you with the analytical services.

Sincerely,

x Jordan Shibley
Jordan Shibley
Analyst

MW 8-27-10

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EPA 600-R-93-116 - TEM - Bulk Semi-Quantitative

Job Number: 101736 PDX
Client: Ecology & Environment, Inc.
Project Name: Site #: 10JG

Report Number: 101736R01
Date Received: 8/17/2010

Lab/Cor Sample No.: S3
Client Sample No.: 10080003
Description:

Analyst(s)	Analysis Date
JS	8/19/2010

Analyte Description	Weight Percent
Chrysotile	16.68%
Total Asbestos Percent	16.68%

Gravimetric Reduction	Weight Percent
Acid Solubles	38.00%
Organics	6.41%
Residue	38.91%
Total Other Non-Asbestos Percent	83.32%

Lab/Cor Sample No.: S6
Client Sample No.: 10080006
Description:

Analyst(s)	Analysis Date
JS	8/19/2010

Analyte Description	Weight Percent
Chrysotile	16.82%
Total Asbestos Percent	16.82%

Gravimetric Reduction	Weight Percent
Acid Solubles	45.30%
Organics	12.65%
Residue	25.23%
Total Other Non-Asbestos Percent	83.18%

Reviewed by:

x Jordan Shibley
Jordan Shibley
Analyst

MW 8-27-10

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Final Report

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EPA 600-R-93-116 - TEM - Bulk Semi-Quantitative

Job Number: 101736 **PDX**
Client: Ecology & Environment, Inc.
Project Name: Site #: 10JG

Report Number: 101736R01
Date Received: 8/17/2010

Lab/Cor Sample No: S3

Client Sample No: 10080003
Description:

Container Weight	14.72554 g	**Hydrolysis Filter PreWeight**	7.67957 g
Weight Before Ash	14.82484 g	**Filter Post Hydrolysis**	7.68233 g
Orig Sample Weight	0.09930 g	**After Hydrolysis Weight**	0.00276 g
Weight After Ash	14.81847 g	**Hydrolysis Aliquot**	5 ml
Particulate After Ash	0.09293 g	**Hydrolysis Adjusted Weight**	0.05520 g
Percent Organics	6.41%	**Acid Solubles**	38.00%

Grid	Analyte	Visual Estimate	Elements				Comment
G7	Chrysotile	30.00%	Mg, Si				
			ItemType	ItemNum	Confirmed		Comment
			Brightfield	H17334BF			
			Diffraction	H17334DF	JS	8/19/2010	0.53 nm row spacing
			Spectra	H17334SP	JS	8/19/2010	
G8	Chrysotile	30.00%					

Lab/Cor Sample No: S6

Client Sample No: 10080006
Description:

Container Weight	14.80100 g	**Hydrolysis Filter PreWeight**	7.67764 g
Weight Before Ash	14.97697 g	**Filter Post Hydrolysis**	7.67986 g
Orig Sample Weight	0.17597 g	**After Hydrolysis Weight**	0.00222 g
Weight After Ash	14.95471 g	**Hydrolysis Aliquot**	3 ml
Particulate After Ash	0.15371 g	**Hydrolysis Adjusted Weight**	0.07400 g
Percent Organics	12.65%	**Acid Solubles**	45.30%

Grid	Analyte	Visual Estimate	Elements				Comment
G7	Chrysotile	40.00%	Mg, Si				
			ItemType	ItemNum	Confirmed		Comment
			Brightfield	H17335BF			
			Diffraction	H17335DF	JS	8/19/2010	0.53 nm row spacing
			Spectra	H17335SP	JS	8/19/2010	
G8	Chrysotile	40.00%					

Reviewed by:

x Jordan Shibley
Jordan Shibley
Analyst

MW 8-27-10

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Portland, OR 97239

Analysis Report Cover

Final Report

Asbestos and Environmental Analysis

Phone: (503) 224-5055
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http://www.labcorpdx.net

Job Number: 101736 **PDX**

Report Number: 101736R02
Report Date: 8/26/2010

Client: Ecology & Environment, Inc.
Address: 720 Third Ave
Suite 1700
Seattle, WA 98104
Project Name: Site #: 10JG
Project Num:
PO Number:
Sub Project:

Enclosed please find results for samples submitted to our laboratory. A list of samples and analyses follows:

Lab/Cor Sample #	Client Sample # and Description	Analysis	Analysis Notes	Date Received:
101736 - S2	10080002 -	CARB 435 - PLM	Sample as received weight: 422.8g.	8/17/2010
101736 - S4	10080004 -	CARB 435 - PLM	Sample as received weight: 458.8g.	8/17/2010
101736 - S5	10080005 -	CARB 435 - PLM	Sample as received weight: 555.2g.	8/17/2010
101736 - S8	10080008 -	CARB 435 - PLM	Sample as received weight: 488.2g.	8/17/2010

CARB 435 - PLM - Samples were ground prior to analysis using a Bico grinder to a particle size of between 75µm and 250µm. Bulk sample analysis was performed by a NVLAP-accredited laboratory for bulk asbestos analysis using PLM. The examination was performed using method CARB 435, ' Determination of Asbestos Content of Serpentine Aggregate ', June 6, 1991.

Disclaimer The results reported relate only to the samples tested or analyzed. Interpretation of these results is the sole responsibility of the client.

If further clarification of these results is needed, please call us. Thank you for allowing the staff at Lab/Cor Portland, Inc. the opportunity to provide you with the analytical services.

Sincerely,

x Stephanie Golden

Stephanie Golden
Analyst

 NVLAP

MW 8-27-10

LabCor Portland Inc

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4321 SW Corbett Ave., Ste A
Portland, OR 97239

BULK SAMPLE ASBESTOS ANALYSIS

Asbestos and Environmental Analysis

Phone: (503) 224-5055
Fax: (503) 228-8282
http://www.labcorpdx.net

Client: Ecology & Environment, Inc.
720 Third Ave
Suite 1700
Seattle, WA 98104

Report Number: 101736R02
Report Date: 08/26/2010

P.O. No: n/a

Job Number: 101736
Project Name: Site #: 10JG
Project Number:
Project Notes:

Client Sample ID: 10080002 **Sample ID:** S2 **Date Analyzed:** 08/18/2010
Client Sample Description: **Analyst:** Stephanie Golden

Asbestos Mineral Fibers	Layer Percent:	Chrysotile	Amosite	Crocidolite			Percent Asbestos:
Homogeneous					**Point Count: 1**	**Point Count Fields: 400**	
fine powder, brown	100 %	0.25 %	-	-			0.25 %

Other Fibers	Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other		Matrix
	-	0.25 %	-	-	-	-	99.5 %

Comments: Field Count performed. Chrysotile: 3 counts (0.75%), Cellulose: 26 counts (6.5%), fibrous glass: 6 counts (1.5%)

Client Sample ID: 10080004 **Sample ID:** S4 **Date Analyzed:** 08/18/2010
Client Sample Description: **Analyst:** Stephanie Golden

Asbestos Mineral Fibers	Layer Percent:	Chrysotile	Amosite	Crocidolite			Percent Asbestos:
Homogeneous					**Point Count: 0**	**Point Count Fields: 400**	
fine powder, brown	100 %	-	-	-			**NAD**

Other Fibers	Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other		Matrix
	-	0.25 %	-	-	-	-	99.75 %

Comments: Field Count performed. Chrysotile: 2 counts (0.50%), Cellulose: 17 counts (4.5%).

Client Sample ID: 10080005 **Sample ID:** S5 **Date Analyzed:** 08/18/2010
Client Sample Description: **Analyst:** Stephanie Golden

Asbestos Mineral Fibers	Layer Percent:	Chrysotile	Amosite	Crocidolite			Percent Asbestos:
Homogeneous					**Point Count: 3**	**Point Count Fields: 400**	
fine powder, brown	100 %	0.75 %	-	-			0.75 %

Other Fibers	Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other		Matrix
	-	0.25 %	-	-	-	-	99 %

Comments: Field Count performed. Chrysotile: 20 points (5.0%), Cellulose: 11 counts (2.75%).

Client Sample ID: 10080008 **Sample ID:** S8 **Date Analyzed:** 08/18/2010
Client Sample Description: **Analyst:** Stephanie Golden

Asbestos Mineral Fibers	Layer Percent:	Chrysotile	Amosite	Crocidolite			Percent Asbestos:
Homogeneous					**Point Count: 0**	**Point Count Fields: 400**	
fine powder, brown	100 %	-	-	-			**NAD**

Other Fibers	Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other		Matrix
	-	0.5 %	-	-	-	-	99.5 %

Comments: Field Count performed. Chrysotile: 2 counts (0.50%), Cellulose: 25 counts (6.25 %).

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MW 8-27-10

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BULK SAMPLE ASBESTOS ANALYSIS

Asbestos and Environmental Analysis

Phone: (503) 224-5055
Fax: (503) 228-8282
http://www.labcorpdx.net

Job Number: **101736**

Report Number: 101736R02
Report Date: 08/26/2010

This laboratory participates in the National Voluntary Laboratory Accreditation Program (NVLAP).
Testing method is per 40 CFR 763 Subpart F, Appendix A, PLM.

Layered samples are considered non-homogeneous."Misc" is miscellaneous. "NAD" is No Asbestos Detected.
Asbestos consists of the following minerals: chrysotile, amosite, crocidolite, tremolite, actinolite, anthophyllite.
Small diameter fibers such as those found in vinyl floor tiles, may not be detected by PLM.
Asbestos detection interferences may result from material binders.
Qualitative and quantitative TEM analysis may be recommended for difficult samples.
Quantitative analysis by PLM point count or TEM is recommended for samples testing at < or = to 1% asbestos.
The following estimate of error for this method by visual estimation of asbestos percent are as follows:
1% asbestos: 0-3% error, 5% asbestos: 1-9% error, 10% asbestos: 5-15% error, 20% asbestos: 10-30% error.
This report pertains only to the samples listed on the report. Report considered valid only when signed by analyst.

Reviewed by:

x Stephanie Golden

Stephanie Golden
Analyst

NVLAP

MW 8-27-10

LabCor Portland Inc

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4321 SW Corbett Ave., Ste A
Portland, OR 97239

Analysis Report Cover

Final Report

Asbestos and Environmental Analysis

Phone: (503) 224-5055
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http://www.labcorpdx.net

Job Number: 101736 **PDX**

Report Number: 101736R02
Report Date: 8/26/2010

Client: Ecology & Environment, Inc.
Address: 720 Third Ave
Suite 1700
Seattle, WA 98104
Project Name: Site #: 10JG
Project Num:
PO Number:
Sub Project:
Report Note:

Due to large sample size and inconsistent asbestos fiber distribution, initial asbestos percentage determined by Bulk-PLM Visual Estimate was very high. After comparison of sample material to a standard of known concentration, final visual estimate analysis determined sample asbestos content to be less than initially reported.

Enclosed please find results for samples submitted to our laboratory. A list of samples and analyses follows:

Lab/Cor Sample #	Client Sample # and Description	Analysis	Analysis Notes	Date Received:
101736 - S1	10080001 -	PLM - Visual Estimate	Sample as received weight: 1647.8g	8/17/2010
101736 - S7	10080007 -	PLM - Visual Estimate	Sample as received weight: 3050.6g.	8/17/2010
101736 - S9	10080009 -	PLM - Visual Estimate	Sample as received weight: 188.0g	8/17/2010

PLM - Visual Estimate - EPA 600-R-93-116 Bulk sample analysis was performed by a NVLAP-accredited laboratory for bulk asbestos analysis using PLM. The examination was performed using the EPA Polarized Light Microscopy method 40 CFR Part 763, Subpart E, Appendix E. This report contains data which was produced by a subcontracted laboratory accredited by NVLAP for testing of asbestos in bulk building materials.

Disclaimer The results reported relate only to the samples tested or analyzed. Interpretation of these results is the sole responsibility of the client.

If further clarification of these results is needed, please call us. Thank you for allowing the staff at Lab/Cor Portland, Inc. the opportunity to provide you with the analytical services.

Sincerely,

x Stephanie Golden

Stephanie Golden
Analyst

NVLAP

MW 8-27-10

LabCor Portland Inc

Lab/Cor Portland, Inc.
4321 SW Corbett Ave., Ste A
Portland, OR 97239

BULK SAMPLE ASBESTOS ANALYSIS

Asbestos and Environmental Analysis

Phone: (503) 224-5055
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http://www.labcorpdx.net

Client: Ecology & Environment, Inc.
720 Third Ave
Suite 1700
Seattle, WA 98104

Report Number: 101736R02
Report Date: 08/26/2010

P.O. No: n/a

Job Number: 101736
Project Name: Site #: 10JG
Project Number:
Project Notes:

Client Sample ID: 10080001 **Sample ID:** S1 **Date Analyzed:** 08/17/2010
Client Sample Description: **Analyst:** Stephanie Golden

Asbestos Mineral Fibers	Layer Percent:	Chrysotile	Amosite	Crocidolite			Percent Asbestos:
Homogeneous							
compact fibrous cement, brown/gray	100 %	20 %	-	-			20 %

Other Fibers	Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other		Matrix
	-	-	-	-	-	-	80 %

Client Sample ID: 10080007 **Sample ID:** S7 **Date Analyzed:** 08/17/2010
Client Sample Description: **Analyst:** Stephanie Golden

Asbestos Mineral Fibers	Layer Percent:	Chrysotile	Amosite	Crocidolite			Percent Asbestos:
Homogeneous							
compact fibrous cement, brown/gray	100 %	7 %	-	-			7 %

Other Fibers	Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other		Matrix
	-	-	-	-	-	-	93 %

Client Sample ID: 10080009 **Sample ID:** S9 **Date Analyzed:** 08/17/2010
Client Sample Description: **Analyst:** Stephanie Golden

Asbestos Mineral Fibers	Layer Percent:	Chrysotile	Amosite	Crocidolite			Percent Asbestos:
Homogeneous							
compact fibrous cement, gray/brown	100 %	3 %	-	-			3 %

Other Fibers	Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other		Matrix
	-	-	-	-	-	-	97 %

NVLAP

8-27-10

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BULK SAMPLE ASBESTOS ANALYSIS

Asbestos and Environmental Analysis

Phone: (503) 224-5055
Fax: (503) 228-8282
http://www.labcorpdx.net

Job Number: **101736**

Report Number: 101736R02
Report Date: 08/26/2010

This laboratory participates in the National Voluntary Laboratory Accreditation Program (NVLAP).
Testing method is per 40 CFR 763 Subpart F, Appendix A, PLM.

Layered samples are considered non-homogeneous."Misc" is miscellaneous. "NAD" is No Asbestos Detected.
Asbestos consists of the following minerals: chrysotile, amosite, crocidolite, tremolite, actinolite, anthophyllite.
Small diameter fibers such as those found in vinyl floor tiles, may not be detected by PLM.
Asbestos detection interferences may result from material binders.
Qualitative and quantitative TEM analysis may be recommended for difficult samples.
Quantitative analysis by PLM point count or TEM is recommended for samples testing at < or = to 1% asbestos.
The following estimate of error for this method by visual estimation of asbestos percent are as follows:
1% asbestos: 0-3% error, 5% asbestos: 1-9% error, 10% asbestos: 5-15% error, 20% asbestos: 10-30% error.
This report pertains only to the samples listed on the report. Report considered valid only when signed by analyst.

Reviewed by:

x Stephanie Golden

Stephanie Golden
Analyst

NVLAP

MW 8-27-10