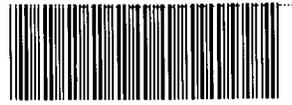


NOTICE

All drawings located at the end of the document.

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REMEDY LANDS
SEMI-ANNUAL REPORT
SUMMER 1996

ENVIRONMENTAL RESTORATION PROGRAM DIVISION

U.S. DEPARTMENT OF ENERGY
Rocky Flats Field Office
Golden, Colorado

ADMIN RECCRD

OU03-A-000459

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REMEDY LANDS SEMI-ANNUAL REPORT - SUMMER 1996

INTRODUCTION

The Remedy Land activities are directed by the 1985 Settlement Agreement, McKay versus the Department of Energy (DOE). The Remedy Lands are located on two tracts of land totaling 350 acres in the southern half of Section 7 and the western half of Section 18, Township 2 South, Range 69 West (Figure 1). The open space land within which the Remedy Lands are located was acquired by the City of Westminster in February 1995 from Jefferson County. Previous semi-annual reports reference the Remedy Lands acreage as the Jefferson County Remedy Lands. Here and in future reports the Remedy acreage will be referenced as the Remedy Lands.

BACKGROUND

The Remedy Lands acreage was prescribed in a 1975 lawsuit filed against DOE and its subcontractors by the Church (McKay) plaintiffs and the Great Western Venture partnership. The plaintiffs claimed that their land had been impacted by radioactive contaminants released from Rocky Flats. In December 1984, the plaintiffs and defendants reached a remedy settlement that called for ripping, plowing, and tilling affected soils to reduce plutonium concentrations. The agreement also stipulated that the affected land be transferred to Jefferson County (approximately 250 acres) and the City of Broomfield (approximately 100 acres). The settlement agreement was later amended and finalized in July 1985 and has since been called the 1985 Settlement Agreement.

The 1985 Settlement Agreement outlined a course of remedial action for portions of land containing plutonium concentrations in surface soils above the Colorado Department of Public Health and Environment (CDPHE) special construction standard (0.9 picocuries per gram - pCi/g). Surface soil contamination was limited to the upper few inches of soil. The remedy involved tilling the contaminated areas in alternate strips to reduce surface plutonium concentrations (through mixing) and stabilizing the areas through revegetation to control wind and water erosion of the soil. The Settlement Agreement states that tilling of the remaining alternate set of strips shall not begin until the initial set of strips are successfully revegetated with native plant species.

In May 1986, Jefferson County requested that remedial actions be undertaken on their land. Remediation activities began in June 1986 on approximately 100 acres of Jefferson County land in Section 7, south of Great Western Reservoir, and in November 1987 on 10 acres in Section 18. To date, the City of Broomfield has not requested their land be remediated. Remediation activities on the 110 acres occurred from 1986 through 1988 with the last partially successful revegetation attempt in April 1988. The remedial efforts conducted on the approximately 110 acres were successful in reducing the plutonium concentrations to below the CDPHE special standard; however, the initial revegetation and stabilization efforts were unsuccessful due to extremely rocky surfaces, intense competition from weeds, and an expanding prairie dog population.

An aggressive revegetation program for the initial set of strips of Jefferson County land was initiated in 1991, consisting of mechanical mowings to control the growth of weeds, harrowing for seedbed preparation, reseeding, and applying hay mulch as needed over the reseeded areas. Figure 2 and Figure 3 show the locations of the 1991 revegetation activities on the two (north and south) Remedy Land areas. The 1991 revegetation program also included a weed growth monitoring and control plan.

The success of the 1991 revegetation effort was monitored during the spring and early summer of 1992. The monitoring results were presented in the "Jefferson County Remedy Lands Semi-Annual Summer 1992 Report" and indicated that the new seeded species were sparse over the remediated acreage. In addition, undesirable weed species were noted in the previously tilled areas that were expected to be a significant competitor to the more desirable seeded species. Subsequent monitoring results presented in the Remedy Land semi-annual reports for 1992 and 1993 also indicated that weed competition appeared to be a significant limiting factor to successful revegetation of the disturbed Remedy Land areas.

SUMMARY OF RECENT WEED CONTROL ACTIVITIES

A weed control program, consisting of mowing operations to inhibit natural growth cycles/seed production and herbicide application to control specific dominant weed species, was initiated for the affected areas in September 1993. The weed control efforts were developed to create more favorable growth conditions for the revegetated grasses. Initial mowing operations were conducted in September 1993, and the initial herbicide application was performed in June 1994. Four undesirable weed species (Canada Thistle, Musk Thistle, Common Mullen, and Toadflax) were treated in 1994 with an estimated 80-percent effectiveness. No mowing operations were performed in 1994.

A survey of the north and south Remedy Land areas was performed in May 1995 by a contracted weed control specialist to inventory weed species to be considered for herbicidal treatment. Two dominant species were identified for treatment, Canada Thistle and Musk Thistle. Approximately 14 acres of land in the north remedy acreage and 6 acres in the south acreage were significantly populated by these two weed types. Populations of the Common Mullen and Toadflax species previously treated in June 1994 were generally sparse in May 1995.

An herbicide application was performed within the designated areas (approximately 20 acres) on June 20 and June 22, 1995 to reduce the populations of the targeted weed types listed above. The herbicide application was made by tractor spraying using the herbicide Telar. Telar has been approved by the EPA for this type of application and was determined to be most effective and appropriate for the weed species of concern. The herbicide was applied to specific areas using a tractor equipped with independently controlled spray booms. Spray from the booms could be turned on and off as necessary to treat only the areas observed to be significantly populated by the weeds of concern. No mowing activities were conducted in 1995. The site survey previously scheduled in the fall 1995 was postponed until spring 1996.

A survey of the Remedy Land areas was performed in June of 1996 by a weed control specialist to inventory the extent of weed species and the need for continued herbicidal treatment. The species identified for treatment in May 1995, the Canada Thistle and Musk Thistle, were not found in significant numbers. Populations of Common Mullen and Toadflax, treated in 1994, were still generally sparse, and native grass populations had increased.

PLANNED FUTURE ACTIVITIES

The weed control program for the previously tilled areas was planned as a three-year effort, depending on its success. The three-year weed management program ended in October 1995 with a marked improvement in the revegetated areas. Based on the findings of the site survey conducted

in June of 1996, the weed control program has been generally successful in promoting the revegetation of native grasses and completing the specified remedy.

The offsite areas are identified in the IAG as Operable Unit 3 (OU 3) and include the Remedy Lands property. Surface and subsurface soils in OU 3, including Remedy Lands soils, were sampled to determine the nature and extent of contamination in the soils, and to assess the risk to human health from exposure to the soils. The results of the Final RCRA Facility Investigation (RFI)/Remedial Investigation (RI) for OU3 (DOE, June 1996) indicate that the risk to human health from exposure to soils of OU 3, including the Remedy Lands soils, is insignificant (3×10^{-6} probable cancer incidence) and further remedial action is not warranted.

Based on the RFI/RI results and the ecological damage caused by tilling, it is recommended that tilling operations not be resumed, and that the remedy specified by the 1985 Settlement Agreement be considered complete.

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FIGURES

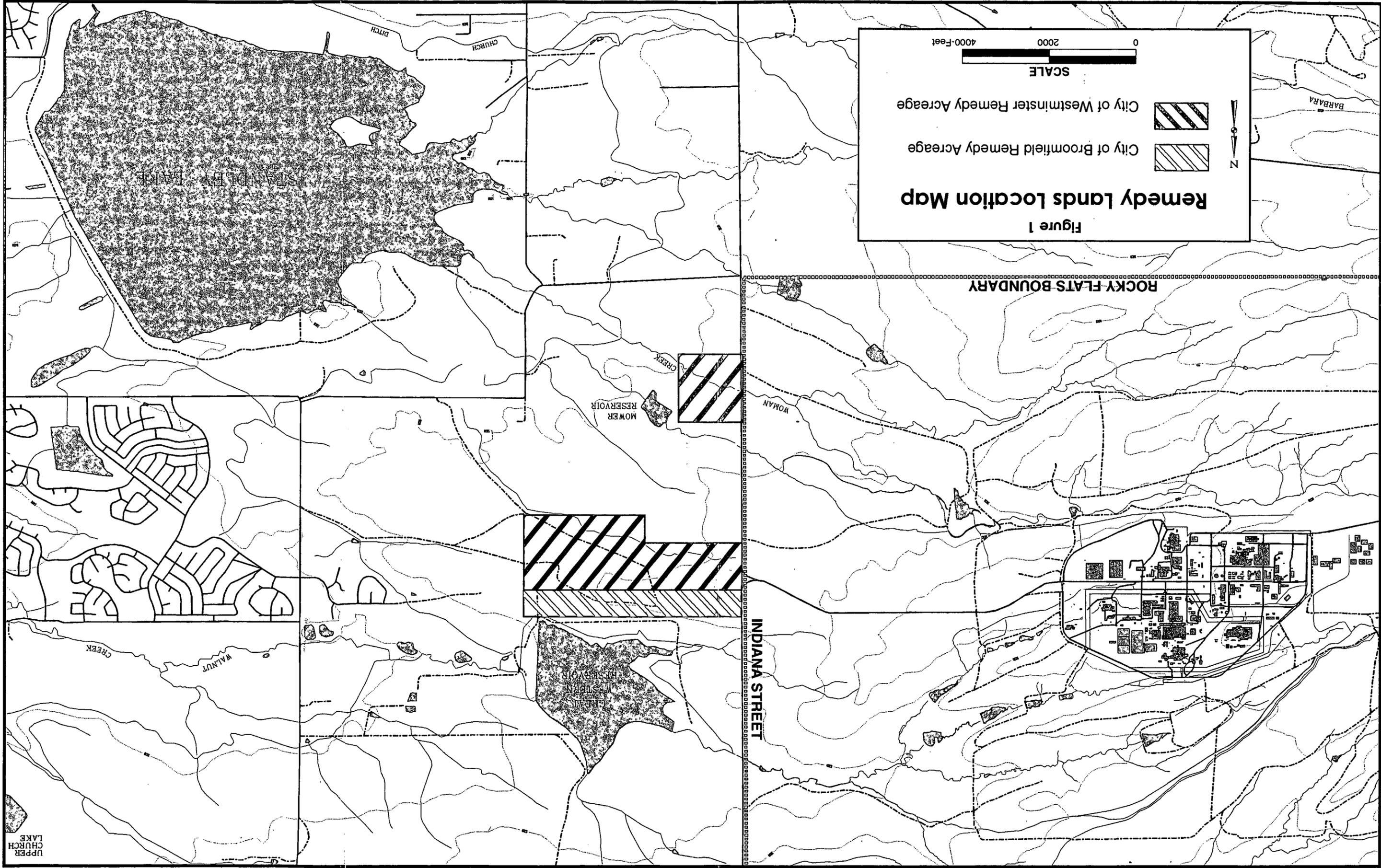


Figure 1

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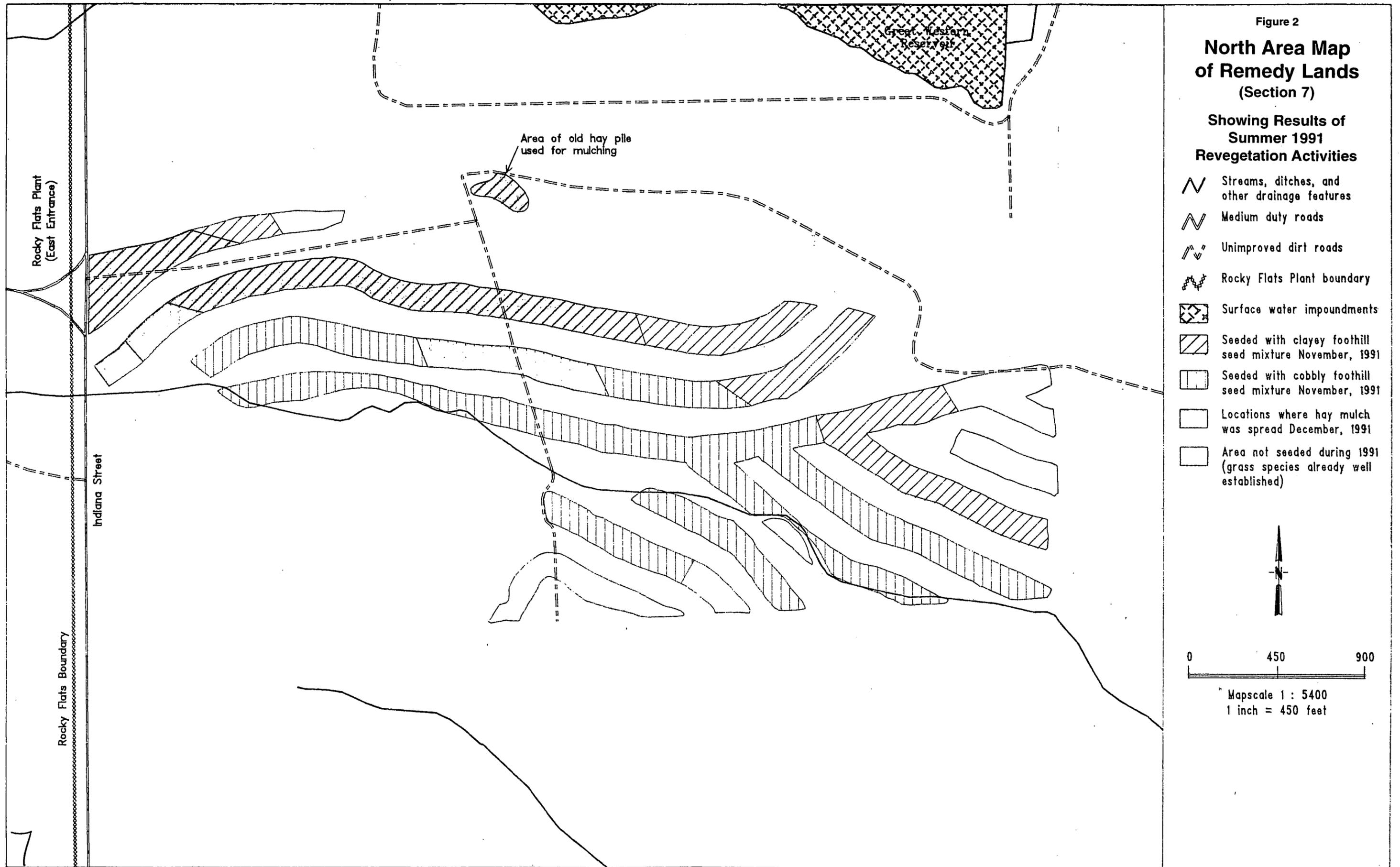
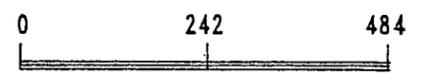


Figure 3

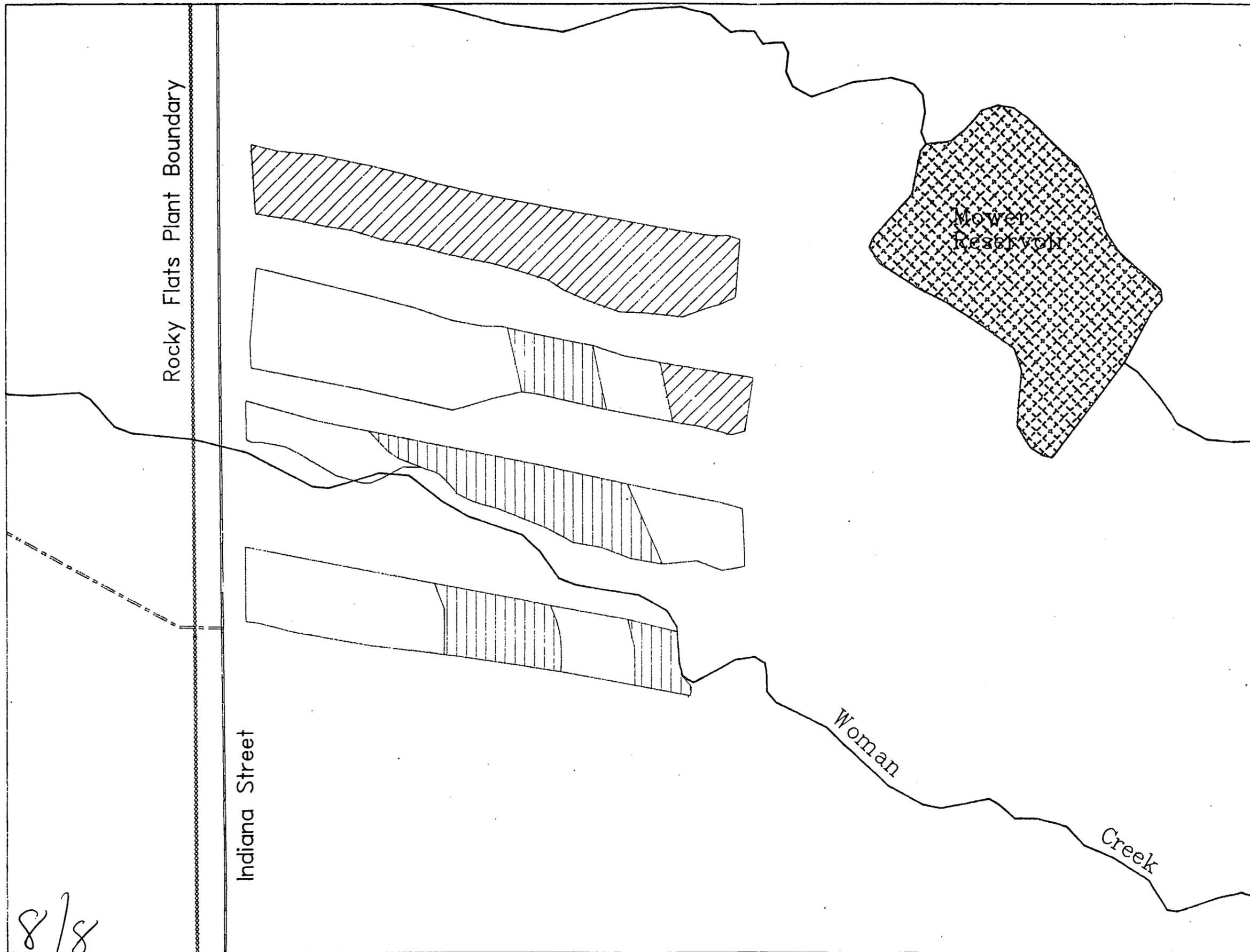
South Area Map of Remedy Lands (Section 18)

Showing Results of
Summer 1991
Revegetation Activities

-  Streams, ditches, and other drainage features
-  Medium duty roads
-  Unimproved dirt roads
-  Rocky Flats Plant boundary
-  Surface water impoundments
-  Seeded with clayey foothill seed mixture November, 1991
-  Seeded with cobbly foothill seed mixture November, 1991
-  Area not seeded during 1991 (grass species already well established)



Mapscale 1 : 2900
1 inch = 242 feet



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