

CORRECTIVE ACTION REPORT
TRAILSIDE GENERAL STORE
HOMER, ALASKA

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ADEC
Kenai Area Office

PREPARED FOR
SHANNON & WILSON, INC

PREPARED BY
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PROJECT NO. 002-10
DECEMBER, 2002

December 13, 2002

Mr. Stafford Glashan
Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK 99518

Subject: Trailside General Store Corrective Action Report

ADEC Spill # 99-23-00-119-01

Mr. Glashan:

Enclosed is our report on our environmental site assessment and remediation activities at the Trailside General Store located in Homer, Alaska. This report is presented based upon soil excavation and field activities at and around the store property.

We appreciate the opportunity to provide this report to Shannon & Wilson, Inc. If you should have any questions concerning this project, please do not hesitate to contact us.

Sincerely,

AMERICAN ENVIRONMENTAL



Peter C. Campbell

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ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
bgl	Below Ground Level
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
CoC	Chain of Custody
CT&E	CT&E Environmental Services, Inc.
cy	cubic yards
DRO	Diesel Range Organics
GRO	Gasoline Range Organics
mg/L	milligrams per liter
MS/MSD	Matrix Spike / Matrix Spike Duplicate
PID	Photo-ionization Detector
ppm	parts per million
QA/QC	Quality Assurance / Quality Control
RPD	relative percent differences
RRO	Residual Range Organics
ug/L	Micro grams per liter

1.0 EXECUTIVE SUMMARY

American Environmental has conducted this investigation as part of ongoing assessment and remediation at the Trailside General Store. Previous investigations conducted by Alaska Lining and Retrofit (ALR 1999) have covered the initial spill emergency response to a gasoline release, underground storage tank removal and fuel release investigation.

This report covers the excavation of petroleum contaminated soils, well sampling and some offsite assessment work. Southeast Construction of Soldotna Alaska conducted the excavation work on site, and removed the contaminated soils to the Arndt Gravel Pit in Anchor Point Alaska for thermal remediation. American Environmental documented the excavation process, collected samples and provided consulting to Southeast Construction. The excavation work was also observed by a representative from the consulting firm Dames and Moore on behalf of WACO.

This investigation was not completed. Southeast Construction went into bankruptcy during the investigation work, and WACO also began bankruptcy proceedings. The funding for the project was sporadic, and eventually ran out. Some of the contamination migration pathways have been investigated and eliminated, but groundwater monitoring wells on site still contain product, contamination remains in the soils and the extent of contamination is unknown.

2.0 INTRODUCTION

This report describes the activities and findings of winter 1999 - 2000 investigation at the Trailside General Store located in Homer, Alaska (Figure 1). The investigation work was performed by Peter Campbell of American Environmental for Southeast Construction, who was contracted to WACO. The work was primarily oriented at excavation of approximately 5000 cubic yards of petroleum contaminated soils from the site. The field activities and laboratory analyses were performed in general accordance with the *Corrective Action Plan Trailside General Store* (American Environmental, 1999) which was submitted to the Alaska Department of Environmental Conservation (ADEC).

2.1 SITE HISTORY

The Trailside General Store has been a grocery and convenience store with a retail fuel sales outlet. Four fuel dispensers were located in front of the convenience store, which were connected to two 12,000 gallon underground storage tanks containing gasoline. The tanks had been installed in 1984.

On April 29, 1999 Alaska Lining and Retrofit (ALR) was requested by WACO to respond to a release of petroleum at the site. Emergency response actions were initiated on April 30, 1999. Soils at the site are predominantly silts with some interspersed sand, gravel and organic material. These soils have very low permeability. When fuel was released, it floated on the surface of the water, which was close to the ground surface. This allowed the fuel to move up through cracks in the pavement, leading to the discovery of the release.

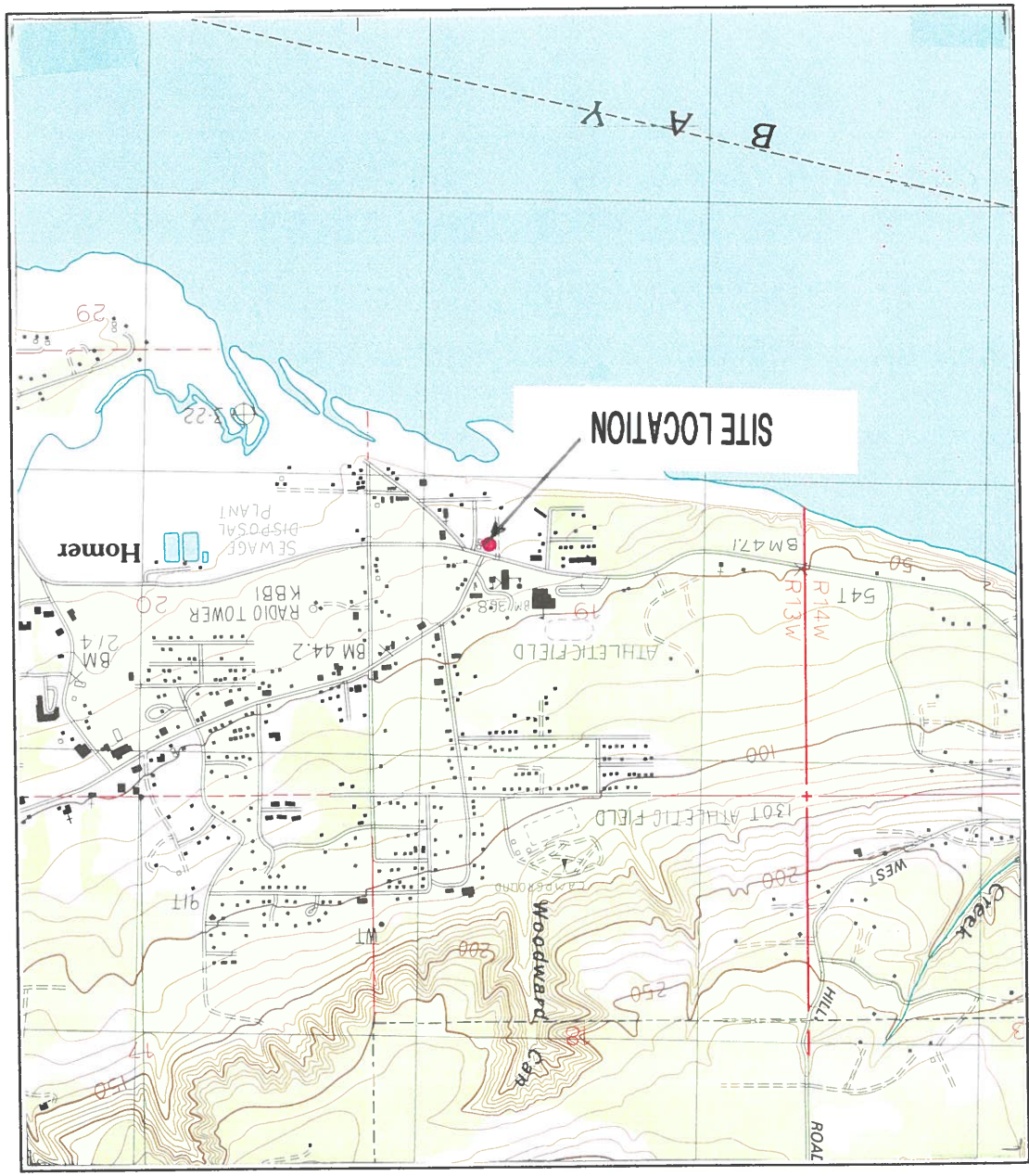
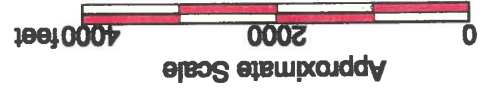
Initially, test pits were excavated to determine the extent of release. The on site storm drain system was removed and soil samples were collected to determine if petroleum was discharged to the ground through the drain. Some low levels of petroleum were present on the south side of the building where the drain system discharged.

Prepared by:
American Environmental
File: Petal/Trailside Topobase
Proj. #: 99-14 Checked by: PCC
Date: 12/15/99 Drawn by: PC

FIGURE 1

USGS 7.5 Minute Quad Map C-5 NE, Alaska

Topographic Site Location Map Trailside General Store Homer, Alaska



A groundwater interceptor trench was installed at the site to capture shallow groundwater and fuel from the release. The discharge was directed into a 5,000 gallon tank where air was injected to vaporize the petroleum. The outflow from the 5000 gallon tank discharged to the ground surface down slope from the tank. The interceptor trench succeeded in lowering the water table, but discharge from the tank has not always met the discharge requirements for benzene. A soil sample was collected from this area in July, 2000 which showed benzene present in the soils above the cleanup levels.

The two underground storage tanks were then removed from the ground, along with the associated piping, pumps, canopies, dispenser islands and pavement. This was completed on May 11, 1999. Fuel had been observed in the turbine housings at the time that ALR initially arrived on the site. It was assumed that these turbines were the source of the current release. Approximately one hundred twenty-five cubic yards of contaminated soil were removed from the ground during the tank removal. This material was stockpiled on site and covered with 10 mil-reinforced plastic. This soil was the first soil on site to be removed to the Arndt Gravel Pit for thermal remediation by Southeast Construction, Inc.

In mid June 1999, ALR installed fourteen monitoring wells on the site to assess the extent of contamination. The wells were drilled to between 12 and 17 feet below ground level (bgl). The monitoring wells did not delineate the horizontal extent of contamination. The vertical extent of free product contamination was defined, but benzene contamination remained at depths greater than 17 feet bgl in some locations. Benzene was present at elevated levels in the deepest sample point, in five of the monitoring wells. These wells are MW8, MW-9, 12, 13 and MW-14. Free product was present in monitoring wells MW-8 and MW-14.

Southeast Construction began excavation work on the site on January 26th, 2000 and worked until February 10th, 2000. Monitoring well MW-8, MW-13 and MW-14 were removed during the excavation process. Free product has since been encountered in MW-9 and MW-12. Additional contamination assessment (test pitting and sampling) efforts were conducted during the summer of 2000.

2.2 SITE PHYSIOGRAPHY

The Trailside General Store property covers approximately 0.62 acres of land. The land is relatively flat at an elevation of approximately 88 to 96 feet above mean sea level. See Photo 1, Appendix F. The area is located 1000 feet north of Kachemak Bay. The area surrounding the property buildings are covered with gravel and pavement, with some areas to the south containing grass and trees. A water drainage that originates from the Woodward Canyon flows 180' east of the property into Kachemak Bay.

According to the U.S.G.S. Professional Paper 443, Geology of the Kenai Lowlands, the area is in "the Cook Inlet Lowland physiographic region that occupies a structural trough, underlain by rocks of Tertiary age and mantled by [unconsolidated] Quaternary deposits of varying thickness." The Homer Bench is a narrow lowland surface lying between the steep 500-800-foot-high bedrock bluffs and Kachemak Bay at the southern tip of the Kenai Lowland. Alluvial sand and water laid blue-gray silt underlie much of the bench surface.

The USDA Soil Survey of the Homer-Ninilichik, Alaska refers to the native soils in the area as part of the "Beluga Association, a moderately sloping poorly drained silt loam that are moderately deep and deep to stratified fine sandy loam to silty clay loam.

It appears the fuel discovered moving up through the pavement during the spring of 1999 was floating on top of water that was perched on top of the frozen frost surface. The frost apparently would not allow infiltration of spring melt water and precipitation. Petroleum, released underground apparently floated to the surface of the water allowing it to daylight.

Because of the low permeability of the dense silty clay soils of the Homer area, groundwater is generally confined to narrow lenses of sand and gravel within the silty clay, or in the higher permeable material on top of the clay. The Homer water supply is obtained from a diversion from Bridge Creek, a stream approximately two miles north of Homer. Many wells are present in the Homer area, both residential and industrial. The wells are generally shallow and have low yield.

2.4 SITE HYDROGEOLOGY

The Homer area is fairly well sheltered from wind, being protected by the Kenai Range to the east and the Aleutian Range across Cook Inlet to the west. Strong winds do occur. Prevailing winds are from the northeast, but strong winds rarely flow from the east or north. Most of the strong winds are channeled up Cook Inlet from the southwest or west-southwest. Winds are generally the strongest in the fall and winter.

The average frost free period in Homer is from May 30th to September 15th. Frost generally occurs to approximately six feet below ground level in open areas.

The moderating influence of the ocean is reflected in the winter temperatures which rarely remain below zero for more than a week. Summers are cool with temperatures occasionally in the high 60's for a week or more at a time. A temperature of 70 degrees occurs most years but lasts for only one or two days at a time. The highest temperature recorded was 81 degrees at an elevation of 1,100 feet in the Caribou Hills near Homer, and the lowest was minus 18 degrees in Homer.

Homer receives approximately 24 inches of precipitation annually, the majority of the precipitation coming in the late summer and fall. Annual snowfall is approximately 49 inches in Homer. Normally, normally only 5 to 24 inches remain on the ground. A considerable amount of snow melts during the winter.

The waters of Cook Inlet and Kachemak Bay have a moderating effect on the climate, and the Alaska Range protects it from the most severe effects of cold air flow from the interior. The Kenai Mountains to the east block the flow of moist air from the Gulf of Alaska.

Homer Alaska is classified as a northern maritime climate based on the influences of Cook Inlet, the Bearing Sea and the Pacific Ocean. Summers are cool; winters are long and moderately cold. Early in summer the weather is generally sunny and dry, but late in summer and fall overcast and rain are common.

2.3 CLIMATE

Silty clay loam was encountered across the site at approximately 5 to 6 feet below the ground surface. The surficial soils on the site were silty sand and gravel with a high concentration of organics, peat and coal. A notable peat layer, approximately 0.6 to 0.8 feet thick was present on top of the silt.

Groundwater flows south-southeast at the Trailside site. Groundwater occurs from 3.9' to 6.6 feet below ground level (bgl). A discussion of the groundwater measurements and groundwater contours will be presented in Section 4.0.

2.5 OVERVIEW OF PROJECT

The following activities were completed as part of this assessment:

- Approximately 5000 cubic yards of petroleum contaminated soil were removed from the site to Anchor Point for thermal treatment.
- Soil samples were collected from the excavation as the soil was removed to characterize the material.
- Excavation sidewall samples were collected to characterize the material left in place.
- The excavation was partially backfilled to stabilize the open excavation.
- Test pits were excavated off site in the sewer backfill to determine if petroleum was migrating off site.
- Monitoring wells were surveyed, gauged and sampled.

3.0 FIELD PROCEDURES

The sampling program was performed in accordance with the protocol established in the ADEC Regulations 18 AAC 78 and 18 AAC 75 dated January 22, 1999. Samples were collected in accordance with regulations and guidelines specified by ADEC and the work plan submitted to the State (ADEC December 16, 1999). The work plan was approved by ADEC on January 25, 2000.

3.1 FIELD SCREENING

An organic vapor monitor (OVM Thermo Environmental 580B and 580 EZ) were the primary field-screening device. The OVM uses a 10.5 electron volt lamp in a non-destructive test to measure volatile organic vapors. A standard calibration gas of approximately 100 parts per million isobutylene was used to calibrate the machine. The OVM was calibrated each time it was turned on. An Industrial Scientific MX251 explosimeter/oxygen meter was also on site to measure the concentration of vapors in work areas.

The OVM was on site to screen soils and monitor vapors in the breathing zone. The OVM measures volatile organic vapors present in the atmosphere. OVM readings are not a direct measure of soil contamination, but an indicator of relative soil contamination. OVM readings along with visual observations and odors observed in the soil were used to make field decisions on where to collect laboratory samples to assess the presence of contamination.

3.2 SOIL EXCAVATION, SCREENING AND SAMPLING

3.2.1 JANUARY 26, 2000

Weather: 28 degrees F, snow, light wind.

Southeast Construction was on site with three twelve cubic yard dump trucks, and an excavator. Mike Gray of Dames and Moore was on site as an independent observer for the Insurance Company, and Peter Campbell of American Environmental was on site to conduct the site assessment and sampling activities for Southeast Construction.

Site excavation work began on January 26, 2000. Preliminary work involved location monitoring wells, removing and abandoning three monitoring wells from the proposed excavation area and removing snow. Contaminated soils generated from the tank removal by Alaska Lining and Retrofit were trucked to a private gravel pit (Arndt Pit) near Anchor Point for thermal remediation. Twenty three (23) ten (10) cubic yard truck loads of material were transported from this stockpile.

MW-8, MW-13 and MW-14 were pulled from the ground with a backhoe, and bentonite pellets were tremmed into the open hole. The bentonite pellets were hydrated to close the hole.

At approximately 15:00 hours site excavation work was initiated off the north end of the building in the general area of MW-8 (Figure 2). Frozen soil was encountered to a depth of three feet below ground level, underlain by approximately two feet of peat with coal, which was underlain by dense gray silt to nine feet. The excavation remained dry at the time of sampling. A representative soil sample, TS-01-01, was collected from the silt at approximately six feet below ground level (bgl). Tabulated sample results are presented in Table 1; the laboratory analytical reports are presented in Appendix A.

While the excavation work was taking place, the monitoring wells were examined. MW-9 located on the north side of the site in the highway right of way had approximately 1.8 inches of product floating on the surface of the water. This product was removed and placed into a salvage drum. The well has been checked several times in the interim, with one round of analytical testing. In the latest examination approximately 0.2" of product was on the water surface. This product was removed, the well bailed and the water analyzed. Petroleum concentrations were elevated, and will be discussed later in the report.

3.2.2 JANUARY 27, 2000

Weather: 32 Degrees F, light wind from north increasing from east. Snow.

The excavation that was opened on January 26th now had approximately one foot of water in the base. Photo 2, Appendix F. It appeared that the water was moving thru the sandy silt layer on top of the lower silt approximately six feet bgl. The highest PID reading in this area was found in the lower peat layer. The surficial soils had a PID reading from 15 to 26 ppm. These soils were frozen and were stockpiled separately at the Arndt gravel pit. As the excavation progressed it became evident that the quantity of low impact soils was minimal; and the frozen soils exhibiting low PID readings were incorporated into the contaminated soil stockpile.

A soil sample was collected from the base of the stairs, which had previously been removed, at approximately six feet bgl. Sample TG-02-06 had a PID concentration of 279 ppm and very high benzene concentrations. PID readings from the material removed ranged from 270 to 460 ppm.

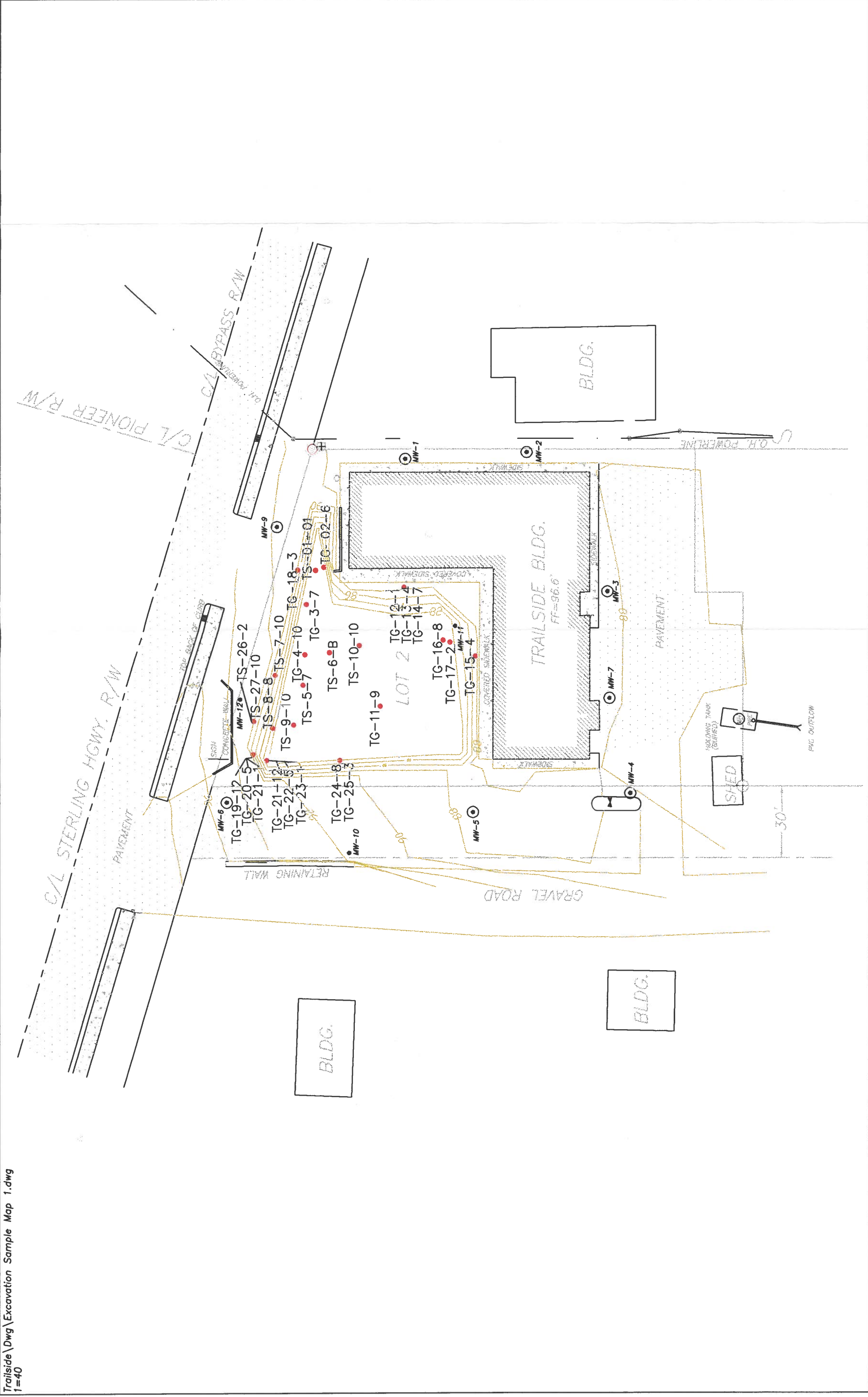
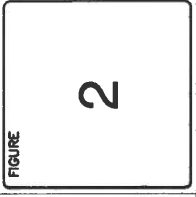
REVISIONS

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Trailside General Store - Homer Alaska
Site, Sample and Monitoring
Well Location Map January 2000

AMERICAN ENVIRONMENTAL
70 BOX 2332
SLEEDOTNA AK 99669
FAX (907) 335-5481
DATE 12/12/02
DRAWN PC
CHECKED PC
SCALE AS SHOWN
PROJ NO. 002-10

FIGURE
2



- LEGEND**
- ⊙ MONITOR WELL WITH METAL CASING
 - MONITOR WELL WITHOUT METAL CASING
 - ⊞ TELEPHONE PED.
 - UTIL. POLE
 - LIGHT POLE
 - ▼ GATE VALVE
 - CATCH BASIN

Table 1
Summary of Phase I Soil Excavation Analyses January 2000
 Trailside Grocery Store
 Homer Alaska

Sample Location	Sample Depth	PID	Date	Lab No.	Benzene	Toluene	Ethyl-benzene	Total Xylenes	DRO	GRO	Comment
Inhalation [1]					9	180	89	81	12,500	1,400	
Injection [2]					290	20,300	10,000	203,000	10,250	1,400	
Groundwater Migration [3]					0.02	5	6	78	250	300	
TS-01-01	6' BGL		1/26/2000	1000431001	0.0128	0.0407 U	0.0407 U	0.0407 U	--	2.03 U	Silt
TG-02-6	6' BGL	279	1/27/2000	1002	22.4	198	39	205.3	--	1020	Silt
TG-03-7	7' BGL	270	1/27/2000	1003	207	799	144	734	--	4320	Silt
TG-04-10	10' BGL	396	1/28/2000	1004	123	633	127	659	--	2940	Composite sample from excavator
TS-05-7	7' BGL	257	1/28/2000	1005	88	501	104	549	--	2330	Composite sample from excavator
TS-06-B	Composite	518	1/29/2000	1006	92.1	377	68.7	357.7	--	2060	Excavator sample Silt with sand
TS-07-10	10' BGL	115	1/29/2000	1007	9.45	19.9	4.08	22.36	--	121	Silt
TS-08-8	8' BGL	674	1/30/2000	1008	60.5	213	31.9	155.5	--	857	Moist sand - saturated w/ Product
TS-09-10	10' BGL	314~	1/30/2000	1009	61	243	51.2	265.5	--	1320	Dark gray silty sand w/ product

All values reported in mg/Kg

(1) Criteria for Inhalation pathway contained in 18 AAC 75.

(2) Criteria for Injection contained in to 18 AAC 75.

(3) Criteria for protection of groundwater contained in to 18 AAC 75.

BOLD Analyte was detected above cleanup criteria.

-- Not analyzed.

BTEX Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8021B.

DRO Diesel-range organics by Alaska method AK102.

GRO Gasoline-range organics by Alaska method AK101.

ne Not established.

U Not detected. The detection level is shown in the table.

The elevated vapors were causing site safety concerns for both flammability and exposure problems. The occupied

building was screened with the PID. Concentrations of 16 ppm were encountered in the hallway, 3 ppm in the Legislative Information Office and 1.2 ppm in the store. Duct tape was placed over the door of the hallway to minimize the vapors

entering and a door was opened to vent vapors. The excavator operator was instructed to minimize the stirring of the soils as they were handled. The staff in the building were informed of the vapors and chose to leave work early. Explosive

vapors were monitored in the excavation area and surrounding work space. All personnel were instructed to remain away from the excavation area in case of flash fire.

Sample TG-03-07 was collected from west of the drain rock material installed by Alaska Lining and Retrofit during construction of the interceptor trench, on the sidewall of the excavation approximately seven feet bgl. Analytical results indicated that this sample was grossly contaminated with benzene concentrations of 207 mg/kg and gasoline range organic (GRO) concentrations of 4320 mg/kg.

The excavation continued into the drain rock material. As the interceptor trench was breached, water that had collected in the interceptor trench began to flow into the excavation. The quantity of water was not that significant; it was mixed with excavated soils and hauled to the gravel pit for treatment.

MW-9 was checked again after product had been removed the prior day. Approximately three feet of water was present in the well, with sheen on the water. Approximately 25 truck loads of contaminated soil were removed from the site this day.

3.2.3 JANUARY 28, 2000

Weather: 18 degrees F, wind 10 knots from west, light snow.

It did not appear that additional water had seeped into the excavation overnight after the drain had breached. Water present in the excavation had frozen overnight. The excavation progressed to the west, away from and perpendicular to the north leg of the L shaped building, approximately 22 feet wide and 44 feet long and 8 to 10 feet deep. As the excavation progressed to the west, PID readings generally increased to over 500 ppm. The PID instrument was actually being overwhelmed by the vapor concentrations. As the probe was inserted into the zip lock to measure the headspace, the reading would stabilize at a given concentration. When the probe was extracted from the bag, the PID readings would increase as the probe was allowed to mix with fresh air.

Thirty eight trucks (38) of contaminated soil were removed from the site on this day. Two soil samples were collected to characterize soils that were removed from the site. TG-04-10 and TS-05-7 were very contaminated and generally represent the contaminant concentrations of soils that were removed. Soils remaining on the north side of the excavation appeared to be highly contaminated. Photo 3, Appendix F.

3.2.4 JANUARY 29, 2000

Weather: 14 degrees F, wind 15 knots from east.

The excavation had extended to 55 feet west of the west wall of the north leg of the building. The excavation was approximately 10 feet deep in this area. See Figure 2. A characterization sample was collected from the tenth truck out of the site this day. Sample TS-06-B was collected from the base of the excavation at approximately 10 feet deep in moist silt

to silty sand material that had PID readings of 510 ppm. This sample exhibited very high BTEX and GRO contamination when analyzed at the laboratory (Table 1).

As the excavation progressed through the day, PID concentrations varied from 350 to 550 ppm. A sample was collected from the final truck of the day (#37) at the western base of the excavation at approximately 10 feet deep. Sample TS-07-10 had PID readings of 115 ppm and it appeared that the excavation was beginning to clean up in this area. Laboratory results indicate that benzene and toluene levels were still elevated, but GRO concentrations were dropping to acceptable levels. This was attributed to benzene being one of the more mobile chemicals in gasoline.

3.2.5 JANUARY 30, 2000

Weather: 14 Degrees F, wind calm.

As the excavation moved south the excavation base was exhibiting elevated PID readings of 481 ppm. As the excavation neared the area where the pump islands were located, it appeared that free product was present in the soils. As the excavation approached MW-6, which was a clean monitoring well, the soils were still very contaminated.

Sample TS-08-8 was collected from 8 feet bgl in sand with silt and some gravel. The soils were apparently wet with product. PID readings were only 674 ppm, but the meter was exhibiting the typical pattern of being overwhelmed. There was some site concern that this product zone may be flammable and site personnel were notified of hazards. Analytical results indicate that the benzene levels were very high, but GRO concentrations relatively low. This indicates the contamination observed in the soil at this location may have originated from contaminated water, rather than liquid gasoline product.

Sample TS-09-10 was collected from ten (10) feet bgl in an area of dark gray silty sand that was also apparently wet with fuel. The PID readings were 314 ppm from this sample, and the fuel vapors again overwhelmed the PID. Laboratory analytical results did not indicate that product was present, but very high levels of BTEX and GRO were noted.

The excavation progressed to the north west corner of the property to a depth of approximately 15 feet bgl. PID concentrations dropped to 10.5 ppm with a significant decrease in odors noted. Water began seeping into the excavation from the area of the old tank excavation. The water appeared to be moving on top of the silt approximately 8 feet bgl in the sand material. The water appeared to be uncontaminated. Forty six (46) truck loads of soil were moved to the Anchor Point gravel pit.

3.2.6 FEBRUARY 7, 2000

Weather: 36 degrees F, wind calm, partly cloudy.

Excavation work was halted for one week to allow soil remediation work at the gravel pit to proceed. Approximately two feet of water had pooled in the base of the excavation. The water had heavy petroleum sheen on the east end (wind driven) near the interceptor drain, with a slight sheen noted elsewhere. The water appeared to be coming from precipitation, melt-water and seeps on the west and northwest sides of the excavation. The petroleum product appeared to be migrating in from the interceptor trench drain rock material.

The active excavation work continued today was now moving to the east toward the front of the General Store doorway. PID readings were increasing to 1,339 and heavy petroleum vapors were noted rolling off of the trucks as they were being loaded. The daytime temperature increased to 44 degrees F., and vapor concentrations increased around the building. Air concentrations were measured at 32 ppm on the east side of the building and 3 ppm inside of the building hallway.

At approximately 13:50 a flash fire occurred in the excavation when the excavator struck a rock, creating a spark. The fire initially flashed approximately four feet in the air, then continued to burn in small pockets across the exposed surface of the excavation. The excavator was used to smother the flames with snow, extinguishing the fire.

Soils were field screened in the area of the planter located in the southeast corner of the courtyard. This face of the excavation was now vertical to a depth of 10 feet bgl. The surficial soils had 17 ppm; the peat soils at 2.5 feet had 75 ppm, at 8 feet bgl 168 ppm and at 10 feet bgl 468. A sample was collected from the base of the excavation at 10 feet. Laboratory sample TS-10-10 had elevated levels of benzene and toluene, while ethyl benzene, xylene and GRO concentrations were detected below the cleanup criteria. See Figure 2 and Table 2: Summary of Phase I Soil Excavation Analyses February 2000. Complete analytical results are presented in Appendix B.

The excavation progressed to the area in front of the video store adjacent to the planter but still on the north and west side of the original French drain. Forty-two (42) truck loads of soil were removed from the site. ADEC (Paul Horwath and Collin Basye) visited the site late in the day after inspecting the gravel pit remediation operation. Site contamination, contaminant spread under the building, adequacy of sampling, excavation water and under building vapor extraction were discussed.

3.2.7 FEBRUARY 8, 2000

Weather: 35 degrees F. light rain, wind calm.

The trucks were not able to run this morning due to poor road conditions. It appeared that the original French drain was the transport mechanism for much of the contamination. The Alaska Lining and Retrofit (ALR) installed interceptor trench drain rock material was grossly contaminated. Water and product flowed out of the drain rock as the material was exposed and removed. The soils loaded into the trucks were very wet. PID readings in the soils ranged from 220 to 951 ppm with all of the PID readings exhibiting the same over-range characteristics.

A base sample (TG-11-9), was collected from nine feet bgl. This sample was collected from near the water level at the approximate mid-point of the excavation. Laboratory results indicate that elevated levels of BTEX were present in this sample, with high levels of GRO. As the excavation work was ending for the day, the excavation again caught fire and burned in the southeast area near the planter. The fire was extinguished with the excavator.

Trucks removed twenty eight (28) loads of material from the site on this day.

3.2.8 FEBRUARY 9, 2000

Weather: 33 Degrees F. Light rain, wind calm, some minor freezing overnight, roads icy.

The excavation work this day was primarily conducted around the front of the Trailside Store, 10 feet west of the door and 10 feet north of the building. PID concentrations were exceptionally high on this day. The lowest PID reading was 226 ppm but some readings were as high as 4147 ppm. Fire potential was high and the appropriate precautions were taken in

Table 2
 Summary of Phase I Soil Excavation Analyses February 2000
 Trailside Grocery Store
 Homer Alaska

Sample Location	Depth	PID	Date	Lab No.	Benzene	Toluene	Ethyl-benzene	Total Xylenes	DRO	GRO	TOC	Comment
inhalation [1]	injection [2]	inhalation [3]										
TS-10-10	10' BGL	468	2/7/2000	1000561001	7.07	17.5	3.45	17.67	102	740	102	Silt
TS-11-9	9' BGL	951	2/8/2000	1002	33.6	128	28.5	149.7	740	740	740	Silt
TS-12-1	1' BGL	36.3	2/10/2000	1003	0.16	0.535	0.148	1.088	4.4	4.4	4.4	Brown sand
TS-13-4	4' BGL	852	2/10/2000	1004	17.6	124	29.1	147.1	685	685	685	Gray silt w/ mottled brown sand
TS-14-7	7' BGL	13.8	2/10/2000	1005	0.254	0.272	0.166	1.107	3.94	3.94	3.94	Gray silt w/ fine sand
TS-15-4	4' BGL	702	2/10/2000	1006	327.0	1130	228	1062	6420	6420	6420	Gray silt w/ mottled brown sand
TS-16-8	8' BGL	88.3	2/10/2000	1007	8.75	5.67 U	5.67 U	5.67 U	284 U	284 U	284 U	Dense gray silt w/ fine sand & cobble
TS-17-2	2' BGL	1399	2/10/2000	1008	5.44	44.5	9.69	54.4	243	243	243	Fine sand & coarse gravel
TS-18-3	3' BGL	518	2/10/2000	1009	100	573	117	547	3630	3630	3630	Light gray sandy silt
TS-19-12	12' BGL	8.6	2/10/2000	1010	0.0814	0.582	0.208	1.157	5.13	5.13	5.13	Silt
TS-20-5	5' BGL	696	2/10/2000	1011	50.80	310	83.3	434	2220	2220	2220	Clean gray sand
TS-21-1	1' BGL	636	2/10/2000	1012	2.72	30.1	10.2	78.7	278	278	278	Light gray sandy silt
TS-21-12	12' BGL	225	2/10/2000	1013	13	8.22	2.57	13.58	76.4	76.4	76.4	Silt
TS-22-5	5' BGL	817	2/10/2000	1014	109	545	125	643	3010	3010	3010	Brown sandy silt / Pipe conduit
TS-23-1	1' BGL	765	2/10/2000	1015	6.53	72.2	16.5	163.8	540	540	540	Gray silt w/ fine sand
TS-24-8	8' BGL	3.4	2/10/2000	1016	0.452	0.0423	0.0398 U	0.083	1.99 U	1.99 U	1.99 U	Silt
TS-25-3	3' BGL	81.3	2/10/2000	1017	9.27	0.196	1.82	7.31	32.8	32.8	32.8	Light gray sandy silt
TS-26-2	2' BGL	1910	2/14/2000	1000583001	93.60	591.0	172.0	795.0	4090	4090	4090	Brown coarse sand
TS-27-10	10' BGL	3040	2/14/2000	3002	36.90	219.0	36.8	189.4	1030	1030	1030	Dark gray silt w/ gravel
TS-28-5	5' BGL	358	2/28/2000	1000899001	11.30	1.130	1.59	1.39	32.3	32.3	32.3	Silt
TS-29-12	12' BGL	44.3	2/29/2000	9002	0.12	0.242	0.189	0.95	4.0	4.0	4.0	Dense gray silt
TS-30-2	2' BGL	543+	2/29/2000	9003	9.13	73.800	10.10	194.90	543.0	543.0	543.0	Peat
TS-31-5	5' BGL	17.7	2/29/2000	9004	0.652	0.662	0.137	0.868	4.9	4.9	4.9	Dense light gray silt w/ gravel
TS-32-15	15' BGL	17.2	2/29/2000	9005	0.0188	0.065	0.0315 U	0.04	1.58 U	1.58 U	1.58 U	Dry dark silt, strong odor
TS-33-9	9' BGL	14.4	2/29/2000	9006	0.963	0.409	0.115	0.74	4.6	4.6	4.6	Dense dark silt
TS-34-15	15' BGL	13.9	3/1/2000	9007	0.757	0.389	0.0735	0.45	3.9	3.9	3.9	Dense gray silt
TS-35-13	13' BGL	13.9	3/1/2000	9008	2.28	0.0456 U	0.0456 U	0.2019	4.7	4.7	4.7	Dense dark gray silt
TS-36-7	7' BGL	19.9	3/1/2000	9009	1.06	1.840	0.20	0.963	7.88	7.88	7.88	Dark gray silty sand
TS-37-7	7' BGL	19.7	3/1/2000	9010	0.116	0.244	0.106	0.403	3.78 U	3.78 U	3.78 U	Dense gray silt
TS-38-4	4' BGL	369	3/1/2000	9011	0.229	1.210	0.27	1.37	7.48	7.48	7.48	Gray sandy silt
TRIP BLANK				9012	0.0126 U	0.0505 U	0.0505 U	0.0505 U	2.53 U	2.53 U	2.53 U	

All values reported in mg/kg
 (1) Criteria for inhalation pathway contained in 18 AAC 75.
 (2) Criteria for ingestion contained in 18 AAC 75.
 (3) Criteria for protection of groundwater contained in 18 AAC 75.
BOLD Analyte was detected above cleanup criteria.
 - Not analyzed.
 BTEX Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8021B.
 DRO Diesel-range organics by Alaska method AK102.
 GRO Gasoline-range organics by Alaska method AK101.
 ne Not established.
 U Not detected. The detection level is shown in the table.

keeping personnel away from the active excavation; minimizing the amount of the soils that were moved unnecessarily; and keeping track of wind direction changes.

Thirty five (35) loads of soil were removed from the site. No characterization samples were collected on this day because of the unusually high PID concentrations. The excavated soil was so highly contaminated that collecting additional samples of very contaminated material was simply redundant.

3.2.9 FEBRUARY 10, 2000

Weather: 33 degrees F. Partly cloudy, wind calm.

The excavation continued to the southwest near the corrugated metal pipe manhole installed at the west end of the interceptor trench by Alaska Lining and Retrofit. The manhole lid was removed to reduce the explosion hazard in the groundwater collection system enclosed space. The groundwater collection system drained water from the excavation area and channeled the water to the 5000 gallon oil water separator tank located on the south side of the property.

This corrugated metal pipe culvert was checked periodically to determine conditions, but with the excavation getting closer to the pipe, the site conditions were changing. A large quantity of water was present in the manhole. As work around the manhole progressed, it was determined that it would be more effective to remove the manhole and cap the discharge line that ran to the 5000 gallon tank.

The excavators and trucks working in this area apparently damaged Monitoring Well 5. The well had been flagged to mark the location, but the well was lost and never recovered.

As the excavation progressed the electrical conduit for the removed underground storage tanks was encountered. The lines came out from under the sidewalk in front of the door to the Trailside Grocery and crossed the parking lot to the old pump island and tank locations. The wires were removed and trimmed to the edge of the sidewalk, keeping the wires intact at the trim point under the direction of Willie Flynn, who requested that the lines be kept in place in the event that new tanks were installed at the site.

PID readings in the soils that were removed from the excavation ranged from 36.3 to 1399 in the shallow soils and from 13.8 to 88.3 in the deeper soils. Representative laboratory soil samples collected from the soils that were removed from the excavation indicated that each sample contained levels of benzene above the cleanup criteria. In many samples, GRO cleanup levels were also exceeded.

Twenty seven (27) truck loads of contaminated soils were removed from the site and taken to the gravel pit soil remediation facility for stockpiling.

Fifteen (15) soil samples were collected from the excavation on this day. Samples TG-12-1, TG-13-4, TG-14-7 and TG-15-4 were collected from the west sidewall of the excavation, profiling the vertical wall. One area of concern was a seep characterized by sample TG-15-4. This sample, collected from four feet below ground level, characterized soils that were exposed to product seeping out from under the slab of the building.

It appeared that the sand backfill surrounding the support columns for the roof (which were encased in concrete and surrounded in sand), acted as a permeable conduit for water and product to move into the sands under the slab. When the soils were removed from the excavation, this water from under the slab had a tendency to drain back into the excavation. This process was evident at several of the support post locations, especially under the entrance doors to the two businesses.

Two samples (TG-16-8 and TG-17-2) were collected from beneath a planter located at the southeast corner of the excavation. PID readings in these samples were 88.3 ppm in sample 16, and 1399 ppm in sample 17, which was fine sand with coarse gravel fill under the planter.

TG-18-3 was collected from the northeast side wall at approximately 3' bgl to determine the soil concentrations in a light gray sandy silt in an area adjacent to MW-9, which had exhibited several inches of product on the water table.

TG-19-12, TG-20-5 and TG-21-1 were collected from the northwest corner of the excavation to profile the vertical extent of contamination from bottom to top, at 12, 5 and 1 foot bgl. See Photo 4, Appendix F. Sample results indicated that GRO concentrations near the surface and at depth met the cleanup requirements, but benzene concentrations in each sample exceeded the cleanup levels. The sample collected from 5' bgl was still very high in the GRO range.

Samples TG-21-12, TG-22-5 and TG-23-1 were also side wall profile samples located on the western wall near the northern corner. PID screening indicated that significant contamination remained in this area, which was close to the original UST location. Laboratory sample results indicated that significant GRO contamination was present at one and five feet bgl, and benzene was detected in each sample well above the cleanup levels. Other BTEX compounds were also present in significant concentrations.

Samples TG-24-8 and TG-25-3 were collected from a vertical profile on the mid-point of the western wall. PID screening concentrations had been significantly lower here than in most other areas of the excavation. The analytical results mirrored the screening results with much lower GRO & BTEX concentrations; but with benzene concentrations still well above the applicable cleanup levels.

3.2.10 FEBRUARY 14, 2000

Significant backfilling of the excavation was initiated by Southeast Construction on this day. See Photo 5. The practical limits of the excavation had been reached on the north and west sides of the excavation. Further excavation on the west side would have disrupted access to the property and excavation to the north would have intruded into the highway right of way. It was decided to backfill the area beginning on the west side of the excavation. The excavation was filled to grade in the area depicted in Figure 3: Topographic Site, Sample and Monitoring Well Locations, February 2000.

Two soil samples were collected from the north side of the excavation as part of the effort to define conditions at the perimeter of the excavation. Sample TS-26-2 and TS-27-10 were collected as a vertical profile near the northwest corner of the excavation at 2 and 10 feet bgl. The field screening and analytical sample results indicate that the soils in this area were still significantly contaminated.

REVISIONS

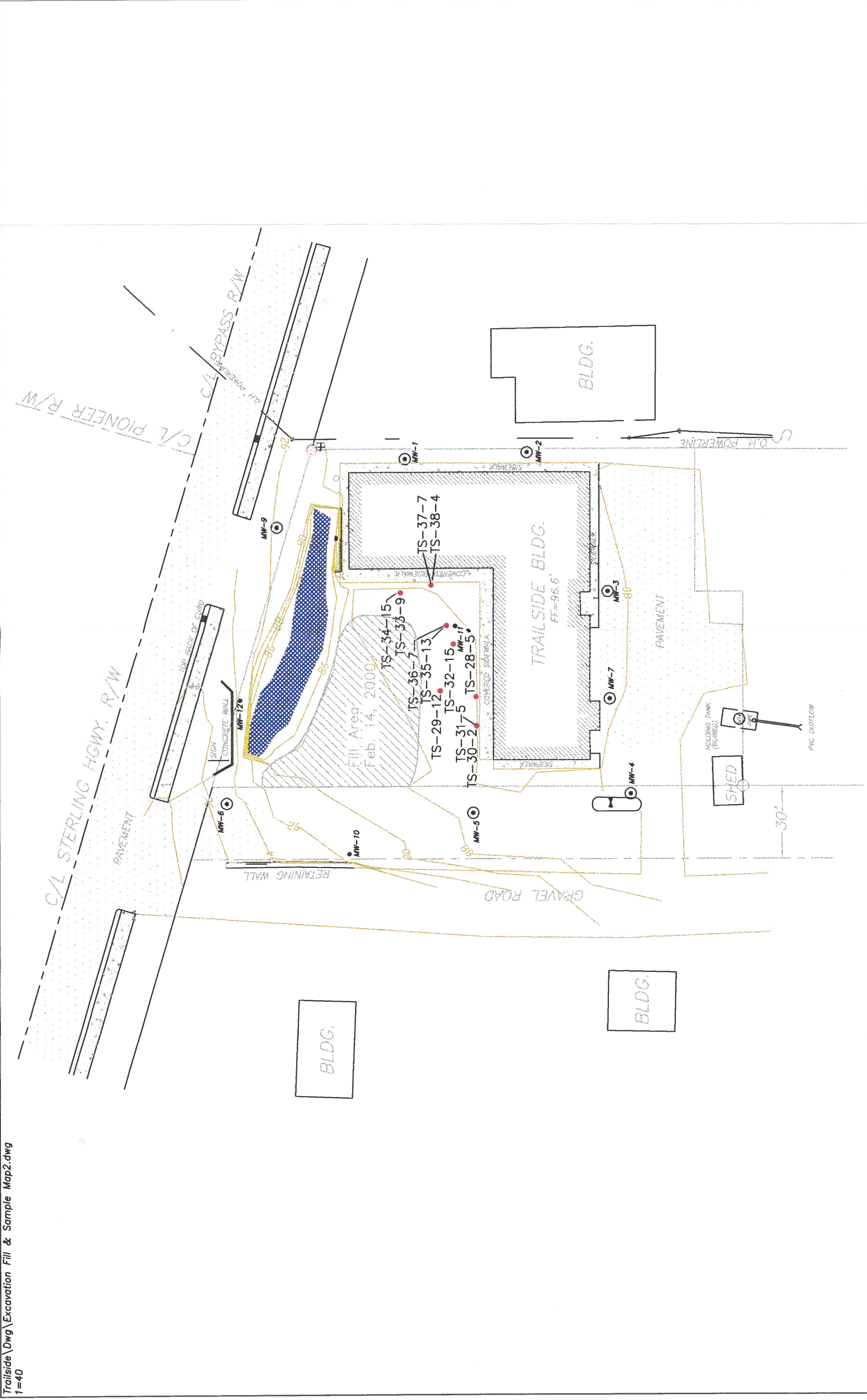
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Topographic Site, Sample and Monitoring Well Locations February 2000

AMERICAN ENVIRONMENTAL
 PD BOX 2552
 SLDOTNA AK 99669
 (907) 335-5481
 FAX (907) 335-5480

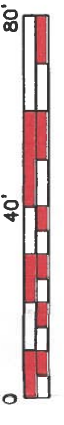
DATE 11/7/02
 DRAWN PC
 CHECKED PC
 SCALE AS SHOWN
 PROJ NO. 002-10

FIGURE
3



LEGEND

- MONITOR WELL WITH METAL CASING
- MONITOR WELL WITHOUT METAL CASING
- TELEPHONE PED.
- LIGHT POLE
- GATE VALVE
- CATCH BASIN



REVISIONS

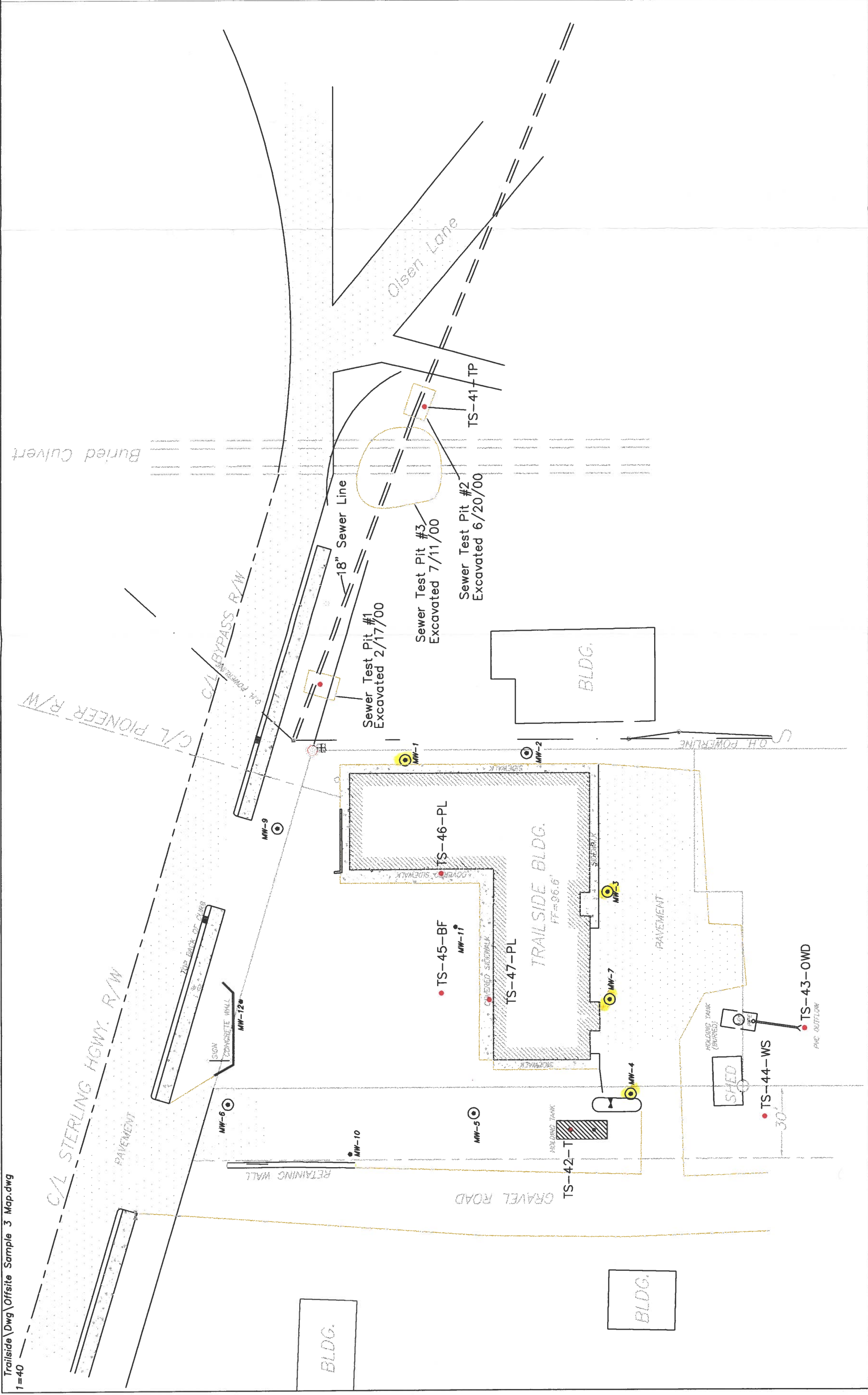
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Surface and Test Pit Sample Locations
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AMERICAN ENVIRONMENTAL PD BOX 2552 SLEDOTNA AK 99669 (907) 335-5481 FAX (907) 335-5480
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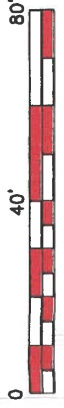
DATE 11/13/02
DRAWN PC
CHECKED PC
SCALE AS SHOWN
PROJ. NO. 002-10

FIGURE 4



LEGEND

- TS-43-OWD • SAMPLE LOCATION
- ⊙ MONITOR WELL WITH METAL CASING
- LIGHT POLE
- MONITOR WELL WITHOUT METAL CASING
- ⊠ GATE VALVE
- ⊞ TELEPHONE PED.
- UTIL. POLE
- CATCH BASIN



3.2.11 FEBRUARY 17, 2000

Off-site test pits were placed along the City of Homer sewer lines to determine if petroleum contamination had entered the sewer backfill along the sewer line that runs parallel to the property and in the Sterling Highway right-of-way. The test pit locations are shown on Figure 4: Surface and Test Pit Sample Locations. The decision to excavate this test pit was based on several factors. First, a significant amount of product was noted in MW-9, which was located in close proximity to the sewer line. The sewer line is bedded in a sand material, surrounded by dense silty soils of low permeability. Water levels measured in MW-9 also closely approximated the elevation of the buried sewer pipe backfill.

Utility locates were conducted. The area was difficult to assess due to many existing utilities; power lines, sewer lines and sewer mains were all encountered. Soils encountered from 0-4' bgl consisted of sand and gravel that was silty with some rock and a copper strap. From 4-6' bgl peat with roots and branches were encountered. From 6' to the total depth was gray dense silt. This was the profile on the south side of the excavation, adjacent to and away from the sewer main utility excavation. In the north side of the hole the first PID reading was 100 ppm in sandy silt. At 9' bgl the PID reading rose to 3,170 ppm adjacent to the sewer line, which appeared to be bedded in gravel. Water flowing out of the sewer line initially showed no sheen, but as the excavation progressed a minor amount of sheen was noted adjacent to the pipe. Just as we were preparing to collect a soil sample from the bedding material under the sewer line, the excavator bucket snapped off a capped service port from the main. The sewer was plugged with a cap and backfilled without collecting a sample, as the excavation contractor was in no mood to debate the issue of sample collection. Field notes indicate that the rock around the sewer appeared to be very contaminated. Approximately 15 cubic yards of contaminated soil was removed from the excavation for remediation.

3.2.12 FEBRUARY 23, 2000

A water sample was collected from the open excavation on the Trailside General Store property. A significant amount of water had seeped into the excavation from local groundwater flow and thawing snow. Approximately 0.5 inches of ice covered the excavation water. The ice was broken with a geology pick and a sample was collected with a disposable bailer. The sample (TG-26-W) was collected from about 5 feet below ground level 8 feet north of the planter, which was located in the southeast corner of the building. Sample results indicated that GRO and BTEX compounds (except for ethylbenzene) were present at concentrations greater than 10 times the ADEC groundwater cleanup levels potentially available for non-drinking water source aquifers. See Table 3: Summary of Surface Water Analyses. Complete Laboratory results are contained in Appendix C: Laboratory Analytical Results of Surface Water Testing.

An explosimeter and a PID were used to check the air quality within the storm and waste water sewer system at the nearest access points to the site, and down Olsen Lane to Bunnell Street. No PID hits or explosive levels were detected within the sewer system.

Table 3
 Summary of Surface Water Analyses
 Trailside Grocery Store
 Homer Alaska

Sample ID	Lab No.	Sample Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	GRO
(1)			0.05	10	7	100	13
TG-26-W	1000783007	2/23/2000	13.8	32.3	2.86	20.17	120
TS-40-XW	1003289002	6/20/2000	0.0196	0.0276	0.0020 U	0.01005	0.15
TS-42-T	1003962012	7/12/2000	0.0202	0.0183	0.0020 U	0.02107	0.152

Data are reported in mg/L.

(1)

Criteria contained in 18 AAC 75 for a non-drinking water source.

BOLD

Analyte was detected.

BOLD

Analyte was detected above the cleanup criteria.

BTEX Benzene, toluene, ethylbenzene, and xylenes by EPA Method 602.

DRO

Diesel-range organics by Alaska method AK102.

GRO

Gasoline-range organics by Alaska method AK101.

ne

Not established.

U

Analyte was not detected in concentrations above the detection level shown.

3.2.13 FEBRUARY 28, 2000

Weather: Light rain, 35 degrees F. Light wind.

A 10,000 gallon above ground tank was placed at the Trailside General Store site to hold contaminated water from the excavation. Limited soil excavation was conducted, and a land surveyor surveyed in the locations of the monitoring wells and the extent of excavation. The tank was set up off of the west end of the store for purposes of containing the excavation water until a remediation method could be chosen. We were examining carbon filtration or air stripping as options. Approximately 5,000 gallons of water were removed from the excavation to the tank with a three-inch trash pump.

Excavation continued next to the building in front of the Trailside Store. Significant contamination was encountered off of the west roof post in front of the store entrance. A sample was collected from this material after the maximum amount had been excavated without endangering the foundation. Sample TS-28-5 (Table 2) was collected from a silt layer at 5' bgl. Sample results from the laboratory indicated that high levels of benzene were present but other BTEX and GRO components were low. PID screening in the overlying peat at 3' bgl ranged from 897 to 967 ppm. This peat layer appeared to be continuous under the building foundation. It appeared that contamination extended under the building into the foundation bedding sand and native peat soils.

3.2.14 FEBRUARY 29, 2000

Weather: Clear sky, 30 degrees F. Wind calm.

Excavation continued in front of the Trailside General Store entrance. The excavation approached the sidewalk in front of the store. As the soils were removed to form a vertical face in the excavation, water and product began flowing out from beneath the foundation and into the excavation.

A sample was collected (TS-29-12) from the base of the excavation in dense gray silt with gravel. Field screening indicated that concentrations were decreasing with depth, and laboratory analytical results indicated that most of the petroleum compounds were present at low levels, with benzene being elevated.

TS-30-2 was collected from peat soils just below the sidewalk. PID screening from this material indicated high levels of petroleum were present and laboratory testing confirmed that elevated levels of petroleum were present, but not in concentrations as high as detected elsewhere during cleanup excavation efforts. TS-31-5 was collected from the side wall just below sample 30. PID screening indicated that the petroleum levels had dropped in this dense silt, and laboratory results confirmed this. See Photo 6, Appendix F.

The excavator moved from the front of Trailside Store to the front of the closed video store, cleaning up the base and side wall of the excavation as much as practical without endangering the structure. Sample TS-32-15 was collected as a base confirmation sample from dry dark silt that exhibited a strong odor and low PID screening results (17.2 ppm). Laboratory analytical results indicated that this soil sample met the applicable soil cleanup levels.

Sample TS-33-9 was collected from the excavation base in dark silt with gravel. PID results from this sample were low, (14.4 ppm). Laboratory analytical results indicated that the soil sample met the cleanup levels, except for benzene. The excavation was carried deeper in this area after the sample was collected.

Approximately 300 cubic yards of contaminated soil were removed from the site this day.

3.2.15 MARCH 1, 2000

Weather: Overcast, 30 degrees F. Wind calm.

A large planter with shrubbery and a totem pole had been located in the corner of the building between the grocery and video store. The shrubs and totem pole were removed to allow access to the contaminated soils beneath the planter.

It appeared the upper six feet of soils were contaminated beneath the planter area. Peat soils from 0-2' bgl had PID screening results of 491 ppm. Sandy silt which was located under the peat to a depth of six feet had PID screening results of 671 ppm. The dark gray dense silt, located from 6' down had PID readings of 4.7 ppm. See Photo 7, Appendix F.

Excavation continued in front of the video store. A confirmation sample was collected from this area at sample location TS-34-15. Sample results indicate that this area met all ADEC soil cleanup levels except for benzene.

A sample was collected from the base of the excavation at the foot of where the totem pole had been located. Sample TS-35-13 had a PID screening result of 13.9 in dense dark gray silt. Analytical results indicated that all soil cleanup parameters had been met except for benzene, which remained in concentrations that were well above the applicable soil cleanup criteria.

One consideration that was driving the excavation and removal of contaminated soil within 15 feet of the ground surface were the ADEC regulations that allowed contamination remaining below 15 feet bgl to be eliminated as an inhalation exposure risk.

Sample TS-36-7 was collected from the base of the excavation in the area of the removed planter to a depth of approximately 7 feet bgl. This material was dark gray silty sand that had PID screening results of 19.9 ppm. Analytical results indicated that all applicable soil cleanup levels had been met, except for benzene.

Two side wall samples were collected from the excavation in front of the video store. Sample TS-37-7 was collected from dense gray silt at 7 feet bgl. The screening sample had a PID result of 19.7 ppm. Laboratory analytical results indicated that the soils met the applicable cleanup levels, except for benzene.

Sample TS-38-4 was collected from gray sandy silt, approximately 4 feet bgl. PID screening from this sample yielded a result of 369 ppm. Laboratory analytical results indicated that the soil sample met the cleanup levels for all parameters except benzene. Field screening results were anomalous on this sample, being relatively high with fairly low laboratory results.

Thirty-one (31) truck loads of contaminated soils were removed from the site to the gravel pit remediation facility.

3.2.16 MARCH 2, 2000

Sixty eight (68) loads of clean fill were returned to the site for backfill. The area in front of the video store and the entrance to the grocery store will backfilled at this point. A low spot was left in the excavation on the north side of the site. Fence was placed around the excavation area to limit unauthorized access.

3.2.17 JUNE 20, 2000

Utility locates were conducted for sewer line excavation at the intersection of Olsen Lane and the Sterling Highway. The goal of this excavation was to determine if petroleum contamination had migrated along the backfill surrounding the sanitary sewer pipe to this point. The first test pit excavation had been conducted on February 17, 2000.

This test pit was excavated north of the sewer line and east of the guard rail that curves from the Sterling Highway down Olsen Lane on the west side of the road. A water service line was encountered in the excavation at 10 feet bgl. Bedding material for the sewer line was encountered at 11' bgl and the excavation was carried to 13.5 feet bgl. The sewer line was exposed by digging laterally. Water was entering the excavation from the backfill at 11 feet bgl. A soil sample was collected from water saturated dark gray silty clay backfill adjacent to the sewer line. The screening sample collected from this location had a PID reading of 2.7 ppm. No sheen was noted on the water entering the test pit. The sample collected was numbered TS-39-SX. No petroleum compounds were detected in the analytical results for GRO and BTEX. (See Table 4: Summary of Test Pit Soil Analysis).

A water sample was taken from the remaining open excavation at the Trailside Store site. No sheen was noted on the water surface. Three to four feet of water was present on the north side of the site in an area parallel to the highway. Sample TS-40-XW was collected with a disposable bailer, and tested for BTEX and GRO. Low levels of petroleum compounds were detected but none of the levels were above the applicable groundwater cleanup levels. See Table 3: Summary of Surface Water Analyses.

3.2.18 JULY 11, 2000

Utility locates were conducted for sewer line excavation at the intersection of Olsen Lane and the Sterling Highway, this time on the west side of the storm water sewer, at the point where it intersects the sanitary sewer. We speculated that the storm water sewer outfall might be intersecting the sewer outfall. The storm water sewer was encountered at approximately 7 feet bgl. The sanitary sewer was encountered at 10.5 feet bgl. The excavator broke through the sewer line. The City was notified immediately, and the City crew mobilized to repair the break. A sample was collected from the sewer backfill. PID screening of the sample did not detect any hydrocarbons. Laboratory sample results indicated that no detectable hydrocarbons were present.

Table 4
Summary of Test Pit Soil Analyses
 Trailside Grocery Store
 Homer Alaska

Sample Location	Sample Depth	PID	Date	Lab No.	Benzene	Toluene	Ethyl-benzene	Total Xylenes	GRO	DRO
Inhalation [1]					9	180	89	81	1,400	12,500
Injection [2]					290	20,300	10,000	203,000	1,400	10,250
Groundwater Migration [3]					0.02	5	6	78	300	250
TS-39-SX	13.4' BGL	2.7	6/20/2000	1003288001	0.0115 U	0.0462 U	0.0462 U	0.0462 U	2.31 U	19.8 U
TS-41-TP	10.5' BGL	0	7/11/2000	1003962001	0.008 U	0.032 U	0.032 U	0.032 U	1.6 U	--
TS-43-OWD	0.3' BGL	--	07/14/2000	1003957001	0.0273	0.138	0.07919 U	0.0991	3.60 U	--
TS-44-WS	0.3' BGL	--	7/14/2000	1003957002	0.0204 U	0.0818 U	0.0818 U	0.0953	4.09 U	--
TS-45-BF	1' BGL	--	7/14/2000	1003957003	0.00858 U	0.0343 U	0.0343 U	0.343 U	1.72 U	--
TS-46-PL	1.5' BGL	--	7/14/2000	1003957004	0.0134 U	0.538 U	0.538 U	0.538 U	2.69 U	--
TS-47-PL	2' BGL	--	7/14/2000	1003957005	0.0173 U	0.0691 U	0.691 U	0.0691 U	3.46 U	--

All values reported in mg/Kg

- (1) Criteria for inhalation pathway contained in 18 AAC 75.
 - (2) Criteria for Injection contained in to 18 AAC 75.
 - (3) Criteria for protection of groundwater contained in to 18 AAC 75.
- BOLD** Analyte was detected above cleanup criteria.
- Not analyzed.
- BTEX Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8021B.
- DRO Diesel-range organics by Alaska method AK102.
- GRO Gasoline-range organics by Alaska method AK101.
- ne Not established.
- U Not detected. The detection level is shown in the table.

3.2.19 JULY 12, 2000

On site monitoring well sampling was performed, see Section 4.0. A water sample was collected from the 10,000 gallon tank that was used to contain water pumped from the excavation. Sample TS-42-T (Table 3: Summary of Surface Water Analysis) was collected with a disposable bailer from the tank, which had approximately 5,000 gallons of water. Water in the tank had levels of BTEX and GRO present at concentrations less than 10 times the groundwater cleanup levels in Table C, 18 AAC 75.345.

3.2.20 JULY 13, 2000

Excavation of contaminated soils continued at the Trailside General Store site. Several areas that were still accessible had elevated levels of contamination present. As the excavator moved into the previously excavated area, it sank into the unconsolidated soils that had been placed to fill in the excavation. The excavator sank up to the door, and the day was spent trying to extract the hoe.

3.2.21 JULY 14, 2000

Soil samples were collected, the excavator was cleaned up, and the dewatering of the excavation pit was discussed with a contractor.

The 5000 gallon oil water separator tank installed by Alaska Lining and Retrofit had been installed on the south side of the building. A groundwater interceptor trench had been installed in the north parking lot of the Trailside General Store. The interceptor trench collected water and moved it through piping along the west side of the building to the southern edge of the property where the oil water separator tank was located. See Figure 4: Surface and Test Pit Sample Locations. A soil sample was collected from soils located at the outfall of the discharge pipe from the separator. Sample TS-43-OWD was collected from the upper 3 inches of soil. Laboratory analytical results indicated that detectable levels of toluene and xylenes were present along with elevated levels of benzene (0.0273 ppm).

During the site walk, it was discovered that the 10,000 gallon holding tank had been drained to the ground. The valve was in the open position when it was inspected. Mr. Willy Flynn, the property owner was contacted, and he reported that some children had run from the area when he had arrived at the site. The Soldotna Office of ADEC was contacted and informed of the release. A soil sample was collected from the ground in an area that had obviously been impacted by the drainage from the tank. Sample TS-44-WS was collected from surficial soils in an area where the majority of the water had infiltrated. Analytical results from the sampling indicated that trace levels of xylenes were present. Other petroleum compounds were not detected.

A soil sample was collected from the area where the excavator had been partially buried on July 13, 2000. The sample was collected to determine if the churning of the excavator had brought contaminated soils or water to the ground surface. Sample TS-45-BF (Figure 4, Table 4) indicated that no detectable hydrocarbons were present.

Two planters were located on the sidewalk in front of the video store and the Trailside Grocery. When the planters were moved aside, a hole in the concrete exposed the soils under the slab. Soil samples were collected from these locations in front of the video store approximately 1.5 feet below the concrete in the bedding sand. Sample TS-46-PL did not have any detectable petroleum hydrocarbons (Figure 4, Table 4). Sample TS-47-PL was collected from the planter in front of Trailside Store, approximately 2 feet below the concrete, from soft sand. No petroleum hydrocarbons were detected in this sample.

4.0 MONITOR WELL SAMPLING

Monitoring well MW-8, MW-13 and MW-14 were removed from the site on January 26, 2000. The wells were located in the parking lot of the Trailside General Store, and in an area that was to be excavated to remove contaminated soils. MW-8, MW-13 and MW-14 were pulled from the ground with a backhoe, and bentonite pellets were tremmed into the open hole. The bentonite pellets were hydrated to close the hole.

Monitoring well MW-9 was inspected and found to have 1.8 feet of product on the water surface. This product was removed, and the well was bailed dry. The product from the well, and the development water was placed into 55 gallon drums on site.

MW-9 was inspected on January 27, 2000. Approximately 3 feet of water was present, and sheen but no significant product accumulation was noted.

MW-9 was inspected on February 28, 2000 and found to have 0.1 feet of product on the water surface. This product was removed and placed into the 10,000 gallon water storage tank on site.

4.1 WATER LEVEL MEASUREMENTS

Monitoring wells MW-8, MW-13 and MW-14 had been removed during the excavation of contaminated soils. Monitoring well MW-5 was lost during the excavation process by heavy equipment driving over the well, damaging the casing and driving it into the ground. Several attempts were made to locate the well by survey, metal detector search and digging. This well was not located, and it was not properly abandoned.

A synoptic water level survey was conducted on July 12, 2000. The water elevations are presented on Table 5: July 7, 2000 Water Level Measurements.

Static water levels were measured at ten monitoring wells surrounding the Trailside General Store. The monitoring wells had been installed as part of the release investigation conducted by Alaska Lining and Retrofit.

Based on the elevation data compiled in Table 5, and the groundwater contour map presented on Figure 5, groundwater flow is to the south southeast. Monitoring well elevations were resurveyed in 2000 by Seabright Surveying. The unconfined aquifer underlies the site at depths between approximately 3.91 and 6.67 feet below ground surface. The

aquifer occurs within a sequence of unconsolidated silts containing thin interbeds of gravel, sand, silt, and organic materials and flows to the south southeast (Figure 5) at a slope of 0.0366 ft/ft.

4.2 WELL SAMPLING

Monitoring well sampling was conducted on July 12, 2000.

Monitoring wells were purged with disposable bailers. A minimum of three casing volumes were removed from the wells prior to sample collection. The purge water was sampled at intervals to measure pH, temperature and conductivity. The goal was to purge water in the well until the measured parameters stabilized to a 10% variation. Purge water was drummed, labeled, and contained on site in 55-gallon drums. Representative groundwater samples were then collected from the wells into the appropriate sample containers.

All of the monitoring wells were sampled for gasoline range organics (GRO method AK 101) and benzene, toluene, ethyl benzene and total xylenes (BTEX EPA method 602). Table 6 contains a summary of the groundwater data, Appendix E contains the laboratory reports and Figure 5 presents the groundwater analytical results.

Two wells had very high levels of GRO and BTEX in the water. Wells MW-9 and MW-12, located on the north side of the property had the highest levels of petroleum. Benzene was detected in eight of the ten wells sampled. MW-4 and MW-11, in addition to MW-9 and MW-12, had concentrations of benzene in excess of 10 times the groundwater cleanup levels in Table C, 18 AAC 75.

Two wells in the monitoring well network did not have detectable levels of petroleum present at the time of sampling. Wells MW-6, located up-gradient of the site, and MW-7, located down-gradient from the release source did not have any detectable petroleum hydrocarbons.

**Table 5
 July 7, 2000 Water Level Measurements
 Trailside General Store
 Homer Alaska**

Area	Well No.	Gauge Date	Gauge Time	Top of Casing Elevation (ft MLLW)	Total Depth (feet)	Depth to Water (feet)	Potentiometric Surface Elevation (feet MLLW)
D.G.	MW #1	07/12/00	9:59 AM	87.79	12.00	3.91	83.88
D.G.	MW #2	07/12/00	9:58 AM	86.96	12.00	5.03	81.93
U.G.	MW #3	07/12/00	9:56 AM	87.72	12.00	6.12	81.60
D.G.	MW #4	07/12/00	9:52 AM	87.27	12.00	4.38	82.89
S.G.	MW #5	07/12/00		82.10	12.00		
U.G.	MW #6	07/12/00	10:16 AM	94.47	17.00	5.12	89.35
U.G.	MW #7	07/12/00	9:54 AM	87.83	12.00	5.07	82.76
U.G.	MW #9	07/12/00	10:10 AM	91.34	15.00	6.67	84.67
U.G.	MW #10	07/12/00	10:01 AM	90.94	15.00	3.03	87.91
U.G.	MW #11	07/12/00	10:04 AM	88.42	13.00	4.01	84.41
U.G.	MW #12	07/12/00	10:06 AM	93.60	15.00	6.35	87.25

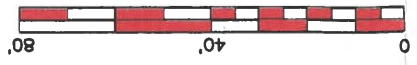
U.G. - Upgradient well

D.G. - Downgradient well

(ft MLLW) - feet above mean lower low water

mg/liter

- AL CASING
- METAL CASING
- LIGHT POLE
- ◀ GATE VALVE
- CATCH BASIN
- are in mg/kg
- UTIL. POLE



07

FIGURE

DATE 11/13/02
 DRAWN PC
 CHECKED PC
 SCALE AS SHOWN
 PROJ NO. 002-10

AMERICAN ENVIRONMENTAL
 43335 K-BEACH ROAD SUITE 25
 SLDLDTNA AK 99669
 (907) 850-4744
 FAX (907) 299-8335

Monitoring Well Locations, Analytical Results
 Groundwater Elevation Contours 7/12/00

Trailside General Store - Homer Alaska

REVISIONS

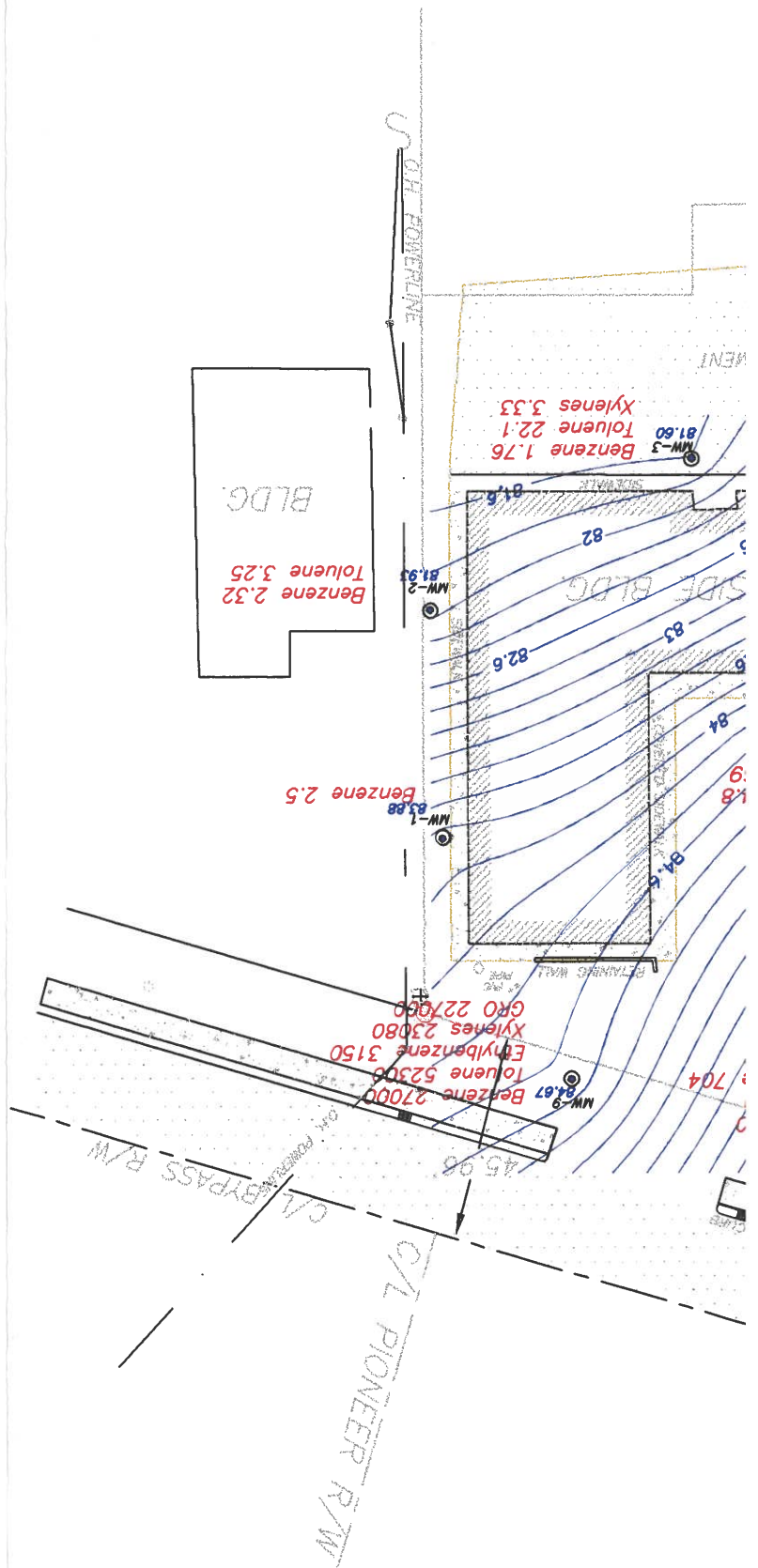


Table 6
 Summary of Groundwater Analyses
 Trailside Grocery Store
 Homer Alaska

BTEX						
Well No.	Sample Date	Lab No.	Benzene	Toluene	Ethylbenzene	Total Xylenes
			50	10,000	7,000	10,000
			GRO	13,000		
MW-1	7/12/2000	1003962006	2.5	2 U	2 U	2 U
MW-2	7/12/2000	1003962005	2.32	3.25	2 U	2 U
MW-3	7/12/2000	1003962004	1.76	22.1	2 U	3.33
MW-4	7/12/2000	1003962002	187	17.6	16.4	117.6
MW-6	7/12/2000	1003962008	.5 U	2 U	2 U	2 U
MW-7	7/12/2000	1003962003	.5 U	2 U	2 U	4 U
MW-9	7/12/2000	1003962011	27000	52300	3150	23080
MW-10	7/12/2000	1003962007	3.15	2 U	2 U	2 U
MW-11	7/12/2000	1003962009	94.8	2 U	2 U	3.69
MW-12	7/12/2000	1003962010	6310	8320	704	9580
			45,800			

Criteria contained in 18 AAC 75 for a non-drinking water source.
 Analyte was detected.
BOLD Analyte was detected.
BOLD Analyte was detected above the cleanup criteria.
 Not analyzed.
 BTEX Benzene, toluene, ethylbenzene, and xylenes by EPA Method 602.
 DRO Diesel-range organics by Alaska method AK101.
 GRO Gasoline-range organics by Alaska method AK101.
 Not established.
 ne Not established.
 U Analyte was not detected in concentrations above the detection level shown.



Emergency Response, UST System Closure and Release Investigation for Trailside General Store Alaska Lining and Retrofit September 10, 1999

Corrective Action Plan Trailside General Store American Environmental December 16, 1999

Hydrologic Data of the Kenai Soldotna Area, Alaska, USGS Open File Report by Gary S. Anderson and Stanley H. Jones, prepared in Cooperation with the Kenai Peninsula Borough, 1971

Quaternary Geology of the Kenai Lowland and Glacial History of Cook Inlet Region, Alaska, USGS Professional Paper 443, by Thor N.V. Karstrom, 1964

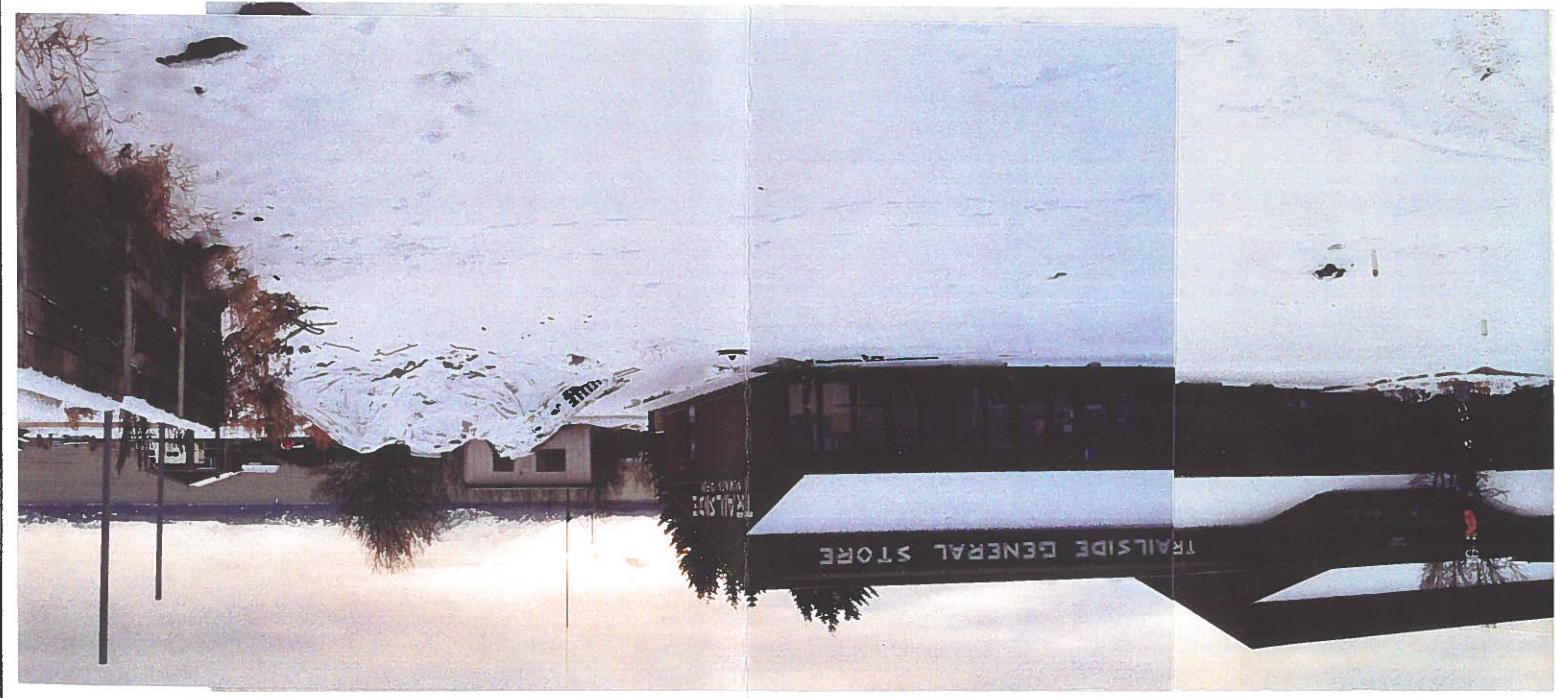
USDA Soil Survey of the Kenai-Kasilof Area, Alaska, Soil Conservation Service in cooperation with Alaska Agricultural Experiment Station, June 1962

6.0 REFERENCES



This report was prepared for the sole purpose of determining environmental conditions at the site at the time of the investigation, and is presented based on our understanding of the site history and information collected during our field investigation. The information and data supplied by others, which have been considered in this report, are from sources believed to be reliable, but no further responsibility is assumed for their accuracy.

Due to the variable nature of site soils and geology, and the lack of a complete record of previous site activities, subsurface conditions may vary from the information presented in this report. Users of this report are cautioned that any investigation is necessarily limited in extent and cannot include all possibilities. Special risks occur, and guarantees cannot be expected, whenever professional consulting services are applied to determine the composition of a site's subsurface or the existence or non-existence of hazardous substances. We cannot eliminate uncertainties altogether, but have applied good professional practice to reduce the uncertainties and believe our investigation fairly represents the site.

5.0 LIMITATIONS



Environmental
APHIC RECORD
NUMBER 1

<p>PHOTOGRAPHIC RECORD PHOTOGRAPH NUMBERS 2 AND 3</p>		<p>CLIENT: Shannon & Wilson, Inc. PROJECT NUMBER: 002-10</p>		<p>SITE NAME: Trailside General Store SITE LOCATION: Homer Alaska</p>	
	<p>PHOTOGRAPHER: Peter Campbell</p>	<p>DATE: 1/27/00</p>	<p>DIRECTION: Looking east</p>	<p>COMMENTS: End of day excavation</p>	
	<p>PHOTOGRAPHER: Peter Campbell</p>	<p>DATE: 1/28/02</p>	<p>DIRECTION: Looking east</p>	<p>COMMENTS: Note product on water surface</p>	
	<p>PHOTOGRAPHER: Peter Campbell</p>				
	<p>DATE: 1/28/02</p>				
	<p>PHOTOGRAPHER: Peter Campbell</p>	<p>DATE: 1/28/02</p>	<p>DIRECTION: Looking east</p>	<p>COMMENTS: Note product on water surface</p>	
	<p>PHOTOGRAPHER: Peter Campbell</p>				
	<p>DATE: 1/28/02</p>				
	<p>DIRECTION: Looking east</p>				

<p>PHOTOGRAPHIC RECORD PHOTOGRAPH NUMBERS 4 AND 5</p>	<p>CLIENT: Shannon & Wilson, Inc.</p>
<p>PROJECT NUMBER: 002-10</p>	<p>SITE NAME: Trailside General Store</p>
<p>SITE LOCATION: Homer Alaska</p>	<p>PHOTOGRAPHER: Peter Campbell</p>
<p>DATE: 2/10/00</p>	<p>COMMENTS: End of day excavation</p>
<p>DIRECTION: Looking North Northwest</p>	<p>PHOTOGRAPHER: Peter Campbell</p>
<p>DATE: 2/14/02</p>	<p>COMMENTS: Excavation backfill</p>
<p>DIRECTION: Looking Northwest</p>	<p>PHOTOGRAPHER: Peter Campbell</p>
<p>DATE: 2/14/02</p>	<p>PHOTOGRAPHER: Peter Campbell</p>
<p>DIRECTION: Looking Northwest</p>	<p>PHOTOGRAPHER: Peter Campbell</p>
<p>DATE: 2/14/02</p>	<p>COMMENTS: Excavation backfill</p>
<p>DIRECTION: Looking Northwest</p>	<p>PHOTOGRAPHER: Peter Campbell</p>
<p>DATE: 2/14/02</p>	<p>COMMENTS: Excavation backfill</p>
<p>DIRECTION: Looking Northwest</p>	<p>PHOTOGRAPHER: Peter Campbell</p>
<p>DATE: 2/14/02</p>	<p>COMMENTS: Excavation backfill</p>



**American Environmental
PHOTOGRAPHIC RECORD
PHOTOGRAPH NUMBERS 6 AND 7**

CLIENT: Shannon & Wilson, Inc.

PROJECT NUMBER: 002-10

SITE LOCATION: Homer Alaska

SITE NAME: Trailside General Store



PHOTOGRAPHER: Peter Campbell

DATE: 2/29/00

DIRECTION: Looking West southwest

COMMENTS: Excavation dewatering in front of Trailside General Store, sample locations TS30 & TS-31.



PHOTOGRAPHER: Peter Campbell

DATE: 3/1/00

DIRECTION: Looking Northeast

COMMENTS: Monitoring Well MW-11, removed totem and Planter location.