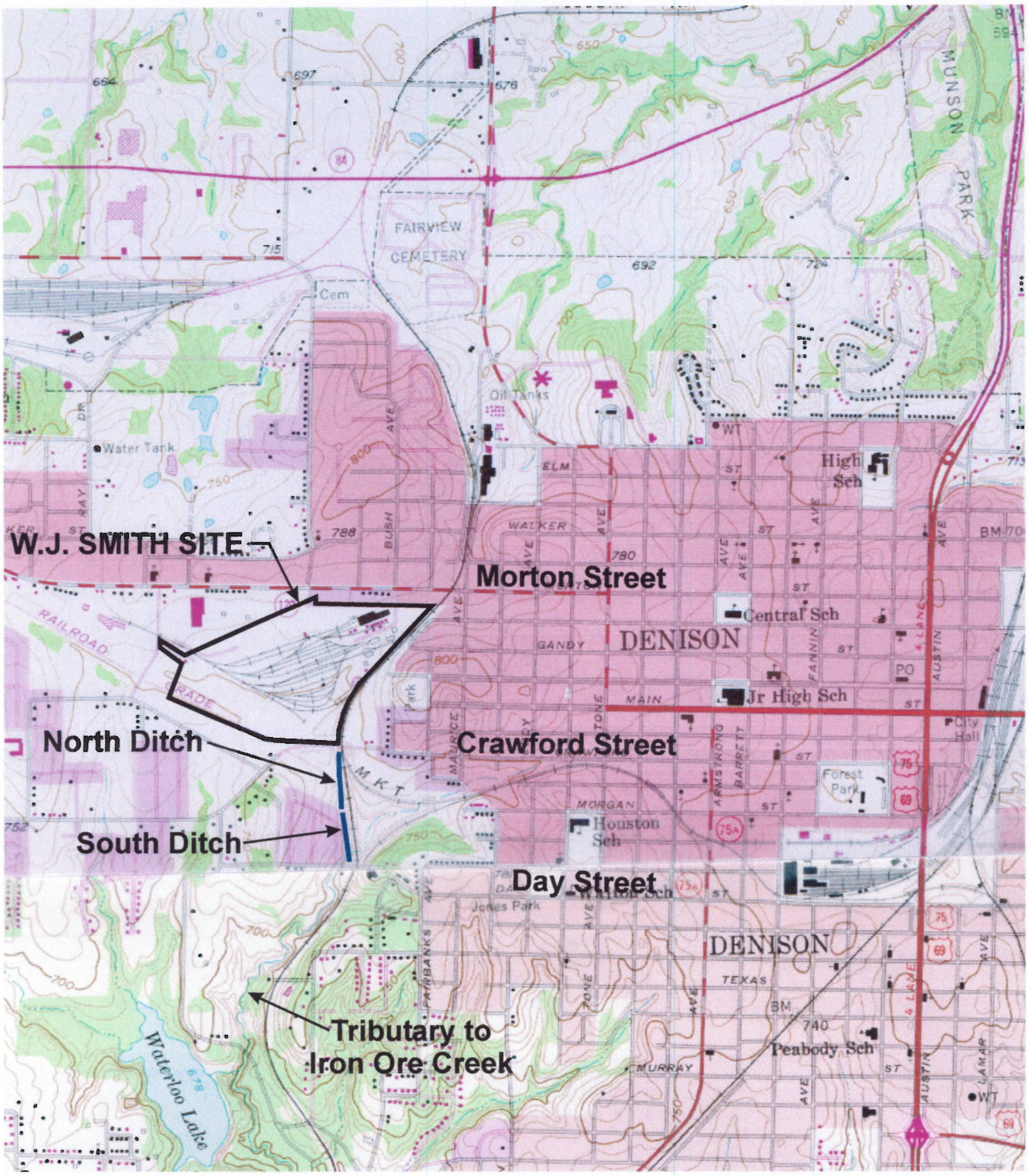


QUADRANGLE LOCATION

U.S.G.S. 7.5 MINUTE SERIES (TOPOGRAPHIC)

DENISON DAM QUADRANGLE
SHERMAN QUADRANGLE
TEXAS

N

0 1,500 3,000

SCALE IN FEET
CONTOUR INTERVAL: 10 FEET
1973/1974

PENDERGAST SARNI ITELL

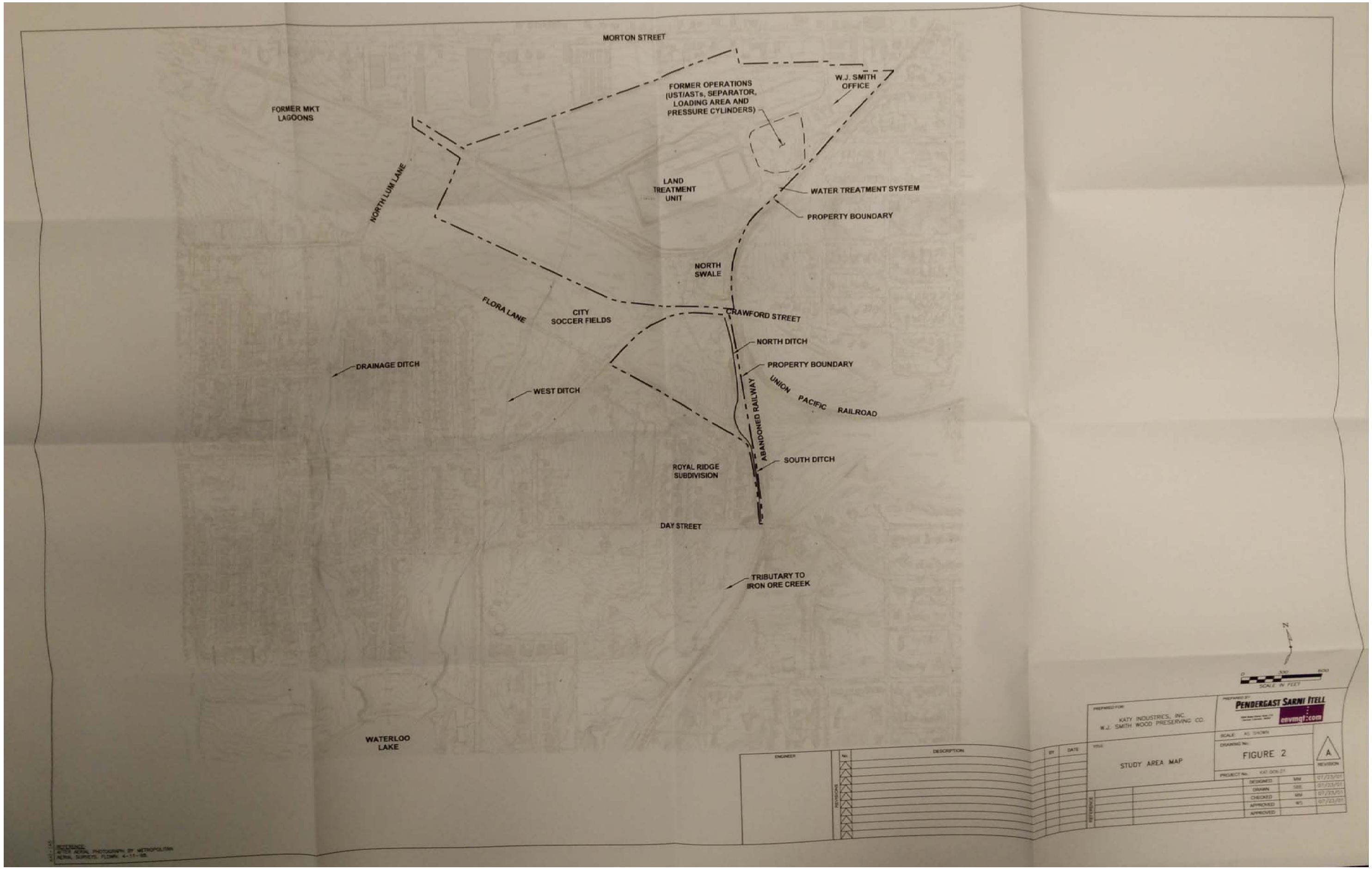
1809 Blake Street, Suite 210
Denver, Colorado 80202

envmgt.com

PROJECT NO.	DRAWING NO.	DATE	REVISION
KAT.006.01	KAT-142	07/23/01	A

Figure 1

SITE LOCATION MAP
Katy Industries, Inc.
W.J. Smith Wood Preserving Company
Denison, Texas


MORTON STREET
FORMER MKT LAGOONS
NORTH LUM LANE
FORMER OPERATIONS (UST/ASTs, SEPARATOR, LOADING AREA AND PRESSURE CYLINDERS)
W.J. SMITH OFFICE
LAND TREATMENT UNIT
WATER TREATMENT SYSTEM
PROPERTY BOUNDARY
NORTH SWALE
FLORA LANE
CITY SOCCER FIELDS
CRAWFORD STREET
NORTH DITCH
PROPERTY BOUNDARY
DRAINAGE DITCH
WEST DITCH
UNION PACIFIC RAILROAD
ABANDONED RAILWAY
SOUTH DITCH
ROYAL RIDGE SUBDIVISION
DAY STREET
TRIBUTARY TO IRON ORE CREEK
WATERLOO LAKE
N
0 300 600
SCALE IN FEET
PREPARED FOR:
KATY INDUSTRIES, INC.
W.J. SMITH WOOD PRESERVING CO.
PREPARED BY:
PENDERGAST SARNI ITELL
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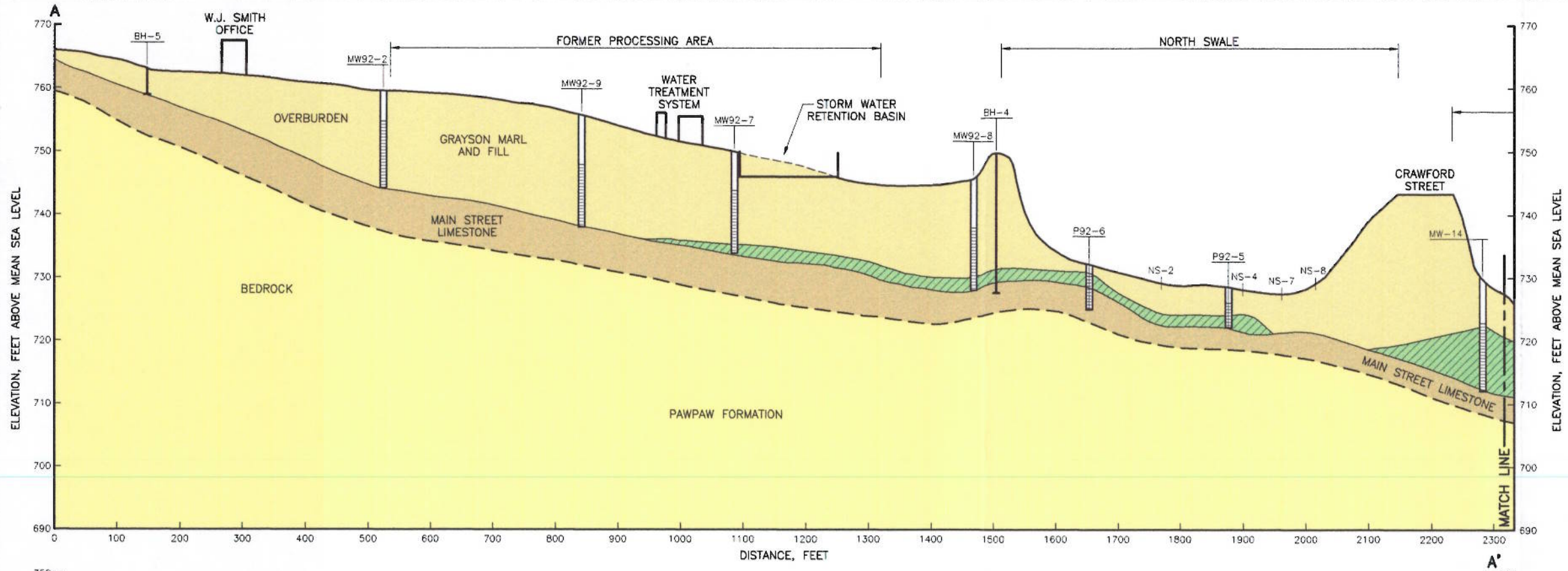
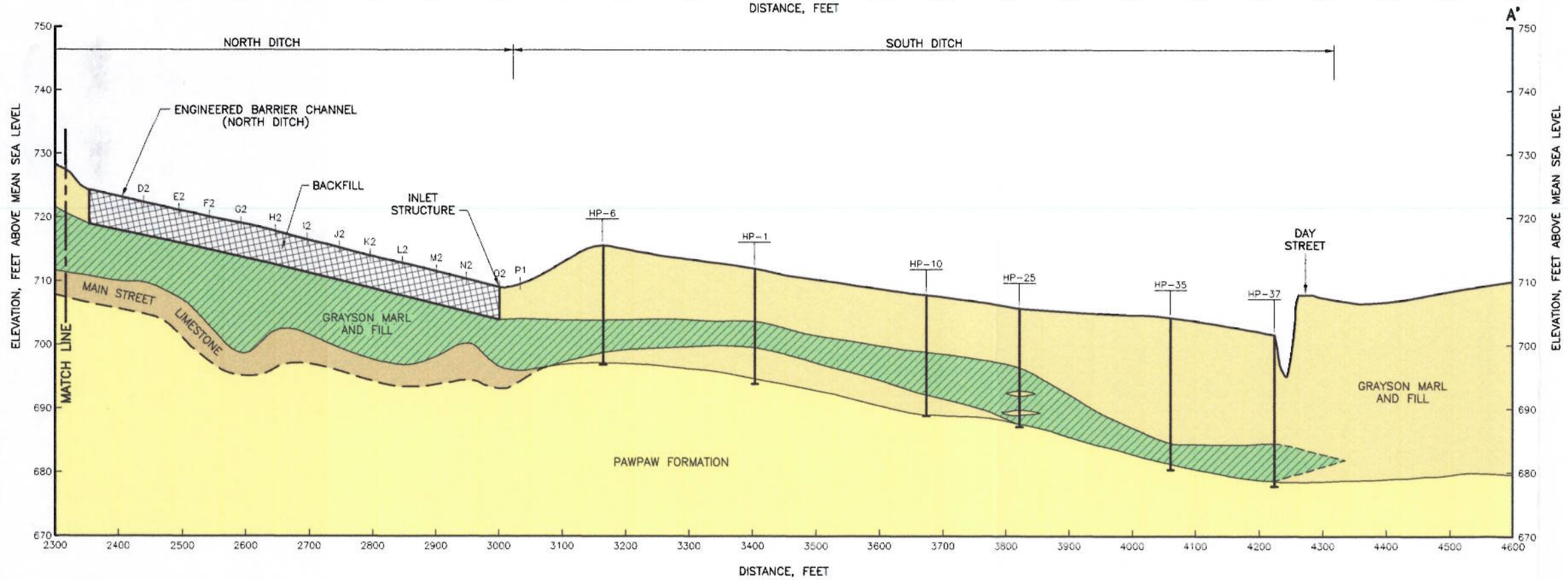
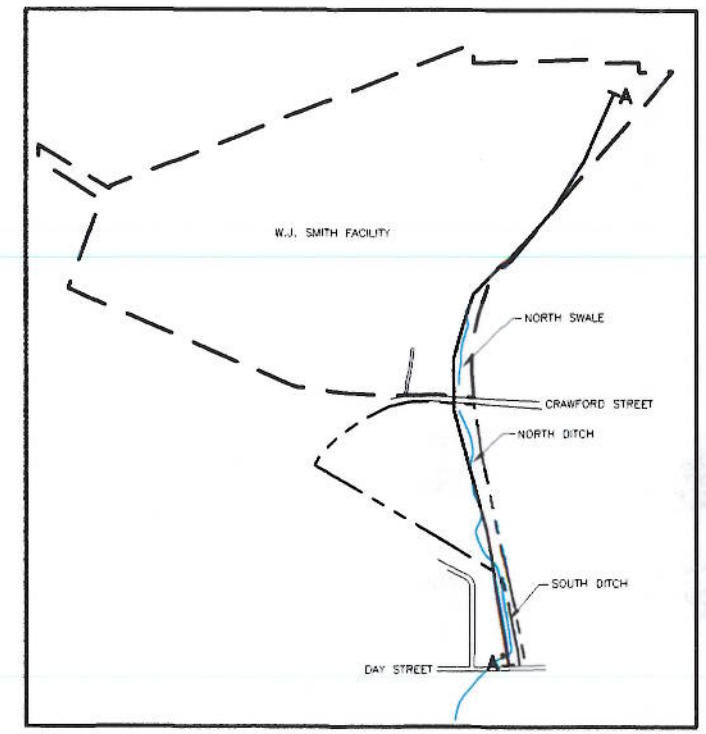
SCALE: AS SHOWN
DRAWING No.:
FIGURE 2
A
REVISION
TITLE:
STUDY AREA MAP
PROJECT No.: KAT.006.01
DESIGNED MW 07/23/01
DRAWN 07/23/01
CHECKED MW 07/23/01
APPROVED WPI 07/23/01
APPROVED 07/23/01
ENGINEER
No. DESCRIPTION BY DATE
REVISIONS
REFERENCE
REFERENCE:
AFTER AERIAL PHOTOGRAPH BY METROPOLITAN AERIAL SURVEYS, FLOWN 4-11-98.







KEY MAP

LEGEND:

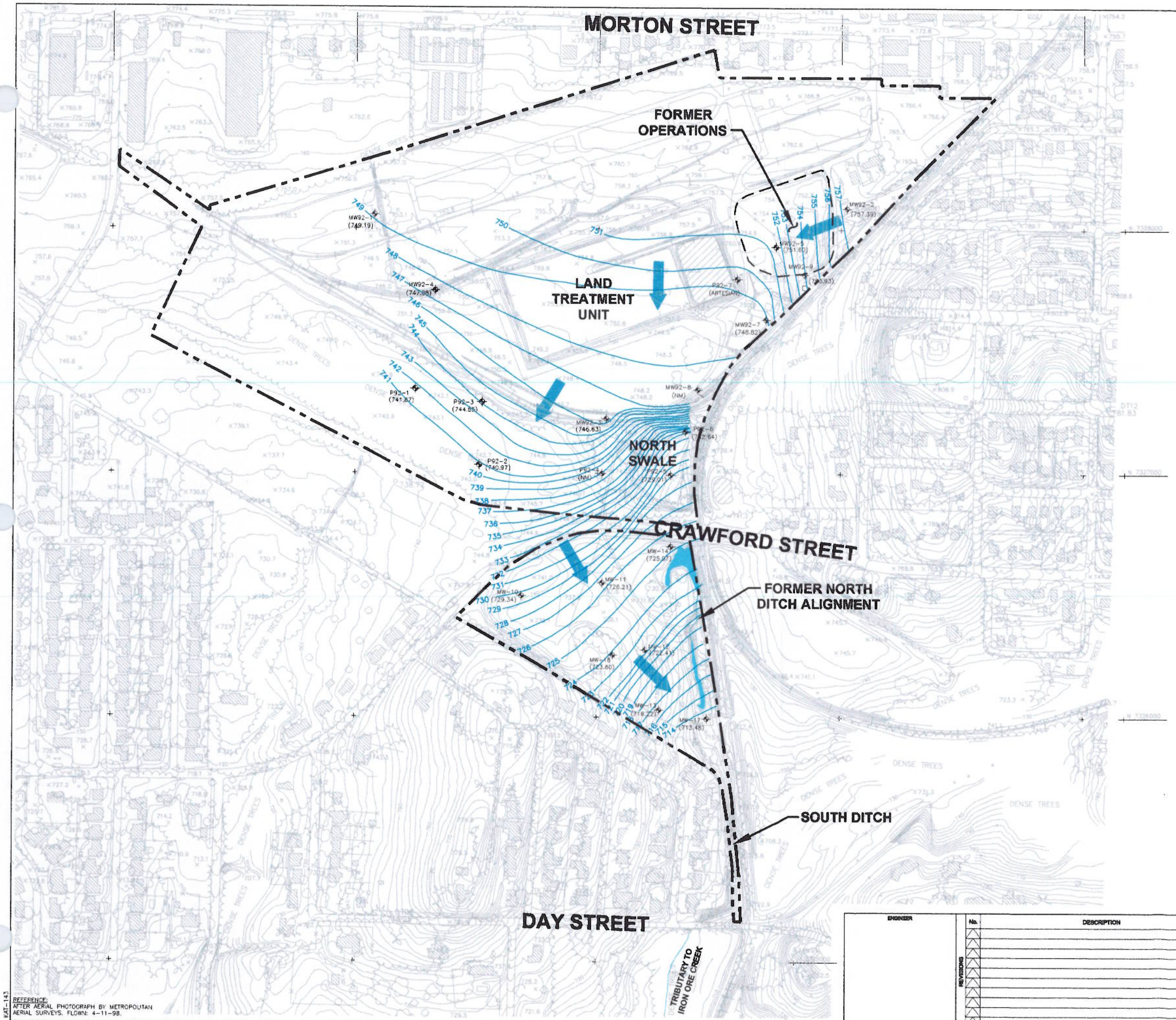
ROST CREOSOTE SIGNATURE AND/OR VISIBLE CREOSOTE STAINING, OR STRONG ODOR

NOTE:

1. CONTACTS ARE DASHED WHEN INFERRED.

ENGINEER	REVISIONS: No. / DESCRIPTION / BY / DATE	PREPARED FOR: KATY INDUSTRIES, INC. W.J. SMITH WOOD PRESERVING CO. DENISON, TEXAS	PREPARED BY: PENDERGAST SARNI ITELL 1600 Glenarm Street, Suite 210 Denver, Colorado 80202 envirofirm.com	
		TITLE: GEOLOGIC CROSS SECTION A-A'	SCALE: AS SHOWN	
			DRAWING No.: FIGURE 3	A REVISION
			PROJECT No.: KAT.006.01	
		REFERENCE	DESIGNED MM 07/23/01	
			DRAWN SBE 07/23/01	
			CHECKED MM 07/23/01	
			APPROVED WS 07/23/01	
			APPROVED	

KAT-144



LEGEND:

MW92-1	GROUNDWATER MONITORING WELL LOCATION
723	POTENTIOMETRIC SURFACE CONTOUR, FEET
(723.80)	GROUNDWATER ELEVATION, FEET AMSL
	DIRECTION OF GROUNDWATER FLOW
NM	NOT MEASURED

NOTES:

1. DEPTH TO WATER MEASUREMENTS TAKEN ON 1/30/2001.
2. MONITORING WELL P92-7 IS COMPLETED IN A DEEPER ZONE BELOW THE MAIN STREET LIMESTONE AND IS ARTESIAN.

N

0 200 400
SCALE IN FEET

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PREPARED BY:
PENDERGAST SARNI ITELL
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TITLE:
GROUNDWATER FLOW
JANUARY 2001

SCALE: AS SHOWN
DRAWING No.: FIGURE 4
PROJECT No.: KAT.006.01
A REVISION

DESIGNED	MM	07/23/01
DRAWN	SBE	07/23/01
CHECKED	MM	07/23/01
APPROVED	WS	07/23/01
APPROVED		

ENGINEER

REVISIONS

No.	DESCRIPTION	BY	DATE

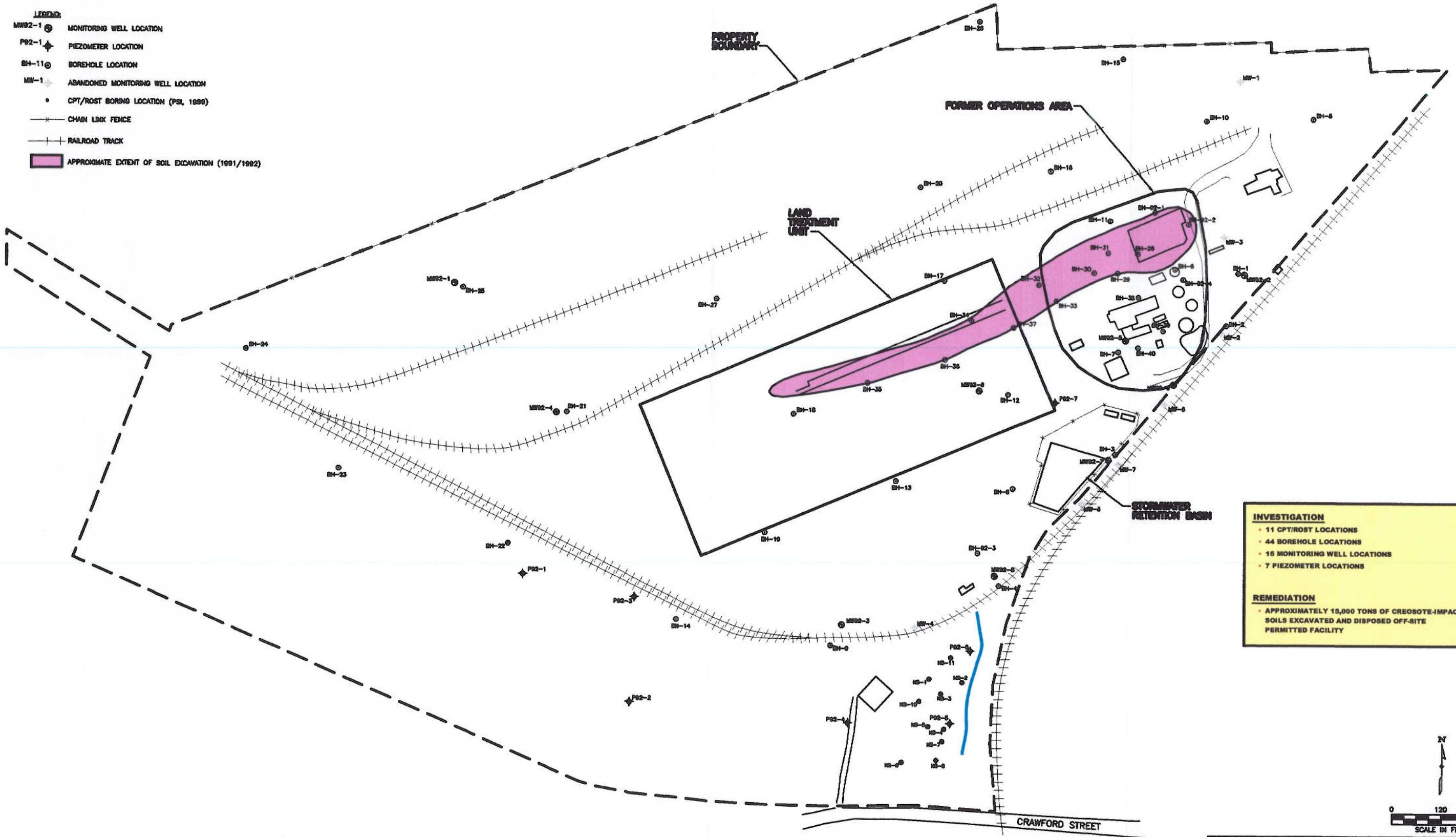
REFERENCE

REFERENCE:
AFTER AERIAL PHOTOGRAPH BY METROPOLITAN AERIAL SURVEYS. FLOWN: 4-11-98.

KAT-143

LEGEND:

- MW92-1 — MONITORING WELL LOCATION
- P92-1 — PIEZOMETER LOCATION
- BH-11 — BOREHOLE LOCATION
- MW-1 — ABANDONED MONITORING WELL LOCATION
- CPT/ROST BORING LOCATION (PSI, 1999)
- CHAIN LINK FENCE
- RAILROAD TRACK
- APPROXIMATE EXTENT OF SOIL EXCAVATION (1991/1992)



INVESTIGATION

- 11 CPT/ROST LOCATIONS
- 44 BOREHOLE LOCATIONS
- 16 MONITORING WELL LOCATIONS
- 7 PIEZOMETER LOCATIONS

REMEDIATION

- APPROXIMATELY 15,000 TONS OF CREOSOTE-IMPACTED SOILS EXCAVATED AND DISPOSED OFF-SITE PERMITTED FACILITY

N

0 120 240
SCALE IN FEET

REFERENCE:
REMEDIATION TECHNOLOGIES, INC., "GROUNDWATER QUALITY ASSESSMENT AND PHASE 2 SUBSURFACE INVESTIGATION", JANUARY 1993.

HALFF ASSOCIATES, "PHASE I INVESTIGATION AND REVISED GROUNDWATER MONITORING ASSESSMENT PLAN", DATED: SEPTEMBER 1990.

KAT-132

PREPARED FOR:
KATY INDUSTRIES, INC.
W.J. SMITH WOOD PRESERVING CO.
DENISON, TEXAS

PREPARED BY:
PENDERGAST SARNI ITELL
1800 Blake Street, Suite 210
Denver, Colorado 80202
envmgt.com

ENGINEER

REVISIONS No.	DESCRIPTION	BY	DATE

TITLE:
FACILITY INVESTIGATION AND REMEDIATION

SCALE: AS SHOWN
DRAWING No.: FIGURE 5
PROJECT No.: KAT.006.01
REVISION A

REFERENCE			
DESIGNED	CEM	08/16/01
DRAWN	SBE	08/16/01
CHECKED	CEM	08/16/01
APPROVED	WS	08/16/01
APPROVED		

LEGEND:

- MW92-1 — MONITORING WELL LOCATION
- P92-1 — PIEZOMETER LOCATION
- BH-11 — BOREHOLE LOCATION
- MW-1 — ABANDONED MONITORING WELL LOCATION
- MW-16 — MONITORING WELL LOCATION (PSI)
- DS-4 — SEDIMENT AND SURFACE WATER SAMPLING LOCATION (PSI, 1999)
- HAND AUGER LOCATION (PSI, 1999)
- CPT/ROST BORING LOCATION (PSI, 1999)
- 1 — SURFACE SOIL SAMPLE (APPROXIMATE LOCATION)
- HPU SOIL BORING SAMPLE LOCATION (CLAYTON, 1996)
- SURFACE SOIL SAMPLE (RETEC, 1996)
- T1 — TRENCH LOCATION
- CHAIN LINK FENCE
- RAILROAD TRACK

INVESTIGATION

- 40 SOIL BORING SAMPLING LOCATIONS
- 14 SURFACE SOIL SAMPLING LOCATIONS

REMEDIATION

- APPROXIMATELY 1,000 CUBIC YARDS OF SOIL EXCAVATED AND PLACED IN THE LTU
- SUB-GRADE DRAINAGE PIPE AND SURFACE INLET STRUCTURES CONSTRUCTED

N

0 50 100
SCALE IN FEET

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W.J. SMITH WOOD PRESERVING CO.
DENISON, TEXAS

PREPARED BY:
PENDERGAST SARNI ITELL
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TITLE:
SOUTH DITCH
INVESTIGATION / REMEDIATION

SCALE: AS SHOWN
DRAWING No.: FIGURE 6
PROJECT No.: KAT.006.01
REVISION A

DESIGNED	CEM	06/15/01
DRAWN	SBE	06/15/01
CHECKED	CEM	06/15/01
APPROVED	WS	06/15/01
APPROVED		

ENGINEER

REVISIONS

No.	DESCRIPTION	BY	DATE

REFERENCE

KAT-133

INVESTIGATION

- 97 CPT/ROST SAMPLING LOCATIONS
- 14 SOIL BORING SAMPLING LOCATIONS
- 3 HAND AUGER BORING SAMPLING LOCATIONS
- 5 SURFACE WATER SAMPLING LOCATIONS
- 5 SEDIMENT SAMPLING LOCATIONS
- 9 MONITORING WELL SAMPLING LOCATIONS
- 13 TEST PIT LOCATIONS
- 5 TEST TRENCH LOCATIONS

REMEDIATION

- APPROXIMATELY 15,000 CUBIC YARDS OF CREOSOTE-IMPACTED SOIL EXCAVATED AND PLACED IN THE LTU
- 5-FOOT CLEAN SOIL BUFFER CREATED
- ENGINEERED BARRIER CHANNEL CONSTRUCTED

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DENISON, TEXAS

PREPARED BY:
PENDERGAST SARNI ITELL
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TITLE:
NORTH DITCH INVESTIGATION / REMEDIATION

SCALE: AS SHOWN
DRAWING No.: FIGURE 7
PROJECT No.: KAT.006.01
REVISION A

DESIGNED	CEM	06/15/01
DRAWN	SBE	06/15/01
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APPROVED	WS	06/15/01
APPROVED		

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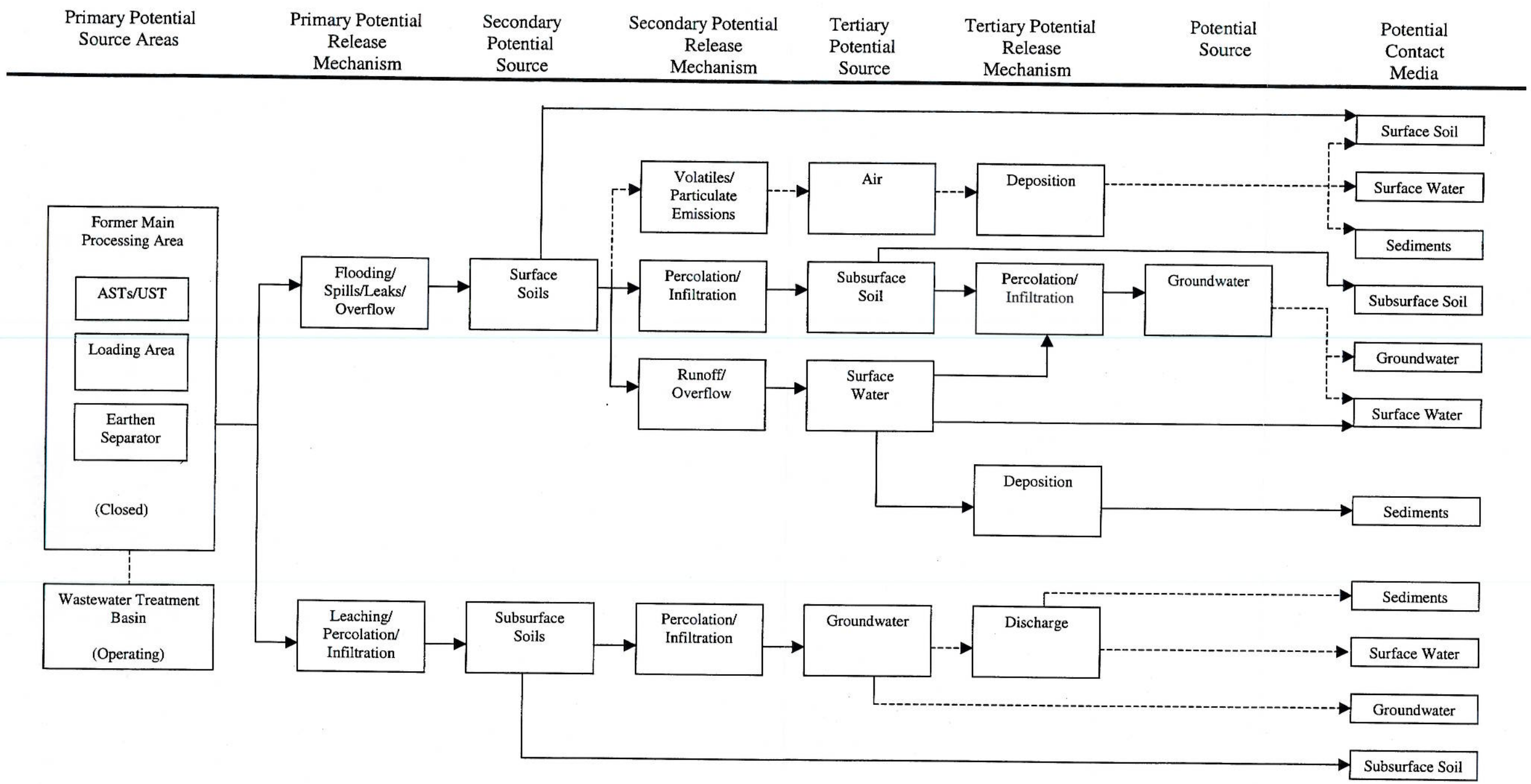
REVISIONS

No.	DESCRIPTION	BY	DATE

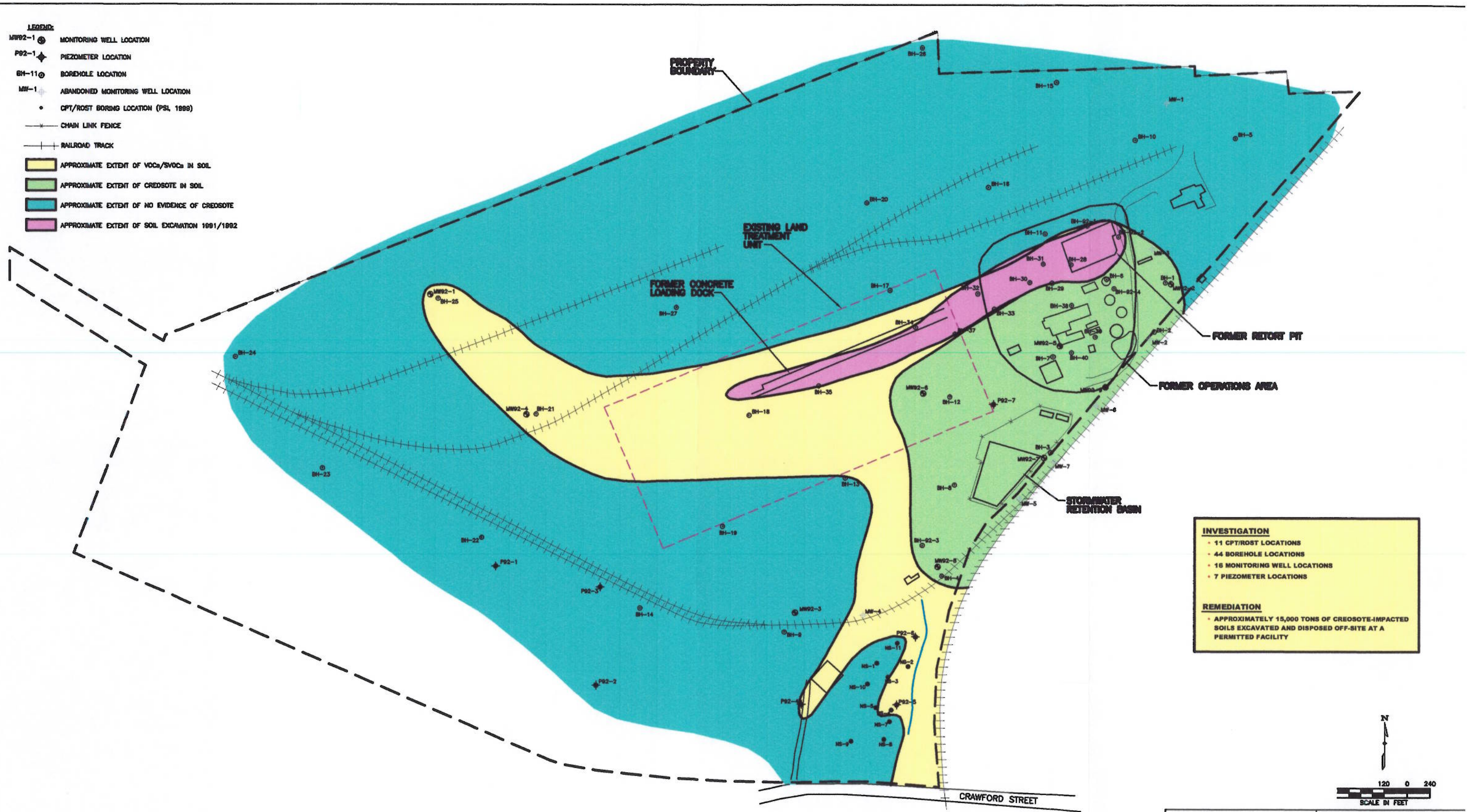
REFERENCE

KAT-134

FIGURE 8 - PRELIMINARY CONCEPTUAL SITE MODEL
W.J. SMITH WOOD PRESERVING SITE



Potential complete pathways are shown as solid lines.
Potential incomplete pathways are shown as dashed lines.



INVESTIGATION

- 11 CPT/ROST LOCATIONS
- 44 BOREHOLE LOCATIONS
- 16 MONITORING WELL LOCATIONS
- 7 PIEZOMETER LOCATIONS

REMEDIATION

- APPROXIMATELY 15,000 TONS OF CREOSOTE-IMPACTED SOILS EXCAVATED AND DISPOSED OFF-SITE AT A PERMITTED FACILITY

REFERENCE:
REMEDIATION TECHNOLOGIES, INC., "GROUNDWATER QUALITY ASSESSMENT AND PHASE 2 SUBSURFACE INVESTIGATION", JANUARY 1993.

HALFF ASSOCIATES, "PHASE I INVESTIGATION AND REVISED GROUNDWATER MONITORING ASSESSMENT PLAN", DATED: SEPTEMBER 1990.

KAT-131

ENGINEER	REVISIONS No.	DESCRIPTION	BY	DATE

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DENISON, TEXAS

PREPARED BY:
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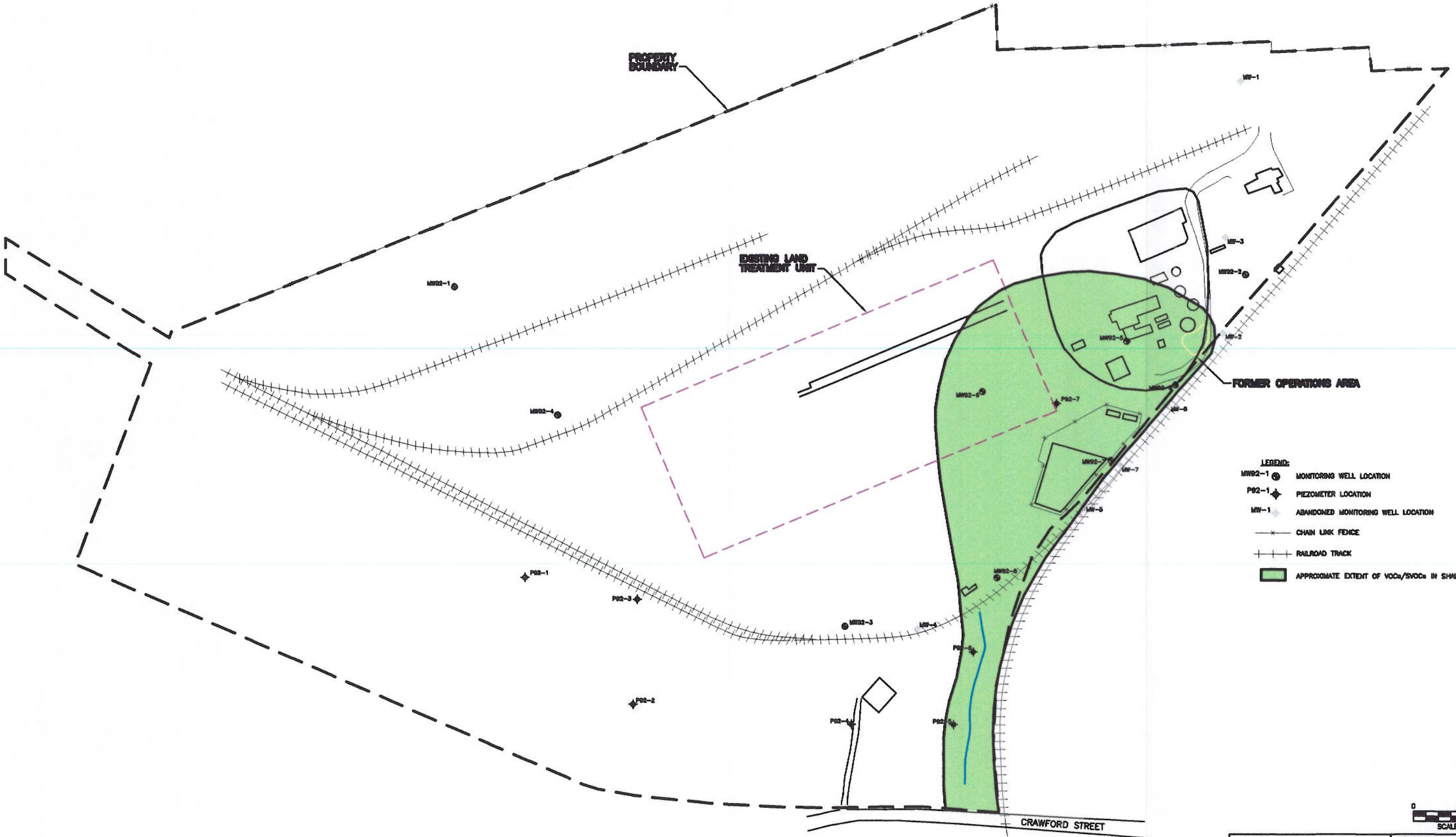
TITLE:
FACILITY SOIL QUALITY SUMMARY

SCALE: AS SHOWN
DRAWING No.:
FIGURE 9
PROJECT No.: KAT.006.01
REVISION A

REFERENCE			
DESIGNED	CEM	06/16/01
DRAWN	SBE	06/16/01
CHECKED	CEM	06/16/01
APPROVED	WS	06/16/01
APPROVED		



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DENISON, TEXAS

PREPARED BY:
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TITLE:
FACILITY GROUNDWATER QUALITY SUMMARY

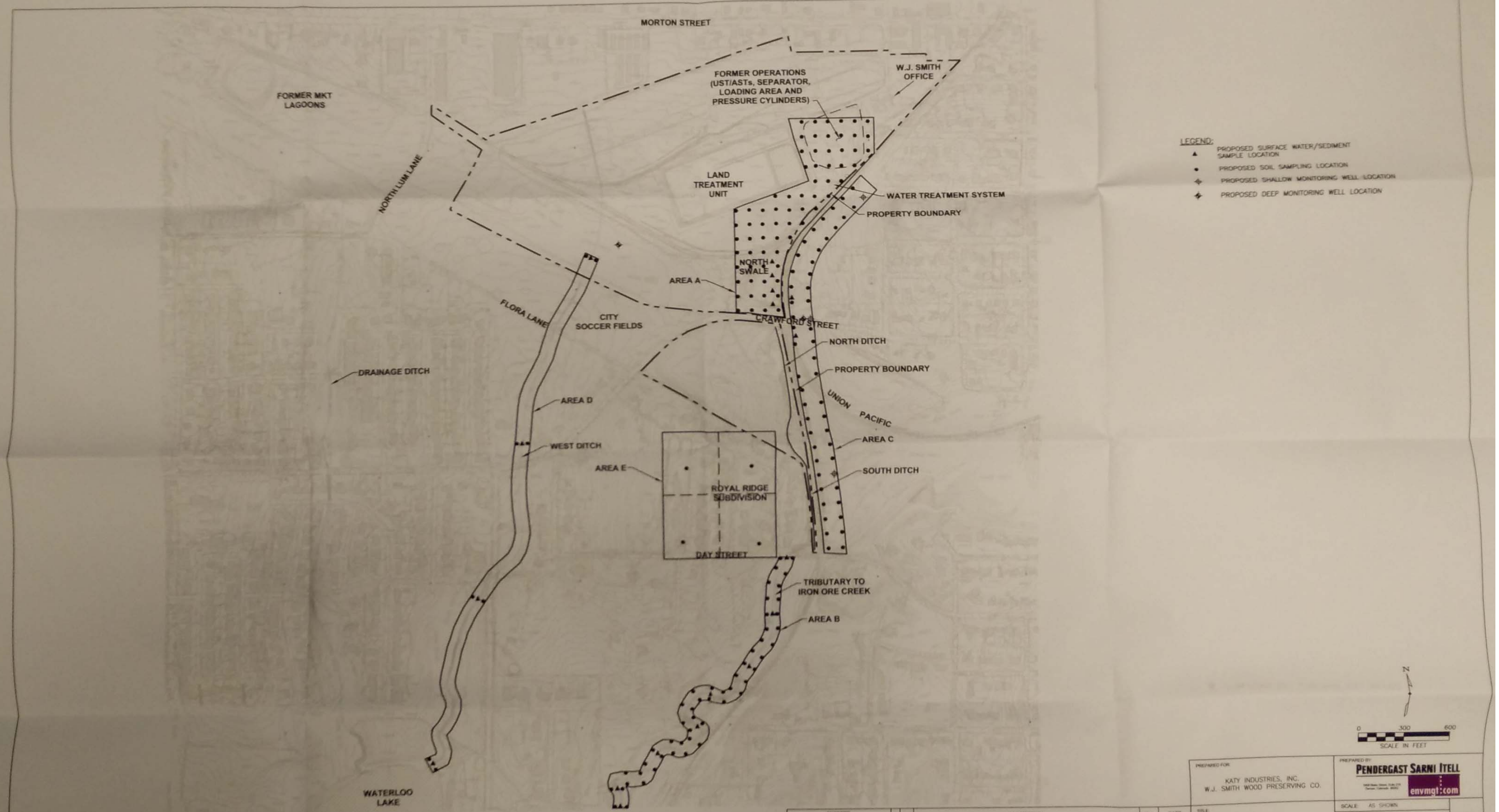
SCALE: AS SHOWN
DRAWING No.: FIGURE 10
PROJECT No.: KAT.006.01
REVISION A

ENGINEER

REVISIONS No.	DESCRIPTION	BY	DATE

REFERENCE		
DESIGNED	CEM	06/15/01
DRAWN	SBE	06/16/01
CHECKED	CEM	06/16/01
APPROVED	WS	06/16/01
APPROVED		

KAT-130


MORTON STREET
FORMER MKT LAGOONS
FORMER OPERATIONS (UST/ASTs, SEPARATOR, LOADING AREA AND PRESSURE CYLINDERS)
W.J. SMITH OFFICE
NORTH LUM LANE
LAND TREATMENT UNIT
WATER TREATMENT SYSTEM
PROPERTY BOUNDARY
NORTH SWALE
AREA A
FLORA LANE
CITY SOCCER FIELDS
CRAWFORD STREET
NORTH DITCH
PROPERTY BOUNDARY
DRAINAGE DITCH
AREA D
UNION PACIFIC
AREA C
WEST DITCH
AREA E
SOUTH DITCH
ROYAL RIDGE SUBDIVISION
DAY STREET
TRIBUTARY TO IRON ORE CREEK
AREA B
WATERLOO LAKE
LEGEND:
PROPOSED SURFACE WATER/SEDIMENT SAMPLE LOCATION
PROPOSED SOIL SAMPLING LOCATION
PROPOSED SHALLOW MONITORING WELL LOCATION
PROPOSED DEEP MONITORING WELL LOCATION
N
0 300 600
SCALE IN FEET
PREPARED FOR:
KATY INDUSTRIES, INC.
W.J. SMITH WOOD PRESERVING CO.
PREPARED BY:
PENDERGAST SARNI ITELL
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TITLE:
PROPOSED INVESTIGATION AREAS AND SAMPLING LOCATIONS
SCALE: AS SHOWN
DRAWING No.:
FIGURE 11
PROJECT No.: KAT.006.01
A
REVISION
ENGINEER
No.
DESCRIPTION
BY
DATE
REVISIONS
REFERENCE
DESIGNED MM 07/24/01
DRAWN SBE 07/24/01
CHECKED MM 07/24/01
APPROVED WS 07/24/01
APPROVED
REFERENCE:
1. AFTER AERIAL PHOTOGRAPH BY METROPOLITAN AERIAL SURVEYS. FLOWN: 4-11-98.
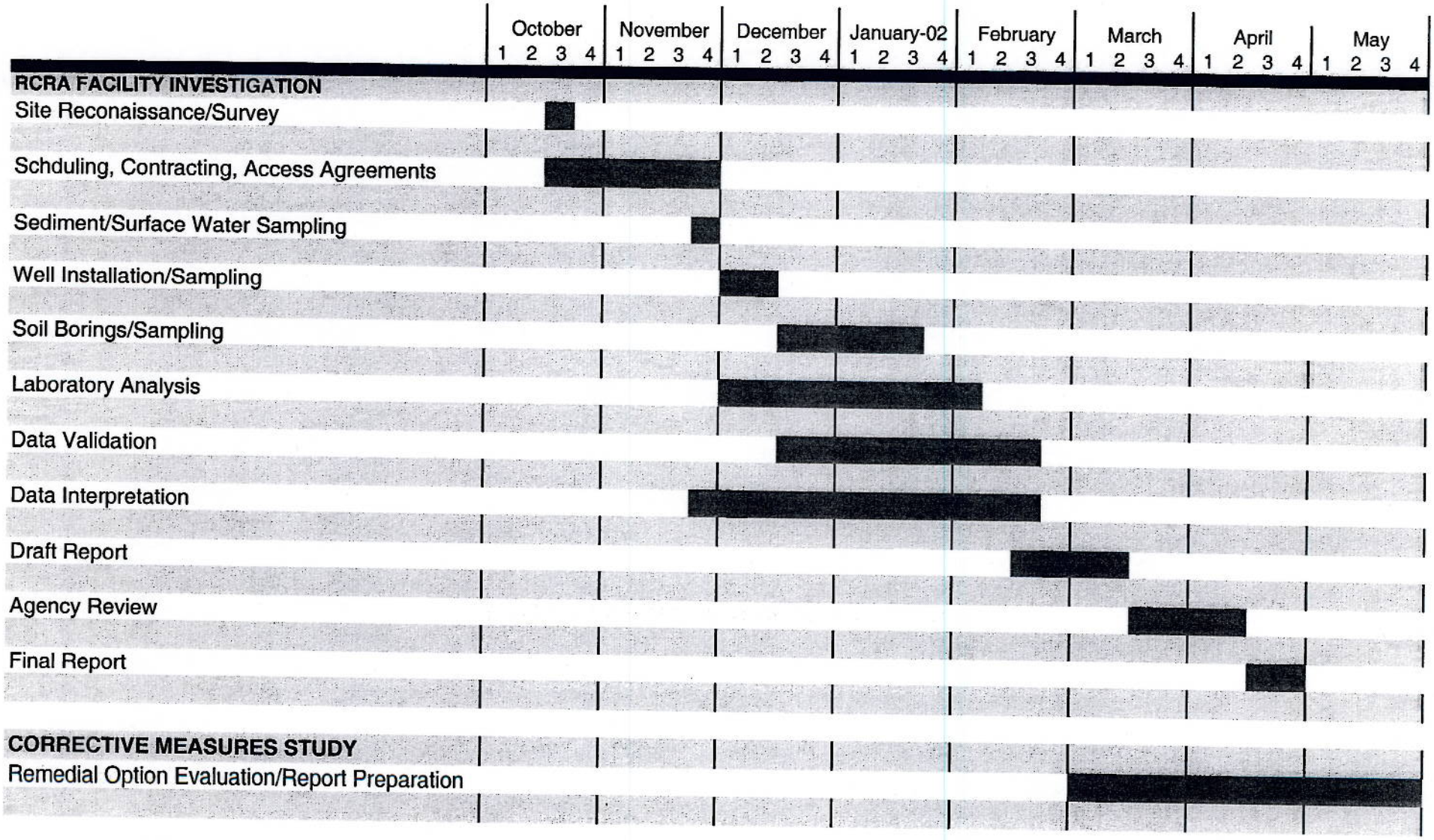
FIGURE 12
PROPOSED RFI SCHEDULE