



U.S. Department of Energy

Grand Junction Office
2597 B³/₄ Road
Grand Junction, CO 81503

OCT 30 2000

WM-63

Madeline Roanhorse, Director
Navajo UMTRA Program
Division of Natural Resources
P.O. Box 1875
Window Rock, Arizona 86515

Subject: Proposed Activities at the Mexican Hat UMTRA Project Site

Dear Ms. Roanhorse:

As per discussions at the meeting on October 5, 2000, in Durango, Colorado, DOE has agreed to install one monitor well at the Mexican Hat UMTRA Project site to address Navajo Nation concerns. The original plan, as presented in DOE's letter of November 1, 1999, to the Navajo Nation, was to install one additional monitor well into the uppermost aquifer (lower unit of the Halgaito Formation) downgradient from the Mexican Hat disposal cell. The purpose of the well is to determine if site-related contamination is present in ground water in this unit.

The monitor well will be located as near to the disposal cell as reasonable but will not penetrate any part of the disposal cell cover system or be near the toe drains or drainage channels (Figures 1 through 3). The well will be drilled to a depth of approximately 200 feet with a 10-foot screen placed at the bottom of the well in the lower part of the uppermost aquifer. The monitor well will be constructed using 2-inch Schedule 40 PVC casing and screen. If significant water is encountered in the perched zones of the upper unit of the Halgaito Formation, these intervals will be sealed off so as not to impact ground water quality in the lower unit. Based on previous drilling in the area, there is the potential for intercepting hydrocarbons and hydrogen sulfide gas at this depth.

The monitor well at the Mexican Hat site will be installed in conjunction with a drilling rig being mobilized to the Monument Valley UMTRA Project site in November 2000. The drilling rig is scheduled to arrive at the Mexican Hat site on October 30, 2000, with drilling to commence on October 31, 2000. Field activities should be completed within several days.

Upon completion of the monitor well installation, ground water will be sampled and analyzed for the constituents of potential concern at the site (in particular, uranium, sulfate, and nitrate). This sampling will be done during the normal quarterly sampling performed by the Long-Term Surveillance and Maintenance group on seeps in the area and is scheduled for November 2000. The other monitor wells at the site will also be sampled at this time. Analytical results will be provided to the Navajo Nation when they are validated. The monitoring frequency to date for seeps and monitor wells at the site is shown on Table 1 (enclosed).

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Analytical results from this sampling should confirm that site-related contamination is not present in the lower unit of the Halgaito Formation in the vicinity of the site. The natural quality of ground water in the lower unit is likely unsuitable for human consumption because it is characterized by elevated concentrations of uranium, sulfate, and total dissolved solids. Hydrocarbons and hydrogen sulfide gas are also present in the subsurface water. Downward migration of contaminants from uranium processing activities has not been observed and is not expected because of the confining properties in the lower portion of the upper unit and the upward hydraulic gradient from the lower unit of the Halgaito Formation.

If our plans do not meet your objectives for the drilling program, please contact me as soon as possible to discuss your expectations and to provide input so that this effort may provide the information needed to finally resolve the issues related to the Mexican Hat site. Please contact me at 970/248-7612 with confirmation of agreement on this best-management practice drilling program.

Sincerely,



Donald R. Metzler
Technical/Project Manager

Enclosures

cc w/enclosures:

M. Layton, NRC

P. Ting, NRC

M. Wong, NRC

D. Bergman-Tabbert, DOE

R. Plienness, DOE

Project File GWHAT 3.5 (P. Taylor)

cc w/o enclosures:

L. Goodknight, MACTEC-ERS

R. Heydenburg, MACTEC-ERS

C. Jacobson, MACTEC-ERS

S. Marutzky, MACTEC-ERS

Table 1.

Mexican Hat UMTRA Project Site Monitoring Frequency

| Locat | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | Notes |
|--------------|------|------|------|------|------|------|------|------|------|------|------|-----------------------------|
| Seeps | | | | | | | | | | | | Through August 2000 |
| 248 | 3 | 3 | 0 | 1 | 2 | 2 | 0 | 2 | 1 | 3 | 1 | |
| 249 | 3 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | No longer exists -- see 264 |
| 251 | 2 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 2 | 1 | |
| 253 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 2 | 2 | 4 | 3 | |
| 254 | 1 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | |
| 255 | 0 | 3 | 1 | 1 | 1 | 0 | 0 | 2 | 2 | 3 | 3 | |
| 256 | 1 | 3 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 4 | 2 | |
| 261 | 2 | 2 | 0 | 0 | 1 | 2 | 0 | 2 | 2 | 4 | 3 | |
| 922 | 2 | 3 | 1 | 1 | 2 | 2 | 0 | 2 | 2 | 4 | 1 | |
| 923 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 2 | 1 | 3 | 0 | |
| 924 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 4 | 1 | |
| | | | | | | | | | | | | |
| 264 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 3 | Replaces 249 |
| 265 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | Upstream from 922 |
| | | | | | | | | | | | | |
| Wells | | | | | | | | | | | | |
| 909 | 0 | 3 | 1 | 1 | 2 | 2 | 0 | 0 | 2 | 1 | 1 | Background |
| 934 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | Elevated pH |
| 935 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | Elevated pH + |

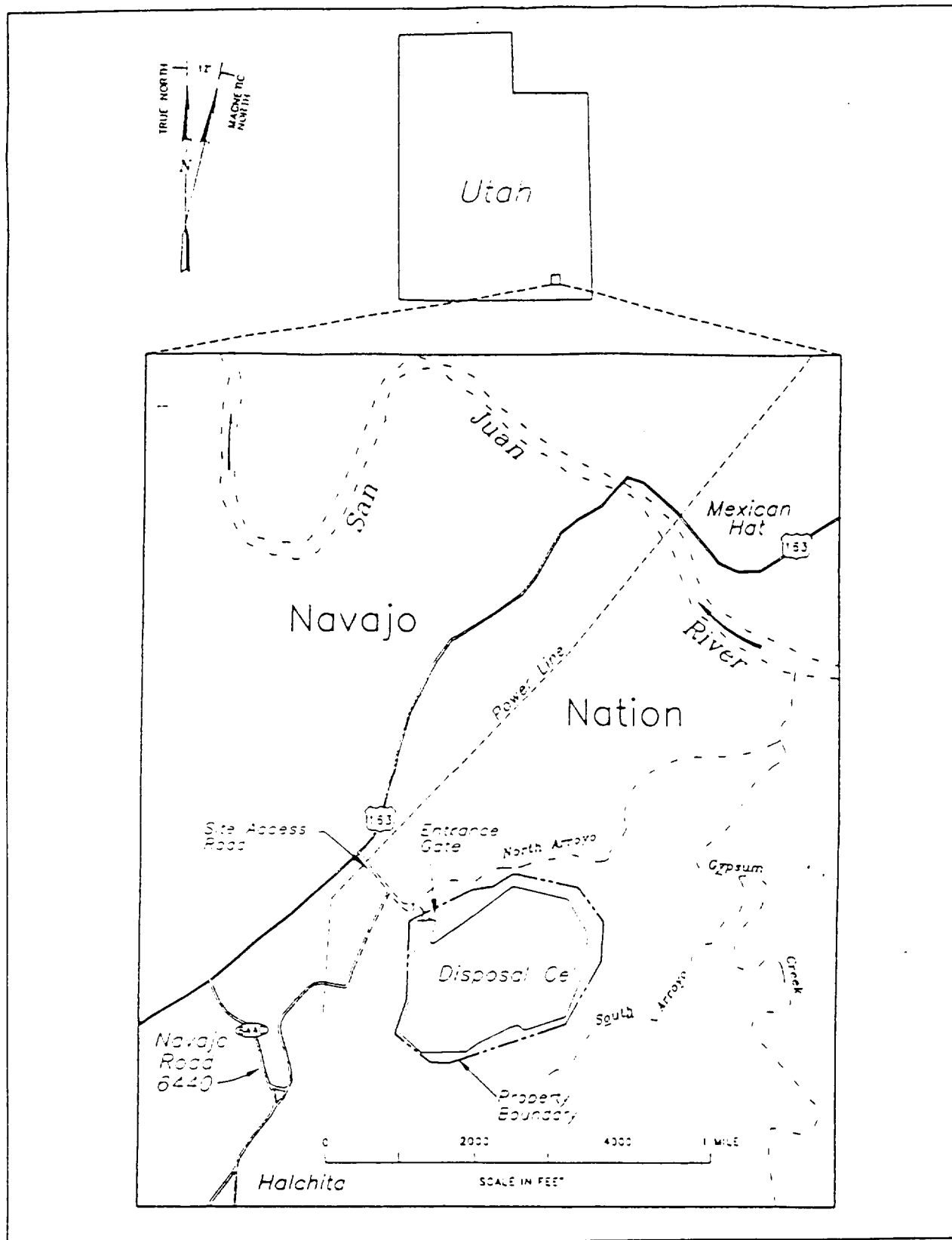


Figure 1. Location of Mexican Hat, Utah, Disposal Site

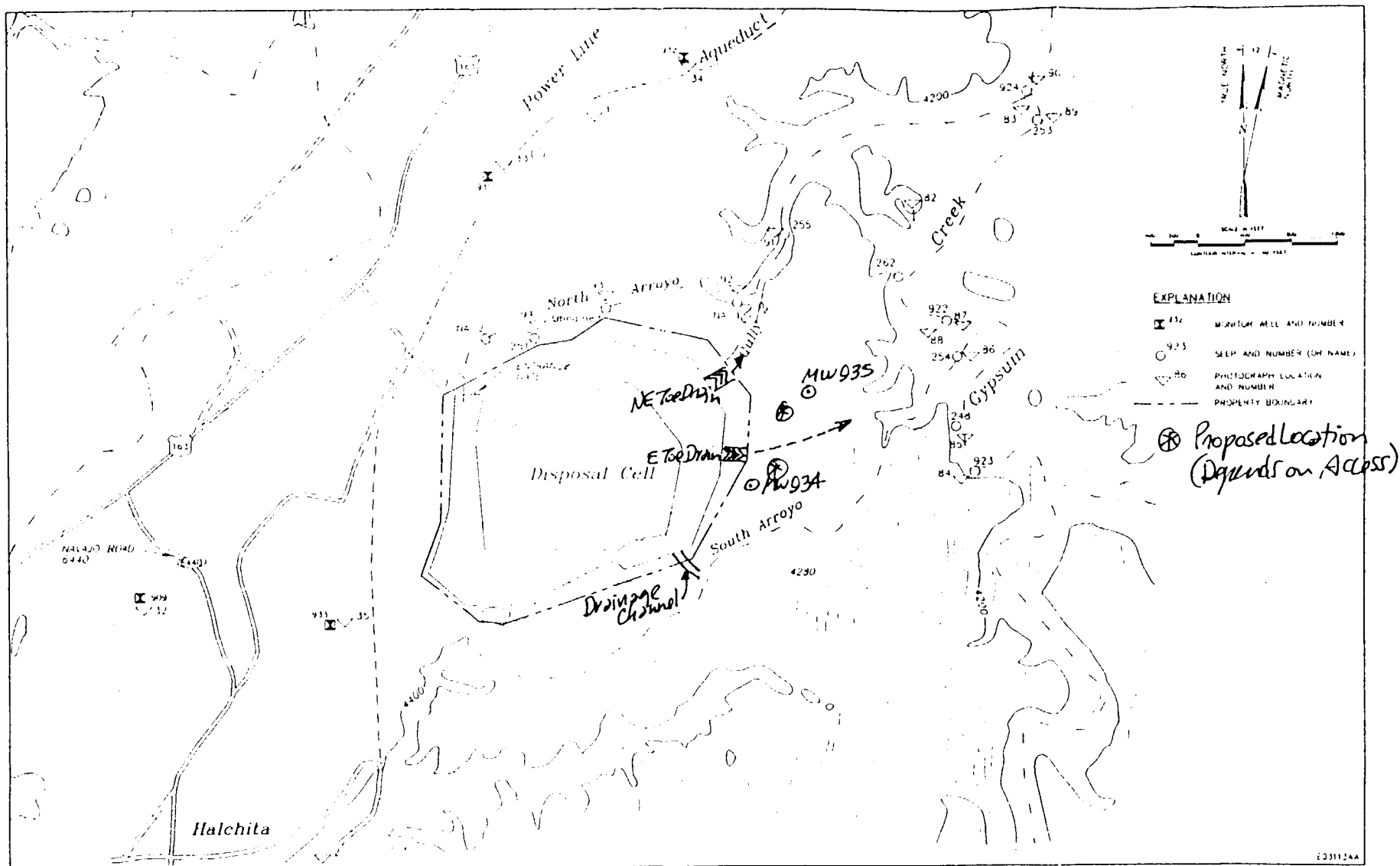


Figure 2 Location of Monitor Wells and Seeps in Outlying Areas around Mexican Hat, Utah, Disposal Site

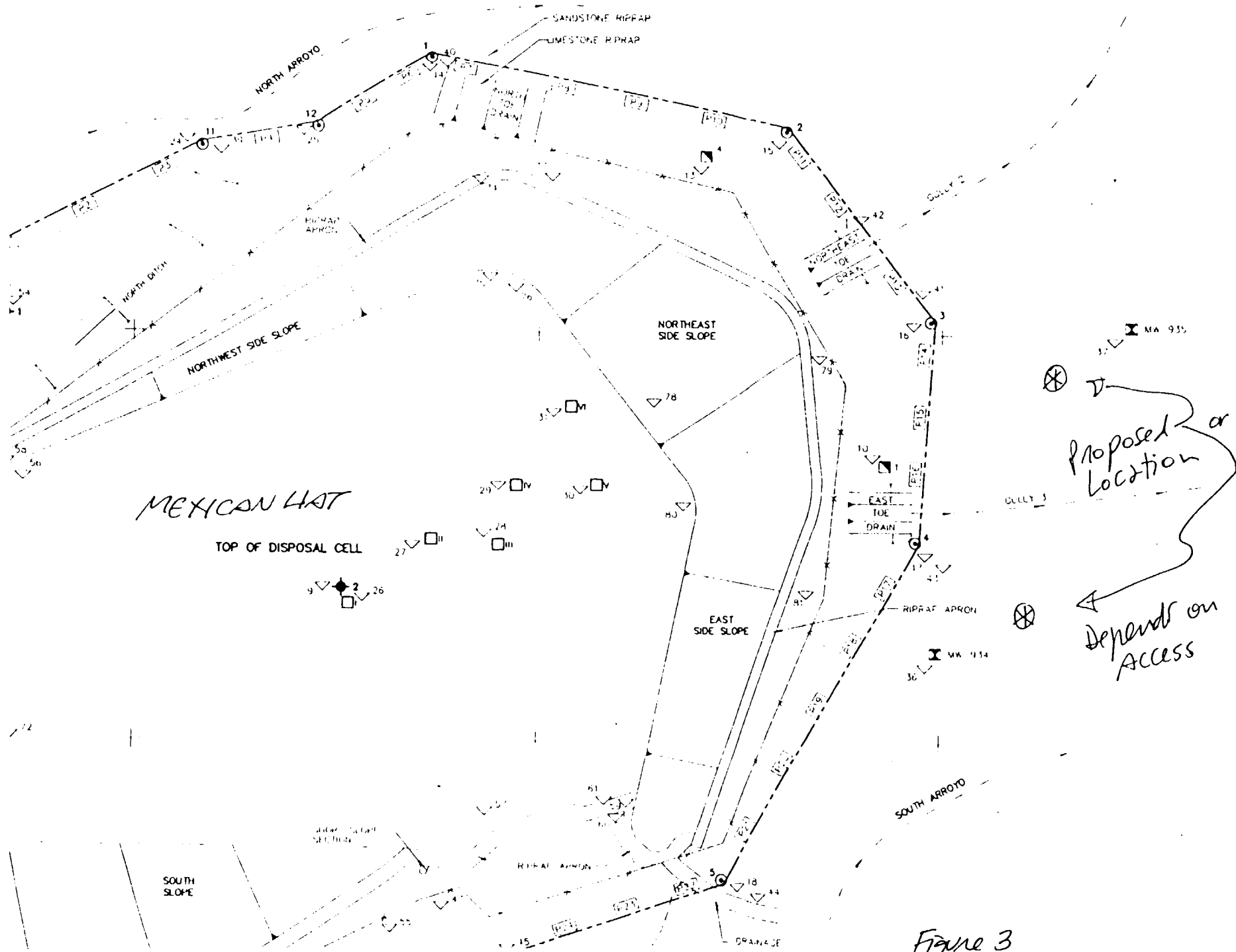


Figure 3