



THE STATE
of **ALASKA**
GOVERNOR BILL WALKER

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

610 University Avenue
Fairbanks, AK 99709-3643
Phone: 907-451-2143
Fax: 907-451-2155
www.dec.alaska.gov

File: 220.38.010

Certified Mail, Return Receipt Requested
Article No: 7012 2210 0002 1216 141

January 30, 2017

Bill Heubner
National Park Service
240 West 5th Avenue
Anchorage, AK, 99501

Re: Decision Document: NPS Denali Nat'l Park C-Camp Fuel Distribution
Cleanup Complete Determination – Institutional Controls

Dear Mr. Heubner:

The Alaska Department of Environmental Conservation (ADEC) Contaminated Sites Program has completed a review of the environmental records associated with the National Park Service (NPS) Denali National Park C-Camp Fuel Distribution Site located in Denali National Park, Alaska. Based on the information provided to date, it has been determined that the contaminant concentrations remaining on site do not pose an unacceptable risk to human health or the environment and no further remedial action will be required as long as the institutional controls are maintained and effective and no new information becomes available that indicates residual contamination poses an unacceptable risk.

This Cleanup Complete with Institutional Controls (ICs) determination is based on the administrative record for the NPS Denali National Park C-Camp Fuel Distribution site, which is located in the offices of ADEC in Fairbanks, Alaska. This decision letter summarizes the site history, cleanup actions, regulatory decisions, and specific conditions required to effectively manage remaining contamination at this site.

Site Name and Location

NPS Denali Nat'l Park C-Camp Fuel Distribution
Denali National Park & Preserve, Alaska
3 miles west of the George Parks Highway,
North side of Denali Park Road

Section 8, Township 14 South, Range 7 West,
Fairbanks Meridian

ADEC Site Identifiers

File No.: 220.38.010
Hazard ID: 3951

Regulatory Authority for Determination
18 AAC 75

Site Description and Background

The Denali C-Camp area is situated on a steep slope, with three main pads constructed of fill material to make the site usable for structures. It is used for employee offices, seasonal employee housing, and storage and maintenance of park service equipment. The C-Camp housing area fuel distribution system was installed in the 1970s. Heating oil was piped from an underground storage tank located near the auto shop to the individual buildings. The NPS removed the heating oil lines in 2002 and the existing cabins are now heated using propane. As part of a cabin upgrade project, the majority of the cabins were replaced in a different configuration. In addition, road and utility upgrades have been performed in this area.

ADEC has identified 5 contaminated sites within the C-Camp area on the Contaminated Sites Database including the fuel distribution site at the housing area addressed in this document. ADEC has issued cleanup complete determinations for the other 4 sites in the Denali C-Camp area as follows:

Contaminated Sites at Denali C-Camp

Name	File Number	Hazard ID	Status
NPS Denali Nat'l Park C-Camp Auto Shop Underground Storage Tank (UST) Spills	220.26.005	23137	Cleanup Complete with Institutional Controls
NPS Denali Nat'l Park C-Camp Emergency Services Bldg/Former Auto Shop	220.38.041	25540	Cleanup Complete with Institutional Controls
NPS Denali Nat'l Park C-Camp Auto Shop UIC	220.38.004	3963	Cleanup Complete
NPS Denali C-Camp Auto Shop	220.26.002	24359	Cleanup Complete

Geology and Hydrology

Soils encountered at the C-Camp area are sand/silty gravels intermixed with cobbles and glacial till. A clay layer is present at depths ranging from 20 to 60 feet. Permafrost is present at the eastern edge of the developed area. Groundwater at the C-Camp housing area is encountered at 50 to 60 feet below ground surface and generally flows to the southeast. Drinking water is collected from wells located on Rock Creek, upgradient of the site.

Contaminants of Concern and Cleanup Levels

Cleanup levels for this site are established in 18 AAC 75.340, Method Two, Tables B1 and B2, Under 40-inch Zone. Soil samples at this site have been analyzed for gasoline and diesel range organics (GRO and DRO); volatile organic compounds (VOCs); and polynuclear aromatic hydrocarbons (PAHs). The table below presents the human health and migration to groundwater cleanup levels for contaminants that have been detected at the site.

Soil Cleanup Levels Table

Contaminant of Concern	Human Health Cleanup Level (mg/kg)	Migration to Groundwater Cleanup Level (mg/kg)
Benzene	11	0.022
Ethylbenzene	49	0.13
2-methylnaphthalene	310	1.3

Naphthalene	29	0.038
Toluene	200	6.7
1,2,4-trimethylbenzene	43	0.16
1,2,4-tribemthylbenzene	37	1.3
Xylenes	57	1.5
DRO	10,250 (Ingestion)	250

Characterization and Cleanup Activities

In 2002, the NPS removed the heating oil distribution lines in the housing area. Several areas of contamination were encountered during the removal of the distribution line. In 2004, the NPS removed 175 cubic yards of petroleum contaminated soil from a total of 38 different locations and transported it off-site for disposal. Confirmation samples were analyzed for DRO and BTEX. Because of the proximity to buildings and utilities, contaminated surface and subsurface soil was left in place in several locations. Confirmation sample results from 14 locations had DRO above the migration to groundwater cleanup level but below the ingestion and inhalation cleanup levels.

In 2004, four soil borings (BH-4, BH-6, BH-7, and BH-8) and four monitoring wells (MW-5, MW-6, MW-7, and MW-8) were installed within the housing area to investigate the depth of contamination and evaluate potential groundwater impacts. Soil sample results from BH-4 (located at Building 185) and MW-5 (located near Building 179) indicate that remaining petroleum contamination has a maximum depth of 20 feet. Results from the other locations were below cleanup levels.

In 2005, the NPS performed additional removal actions at 6 of the locations with remaining contamination, as well as 6 additional locations along the east side of the housing area that were inaccessible in 2004. An additional 400 cubic yards of petroleum contaminated soil was transported off-site for disposal. Due to the locations of the cabins and utilities, not all contaminated soil could be removed from the excavations at Cabin 153 and 154. Confirmation sample results from the excavation at Cabin 153 had DRO above the migration to groundwater cleanup level but below the ingestion and inhalation cleanup levels.

Confirmation samples from the Cabin 154 excavation were analyzed for DRO, GRO, VOCs, PAHs, and metals. DRO and naphthalene were detected above human health cleanup levels. Benzene, toluene, ethylbenzene, xylenes, 2-methylnaphthalene, 1,2,4-trimethylbenzene, and 1,2,3-trimethylbenzene were detected above migration to groundwater cleanup levels. A records review found that a former paint shop was located in the vicinity of Cabin 154 in the 1930s, and is assumed to be the source of the volatile compounds detected.

Cabin 154 was removed and utility upgrades were conducted between 2007 and 2009, however there are no records of what happened to any contaminated soil encountered during these upgrades. As a result, the NPS conducted additional trenching investigations at the Cabin 154 site in 2014 to further investigate contamination identified at the limits of the excavations associated with the 2005 cleanup activities. Nine soil samples were collected from six test pits and analyzed for DRO, GRO, and VOCs. Two of the samples were also analyzed for PAHs. DRO was detected in one sample at 28 mg/kg, and GRO was detected in one sample at 2.8 mg/kg. All other results were non-detect. The area immediately north of the former Cabin 154 location, that had elevated results in 2005, has been paved and could not be sampled in 2014. Based on these results, ADEC determined that the previous sampling was indicative of an isolated area, and that contaminated soil may have been removed during construction and upgrade activities. No further investigation or cleanup in this area is determined necessary.

Groundwater samples from MW-5, MW-6, MW-7, and MW-8 have been analyzed for DRO and BTEX since installation in 2004. DRO was detected at 1.69 mg/L, above the cleanup level of 1.5 mg/L, in MW-5 at the time of installation. DRO was below the cleanup level in the other three monitoring wells, and BTEX results were below cleanup levels in all four wells. Groundwater results from 2005, 2006, 2010, and 2013 have all been below cleanup levels in all wells.

As part of the C-Camp Auto Shop UST spills investigation, monitoring well MW-15 was installed near the former location of Cabin 154 in 2009. Groundwater samples from MW-15 were analyzed for GRO, DRO, and BTEX in 2009 and results were all below cleanup levels. Subsequent sampling at MW-15 found free-phase product on the water table in 2011, which may have been mobilized after construction activities in the area. Groundwater contamination identified at MW-15 is associated with the upgradient C-Camp Auto Shop UST spills site, which has received a Cleanup Complete with Institutional Controls determination. Groundwater contamination in the C-Camp area is managed with the ICs established in the Record of Decision for C-Camp, Denali National Park and Preserve (May 2015).

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g), when detectable contamination remains on-site following a cleanup, a cumulative risk determination must be made that the risk from hazardous substances does not exceed a cumulative carcinogenic risk standard of 1 in 100,000 across all exposure pathways and does not exceed a cumulative non-carcinogenic risk standard at a hazard index of one across all exposure pathways.

Cumulative risk at this site was calculated assuming a residential land use and using the highest detected concentrations of contaminants in all of the samples collected following the cleanup action in 2005. The results indicate the cumulative carcinogenic risk exceeds 1 in 100,000, based on the naphthalene concentration above the human health cleanup level identified at Cabin 154.

Exposure Pathway Evaluation

Following investigation and cleanup at the site, exposure to the remaining contaminants was evaluated using ADEC's Exposure Tracking Model (ETM). Exposure pathways are the conduits by which contamination may reach human or ecological receptors. ETM results show all pathways to be one of the following: De Minimis Exposure, Exposure Controlled, or Pathway Incomplete. A summary of this pathway evaluation is included below.

Exposure Pathway Evaluation Table

Pathway	Result	Explanation
Surface Soil Contact	Exposure Controlled	The NPS has identified the location of remaining contaminated soil in their GIS database and has an internal screening system used during the planning phase of all projects that directs the user to the GIS database to determine if a contaminated site is present within the project area.
Sub-Surface Soil Contact	Exposure Controlled	The NPS has identified the location of remaining contaminated soil in their GIS database and has an internal screening system used during the planning phase of all projects that directs the user to the GIS

		database to determine if a contaminated site is present within the project area.
Inhalation – Outdoor Air	De Minimis	Naphthalene was detected above the human health cleanup level in 2005 in one location, near the former Cabin 154. Additional sampling in this area in 2014 had results below the cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	De Minimis	Cabins are built on blocks and are not in direct contact with the ground.
Groundwater Ingestion	Exposure Controlled	Groundwater contamination at the C-Camp area is associated with the upgradient UST spill site. The contaminated groundwater is managed with ICs established in the Record of Decision for C-Camp, Denali National Park and Preserve (May 2015). There are no drinking water wells at the C-Camp area.
Surface Water Ingestion	Pathway Incomplete	Remaining contamination is not expected to migrate to surface water. Nearest water body is 0.2 miles from the C-Camp area.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern are not bio-accumulative.
Exposure to Ecological Receptors	Pathway Incomplete	Contaminants of concern are not bio-accumulative.

Notes: “De Minimis Exposure” means that in ADEC’s judgment receptors are unlikely to be affected by the minimal volume or concentration of remaining contamination. “Pathway Incomplete” means that in ADEC’s judgment contamination has no potential to contact receptors. “Exposure Controlled” means there is an institutional control in place limiting land or groundwater use and there may be a physical barrier in place that prevents contact with residual contamination.

ADEC Decision

ADEC recognizes that a limited volume of petroleum contaminated soil remains at various locations in the Denali C-Camp housing area associated with the former fuel distribution lines. Although DRO and naphthalene were detected above the human health cleanup levels in 2005, near Cabin 154, it is unclear whether this contaminated soil still remains at the location, due to numerous utility upgrades and construction projects in the area near Cabin 154 over the past 11 years.

Groundwater contamination previously identified at the Denali C-Camp area is related to the UST Spills site, and is managed through institutional controls established in the Record of Decision for C-Camp, Denali National Park & Preserve dated May 2015.

Institutional controls necessary to support this closure determination include:

1. Identification of the location of historical remaining contamination on the NPS GIS database and use of the internal NPS planning process for all projects that directs the user to the GIS database to determine if contamination is present within the project area.
2. A requirement that proper field screening and characterization be conducted during any soil excavation, digging, or trenching in the areas where residual soil contamination exists and that any contaminated soil encountered be managed in accordance with regulations applicable at that time.

3. A restriction on installing groundwater wells or using groundwater from the site without prior ADEC approval.

Standard site closure conditions that apply to all sites include:

1. Any proposal to transport soil or groundwater off-site requires ADEC approval in accordance with 18 AAC 75.325(i). A "site" as defined by 18 AAC 75.990 (115) means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership.
2. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.
3. Groundwater throughout Alaska is protected for use as a water supply for drinking, culinary and food processing, agriculture including irrigation and stock watering, aquaculture, and industrial use. Contaminated site cleanup complete determinations are based on groundwater being considered a potential drinking water source. In the event that groundwater from this site is to be used for other purposes in the future, such as aquaculture, additional testing and treatment may be required to ensure the water is suitable for its intended use.

ADEC has determined the cleanup is complete as long as the institutional controls are properly implemented and no new information becomes available that indicates residual contamination may pose an unacceptable risk. The ADEC Contaminated Sites Database will be updated to reflect the change in site status to "Cleanup Complete with Institutional Controls" and will include a description of the contamination remaining at the site.

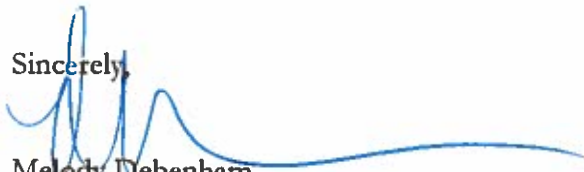
The institutional controls will be removed in the future if documentation is provided that shows concentrations of all residual hazardous substances remaining at the site are below the levels that allow for unrestricted exposure to, and use of, the contaminated media and that the site does not pose a potential unacceptable risk to human health, safety or welfare, or to the environment. Standard conditions 1-3 above will remain in effect after ICs are removed.

This determination is in accordance with 18 AAC 75.380 and does not preclude ADEC from requiring additional assessment and/or cleanup action if the institutional controls are determined to be ineffective or if new information indicates that contaminants at this site may pose an unacceptable risk to human health or the environment.

Appeal

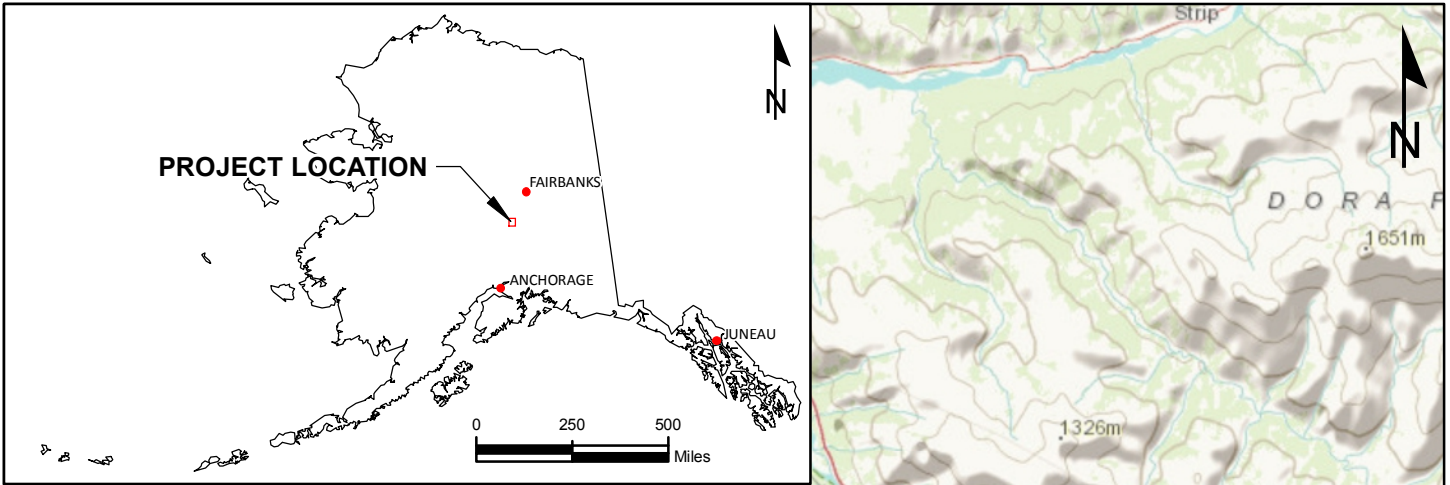
Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Division Director, 555 Cordova Street, Anchorage, Alaska 99501-2617, within 15 days after receiving the department's decision reviewable under this section. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, P.O. Box 111800, Juneau, Alaska 99811-1800, within 30 days after the date of issuance of this letter, or within 30 days after the department issues a final decision under 18 AAC 15.185. If a hearing is not requested within 30 days, the right to appeal is waived.

If you have questions about this closure decision, please feel free to contact me at (907) 451-5175 or melody.debenham@alaska.gov.

Sincerely,

Melody Debenham
Project Manager

Enclosures: Figure 1 – Vicinity Map (Ahtna Engineering, 2014)
 Figure 2 – Site Layout (Ahtna Engineering, 2014)
 Figure 10 – Soil Impacts West (Ahtna Engineering, 2013)
 Figure 11 – Soil Impacts North (Ahtna Engineering, 2013)
 Figure 3 – Test Pit Locations (Ahtna Engineering, 2014)

Cc (via email): Spill Prevention and Response, Cost Recovery Unit

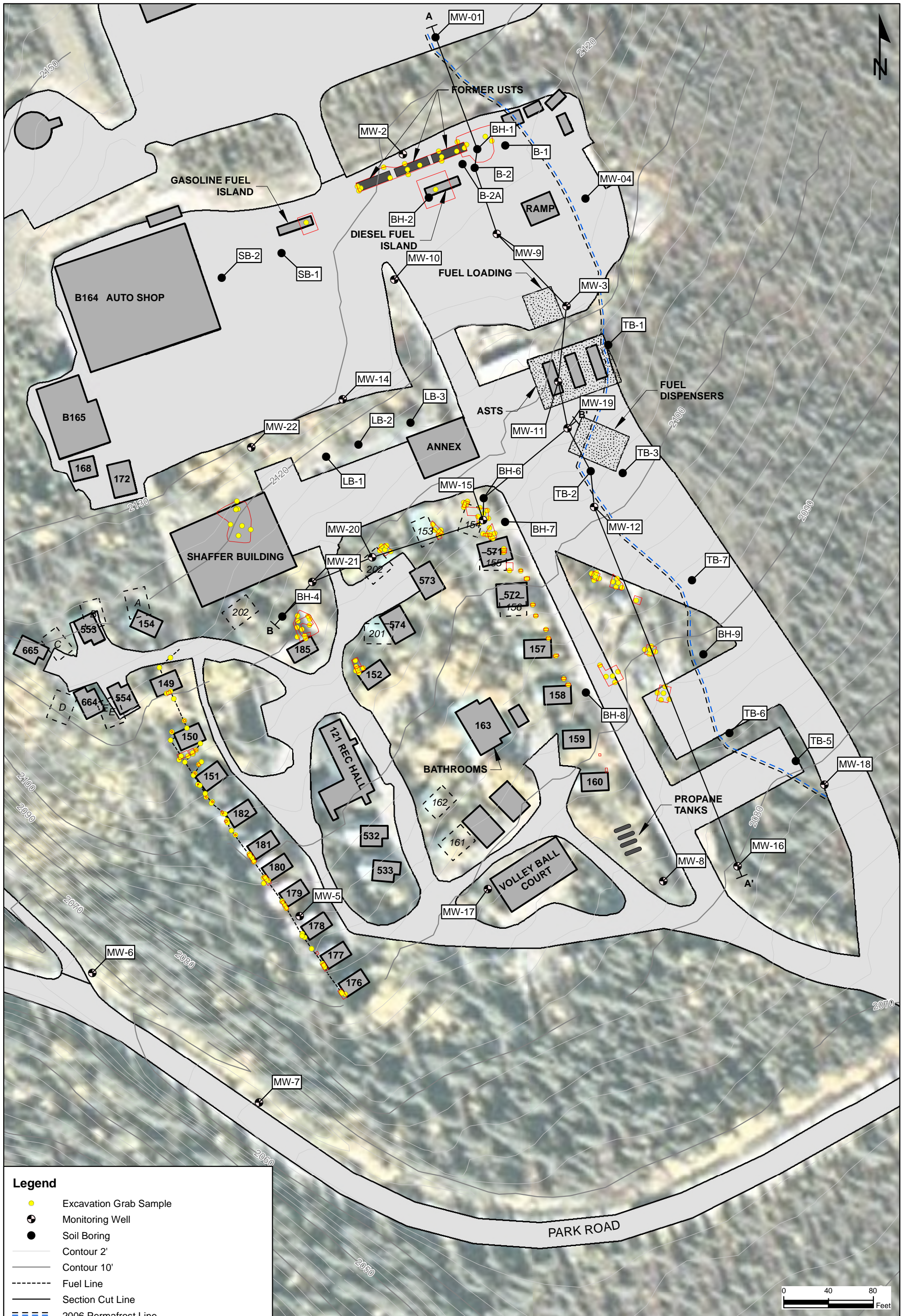


Comprehensive Review
C-Camp Area, Denali National Park and Preserve, Alaska



State and Site Vicinity Maps

Project Number: 20194.8159	Figure Number: 1
Date: 01.28.2014	
Drafted By: JC	

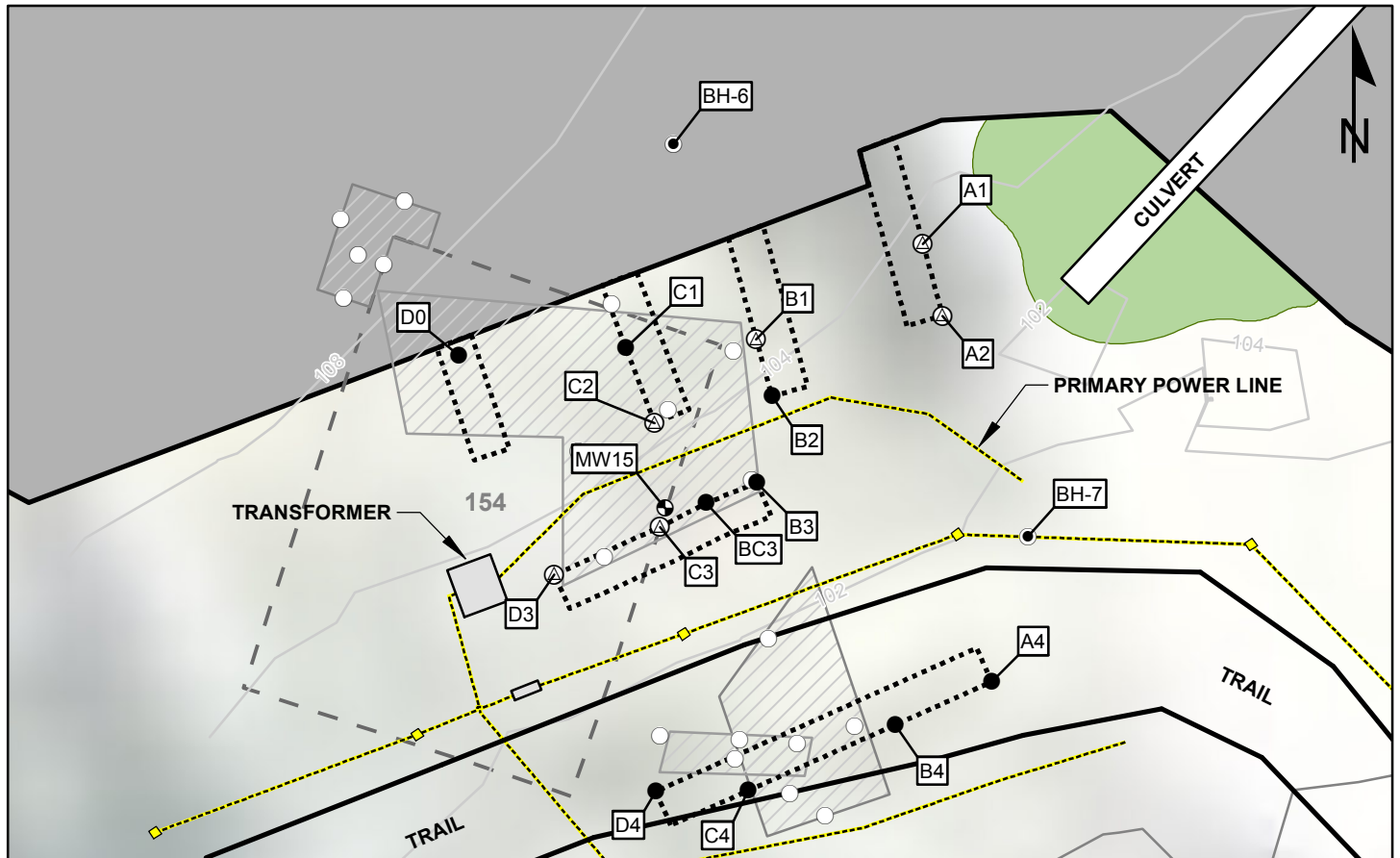


Legend	
●	Excavation Grab Sample
⊕	Monitoring Well
●	Soil Boring
—	Contour 2'
—	Contour 10'
----	Fuel Line
—	Section Cut Line
----	2006 Permafrost Line
	Building Pad Footprints
	Existing Building Footprints
	Previous Building Pad Footprint
	Previous Excavation Area
	Tank Farm
	Roads

Comprehensive Review
C-Camp Area, Denali National Park and Preserve, Alaska

Site Layout and Section Cuts

Ahtna Engineering	
Project Number: 20194.8159	Figure Number: 2
Date: 01.28.2014	
Drafted By: JC	

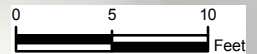


Legend

- Analytical/Screening Sample
- ⦿ Monitoring Well
- ⊙ Screening Sample
- Previous Borehole Location
- Previous Sample Location
- Existing Underground Electrical Line
- Contour 2'
- Contour 10'
- Existing Trail
- ⋯ 2014 Test Pit
- ▭ Existing Building Footprints
- ▭ Gravel Drainage Swale
- ▭ Light Poles
- ⋯ Previous Building Pad Footprint
- ▨ Previous Excavation

Notes

1. Previous buildings, excavations, and sample locations estimated from historical reports.
2. Current excavations, buildings, and sample locations surveyed by National Park Service 2014.

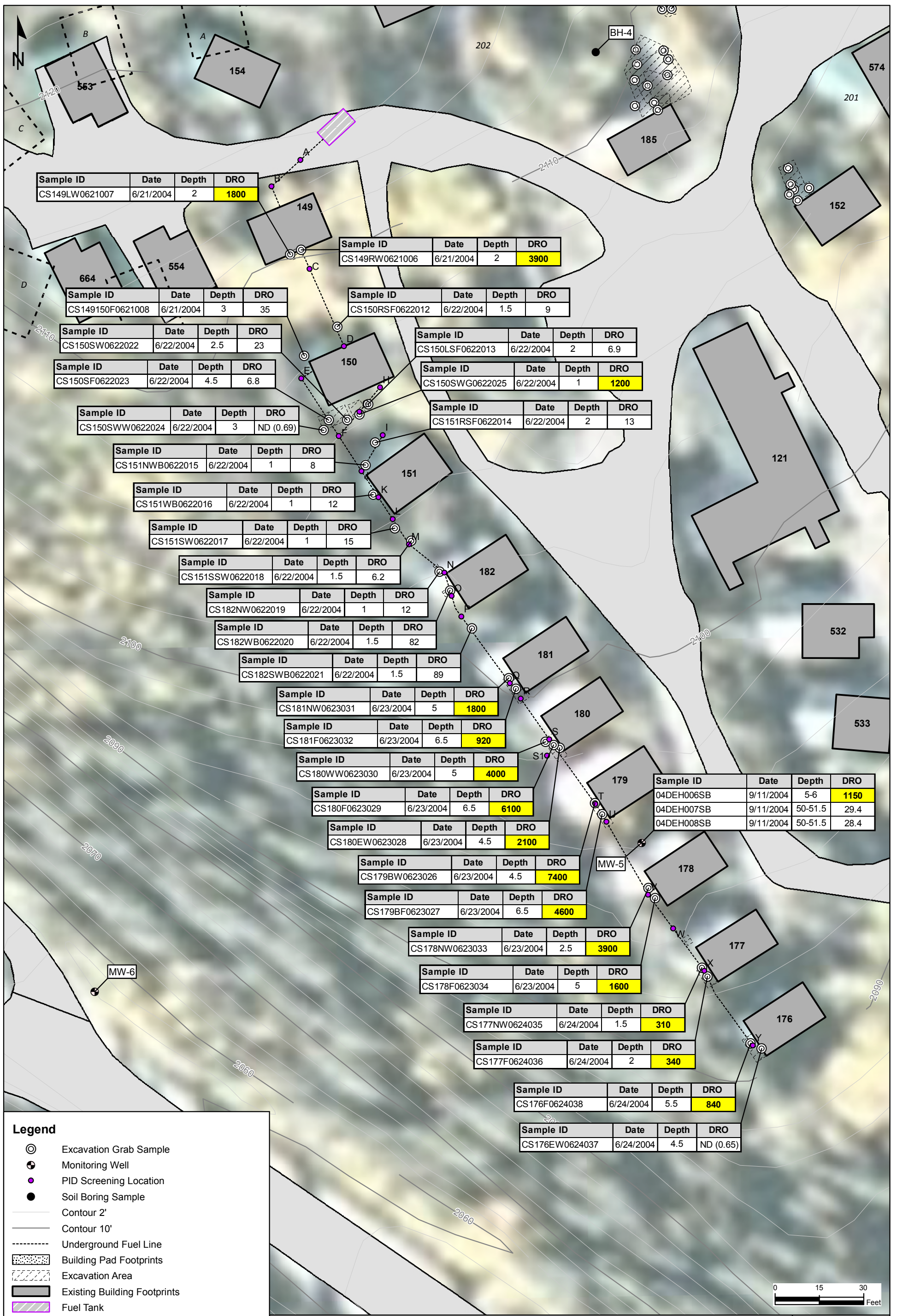


**2014 Site Investigation Report
C-Camp Area, Denali National Park and Preserve, Alaska**



Test Pit Locations and Soil Results

Project Number: 20194.4801	Figure Number: 3
Date: 07.29.2014	
Drafted By: J.C.	



Sample ID	Date	Depth	DRO
CS149LW0621007	6/21/2004	2	1800

Sample ID	Date	Depth	DRO
CS149RW0621006	6/21/2004	2	3900

Sample ID	Date	Depth	DRO
CS149150F0621008	6/21/2004	3	35

Sample ID	Date	Depth	DRO
CS150RSF0622012	6/22/2004	1.5	9

Sample ID	Date	Depth	DRO
CS150SW0622022	6/22/2004	2.5	23

Sample ID	Date	Depth	DRO
CS150LSF0622013	6/22/2004	2	6.9

Sample ID	Date	Depth	DRO
CS150SF0622023	6/22/2004	4.5	6.8

Sample ID	Date	Depth	DRO
CS150SWG0622025	6/22/2004	1	1200

Sample ID	Date	Depth	DRO
CS150SWW0622024	6/22/2004	3	ND (0.69)

Sample ID	Date	Depth	DRO
CS151RSF0622014	6/22/2004	2	13

Sample ID	Date	Depth	DRO
CS151NWB0622015	6/22/2004	1	8

Sample ID	Date	Depth	DRO
CS151WB0622016	6/22/2004	1	12

Sample ID	Date	Depth	DRO
CS151SW0622017	6/22/2004	1	15

Sample ID	Date	Depth	DRO
CS151SSW0622018	6/22/2004	1.5	6.2

Sample ID	Date	Depth	DRO
CS182NW0622019	6/22/2004	1	12

Sample ID	Date	Depth	DRO
CS182WB0622020	6/22/2004	1.5	82

Sample ID	Date	Depth	DRO
CS182SWB0622021	6/22/2004	1.5	89

Sample ID	Date	Depth	DRO
CS181NW0623031	6/23/2004	5	1800

Sample ID	Date	Depth	DRO
CS181F0623032	6/23/2004	6.5	920

Sample ID	Date	Depth	DRO
CS180WW0623030	6/23/2004	5	4000

Sample ID	Date	Depth	DRO
CS180F0623029	6/23/2004	6.5	6100

Sample ID	Date	Depth	DRO
CS180EW0623028	6/23/2004	4.5	2100

Sample ID	Date	Depth	DRO
CS179BW0623026	6/23/2004	4.5	7400

Sample ID	Date	Depth	DRO
CS179BF0623027	6/23/2004	6.5	4600

Sample ID	Date	Depth	DRO
CS178NW0623033	6/23/2004	2.5	3900

Sample ID	Date	Depth	DRO
CS178F0623034	6/23/2004	5	1600

Sample ID	Date	Depth	DRO
CS177NW0624035	6/24/2004	1.5	310

Sample ID	Date	Depth	DRO
CS177F0624036	6/24/2004	2	340

Sample ID	Date	Depth	DRO
CS176F0624038	6/24/2004	5.5	840

Sample ID	Date	Depth	DRO
CS176EW0624037	6/24/2004	4.5	ND (0.65)

Sample ID	Date	Depth	DRO
04DEH006SB	9/11/2004	5-6	1150
04DEH007SB	9/11/2004	50-51.5	29.4
04DEH008SB	9/11/2004	50-51.5	28.4

Legend

- ⊙ Excavation Grab Sample
- ⊕ Monitoring Well
- PID Screening Location
- Soil Boring Sample
- Contour 2'
- Contour 10'
- Underground Fuel Line
- ▨ Building Pad Footprints
- ▨ Excavation Area
- ▨ Existing Building Footprints
- ▨ Fuel Tank
- ▨ Roads

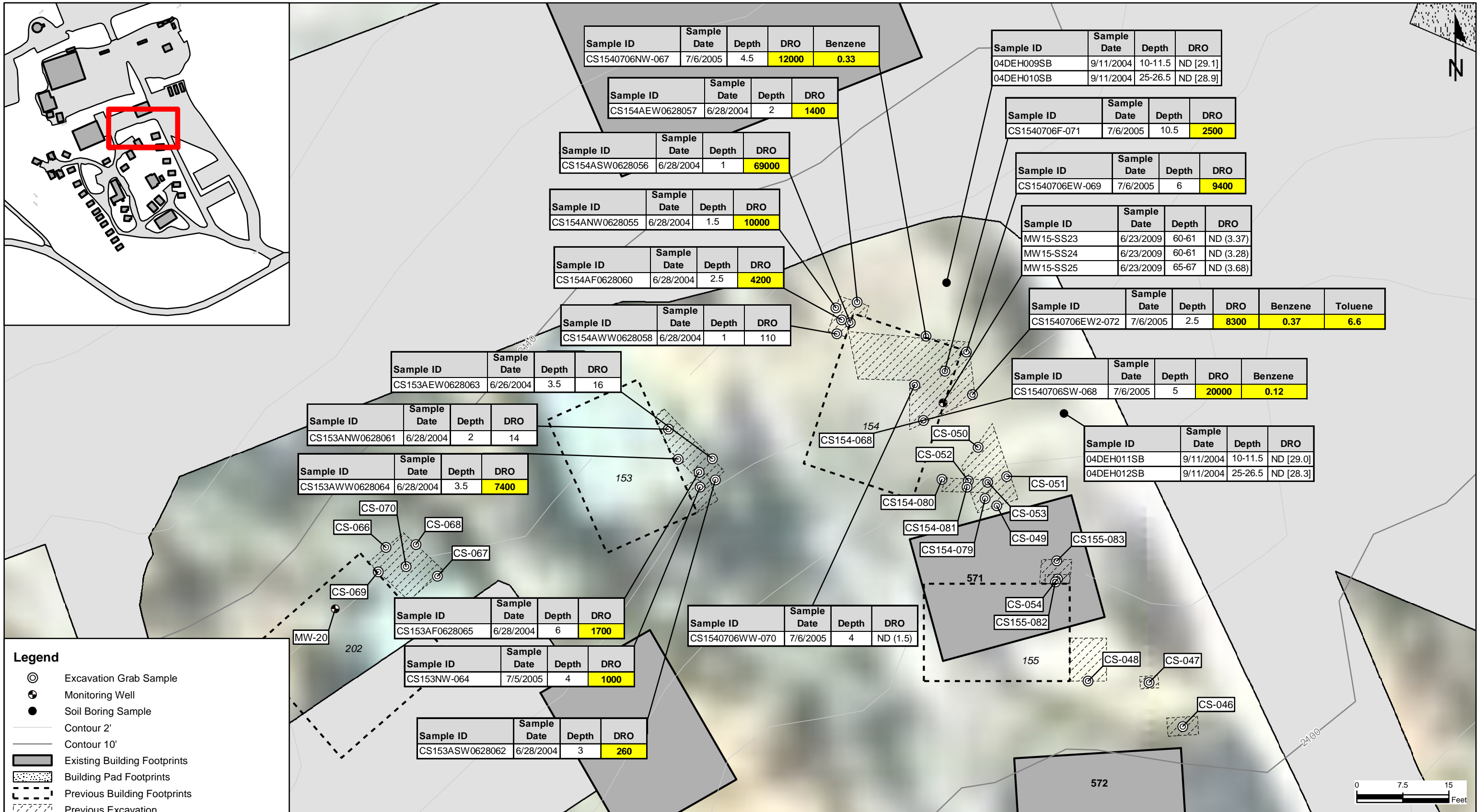
- Notes:**
- If no results are shown, the analytes did not exceed the most stringent cleanup levels.
 - All results are in mg/kg.
 - Sample depths are in feet below ground surface (ft bgs).
 - Results are not-detected at the method detection limit shown in parentheses or the reporting limit shown in brackets.
 - Bolded and highlighted data indicate that the result is greater than the applicable cleanup level.

Comprehensive Review
C-Camp Area, Denali National Park and Preserve, Alaska

Remaining Soil Impacts - Housing Area West



Project Number: 20194.8159
Figure Number: 10
Date: 12.13.2013
Drafted By: JC



Comprehensive Review
C-Camp Area, Denali National Park and Preserve, Alaska

Remaining Soil Impacts - Housing Area North

Ahtna Engineering

Project Number: 20194.8159
Date: 12.13.2013
Drafted By: JC

Figure Number: **11**