

NOTICE

All drawings located at the end of the document.

**Draft Industrial Area
Sampling and Analysis Plan
Addendum #IA-03-17
IHSS Group 700-5**

Approval received from the Colorado Department of Public Health and Environment

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Approval letter contained in the Administrative Record

September 11, 2003

ADMIN RECORD

IA-A-001733

~~B771-A-000202~~

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ACRONYMS

DOE	Department of Energy
dpm	disintegrations per minute
FY	Fiscal Year
IA	Industrial Area
IASAP	Industrial Area Sampling and Analysis Plan
IHSS	Individual Hazardous Substance Site
MDL	method detection limit
PAC	Potential Area of Concern
PCB	polychlorinated biphenyl
PCOC	potential contaminant of concern
RFCA	Rocky Flats Cleanup Agreement
SAP	Sampling and Analysis Plan
UBC	Under Building Contamination
VOC	volatile organic compound

1.0 INTRODUCTION

This Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) Addendum #IA-03-17 includes Individual Hazardous Substance Site (IHSS) Group-specific information, sampling locations, and potential contaminants of concern (PCOCs) for the Building 770 Under Building Contamination (UBC) Site proposed for characterization during Fiscal Year (FY) 04. This IASAP Addendum is a supplement to the IASAP (DOE 2001) and includes data and proposed sampling locations for IHSS Group 700-5 and the associated UBC 770 Site. The location of the IHSS Group 700-5 is shown on Figure 1.

2.0 EXISTING UBC, IHSS, AND PAC INFORMATION

Existing concentrations and activities greater than the background mean plus two standard deviations, or method detection limits (MDLs), are presented in Figure 2. Existing information and data for this UBC Site are available in Appendix C of the IASAP (DOE 2001), the Industrial Area Data Summary Report (DOE 2000), the Historical Release Reports for the Rocky Flats Plant (DOE 1992-2002) and the Operable Unit 8 Data Summary Report (DOE 1995). PCOCs for this IHSS Group include radionuclides, metals, polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs).

Building 770 is a metal pre-fabricated modular building constructed in 1965 on a concrete foundation. The building is currently used to store tools, materials and supplies for Building 771 decommissioning operations. Historically the 770 building was used for storage of equipment and also as a facility for equipment assembly prior to equipment installation inside other site buildings (DOE 1992). Building 770 was also used to store radioactive waste.

In August 1972, a punctured scrap box stored inside Building 770 contaminated approximately 3,600 square feet within the building and 500 square feet outside the building. Levels of radioactivity were measured up to 200,000 disintegrations per minute (dpm) (DOE 1992-2002). In September 1972, a 55-gallon drum containing spent ion exchange residue leaked onto the concrete floor inside of Building 770 (DOE 1992-2002).

Drums with residue (for processing in 771) and cargo containers were stored on the surface area located west of Building 770 from 1969 to 1974 when storage operations were moved to Building 776 (DOE 1992). Several contamination releases occurred on the ground surface located west of Building 770 between 1965 and 1971 (DOE 1992-2002 [PAC Reference No. 700-150.1], DOE 1992).

No characterization of subsurface soil beneath the 770 building foundation slab has been conducted.

Figure 1 IHSS Group 700-5 Location Map

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**Figure 2 Existing Data Above Background Means Plus Two Standard Deviations, or
Method Detection Limits**

3.0 SAMPLING

The proposed sampling and analysis specifications for the UBC 770 Site are listed, by sample location, in Table 1. The proposed sampling locations are shown on Figure 3.

Three types of sampling strategies are used to determine sampling locations: statistical, geostatistical and biased. Statistical grids have computer-generated random start points and orientations. The standard statistical grid size (i.e., the length between grid points) is 36 feet; however, the grid size for UBC sites is 72 feet. The IASAP 72-foot grid for UBC sites was not used to determine sampling locations at UBC 770 because of the relatively small dimension of the 770 slab (60 feet long by 50 feet wide). A 36-foot grid size was used instead.

In addition to the proposed statistical sample locations, one biased sample location is proposed near the northeast corner of the 770 slab for added coverage. Biased sampling is also proposed along and below floor drains and foundation drains. No sumps or process waste lines are located beneath the 770 slab. Geostatistical methods were not used at IHSS Group 700-5.

After characterization starts, the number and type of samples may change based on field conditions and/or sampling results. Changes to sampling specifications will be considered in consultation with the regulatory agencies.

4.0 REFERENCES

- DOE 1992, Phase I RFI/RI Work Plan Operable Unit 8 700 Area, Rocky Flats Environmental Technology Site, Golden, Colorado, December.
- DOE 1992-2002, Historical Release Reports for the Rocky Flats Plant, Golden, Colorado.
- DOE 1995, Operable Unit 8 Data Summary Report, Rocky Mountain Remediation Services, Rocky Flats Environmental Technology Site, Golden, Colorado, September.
- DOE 2000, Rocky Flats Environmental Technology Site Industrial Area Data Summary Report, Golden, Colorado, September.
- DOE 2001, Industrial Area Sampling and Analysis Plan, Rocky Flats Environmental Technology Site, Golden, Colorado, June.
- DOE 2003, Draft Environmental Restoration RFCA Standard Operating Protocol Modification, Rocky Flats Environmental Technology Site, Golden, Colorado, June.

Figure 3 FY04 Sampling Locations for IHSS Group 700-5 (UBC 770)

**Table 1
Sampling Specifications for IHSS Group 700-5**

IHSS Group	IHSS/PAC/UBC	Location	Easting	Northing	Media	Depth Interval	Analyte	On-Site Laboratory Method	Off-Site Laboratory Method
700-5	UBC 770	CF49-021	2083927.384	751220.084	Surface Soil	0 - 0.5'	Radionuclides	HPGe	N/A
							Metals	6200	N/A
							VOCs	8260	N/A
700-5	UBC 770	CF49-022	2083931.668	751255.828	Surface Soil	0 - 0.5'	Radionuclides	HPGe	N/A
							Metals	6200	N/A
							VOCs	8260	N/A
700-5	UBC 770	CG49-008	2083960.481	751234.246	Surface Soil	0 - 0.5'	Radionuclides	HPGe	N/A
							Metals	6200	N/A
							VOCs	8260	N/A
							PCBs	N/A	8082
700-5	UBC 770	CG49-009	2083971.873	751259.396	Surface Soil	0 - 0.5'	Radionuclides	HPGe	N/A
							Metals	6200	N/A
							VOCs	8260	N/A
							PCBs	N/A	8082

Figure 1
IHSS Group 700-5

EXPLANATION
IHSS Groupings

- 700-5
- Standard Map Features**
- Buildings and other structures
- Demolished buildings and Other Structures
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences and other barriers
- Paved roads
- Dirt roads
- Solar Evaporation Ponds (SEPs)
- Industrial Area Operable Unit Boundary

DATA SOURCE BASE FEATURES:
 Historical Release Report (HRR)
 2nd Annual Update
 Sept. 20, 1987
 DOE 1992 HRR Report and Subsequent Updates
 Buildings, fences, hydrography, roads and other structures from 1994 aerial flyover data
 Digitized from the orthophotographs, 1/95



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 September 11, 2003

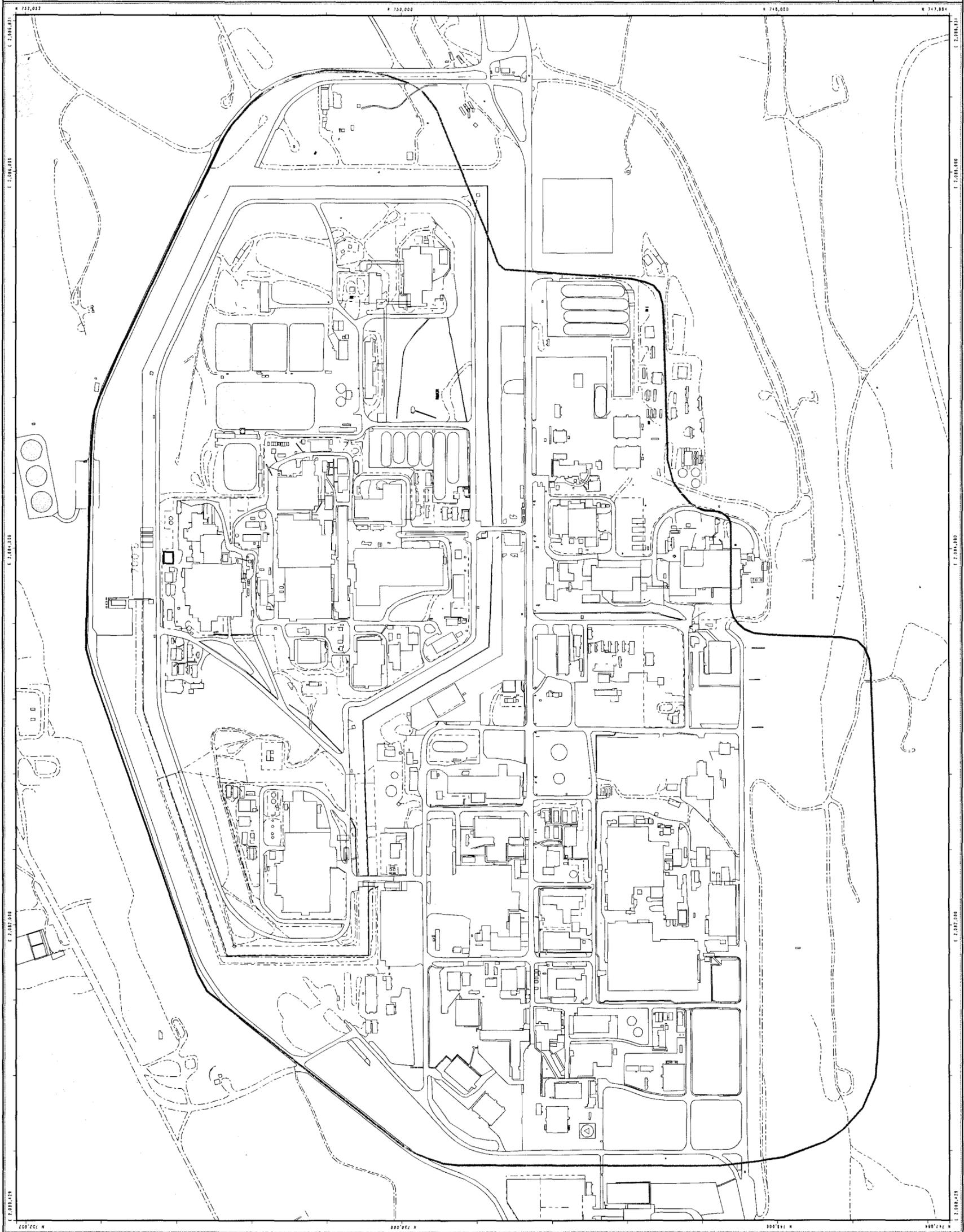
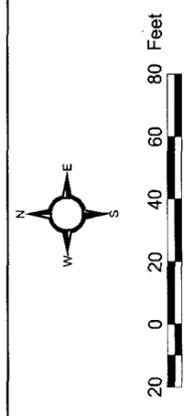
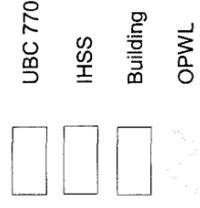


Figure 2
IHSS Group 700-5
Existing Soil Sample Data Above
Background Means Plus 2 Standard
Deviations or Detection Limits

KEY

- Surface Soil Location with an Action Level Exceedance
- Surface Soil Location with No Exceedances
- Subsurface Soil Location with an Action Level Exceedance
- Subsurface Soil Location with No Exceedances

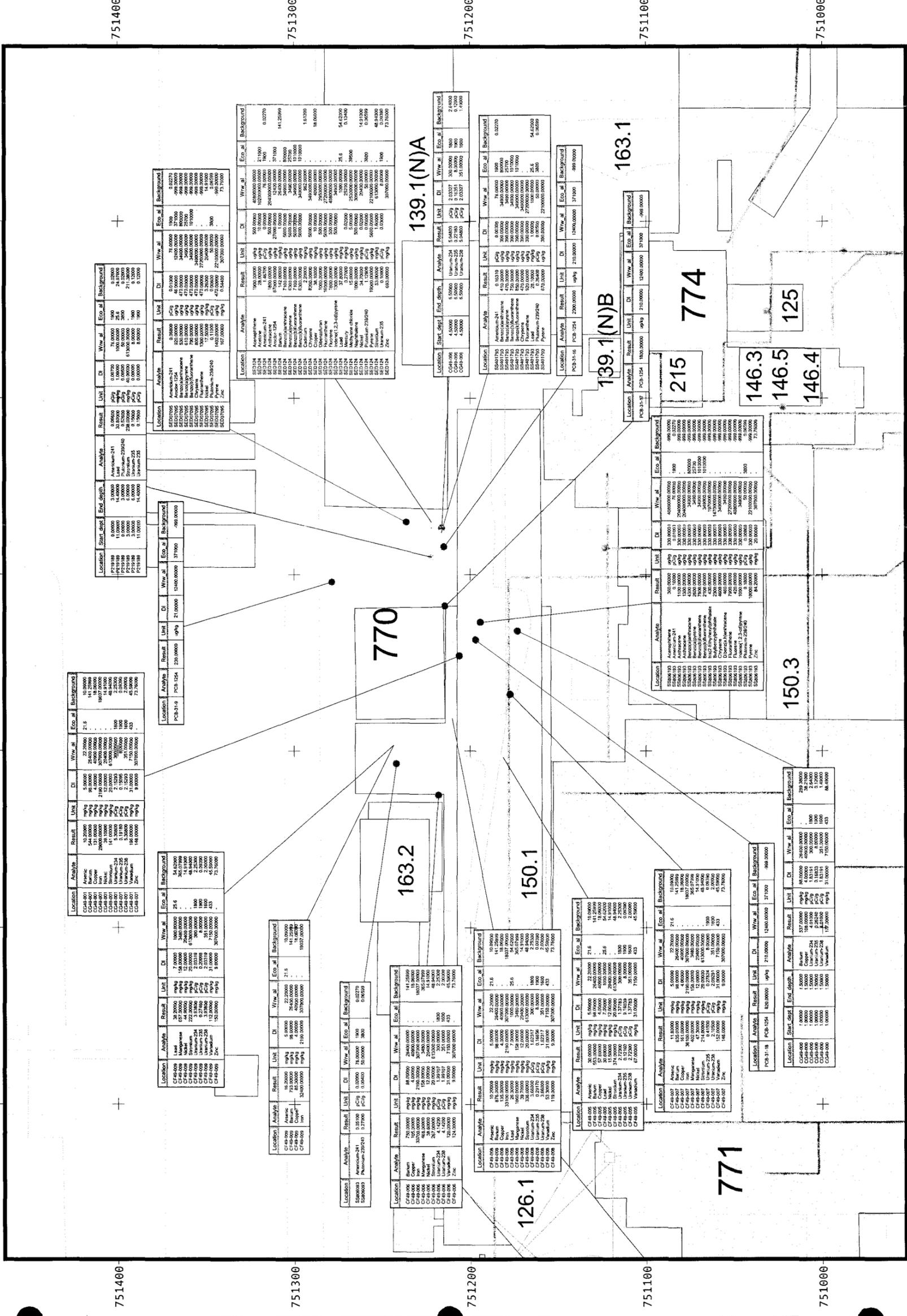


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 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

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Location	Analyte	Result	Unit	DI	Ww. al.	Eco. al.	Background
CF48-001	Arsenic	42.0000	mg/kg	4.0000	22.0000	71.6	10.0000
CF48-001	Barium	544.0000	mg/kg	98.0000	2640.0000	2640.0000	141.2500
CF48-001	Bismuth	1.0000	mg/kg	0.1000	0.1000	0.1000	0.1000
CF48-001	Chromium	2900.0000	mg/kg	210.0000	30700.0000	30700.0000	1907.0000
CF48-001	Copper	37.0000	mg/kg	2.0000	6.0000	6.0000	2.5000
CF48-001	Lead	1.0000	mg/kg	0.1000	0.1000	0.1000	0.1000
CF48-001	Manganese	1.0000	mg/kg	0.1000	0.1000	0.1000	0.1000
CF48-001	Nickel	5.5000	mg/kg	0.5000	1.5000	1.5000	0.5000
CF48-001	Selenium	1.0000	mg/kg	0.1000	0.1000	0.1000	0.1000
CF48-001	Vanadium	1.0000	mg/kg	0.1000	0.1000	0.1000	0.1000
CF48-001	Zinc	148.0000	mg/kg	14.0000	30700.0000	30700.0000	71.7000

Location	Analyte	Result	Unit	DI	Ww. al.	Eco. al.	Background
CF48-006	Arsenic	18.0000	mg/kg	1.0000	70.0000	180.0000	0.0270
CF48-006	Barium	102.0000	mg/kg	19.0000	4000.0000	4000.0000	16.0000
CF48-006	Bismuth	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-006	Chromium	2400.0000	mg/kg	170.0000	31700.0000	31700.0000	1907.0000
CF48-006	Copper	1.0000	mg/kg	0.1000	0.1000	0.1000	0.1000
CF48-006	Lead	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-006	Manganese	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-006	Nickel	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-006	Selenium	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-006	Vanadium	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-006	Zinc	1.0000	mg/kg	0.1000	30700.0000	30700.0000	71.7000

Location	Analyte	Result	Unit	DI	Ww. al.	Eco. al.	Background
SED124	Arsenic	0.2500	mg/kg	0.1000	70.0000	180.0000	0.0270
SED124	Barium	1.0000	mg/kg	1.0000	16.0000	16.0000	1.0000
SED124	Bismuth	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
SED124	Chromium	2.0000	mg/kg	0.1000	31700.0000	31700.0000	1907.0000
SED124	Copper	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
SED124	Lead	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
SED124	Manganese	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
SED124	Nickel	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
SED124	Selenium	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
SED124	Vanadium	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
SED124	Zinc	0.1000	mg/kg	0.0100	30700.0000	30700.0000	71.7000

Location	Analyte	Result	Unit	DI	Ww. al.	Eco. al.	Background
CF48-008	Arsenic	70.0000	mg/kg	4.0000	2640.0000	2640.0000	141.2500
CF48-008	Barium	102.0000	mg/kg	19.0000	4000.0000	4000.0000	16.0000
CF48-008	Bismuth	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-008	Chromium	480.0000	mg/kg	35.0000	3400.0000	3400.0000	200.0000
CF48-008	Copper	1.0000	mg/kg	0.1000	0.1000	0.1000	0.1000
CF48-008	Lead	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-008	Manganese	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-008	Nickel	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-008	Selenium	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-008	Vanadium	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-008	Zinc	1.0000	mg/kg	0.1000	30700.0000	30700.0000	71.7000

Location	Analyte	Result	Unit	DI	Ww. al.	Eco. al.	Background
CF48-005	Arsenic	11.0000	mg/kg	0.5000	27.0000	71.6	10.0000
CF48-005	Barium	161.0000	mg/kg	30.0000	2640.0000	2640.0000	141.2500
CF48-005	Bismuth	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-005	Chromium	362.0000	mg/kg	26.0000	4000.0000	4000.0000	16.0000
CF48-005	Copper	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-005	Lead	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-005	Manganese	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-005	Nickel	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-005	Selenium	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-005	Vanadium	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-005	Zinc	0.1000	mg/kg	0.0100	30700.0000	30700.0000	71.7000

Location	Analyte	Result	Unit	DI	Ww. al.	Eco. al.	Background
CF48-007	Arsenic	11.0000	mg/kg	0.5000	27.0000	71.6	10.0000
CF48-007	Barium	161.0000	mg/kg	30.0000	2640.0000	2640.0000	141.2500
CF48-007	Bismuth	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-007	Chromium	362.0000	mg/kg	26.0000	4000.0000	4000.0000	16.0000
CF48-007	Copper	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-007	Lead	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-007	Manganese	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-007	Nickel	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-007	Selenium	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-007	Vanadium	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-007	Zinc	0.1000	mg/kg	0.0100	30700.0000	30700.0000	71.7000

Location	Analyte	Result	Unit	DI	Ww. al.	Eco. al.	Background
CF48-006	Arsenic	1.0000	mg/kg	0.1000	70.0000	180.0000	0.0270
CF48-006	Barium	1.0000	mg/kg	1.0000	16.0000	16.0000	1.0000
CF48-006	Bismuth	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-006	Chromium	1.0000	mg/kg	0.1000	31700.0000	31700.0000	1907.0000
CF48-006	Copper	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-006	Lead	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-006	Manganese	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-006	Nickel	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-006	Selenium	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-006	Vanadium	0.1000	mg/kg	0.0100	0.0100	0.0100	0.0100
CF48-006	Zinc	0.1000	mg/kg	0.0100	30700.0000	30700.0000	71.7000

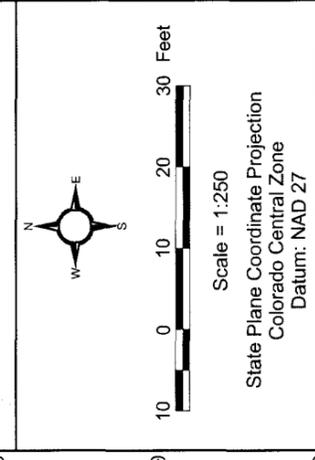
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Figure 3
FY2004 Sampling Locations
for IA Group 700-5
(UBC 770)

KEY

- Statistical Sampling Location
- Biased Sampling Location
- ▭ UBC 770
- ▭ IHSS
- ▭ Building
- ▭ Original Process Waste Line
- ▭ Foundation Drain
- ▭ Storm Sewer
- ▭ Sanitary Sewer
- ▭ Streams
- ▭ Surface Water Route
- ▭ Fence
- ▭ Paved Road

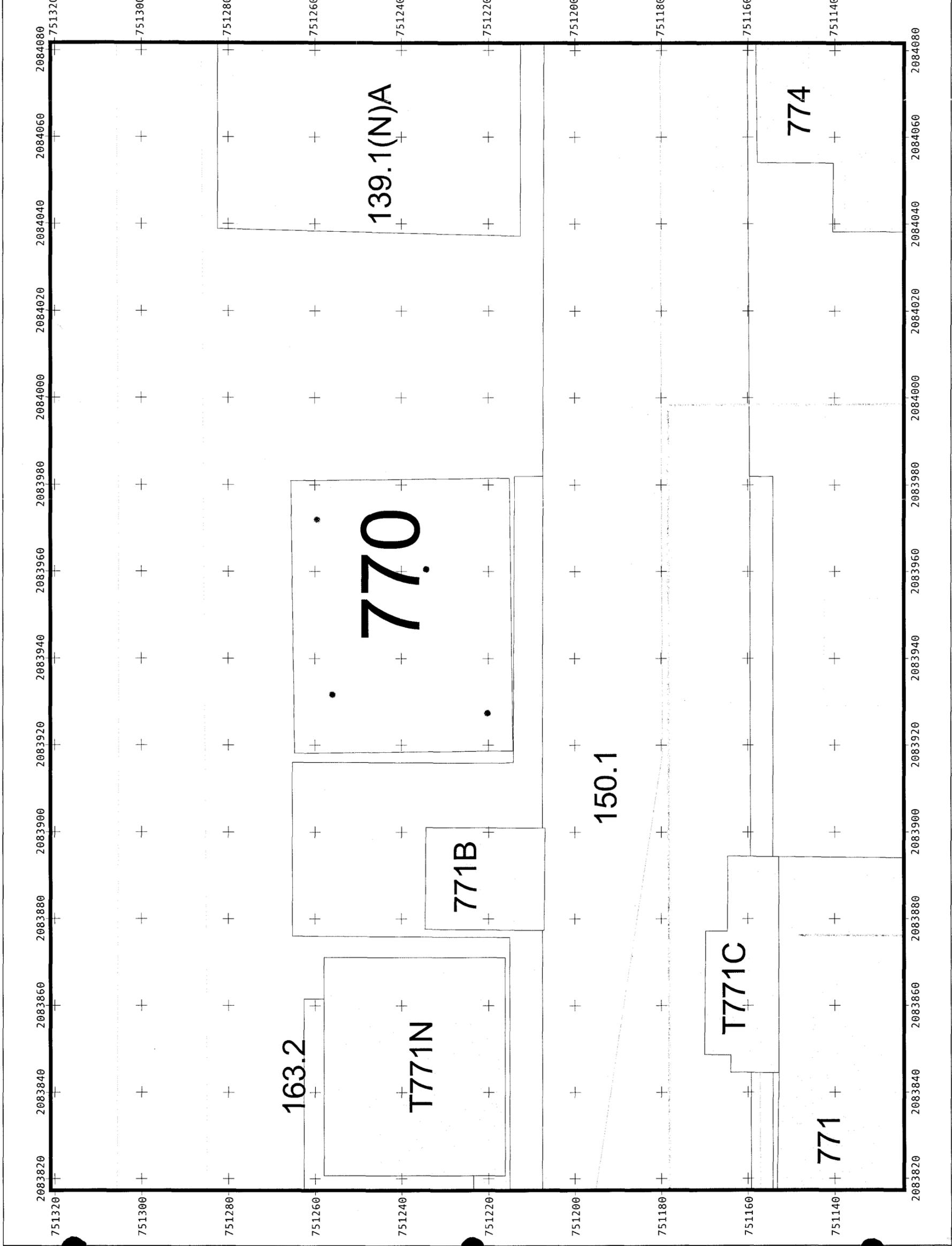


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