MK/UMT-0685-332

CA-72
1.95.0

6/26

DEPARTMENT OF ENERGY
ALBUQUERQUE OPERATIONS OFFICE
CONTRACT NO. DE-AC04-83AL18796

Radiological and Engineering Assessment

Vicinity Property No. CAN 072

Remedial Actions
Contractor
for the
Uranium Mill Tailings
Remedial Actions
Project

MORRISON
KNUDSEN

Vicinity Property No. CAN 072

FINAL

THE RADIOLOGICAL AND ENGINEERING ASSESSMENT

AND FINAL DESIGN

FOR

CANONSBURG PROPERTY

CA-072

June 26, 1985

PREPARED FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE

UNITED STATES DEPARTMENT OF ENERGY

PREPARED BY

MORRISON-KNUDSEN COMPANY, INC.

NOTE:

SUPPLEMENTAL STANDARDS

TABLE OF CONTENTS

FIGURES

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TABLES

APPENDIX

1.0 EXECUTIVE SUMMARY

1.1 Introduction

Property CA-072 is a portion of railroad right-of-way for Consolidated Rail Corporation located along the common boundaries for Canonsburg Borough and North Strabane Township and running through the southeast portion of Houston Borough.

1.2 Evaluation and Recommendation

1.2.1 Residual Radioactive Material Involvement

Several large areas and many smaller pockets of contamination are found along the right-of-way. A portion of the contamination is located under or within 15 feet of the west main (active) railroad tracks.

1.2.2 Recommended Remedial Action Option

The recommended option is to remove all contaminated material except that under or within 15 feet of the west main (active) railroad tracks or which may be found under Strabane Avenue at the railroad crossing. This material will be left in accordance with the criteria of 40 CFR 192.21(c), "Criteria for Applying Supplemental Standards."

1.2.3 Estimated Costs

The estimated cost for removal of the contaminated material and restoration of the property is $124,500. If Supplemental Standards are not applied, an additional $24,500 should be added to the estimate.

1.2.4 Schedule

The estimated duration of the remedial action effort is 15 to 20 days.

2.0 ENGINEERING FIELD SURVEY

2.1 Property Description

2.1.1 Property Use and Occupancy

Property CA-072 is a portion of a railroad right-of-way for Consolidated Rail Corporation located along the common boundaries for Canonsburg Borough and North Strabane Township and running through the southeast portion of Houston Borough. The map in Figure 2.1 illustrates the property's vicinity location.

2.1.2 Description

The property is a railroad right-of-way which is irregular in shape and approximately 4100 feet long and a width that varies between 125 and 350 feet wide. It runs between Main Street, Houston Borough, northeastward to a point approximately 100 feet east of Chartiers Creek.

2.1.3 Bordering Properties

The right-of-way runs through an area of Canonsburg Borough which is zoned "I-1"-Light Industrial. It is located in an industrial and residential area and is within 1.0 mile of the Old Vitro mill tailings site. It is bounded on the north and northwest by Chartiers Creek and George Street. It is bounded on the southeast and south by residential properties and an alley.

2.2 Existing Facilities and Structures

2.2.1 Structures

Structures on the property consist of railroad tracks, and a railroad bridge over Chartiers Creek.

2.2.2 Utilities

Utilities are serviced to the property as follows:

There are no utilities serviced to the property although a sanitary sewer crosses the property northeast of Main Street and a storm sewer crosses the property at approximately station 10+80.0.

2.2.3 Site Plan and Survey Data

See Figure 2.2 and 2.3 for a site plan of the property. Property photos are presented in Figures 2.4 through 2.7.

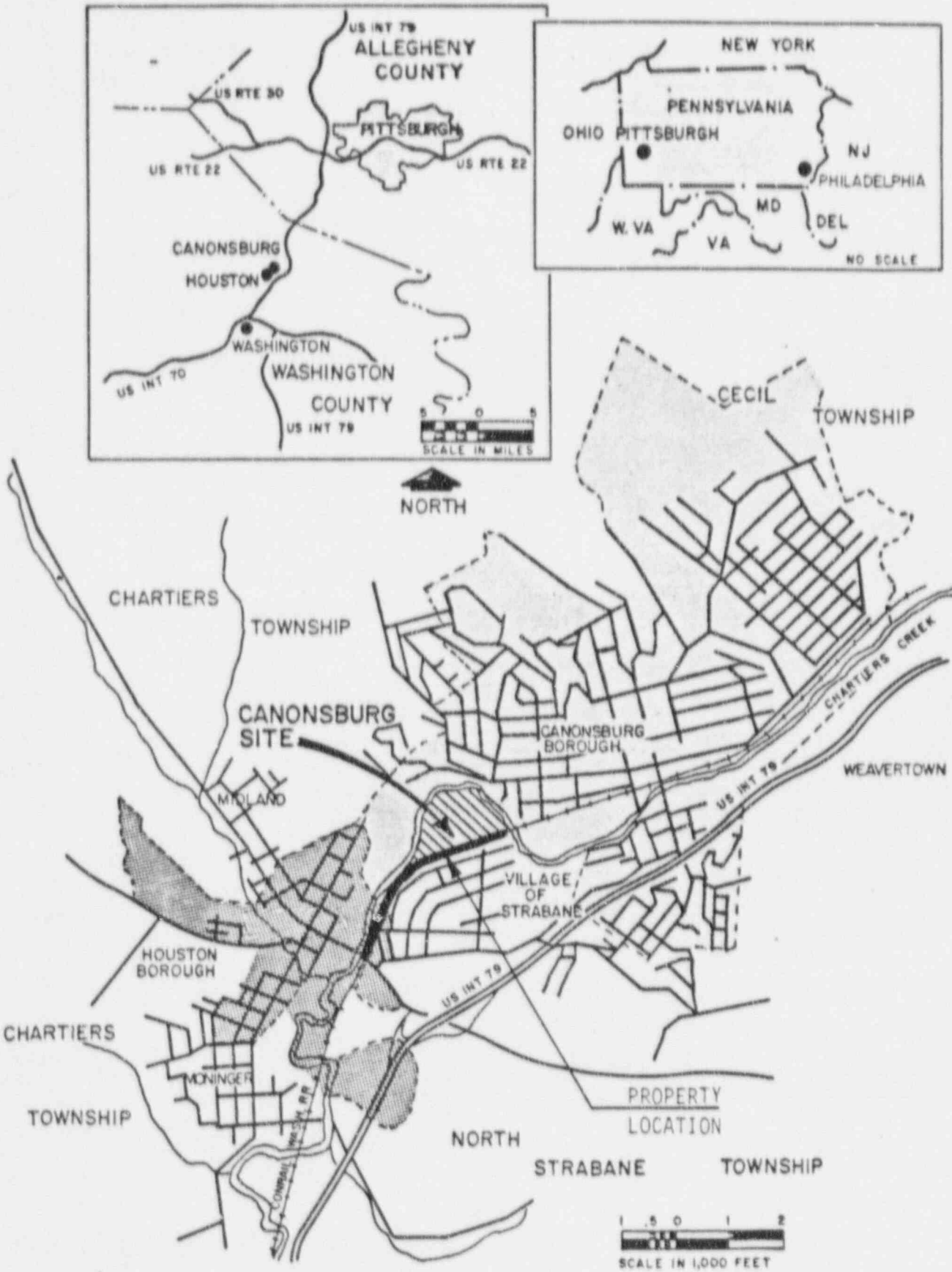
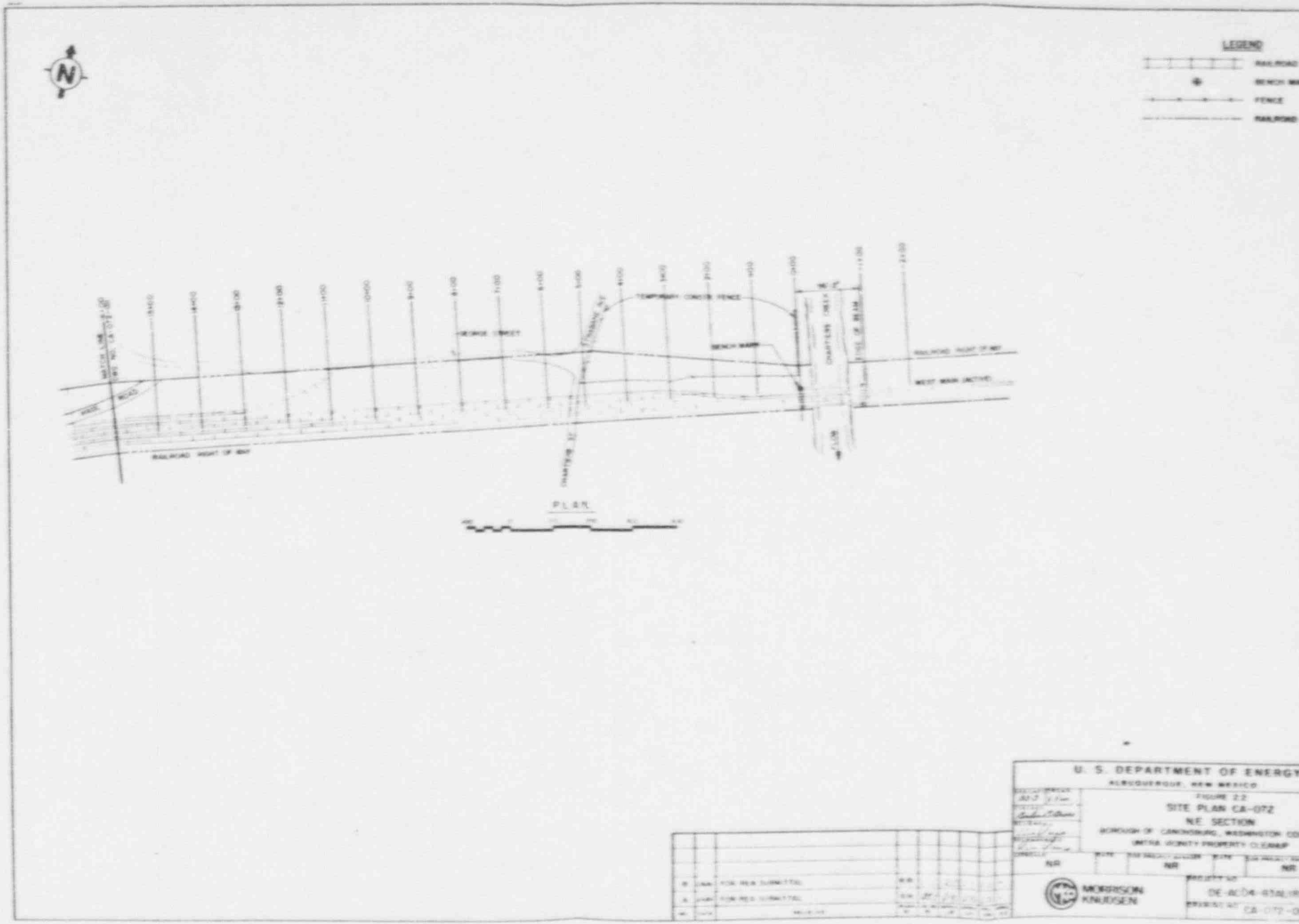
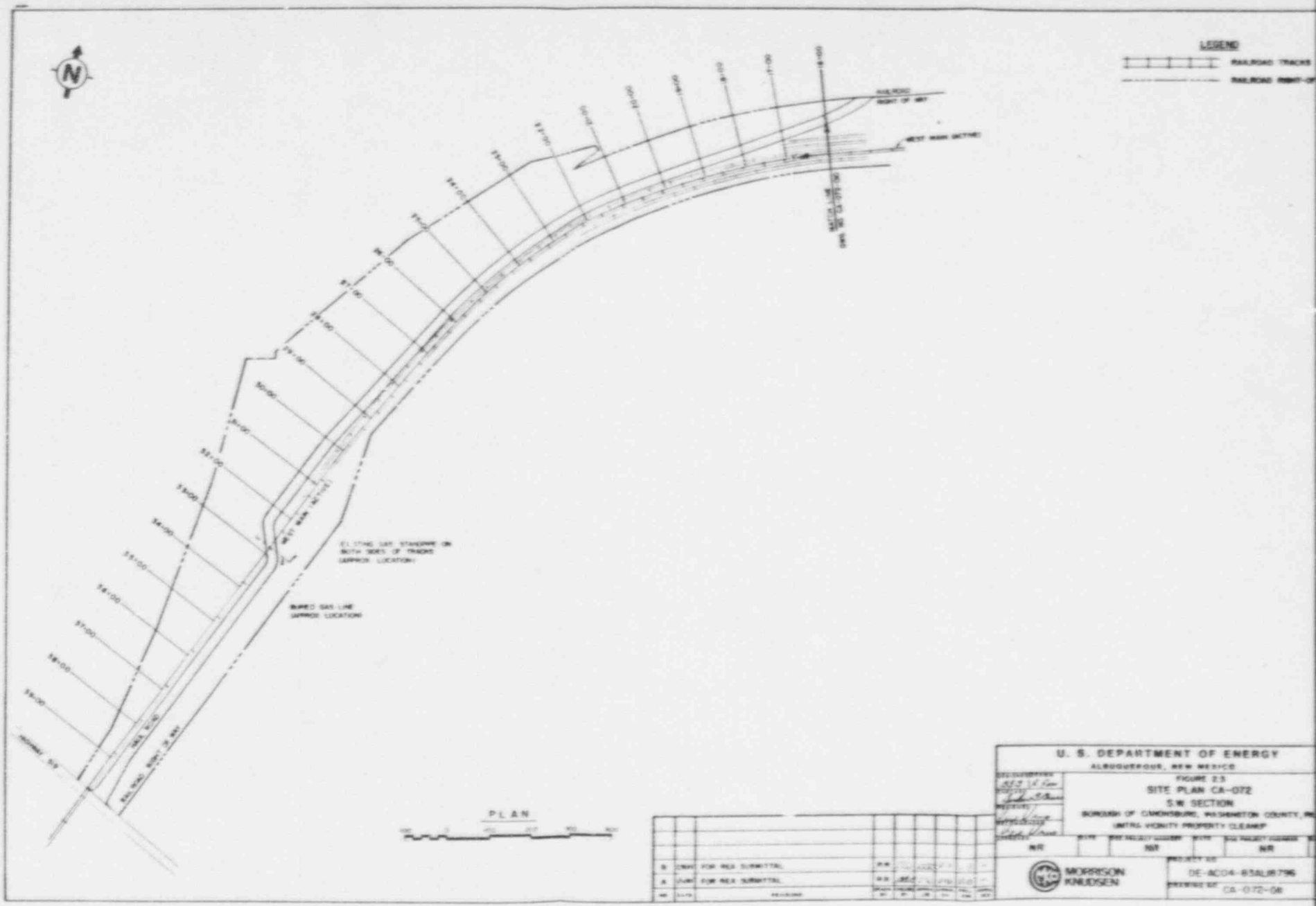
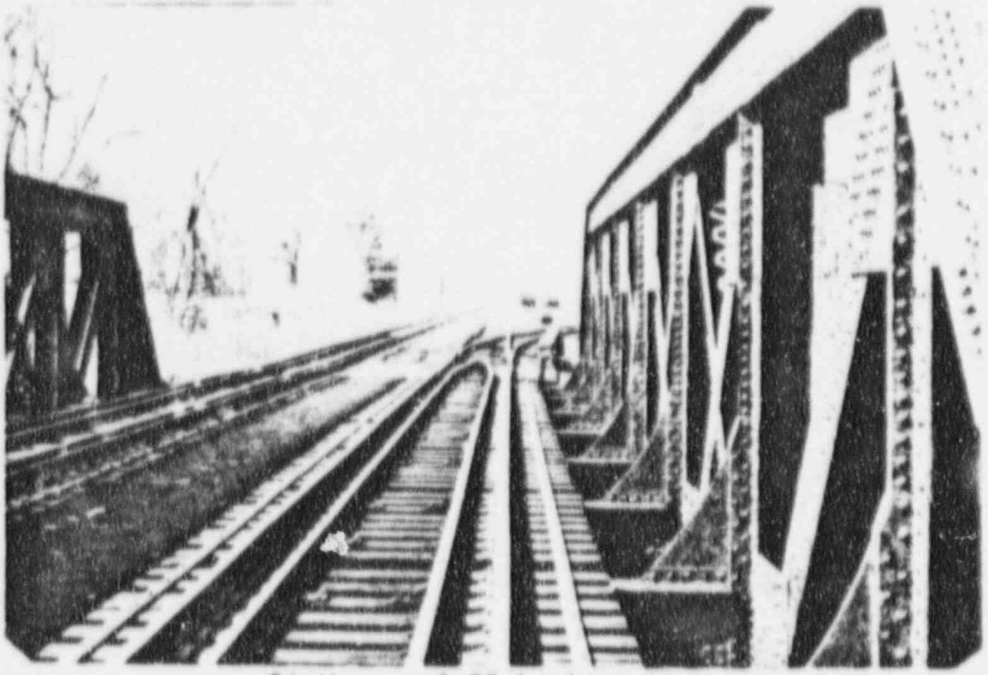


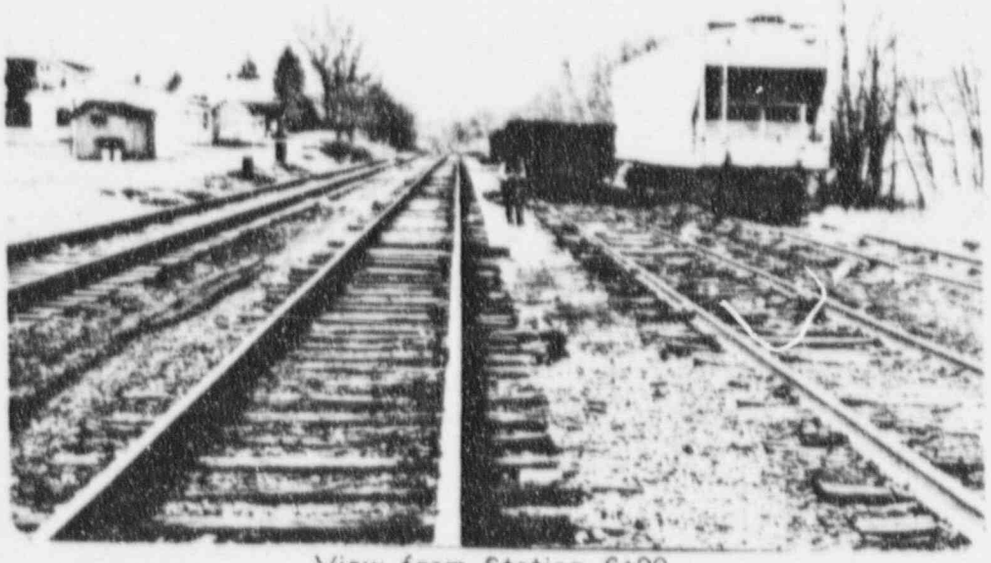
Figure 2.1 Vicinity Map - Canonsburg Site


LEGEND
FENCE
GEORGE STREET
TEMPORARY CONSTR FENCE
BENCH MARK
CHARTIERS CREEK
RAILROAD RIGHT OF WAY
WEST MAIN (ACTIVE)
PLAN
U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO
FIGURE 22
SITE PLAN CA-072
N.E. SECTION
UMTRA VICINITY PROPERTY CLEANUP
NR
MORRISON KNUDSEN
FOR REA SUBMITTAL


LEGEND
RAILROAD TRACKS
RAILROAD RIGHT-OF
N
RAILROAD RIGHT OF WAY
WEST MAIN (ACTIVE)
EXISTING GAS STANDPIPE ON BOTH SIDES OF TRACKS (APPROX LOCATION)
BURIED GAS LINE (APPROX LOCATION)
PLAN
U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO
FIGURE 2.3
SITE PLAN CA-072
S.W. SECTION
BOROUGH OF CANONSBURG, WASHINGTON COUNTY, PA
UMTRA VICINITY PROPERTY CLEANUP
MORRISON KNUDSEN
DE-AC04-83AL95796
CA-072-06



Station - 1+00 Looking West



View from Station 6+00

Figure 2.4 Property Photos

View From Station 9+00

View from Station 15+00

Figure 2.5 Property Photos

View From Station 18+00

View from Station 20+00

Figure 2.6 Property Photos

View From Station 24+00

View from Station 26+00

Figure 2.7 Property Photos

3.0 RADIOLOGICAL SURVEY AND ASSESSMENT

3.1 Gamma Exposure Rate Survey

3.1.1 Survey Method

The outdoor contaminated areas identified in the inclusion survey (Results of the Radiological Survey at Vicinity Property CA-072, ORNL, January 1983) were surveyed in accordance with the RAC UMTRA Procedure 019. The survey was not made on a grid. A surface scan was made of the area with a gamma scintillometer to identify the boundary of the contamination.

There are no buildings on this property.

3.1.2 Survey Results

Surface gamma readings on the property range from 8 to 1080 micro R/hr (Table 3.1). This may be compared with the average background for the Canonsburg site of 11 micro R/hr. Figures 3.1, 3.2, and 3.3 show locations of elevated gamma readings. Most of these locations conform closely to the regions identified in the inclusion survey.

3.2 Borehole Survey

3.2.1 Survey Method

A gasoline-powered hand auger was used to drill 4-inch diameter holes in and around the regions identified as contaminated during the gamma survey. The holes were surveyed in compliance with the RAC UMTRA Procedure 018.

3.2.2 Survey Results

Contamination was found in all of the 22 outdoor holes augered. The location and depth of the contamination is described in Table 3.1 and is shown in Figures 3.1, 3.2, and 3.3.

3.3 Radon/Radon Daughter Survey

No radon/radon daughter surveys were performed at the property.

3.4 Estimated Extent of Contamination

All areas west of Station 16+00 have an estimated depth of 18 inches. This region consists of railroad ballast, and boreholes were not possible. The depth of 18 inches is based on the required depth of excavation during construction of the nearby haul road.

The estimated depth of contamination is given in Table 3.2 and the location is shown on Figures 3.1, 3.2, and 3.3. Per discussion with Conrail, the minimum excavation distance from an active railroad line is 15 feet. Contaminated areas which fall within this zone are marked with a double asterisk (**) on Table 3.2.

3.5 Supplemental Standards

Supplemental Standards apply to those areas marked with a double asterisk (**) in Table 3.2 per 40 CFR 192.21(c), "Criteria for Applying Supplemental Standards," and, therefore, no excavation is required in these areas.

Also, Areas 14 and 15 may extend under Strabane Avenue at the railroad crossing. It is recommended that Supplemental Standards be applied during remedial action if contamination is found to extend under Strabane Avenue.

Table 3.1
BOREHOLE AND GAMMA SURVEY
Property CA-072

BOREHOLE	LOCATION	SURFACE MICRO R/hr	CONTAMINATION DEPTH
A	(42.6,14+55.8)	27	0-12"
B	(60.3,14+06.9)	37	0-12"
C	(63.3,13+66.7)	84	0-24"
D	(41.6,13+00.8)	280	0-54"
E	(44.7,12+78.2)	500	0-60"
F	(29.5,12+59.2)	720	0-48"
G	(54.6,12+15.0)	1,080	0-60"
H	(72.4,11+72.3)	660	0-48"
I	(17.2,10+20.0)	115	0-24"
J	(53.6,8+03.2)	83	0-30"
K	(27.2,6+89.0)	42	0-18"
L	(47.8,5+55.1)	75	0-24"
M	(57.3,4+79.1)	36	0-60"
N	(31.0,4+32.5)	29	Surface Only
O	(53.8,4+12.2)	33	0-54"
P	(30.7,3+40.5)	52	0-24"
Q	(60.1,2+44.8)	71	0-18"

Table 3.1
BOREHOLE AND GAMMA SURVEY
Property CA-072

BOREHOLE	LOCATION	SURFACE MICRO R/hr	CONTAMINATION DEPTH
R	(66.0,1+65.0)	20	Surface Only
S	(48.5,0+16.8)	27	0-18"
T	(14.7,1+32.5)	25	0-12"
U	(-25.4,7+82.2)	42	0-30"
V	(-30.6,8+19.3)	77	0-54"
The following boreholes were originally part of CA-152.			
AA	(-24.96,-1+38.97)	*	None
BB	(-26.06,-1+33.97)	*	0-30"
CC	(-21.36,-1+25.67)	*	None
DD	(-33.26,-1+30.77)	*	None
EE	(-26.56,-1+20.97)	*	0-8"
FF	(-26.06,-1+16.07)	*	None

*Reading prior to drilling borehole not available.

Table 3.2
ESTIMATED EXTENT OF CONTAMINATION
Property CA-072

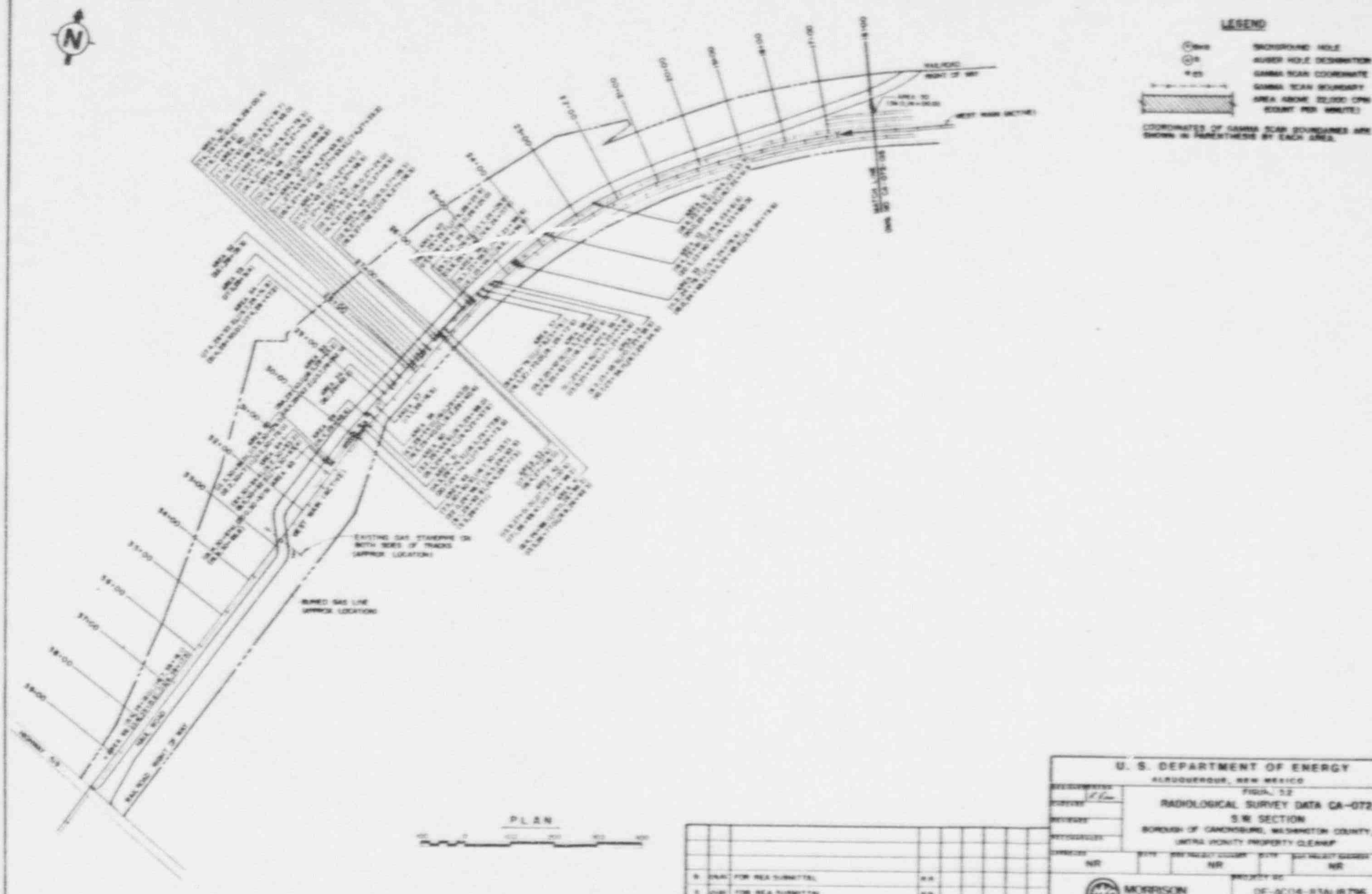
AREA NO.	ESTIMATED DEPTH OF CONTAMINATION
1	18"
2*	--
3	18"
4**	18"
5**	18"
6**	18"
7	18"
8	18"
9**	18"
10	18"
11**	18"
12	18"
13**	18"
14	24"
15	18-60"
16**	18"
17**	18"
18**	18"
19**	18"
20**	18"
21**	18"
22**	18"
23**	18"
24**	18"
25	30"
26	54"
27	18"
28	18"
29	18"
30	18"
31	18"
32	18"
33**	18"
34**	18"
35**	18"
36	18"
37**	18"
38**	18"
39**	18"
40	18"

* Within temporary construction fence. Will be cleaned up with site.
**These areas lie within 15 feet of the west main (active) rail line.

Table 3.2 - Cont'd.
ESTIMATED EXTENT OF CONTAMINATION
Property CA-072

AREA NO.	ESTIMATED DEPTH OF CONTAMINATION
41**	18"
42	18"
43**	18"
44	18"
45	18"
46**	18"
47	18"
48**	18"
49**	18"
50**	18"
51**	18"
52	18"
53	18"
54	18"
55	18"
56	18"
57**	18"
58	18"
59	18"
60**	18"
61	18"
62	18"
63**	18"
64**	18"
65	18"
66**	18"
67	36"

**These areas lie within 15 feet of the west main (active) rail line.



U. S. DEPARTMENT OF ENERGY

ALBUQUERQUE, NEW MEXICO

FIGURE 3.2

RADIOLOGICAL SURVEY DATA CA-072

S.W. SECTION

BOROUGH OF CANONSBURG, WASHINGTON COUNTY, PA.

URTRA VICINITY PROPERTY CLEANUP

NR	NR	NR

MORRISON KNUDSEN

DE-AC04-83AL18796

CA-072-016

NO.	DATE	REVISIONS
B		FOR REA SUBMITTAL
A		FOR REA SUBMITTAL

4.0 ENGINEERING ASSESSMENT

Engineering options were formulated and evaluated based on the radiological and engineering assessment for this property. Factors forming the basis of the evaluation were: the extent and location of the contamination, construction costs, and required demolition and constructibility for the various options. Results of the evaluation are detailed below.

4.1 Evaluation of Options

4.1.1 Options

Two options were evaluated for property CA-072:

1. No action should be taken.

2. Complete decontamination of the property including retrieval of the contaminated material and restoration of the property.

Option 2 would include the following work:

- Removal and restoration of fence
- Removal of railroad track
- Clearing and grubbing
- Excavate and remove contaminated material
- Backfill excavated area with compacted common fill

Access to work is from Main Street, Houston Borough at the southwest end of the property and from Strabane Street, Canonsburg Borough at the northeast end of the property. Access east of Chartiers Creek is from Hutchinson Avenue.

Existing utilities pose no safety hazards to Subcontractor.

4.1.2 Supplemental Standards

Supplemental Standards in accordance with 40 CFR Section 192.21(c) shall apply to that area under and within 15 feet either side of the west main (active) railroad tracks.

4.1.3

Estimated costs for the activities associated with Option 2 are detailed in Table 4.1. Costs include labor, insurance, material, equipment, supplies, overhead, profit, and contingency. All costs are listed in 1985 dollars and based on applying Supplemental Standards as described in Section 4.1.2. Additional costs of remedial action in this area are detailed in Table 4.2. . It is anticipated that the time required for the subcontractor to complete the work will be 15 to 20 days.

4.2 Recommendation

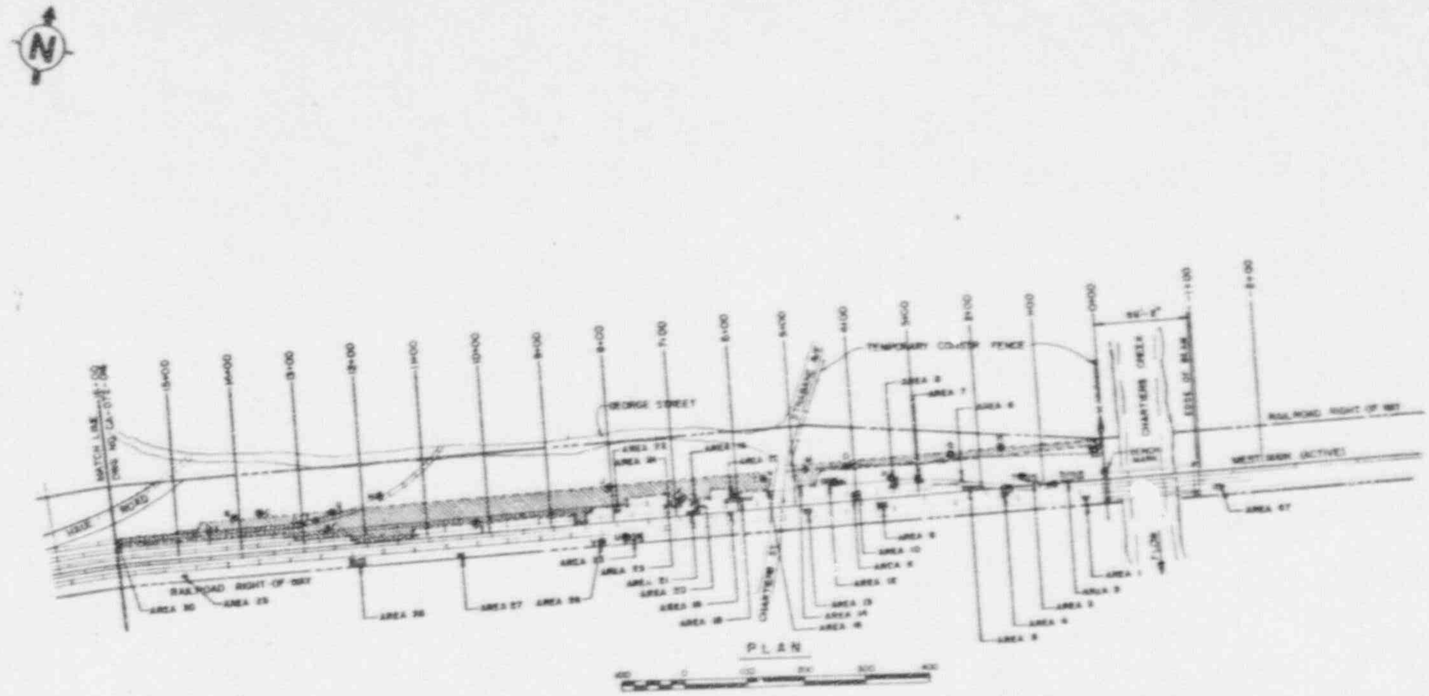
The limited cost and amount of remedial action work precluded evaluating any more than these two options. The results of the radiological assessment concluded that contamination levels on the property exceeded EPA guidelines. Therefore, based on these guidelines, it is recommended that Option 2, decontamination of the property, be pursued. The total estimated cost for Option 2 is $124,500.00.

Table 4.1
OPTION 2 COSTS

Activity	Unit Price	Quantity	Estimated Cost
Clearing and Grubbing	840.00	LS	840.00
Fence Fabric Removal and Replacement	155.00	LS	155.00
Excavation (Machine)	9.20	4,317.2 cy	39,718.00
Excavation (Hand)	51.75	25.0 cy	1,294.00
Common Fill (Compacted)	8.25	4,089.6 cy	33,739.00
Crushed Stone	24.00	252.6 cy	6,062.00
Railroad Work	3,572.00	LS	3,572.00
Railroad Derailer	350.00	2	700.00
Remove and Replace Snow Fencing	500.00	LS	500.00
Subtotal			86,580.00
5% Subcontractor's Contingency			4,329.00
20% Overhead and Profit			17,316.00
Subtotal			108,225.00
15% Contingency			16,234.00
Total (Rounded)			124,500.00

Table 4.2
COSTS FOR NOT APPLYING
SUPPLEMENTAL STANDARDS

Activity	Unit Price	Quantity	Estimated Cost
Railroad Work	8,258.00	LS	8,258.00
Excavation (Machine)	9.20	442.0 cy	4,066.40
Excavation (Hand)	51.75	25.0 cy	1,293.75
Ballast and Sub-ballast	7.23	466.0 cy	3,370.00
	Subtotal		16,988.15
	5% Subcontractor's Contingency		850.00
	20% Overhead and Profit		3,398.00
	Subtotal		21,236.15
	15% Contingency		3,185.00
	Total (Rounded)		24,500.00



LEGEND

- BACKGROUND HOLE
- AUGER HOLE DESIGNATION
- GAMMA SCAN COORDINATE
- GAMMA SCAN BOUNDARY
- AREA ABOVE 22,000 CPM (COUNT PER MINUTE)

NOTE:
FOR ENLARGED PLAN SEE DWG. CA-072-01"

B		FOR REA SUBMITTAL
A		FOR REA SUBMITTAL
NO.	DATE	REVISIONS

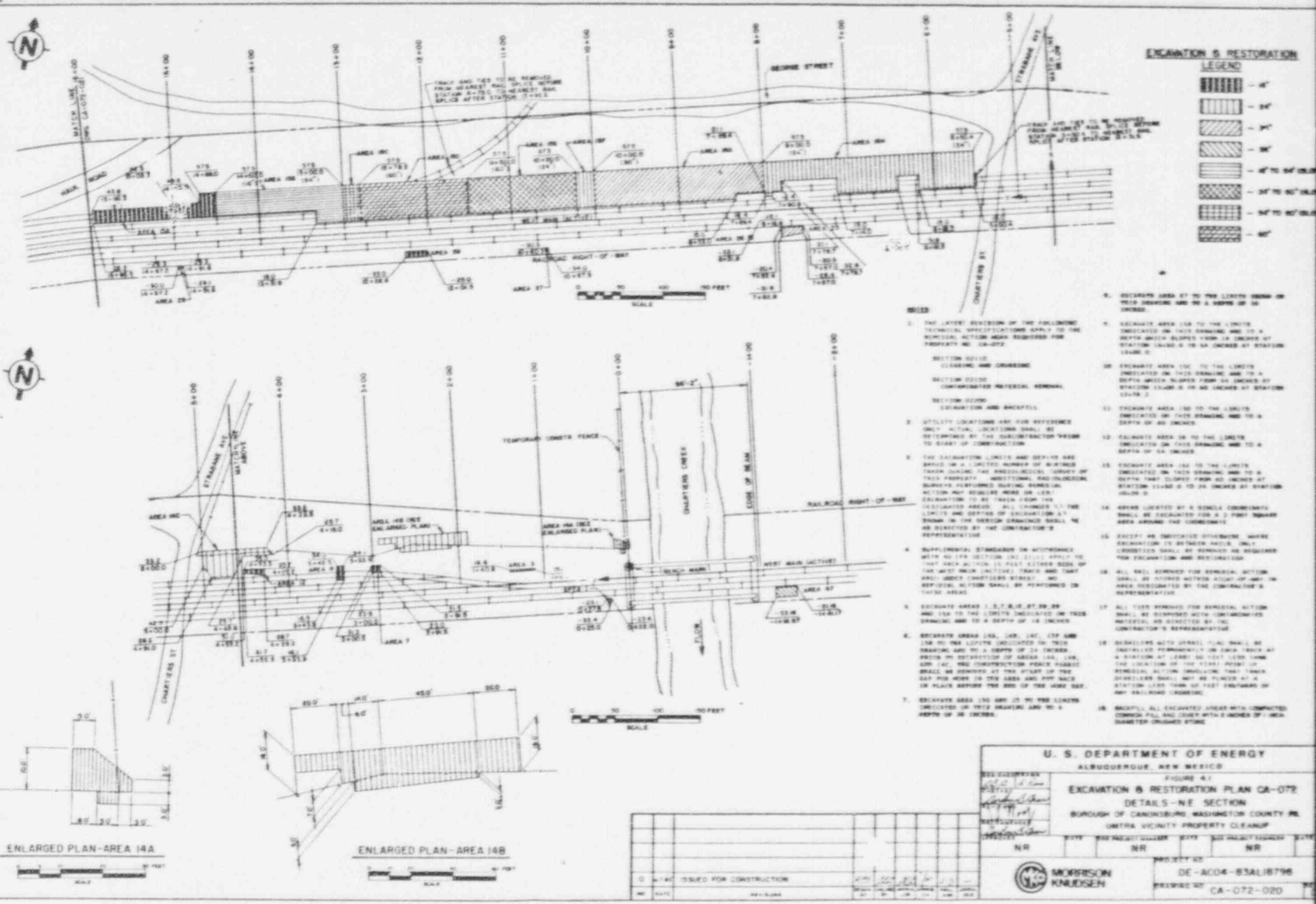
U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

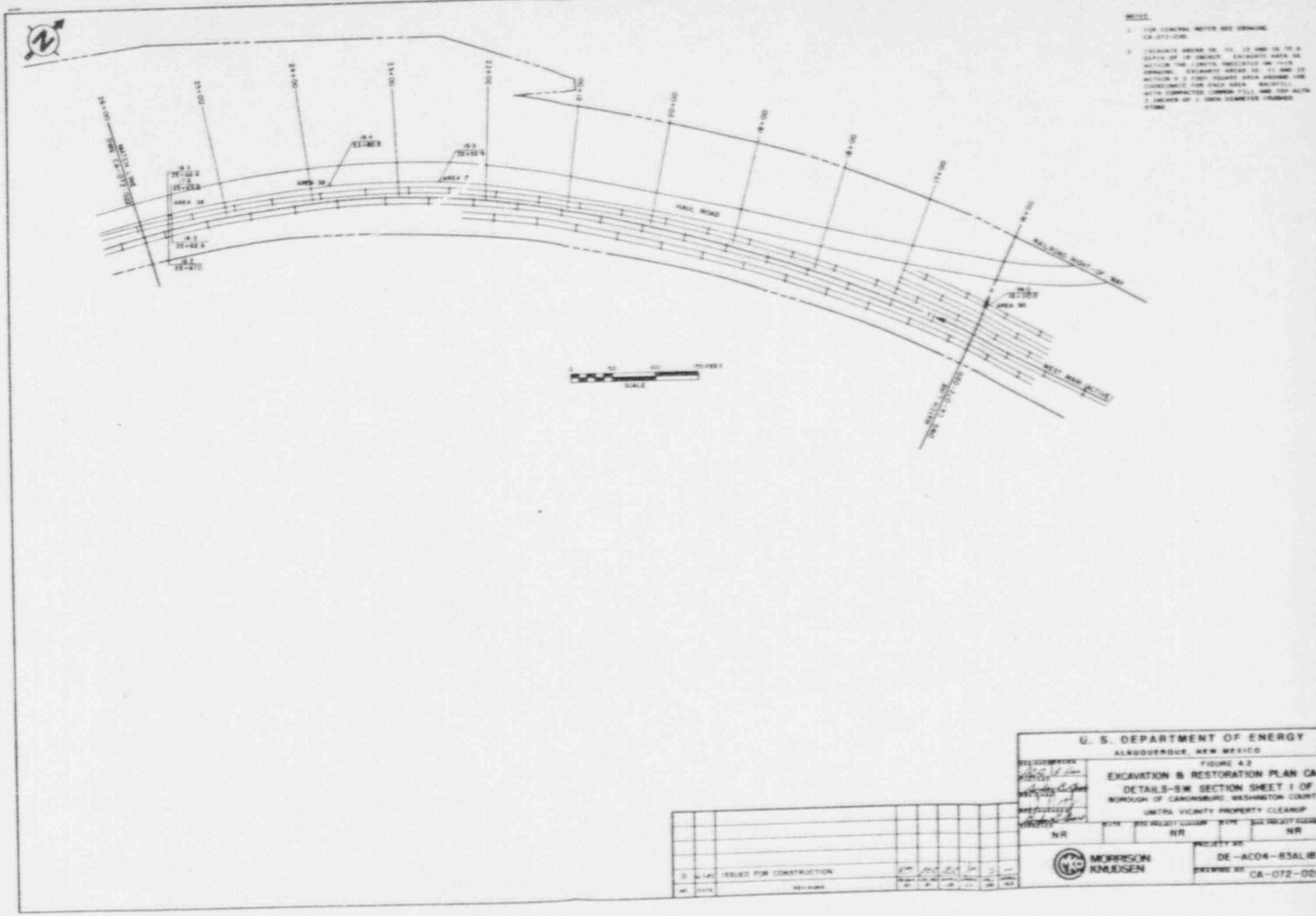
FIGURE 5.1
RADIOLOGICAL SURVEY DATA CA-072
N.E. SECTION
BOROUGH OF CANONSBURG, WASHINGTON COUNTY, PA
UMTRA VICINITY PROPERTY CLEANUP

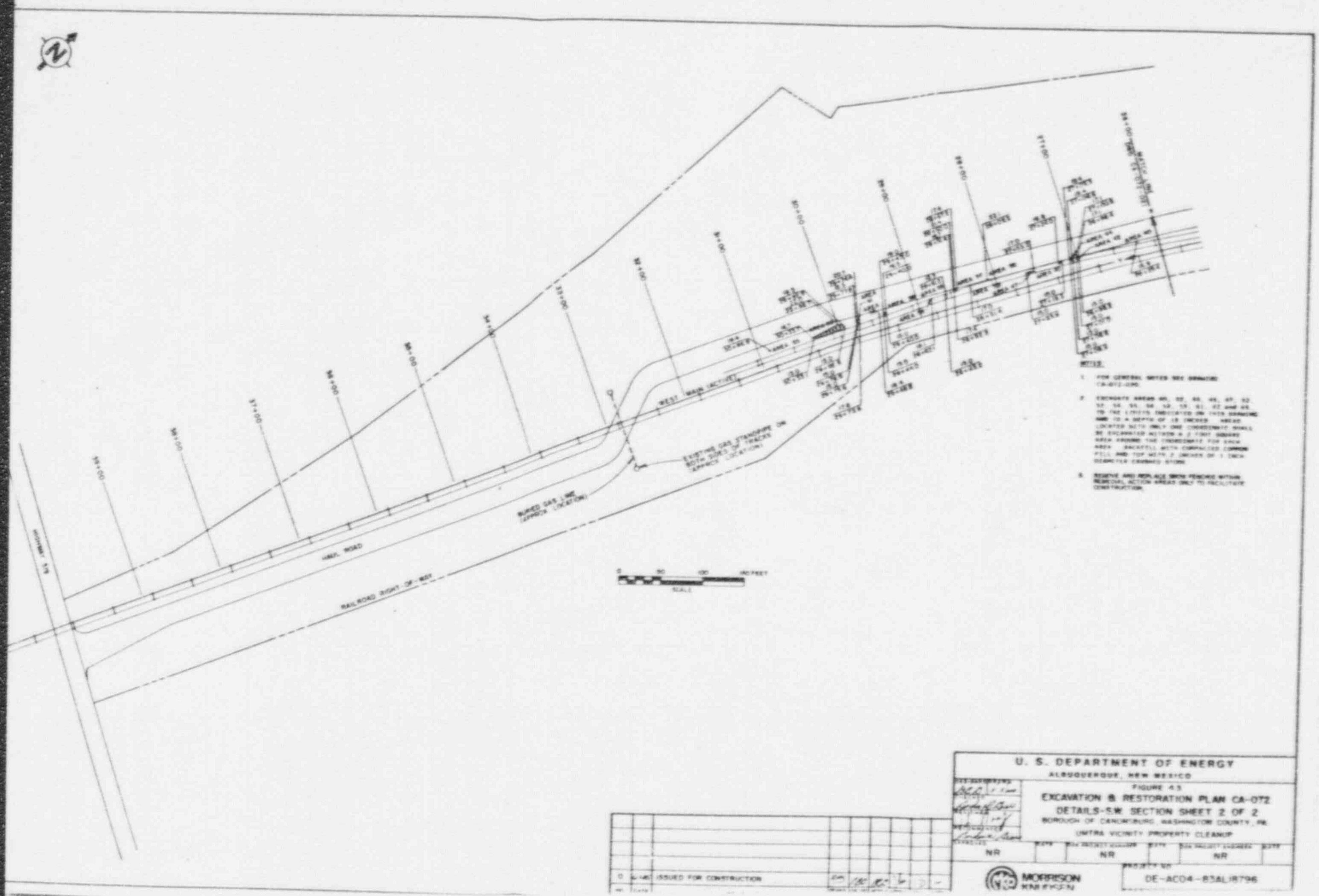
NR | NR | NR

MORRISON KNUDSEN

PROJECT NO. DE-AC04-83AL18796
DRAWING NO. CA-072-015


EXCAVATION & RESTORATION
LEGEND
DESOTO STREET
CHARTERS CREEK
WEST MAIN (ACTIVE)
RAILROAD RIGHT-OF-WAY
TEMPORARY CONSTR. FENCE
ENLARGED PLAN-AREA 14A
ENLARGED PLAN-AREA 14B
ISSUED
1 0 4-87 ISSUED FOR CONSTRUCTION
U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO
FIGURE 4.1
EXCAVATION & RESTORATION PLAN CA-072
DETAILS - N.E. SECTION
BOROUGH OF CANONSBURG, WASHINGTON COUNTY PA.
UMTRA VICINITY PROPERTY CLEANUP
MORRISON KNUDSEN
DE-AC04-83AL18796
CA-072-020


HAUL ROAD
RAILROAD RIGHT OF WAY
WEST MAIN (ACTIVE)
AREA 36
AREA 7
AREA 90
MATCH LINE DWG CA-072-022
MATCH LINE DWG CA-072-020
SCALE
U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO
FIGURE 4.2
EXCAVATION & RESTORATION PLAN CA-
DETAILS-S.W. SECTION SHEET 1 OF
BOROUGH OF CANONSBURG, WASHINGTON COUNTY
UMTRA VICINITY PROPERTY CLEANUP
NR
NR
NR
MORRISON KNUDSEN
DE-AC04-83AL187
CA-072-021
ISSUED FOR CONSTRUCTION
REVISIONS


MATCH LINE
HAUL ROAD
RAILROAD RIGHT-OF-WAY
WEST MAIN (ACTIVE)
BURIED GAS LINE (APPROX. LOCATION)
EXISTING GAS STANDPIPE ON BOTH SIDES OF TRACKS (APPROX. LOCATION)
HIGHWAY 519
SCALE
U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO
FIGURE 43
EXCAVATION & RESTORATION PLAN CA-072
DETAILS-S.W. SECTION SHEET 2 OF 2
BOROUGH OF CANONSBURG, WASHINGTON COUNTY, PA.
UMTRA VICINITY PROPERTY CLEANUP
NR
NR
NR
MORRISON KNUDSEN
DE-AC04-83AL18796
ISSUED FOR CONSTRUCTION

5.0 TECHNICAL SPECIFICATIONS

Technical specifications applicable to this property are indexed in Table 5.1 . Specifications previously approved by the Department of Energy (DOE) are noted in the table. Also listed are specifications not previously submitted to the DOE which require approval. The text for these additional specifications follow the table.

Table 5.1
INDEX OF TECHNICAL SPECIFICATIONS

Description		Specifications Previously Approved	Specifications Requiring DOE Approval
Division 2 - Site Work			
SECTION 02110	CLEARING AND GRUBBING	X	
SECTION 02130	CONTAMINATED MATERIAL REMOVAL	X	
SECTION 02200	EXCAVATION AND BACKFILL	X	

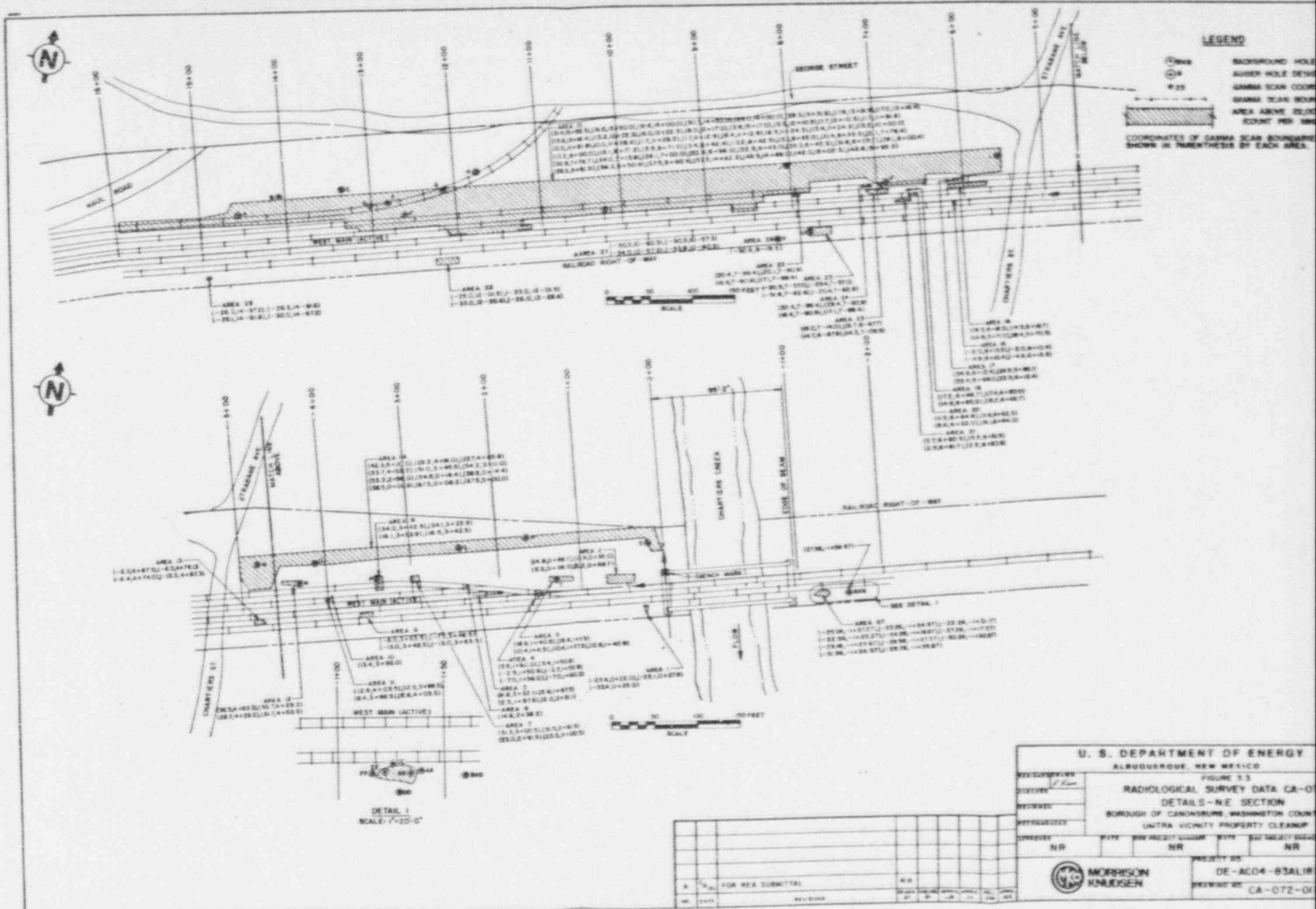
6.0 CONSTRUCTION DRAWINGS

Listed below is an index of the construction drawings required for remedial action on this property.

Drawing Number	Drawing Title
CA-072-020	Excavation & Restoration Plan N-E Section
CA-072-021	Excavation & Restoration Plan S-W Section
CA-072-022	Excavation & Restoration Details S-W Section

APPENDIX A

SURVEY DATA LOGS


LEGEND
GEORGE STREET
WEST MAIN (ACTIVE)
RAILROAD RIGHT-OF-WAY
HAUL ROAD
CHARTIERS ST.
STRABANE AVE
CHARTIERS CREEK
EDGE OF BEAM
FLOW
SEE DETAIL 1
SCALE
DETAIL 1
SCALE: 1"=20'-0"
U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO
FIGURE 3.3
RADIOLOGICAL SURVEY DATA CA-07
DETAILS-N.E. SECTION
BOROUGH OF CANONSBURG, WASHINGTON COUNTY
UMTRA VICINITY PROPERTY CLEANUP
MORRISON KNUDSEN
DE-AC04-83AL18
CA-072-01
FOR REA SUBMITTAL

MORRISON KNUDSEN

PROPERTY SURVEY COORDINATES

Sheet 1 of 11

SITE LOCATION CANONSBURG, PA

ADDRESS CONRAIL ROW

PROPERTY TYPE Rail Road LOT NO. CA-077

OWNER CONRAIL R.O.W.

SKETCH COMPLETED BY TJC DATE 5-14-94

AUGER HOLE	COORDINATES

GAMMA SCAN BOUNDARY			
POINT	COORDINATES	POINT	COORDINATES
	STA 39+00		
1	(15.6, 39+18)		
2	(14.7, 39+16.1)		
3	(13.4, 39+15.5)		
4	(13.6, 39+17.5)		

VP-03A

MORRISON KNUDSEN

PROPERTY SURVEY SKETCH
COORDINATES

Sheet 2 of 11

SITE LOCATION CANONSBURG

ADDRESS CONRAIL ROW

PROPERTY TYPE _____ LOT NO. CA-072

OWNER CONRAIL R.O.W.

SKETCH COMPLETED BY TEC DATE 5-14-84

AUGER HOLE	COORDINATES

GAMMA SCAN BOUNDARY			
POINT	COORDINATES	POINT	COORDINATES
	STA 31+00		AREA C
1	(12.5 31+20	1	(3.2, 29+64.9)
	STA 30+50	2	(6.5, 29+68)
	AREA A	3	(15.3, 29+59.4)
1	(18.4, 30+87.4)	4	(6.4, 29+57.6)
2	(20.0, 30+87.9)		STA 29+00
3	(19.9, 30+85.8	1	AREA A
	AREA B	1	(16.4, 29+49.8)
1	(8.4, 30+84.4)		AREA B
2	(9.2, 30+82.2)	1	(11.5, 29+44)
3	(8.5, 30+82.6)	2	(19.0, 29+42)
4	(7.4, 30+83.4)	3	(19.3, 29+40)
	AREA C	4	(8.2, 29+40.4)
1	(12.3, 30+81)		
2	(13.8, 30+79)		AREA C
3	(12.2, 30+77.1)	1	(14.3+29+16.5)
4	(11.2, 30+78)		STA 28+50
	STA 30+00 & 29+50 AREA A		AREA A
1	(7.3, 30+30.9)	1	(18.1+28+82.1
2	(16.7, 30+33.7)		AREA B
3	(22.0, 29+98.1)	1	(13.4, 28+63.2)
4	(16.5, 29+92.5)	2	(18.3, 28+63.2)
5	(9.1, 29+92.8)	3	(16.4, 28+62.2)
6	(6.4, 29+77.3)	4	(13.7, 28 62.3)
7	(3.3, 29+77.1)		
	STA 29+50		AREA C
	AREA B	1	(17.4, 28+53.2)
1	(14.3, 29+76.3)	2	(19.7, 28+51.8)
2	(19.3, 29+77.5)	3	(21.4, 28+50)
3	(20.1, 29+74.4)	4	(17.4, 28+47.2)
4	(17.8, 29+73.8)		

Form VP-03A

MORRISON KNUDSEN

PROPERTY SURVEY SKETCH
COORDINATES

Sheet 3 of 11

SITE LOCATION CANONSBURG, PA

ADDRESS CONRAIL ROW

PROPERTY TYPE _____ LOI NO. CA-077

OWNER _____

SKETCH COMPLETED BY TEC DATE 5-16-84

AUGER HOLE	COORDINATES

GAMMA SCAN BOUNDARY

POINT	COORDINATES
	STA 28+00
1'Ø 36	AREA A
1	(17.0, 28+31.4)
6"Ø SH	AREA B
1	(22.1, 28+9.3)
3E	AREA C
1	(7.6, 28+00.6)
2	(8.8, 28+00.4)
3	(7.9, 27+99.2)
	STA 27+50
3J	AREA A
1	(7.1, 27+93)
2	(15.8, 27+91.7)
3	(15.7, 27+89.8)
4	(7.5, 27+88)
3L	AREA B
1	(11.5, 27+78.3)
2	(14.8, 27+78.3)
3	(14.4, 27+75.6)
4	(11.6, 27+76.2)
3L	AREA C
1	(10.1, 27+69.1)
2	(13.9, 27+69.2)
3	(13.8, 27+68.3)
4	(9.9, 27+68.2)
3M	AREA D
1	(11.1, 27+63.6)
2	(12.8, 27+61.9)
3	(15.4, 27+61)
4	(16.7, 27+53.3)
5	(17.4, 27+53.2)

POINT	COORDINATES
STA	27+00
	AREA A
1	(7.7, 27+45)
2	(17.4, 27+45.1)
3	(17.1, 27+41.2)
4	(7.3, 27+33.5)
	AREA B
1	(12.5, 27+21.4)
2	(16.0, 27+24.0)
3	(16.8, 27+22.6)
4	(14.0, 27+11.3)
	AREA C
1	(12.8, 27+9.2)
2	(16.0, 27+9.3)
3	(15.9, 27+8.3)
4	(12.8, 27+8.2)
1'-8	AREA D
1	(18.4+27+8.0)
1'-8	AREA E
1	(17.0+27+7.6)
	AREA F
1	(13.9, 27+01)
2	(17.1, 27+00.6)
3	(17.1, 26+98.4
4	(13.7, 26+98.2

Form VP-03A

MORRISON KNUDSEN

PROPERTY SURVEY SKETCH
COORDINATES

Sheet 4 of 11

SITE LOCATION CANONSBURG, PA

ADDRESS CONRAIL ROW

PROPERTY TYPE _____ LOT NO. CA-07 Z

OWNER CONRAIL ROW

SKETCH COMPLETED BY _____ DATE 5-16-84

AUGER HOLE	COORDINATES

GAMMA SCAN BOUNDARY			
POINT	COORDINATES	POINT	COORDINATES
	STA 26+50		AREA C
	AREA A	1	(16.2 + 25+67)
1	(8.4, 26+88.1)	2	(18.3, 25+66.4)
2	(19.0, 26+88.2)	3	(17.8, 25+63)
3	(13.5, 26+77.0)	4	(16.3, 25+62.9)
4	(8.8, 26+82.3)		
STA	26+00		STA 25+00 11'
	AREA A		AREA A
1	(16, 26+25.7)	1	(11.1, 25+44.8)
2	(17.6, 26+25.9)	2	(13.5, 25+44.8)
3	(17.8, 26+24.9)	3	(13.5, 25+43.6)
4	(16.0, 26+25)	4	(11.1, 25+43.6)
	AREA B		AREA B
1	(9.5, 26+09.4)	1	(8.2, 25+35.5)
2	(13.5, 26+09.5)	2	(10.7, 25+35.5)
3	(13.8, 26+07.4)	3	(10.7, 25+34.7)
4	(9.6 + 26+ 7.9)	4	(8.7, 25+34.5)
	STA 25+50		STA 24+50
	AREA A		AREA A
1	(8.5, 25+98.7)	1	(11.2, 24+78.7)
2	(14.3, 25+98.6)	2	(15.4, 24+78.8)
3	(14.1, 25+96.0)	3	(15.0, 24+65.2)
4	(8.6, 25+96.0)	4	(5.5, 24+65.2)
	AREA B	5	(5.2, 24+73.6)
1	(8.4, 25+79)		STA 23+50
2	(17.8, 25+79.1)		AREA A
3	(18.3, 25+73)	1	(18.4, 23+81)
4	(8.1, 25+72.6)	2	(19.8, 23+81.3)
		3	(20.3, 23+80.3)
		4	(19.4, 23+80)

Form VP-03A

MORRISON KNUDSEN

PROPERTY SURVEY SKETCH
COORDINATES

Sheet 5 of 11

SITE LOCATION

ADDRESS CONRAIL ROW

PROPERTY TYPE LOT NO. CA-072

OWNER

SKETCH COMPLETED BY TKC. DATE 3-16-84

AUGER HOLE	COORDINATES

GAMMA SCAN BOUNDARY			
POINT	COORDINATES	POINT	COORDINATES
	STA 22+50		
	AREA A		
1	(18.6, 22+53.5)		
2	(19.8, 22+52.9)		
3	(20.0, 22+52.5)		
4	(18.7, 22+51.9)		

Form VP-03A

MORRISON KNUDSEN

PROPERTY SURVEY SKETCH
COORDINATES

Sheet 6 of 11

SITE LOCATION

ADDRESS COH RAIL ROW FROM HAUL ROAD TO CRUSHER

PROPERTY TYPE LOT NO. CA-072

OWNER

SKETCH COMPLETED BY DATE 5-29-84

AUGER HOLE	COORDINATES

GAMMA SCAN BOUNDARY

POINT	COORDINATES	POINT	COORDINATES
	STA 16+00		CONT.
1A	AREA A	27	(13.1, 8+71.2)
1	(36.0, 16+00)	28	(3.5, 8+71.4)
		29	(3.4, 8+42.4)
STA	15+00 →	30	(12.2, 8+42.5)
	AREA A (CLOSE AREA BY HAUL ROAD)	31	(12.1, 8+22)
		32	(21.4, 8+33.8)
1	(31.4, 15+95.3)	33	(21.1, 7+76.4)
2	(31.6, 15+50)	34	(32.8, 7+78.7)
3	(31.6, 15+00)	35	(34.0, 7+13.8)
4	(30.3, 14+50)	36	(26.1, 7+00.0)
5	(29.0, 14+00)	37	(22.4, 6+96.0)
6	(28.3, 13+31.9)	38	(22.5, 6+43.0)
7	(17.6, 13+31.9)	39	(33.3, 6+42.5)
8	(17.0, 13+16.4)	40	(31.6, 6+05.7)
9	(13.6 13+16.4)	41	(28.1, 6+00.4)
10	(13.2, 12+22.3)	42	(29.2, 5+51.5)
11	8.0, 12+22.3)	43	(36.3 5+50.4)
12	(8.0, 12+17.0)	44	(57.5, 5+50.4)
13	3.9, 12+17.0)	45	(57.5, 14+62.2)
14	3.5, 12+10.3)	46	(45.5, 14+69)
15	1.7, 12+10.3)	47	(42.0, 15+01.2)
16	1.7, 11+91.8)	48	(43.8, 15+95.3)
17	0.0, 11+91.8)		
18	0.0, 11+28.2)		
19	1.7, 11+28.2)		
20	1.7, 11+12.9)		
21	6.4, 11+12.9)		
22	6.3, 11+24.3)		
23	(13.4, 11+24.3)		
24	(13.2, 11+00)		
25	(13.2, 10+00)		
26	(13.2, 9+00)		

Form VP-03A

MORRISON KNUDSEN

PROPERTY SURVEY COORDINATES

Sheet 7 of 11

SITE LOCATION [illegible]

ADDRESS CONRAIL ROW - 4 AREAS SO OF MAIN LINE

PROPERTY TYPE CONRAIL R.R STA 7, 10, 12 & 14 LOT NO. CR-077

OWNER CONRAIL

SKETCH COMPLETED BY TJC DATE 6-1-94

AUGER HOLE	COORDINATES

GAMMA SCAN BOUNDARY			
POINT	COORDINATES	POINT	COORDINATES
	STA 7+00		
	AREA A		
1	(-20.5, 7+57)		
2	(-29.4, 7+57.0		
3	(-31.8, 8+92.4)		
4	(-20.4, 8+82.4)		
	STA 10+00		
	AREA C		
1	(-30.2, 10+40.2)		
2	(-30.2, 10+57.3)		
3	(-34.0, 10+57.3)		
4	(-33.8, 10+40.2)		
	STA 12+00		
	AREA B		
1	(-25, 12+01.5)		
2	(-33, 12+01.5)		
3	(-33, 12+28.6)		
4	(-25, 12+28.6)		

MORRISON KNUDSEN

PROPERTY SURVEY COORDINATES

Sheet 8 of 11

SITE LOCATION: CANONSBURG, PA

ADDRESS: CONRAIL R.O.W.

PROPERTY TYPE: RAILROAD R.O.W. LOT NO. CA-077

OWNER: CONRAIL

SKETCH COMPLETED BY: TEC DATE: 6-1-84

AUGER HOLE	COORDINATES

GAMMA SCAN BOUNDARY			
POINT	COORDINATES	POINT	COORDINATES
	STA 7+00	[illegible]	AREA E
[illegible]	AREA A	1	(11.5, 6+64.6)
1	(24.9, 7+11.1)	2	(11.6, 6+6[illegible])
2	(25.0, 7+06.5)	3	(9.6, 6+6[illegible])
3	(22.3, 7+06.5)	4	(8.1, 6+64.[illegible])
4	(22.5, 7+11.1)		
		[illegible]	AREA C
[illegible]	AREA B	1	(17.2, 6+66.7)
1	(19, 7+14.0)	2	(17.4, 6+60.0)
2	(19.7, 6+8[illegible])	3	(14.9, 6+60.0)
3	(14.7, 6+37.9)	4	(15.2, 6+66.7)
4	(14.3, 7+0[illegible])	[illegible]	AREA D
		1	(19.3, 6+19.3)
[illegible]	AREA C	2	(14.5, 6+13.7)
1	(20.4, 7+99.4)	3	(14.9, 5+71.0)
2	(20.1, 7+90.9)	4	(19.4, 5+70.5)
3	(16.4, 7+90.9)	[illegible]	AREA E
4	(17.1, 7+99.4)	1	(24.9, 6+17.4)
		2	(24.9, 5+90.1)
	STA 6+00	3	(22.4, 5+99.[illegible])
=	AREA A	4	(22.5, 6+12.4)
1	(5.7, 6+90.5)	11K	AREA [illegible]
2	(5.5, 6+[illegible])	1	(-2.0, 6+13.5)
3	([illegible].5, 6+[illegible].7)	2	(-2.0, 6+10.4)
4	([illegible], 6+90.[illegible])	3	(-4.9, 6+10.4)
		4	(-4.9, 6+13.5)

MORRISON KNUDSEN

PROPERTY SURVEY COORDINATES

Sheet 9 of 11

SITE LOCATION

ADDRESS CONRAIL R.O.W [illegible]

PROPERTY TYPE LOT NO. CA-077

OWNER

SKETCH COMPLETED BY DATE 4-1-84

AUGER HOLE	COORDINATES

GAMMA SCAN BOUNDARY			
POINT	COORDINATES	POINT	COORDINATES
	STA 0+00 - 5+00		STA 4+00
1	(42.3, 5+00.0)	1.2.2	AREA B
2	(28.2, 4+91.0)	1	(36.5, 4+51.3)
3	(28.7, 4+65.8)	2	(35.7, 4+29.2)
4	(53.7, 4+53.2)	3	(28.7, 4+29.2)
5	(51.0', 3+95.5)	4	(31.7, 4+52.3)
6	(54.2, 3+11.0)		
7	53.2, 2+56.0)	[illegible]	AREA C
8	(54.5 0+19.4)	1	(12.9, 4+02.5)
9	(38.5 0+14.4)	2	(12.5, 3+78.5)
10	(38.5 0+1.9)	3	(8.4, 2+93.5)
11	(67.5, 0+8.2)	4	(8.6, 4+02.5)
12	(67.5, 5+00)		
			STA 3+00
		[illegible]	AREA [illegible]
		E 1	(13.4, 3+96.2)
		[illegible]	AREA B
		1	(-8.3+62.5)
		2	(-7.5, 3+98.5)
		3	(-13.0, 3+98.5)
STA	4+00	4	(-13.0, 3+62.5)
	AREA A		
1	(-6.5, 4+87.3)	[illegible]	AREA C
2	(-6.5, 4+74.2)	1	(34.0, 3+42.5)
3	(-11.4, 4+74.2)	2	(34.1, 3+33.7)
4	(-13.3, 4+81.3)	3	(16.1, 3+33.7)
		4	(16.5, 3+43.5)

VP-03A

MORRISON KNUDSEN

PROPERTY SURVEY COORDINATES

Sheet 10 of 11

SITE LOCATION

ADDRESS CONRAIL ROW E. OF STRABANE AVE.

PROPERTY TYPE LOT NO. CA-077

OWNER

SKETCH COMPLETED BY DATE 6-4-99

AUGER HOLE	COORDINATES

GAMMA SCAN BOUNDARY			
POINT	COORDINATES	POINT	COORDINATES
	STA 3+00		STA 0+00
[illegible]	AREA D	[illegible]	AREA A
1	(31.3, 3+00.5)	1	(14.8, 0+68.7)
2	(31.5, 2+91.5)	2	(13.9, 0+35.2)
3	(23.0, 2+91.5)	3	(3.3, 0+36.5)
4	(23.5, 3+00.5)	4	(5.2, 0+68.7)
[illegible]	STA 2+00	[illegible]	AREA B
[illegible]	AREA A	1	(-23.6, 0+22)
[illegible]	14.8, 2+35.2	2	(-23.1, 0+27.8)
[illegible]	AREA B	3	(-33.4, 0+25)
1	(6.8, 2+32.1)		
2	(5.8, 1+99.5		
3	(2.3, 1+99.5		
4	(2.0, 2+32.1)		
	STA 1+00		
[illegible]	AREA A		
1	(3.9, 1+60.0)		
2	(3.4, 1+50.8)		
3	(-2.5, 1+50.7)		
4	(-2.7, 1+55.9)		
5	(-7.0, 1+56.0)		
6	(-7.0, 1+60.0)		
[illegible]	AREA B		
1	(18.6, 1+40.8)		
2	(16.9, 1+11.5)		
3	(10.4, 1+11.5)		
4	(10.4, 1+27.5)		
5	(12.6, 1+40.8)		

VP-03A

MORRISON KNUDSEN

PROPERTY SURVEY COORDINATES

Sheet 11 of 11

SITE LOCATION CAMPBELLSPORT, PA

ADDRESS CONRAIL ROW AUGER HOLES

PROPERTY TYPE _____ LOT NO. CA-072

OWNER _____

SKETCH COMPLETED BY TJC DATE 6-6-94

AUGER HOLE	COORDINATES
A	(42.6, 14+55.0)
B	(60.2, 14+06.9)
C	(61.2, 13+66.7)
D	(41.6, 13+00.0)
E	(44.9, 12+78.2)
F	(39.5, 12+59.2)
G	(54.6, 12+12.0)
H	(62.9, 11+72.3)
I	(17.2, 10+20.0)
J	(23.6, 3+03.2)
K	(27.2, 6+89.0)
L	(42.8, 5+55.1)
M	(57.3, 4+99.1)
N	(31.0, 4+32.5)
O	(52.8, 4+12.2)
P	(30.9, 3+40.5)
Q	(60.1, 2+44.5)
R	(66.0, 1+65.0)
S	(48.5, 0+16.6)
T	(19.7, 1+32.5)
U	(-25.4, 7+87.2)
V	(-30.6, 8+19.3)

GAMMA SCAN BOUNDARY			
POINT	COORDINATES	POINT	COORDINATES

VP-03A

MORRISON KNUDSEN

BOREHOLE LOG

LOGGING CREW: [signature]
DAVE BOYER
DAVE MILLER

INSTRUMENT ID NO. CAN # 22

SHEET 1 OF 7 PAGE

DATE: 6-4-84

PROPERTY ID: CA-072

AREA:

NOTES: 1. ALL HOLES ARE 4"DIA. UNLESS OTHERWISE NOTED.
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: A		HOLE ID: B		HOLE ID: C		HOLE ID: D	
TIME DRILLED: 0840		TIME DRILLED: 0858		TIME DRILLED: 1005		TIME DRILLED: 1040	
TIME LOGGED: 0845		TIME LOGGED: 0905		TIME LOGGED: 1030		TIME LOGGED: 1100	
SOIL TYPE: CLAY-CINDER		SOIL TYPE: CLAY-CINDER		SOIL TYPE: CLAY		SOIL TYPE: CLAY	
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN
SURFACE	4605	SURFACE	5227	SURFACE	12401	SURFACE	40182
0"	4019	0"	5218	0"	12388	0"	38094
6"	4509	6"	4482	6"	12688	6"	57970
12"	4439	12"	3991	12"	9525	12"	75919
18"	4019	18"	3277	18"	4588	18"	73228
24"		24"		24"	3959	24"	49609
30"		30"		30"	3446	30"	24861
36"		36"		36"		36"	12874
42"		42"		42"		42"	8313
48"		48"		48"		48"	4918
54"		54"		54"		54"	3442
60"		60"		60"		60"	2852
66"		66"		66"		66"	2612
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS: HOLES "C" + "D" PICKED UP WATER AT APPROX. 30"

VF-4B

MORRISON KNUDSEN

BOREHOLE LOG

LOGGING CREW: T. A. [illegible]
DAVE BAILER
DAVE MILLER

INSTRUMENT ID NO. SAN-022

SHEET 2 OF 7 PAGE

DATE: 6-4-84

PROPERTY ID: CA-073

AREA:

NOTES: 1. ALL HOLES ARE 4"DIA. UNLESS OTHERWISE NOTED.
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: E		HOLE ID:		HOLE ID:		HOLE ID:	
TIME DRILLED: 1115		TIME DRILLED:		TIME DRILLED:		TIME DRILLED:	
TIME LOGGED: 1130		TIME LOGGED:		TIME LOGGED:		TIME LOGGED:	
SOIL TYPE: CLAY		SOIL TYPE:		SOIL TYPE:		SOIL TYPE:	
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN
SURFACE	73872	SURFACE		SURFACE		SURFACE	
0"	75772	0"		0"		0"	
6"	91904	6"		6"		6"	
12"	108801	12"		12"		12"	
18"	109203	18"		18"		18"	
24"	85382	24"		24"		24"	
30"	49720	30"		30"		30"	
36"	36932	36"		36"		36"	
42"	28499	42"		42"		42"	
48"	16739	48"		48"		48"	
54"	7585	54"		54"		54"	
60"	4540	60"		60"		60"	
66"	3850	66"		66"		66"	
72"	3268	72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS: HOLE "E" PICKED UP WATER AT APPROX. 30"

VP.04R

MORRISON KNUDSEN

BOREHOLE LOG

LOGGING CREW: [illegible] / DAVE BAKER / DAVE MILLAR

INSTRUMENT ID NO.: CAN# 022

SHEET 3 OF 7 PAGE

DATE: 6·5·84

PROPERTY ID: CA-072

AREA:

NOTES: 1. ALL HOLES ARE 4"DIA. UNLESS OTHERWISE NOTED.
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: F TIME DRILLED: 0825 TIME LOGGED: 0845 SOIL TYPE: CLAY-LOAM		HOLE ID: G TIME DRILLED: 0850 TIME LOGGED: 0905 SOIL TYPE: CLAY-LOAM		HOLE ID: H TIME DRILLED: 0915 TIME LOGGED: 0930 SOIL TYPE: CLAY-LOAM		HOLE ID: I TIME DRILLED: 0940 TIME LOGGED: 0945 SOIL TYPE: CLAY-LOAM	
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN
SURFACE	106169	SURFACE	160099	SURFACE	97384	SURFACE	17319
0"	90431	0"	187932	0"	115315	0"	17628
6"	88715	6"	216861	6"	138483	6"	20410
12"	59968	12"	228693	12"	170351	12"	12207
18"	26505	18"	20574	18"	157576	18"	6212
24"	17241	24"	141385	24"	135446	24"	3332
30"	13034	30"	50445	30"	43306	30"	2394
36"	8582	36"	17254	36"	13408	36"	2086
42"	5159	42"	6117	42"	5423	42"	1963
48"	4120	48"	3866	48"	3019	48"	
54"	3386	54"	4907	54"	2337	54"	
60"	3479	60"	3610	60"		60"	
66"		66"	1825	66"		66"	
72"		72"	1806	72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS: HOLES "F" "G" "H" + "I" PICKED UP WATER AT APROX 36"

MORRISON KNUDSEN

BOREHOLE LOG

LOGGING CREW: T. A. [illegible]
DAVE BAKER
DAVE McMAHON

INSTRUMENT ID NO. CAN # 022

SHEET 4 8 OF 7 PAGE

DATE: 6-5-84

PROPERTY ID: CA-072

AREA:

NOTES: 1. ALL HOLES ARE 4"DIA. UNLESS OTHERWISE NOTED.
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: J		HOLE ID: K		HOLE ID: L		HOLE ID:	
TIME DRILLED: 1000		TIME DRILLED: 1012		TIME DRILLED: 1020		TIME DRILLED:	
TIME LOGGED: 1010		TIME LOGGED: 1016		TIME LOGGED: 1025		TIME LOGGED:	
SOIL TYPE: CLAY LOAM		SOIL TYPE: CLAY LOAM		SOIL TYPE: CLAY LOAM		SOIL TYPE:	
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN
SURFACE	12252	SURFACE	6171	SURFACE	11143	SURFACE	
0"	12867	0"	6167	0"	10654	0"	
6"	19610	6"	7388	6"	13652	6"	
12"	32118	12"	5775	12"	9592	12"	
18"	14098	18"	3589	18"	7160	18"	
24"	5810	24"	2469	24"	4249	24"	
30"	3981	30"	1755	30"	3098	30"	
36"	3565	36"	1428	36"	2821	36"	
42"		42"		42"	2431	42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS:

MORRISON KNUDSEN

BOREHOLE LOG

LOGGING CREW: T. Appleman Jr
DAVE BAYAR
DAVE MILLAR
INSTRUMENT ID NO. CAN-C 022

SHEET 5 OF 7 PAGE
DATE: 6-5-84
PROPERTY ID: CA-C72
AREA:

NOTES: 1. ALL HOLES ARE 4"DIA. UNLESS OTHERWISE NOTED.
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: M TIME DRILLED: 1030 TIME LOGGED: 1050 SOIL TYPE: CLAY		HOLE ID: N TIME DRILLED: 1100 TIME LOGGED: 1115 SOIL TYPE: LINER		HOLE ID: O TIME DRILLED: 1120 TIME LOGGED: 1130 SOIL TYPE: CLAY LOAM		HOLE ID: P TIME DRILLED: 1135 TIME LOGGED: 1148 SOIL TYPE: CLAY LOAM	
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN
SURFACE	5167	SURFACE	4301	SURFACE	4859	SURFACE	7291
0"	3935	0"	3992	0"	3837	0"	8460
6"	4306	6"	3592	6"	4291	6"	10588
12"	4849	12"	2931	12"	6091	12"	8599
18"	5041	18"	2221	18"	9688	18"	6664
24"	4399	24"	1968	24"	7998	24"	3987
30"	4571	30"		30"	6107	30"	2733
36"	5097	36"		36"	5688	36"	2628
42"	6181	42"		42"	5637	42"	
48"	5954	48"		48"	5233	48"	
54"	5341	54"		54"	4453	54"	
60"	4517	60"		60"	3691	60"	
66"	3689	66"		66"	3007	66"	
72"	2984	72"		72"		72"	
78"	2460	78"		78"		78"	
84"	2120	84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS:

MORRISON KNUDSEN

BOREHOLE LOG

LOGGING CREW: T. A. Blakemore
DAVID BAKER
DAVID MILLER

INSTRUMENT ID NO. CAN # 022

SHEET 6 OF 7 PAGE

DATE: 6-5-84

PROPERTY ID: CA-072

AREA:

NOTES: 1. ALL HOLES ARE 4"DIA. UNLESS OTHERWISE NOTED.
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: Q TIME DRILLED: 1340 TIME LOGGED: 1350 SOIL TYPE: CLAY		HOLE ID: R TIME DRILLED: TIME LOGGED: 1320 SOIL TYPE: CLAY		HOLE ID: S TIME DRILLED: 1330 TIME LOGGED: 1340 SOIL TYPE: CLAY LOAM		HOLE ID: T TIME DRILLED: 1355 TIME LOGGED: 1403 SOIL TYPE: CINDER STONE	
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN
SURFACE	10560	SURFACE	3168	SURFACE	4160	SURFACE	3840
0"	9279	0"	2638	0"	4055	0"	3790
6"	11471	6"	2190	6"	6027	6"	4790
12"	6293	12"	1921	12"	5005	12"	4140
18"	3508	18"	1745	18"	3283	18"	3508
24"	2867	24"	1849	24"	2787	24"	
30"	2471	30"	1743	30"	2319	30"	
36"	2177	36"	1895	36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS:

VP-04B

MORRISON KNUDSEN

BOREHOLE LOG

LOGGING CREW: T. A. Hakonson
DAVE BEYER
DAVE MILLER
INSTRUMENT ID NO. CAN # 022

SHEET 2 OF 2 PAGE
DATE: 6-5-84
PROPERTY ID: CA-012
AREA:

NOTES: 1. ALL HOLES ARE 4"DIA. UNLESS OTHERWISE NOTED.
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: U TIME DRILLED: 1415 TIME LOGGED: 1430 SOIL TYPE: CLAY LOAM		HOLE ID: V TIME DRILLED: 1435 TIME LOGGED: 1445 SOIL TYPE: CLAY LOAM		HOLE ID: TIME DRILLED: TIME LOGGED: SOIL TYPE:		HOLE ID: TIME DRILLED: TIME LOGGED: SOIL TYPE:	
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN
SURFACE	6240	SURFACE	11380	SURFACE		SURFACE	
0"	5689	0"	10875	0"		0"	
6"	8330	6"	13898	6"		6"	
12"	7356	12"	15405	12"		12"	
18"	6311	18"	15673	18"		18"	
24"	5033	24"	16454	24"		24"	
30"	4212	30"	13718	30"		30"	
36"	3807	36"	10383	36"		36"	
42"	3543	42"	6492	42"		42"	
48"	2495	48"	4615	48"		48"	
54"	2069	54"	3315	54"		54"	
60"		60"	2529	60"		60"	
66"		66"	2254	66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS:

MORRISON KNUDSEN

PROPERTY SURVEY SKETCH

CA-072

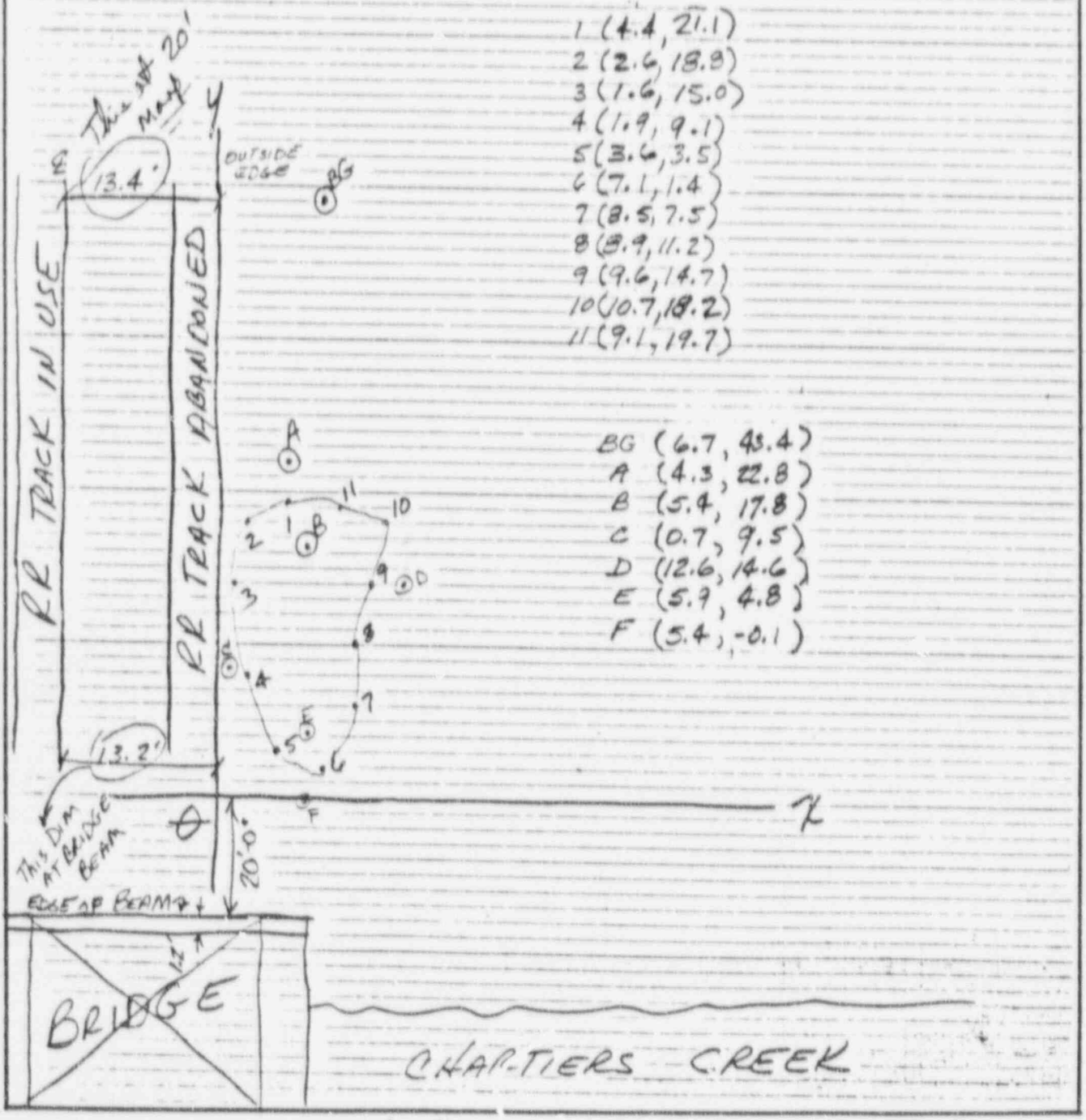
SITE LOCATION CALDONSBURG, PA.

ADDRESS 7½ YOUNGSTOWN

PROPERTY TYPE RESIDENTIAL LOT NO. CA 152

OWNER PHILLIP CEVALAQUA

SKETCH COMPLETED BY LMG & MS DATE 2/6/84



Form VP-03

MORRISON-KNUDSEN COMPANY, INC.

CA-072

FORM VP-02-B

OUTDOOR GAMMA SCREENING SURVEY DATA SHEET

Date 2-2-84

Time 1429

Surveyors FENCIL (KRD) HA|RS24|2|41

Property ID ~~129~~ CA-152.

Instrument Model L-2220 Serial No. CAN-020

Probe Model 2X2 Serial No. CAN-020

Backgrourd Gamma Exposure Rates 1. 1664 2. 2002 3. 1617 Avg. 1761

Other Information

Stake ID	Reading at 3 cm, ~~cpm~~ .1 min/ct.	Remarks
1	2535	
2	2466	
3	2585	
4	2622	
5	2506	
6	2637	
7	2605	
8	2480	
9	2579	
10	2622	
11	2616	

Go - no.go ~ 2500 .1 min cts

N W E S

#1 GREEN PINK 2 3 4 ETC.

REV. NO.

PAGE NO.

0056B

Exhibit D

Sheet 1 of 4

HOLE LOGGING DATA SAMPLE SHEET

Date 3-6-84

Surveyors [illegible]
E [illegible]

CA-072

Drilled material composition Rock, Loam (Railroad Bed)

Property Id CA-~~152~~
Instrument Model ____ Serial No. CAM 028
Probe Model ____ Serial No. ____
Hole Fluid Depth ____
Hole Diameter ____
Time of drilling 0920 / 0900
Time of logging 0925 / 0915
Casing type and thickness N/A / N/A
Other Hit solid Rock Bass, Auger wouldn't go through

Hole Id	Depth (in)	Counts (~~cpm~~) 1/10	Hole Id	Depth (in)	Counts (~~cpm~~) 1/10
BKG			A		
	0	1814		0	1992
	2	1872		2	2265
	4	1994		4	2205
	6	2092		6	2184
	8	2144		8	2032
	10	2248		10	2056
	12	2327		12	2058
	14	2232		14	1859
	16	2465		16	1829
	18	2194		18	
	20	2212		20	
	22	2050		22	
	24	2017		24	
	26	1918		26	
	28			28	
	30			30	
	32			32	
	34			34	
	36			36	
	38			38	
	40			40	
	42			42	
	44			44	
	46			46	
	48			48	
	50			50	
	52			52	
	54			54	
	56			56	

MORRISON-KNUDSEN COMPANY, INC.

Exhibit D

Sheet 2 of 7

HOLE LOGGING DATA SAMPLE SHEET

Date 2/6/84

CA-072

Surveyors [illegible]
E. KALATH
I. HAL

Drilled material composition Rock
Railroad base

Property Id CA-152
Instrument Model ______ Serial No. CAU 528
Probe Model ______ Serial No. ______
Hole Fluid Depth ______
Hole Diameter ______
Time of drilling 0925 0940
Time of logging 0934 1000
Casing type and thickness N/A N/A
Other Hole C Hit Rock Base [illegible]

Hole Id	Depth (in)	Counts (~~cpm~~) 1/10	Hole Id	Depth (in)	Counts (~~cpm~~) 1/10
B			C		
	0	22929		0	2038
	2	27402		2	2110
	4	33280		4	2122
	6	35030		6	2210
	8	29429		8	2014
	10	21747		10	1785
	12	15691		12	1616
	14	12249		14	1423
	16	9778		16	
	18	8234		18	
	20	6220		20	
	22	5702		22	
	24	5447		24	
	26	5417		26	
	28	4765		28	
	30	4222		30	
	32	3452		32	
	34	3395		34	
	36	3003		36	
	38	2876		38	
	40	2746		40	
	42	2756		42	
	44	2738		44	
	46	2701		46	
	48	2741		48	
	50	2259		50	
	52	Hit Rock Base		52	
	54	unable to go deeper		54	
	56			56	

Exhibit D   Sheet 3 of 4

HOLE LOGGING DATA SAMPLE SHEET

Date 2-26-84

Surveyors [illegible]
E. Kalata
T. Hog

CA-072

Drilled material composition Rock Base (Railroad)

Property Id CA-152
Instrument Model ______ Serial No. CAN 028
Probe Model ______ Serial No ______
Hole Fluid Depth N/A
Hole Diameter 4"
Time of drilling 1000   1035
Time of logging 1020   1046
Casing type and thickness N/A   N/A
Other Hole "E" hit Rock Base Auger unable to go further

Hole Id	Depth (in)	Counts (~~cpm~~) 1/10	Hole Id	Depth (in)	Counts (~~cpm~~) 1/10
D				E	
	0	1931		0	3835
	2	2035		2	4215
	4	2012		4	4383
	6	1985		6	4706
	8	2081		8	4077
	10	2013		10	3581
	12	2078		12	3151
	14	2046		14	2765
	16	1988		16	2423
	18	1994		18	2432
	20	1820		20	
	22	1843		22	
	24	1862		24	
	26	1837		26	
	28	1804		28	
	30	1792		30	
	32			32	
	34			34	
	36			36	
	38			38	
	40			40	
	42			42	
	44			44	
	46			46	
	48			48	
	50			50	
	52			52	
	54			54	
	56			56	

REV. NO.	0
PAGE NO.	7

MORRISON-KNUDSEN COMPANY, INC.

Exhibit D

Sheet 4 of 4

HOLE LOGGING DATA SAMPLE SHEET

Date 2/6/84

Surveyors Ray Wilson / E. Kilwan / T. Bd

CA-072

Drilled material composition Rock Road Base

Property Id ~~CA-152~~

Instrument Model ________ Serial No. Can 028

Probe Model ________ Serial No. ________

Hole Fluid Depth N/A

Hole Diameter 4"

Time of drilling 1045

Time of logging 1050

Casing type and thickness N/A

Other U.H. Rail Road Rock Base

Hole Id	Depth (in)	Counts (~~cpm~~) /10	Hole Id	Depth (in)	Counts (cpm)
F					
	0	1853		0	
	2	1826		2	
	4	1944		4	
	6	2052		6	
	8	1966		8	
	10	1954		10	
	12	1903		12	
	14	1773		14	
	16	1686		16	
	18	1662		18	
	20			20	
	22			22	
	24			24	
	26			26	
	28			28	
	30			30	
	32			32	
	34			34	
	36			36	
	38			38	
	40			40	
	42			42	
	44			44	
	46			46	
	48			48	
	50			50	
	52			52	
	54			54	
	56			56	

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PAGE NO.	7