Planning for the Future:

Reuse Assessment for the Mountain View Mobile Homes Estate Site
Globe, Arizona
FINAL

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EPA Region 9
Superfund Redevelopment Initiative

funded by
United States Environmental Protection Agency (EPA)

prepared for
Arizona Department of Environmental Quality
City of Globe

prepared by
E^2 Inc.

Forward

EPA's primary responsibility at Superfund sites is to ensure the protection of human health and the environment. Consideration of a site's potential future use is an important part of this responsibility under the National Contingency Plan (NCP). The Superfund Redevelopment Initiative (SRI) was created by EPA in 1999 to help communities and stakeholders in their efforts to return environmentally impaired sites to protective and productive use. Conducting a reuse assessment that engages site owners and other stakeholders in evaluating future use options for a site can help facilitate site stewardship and support the long-term effectiveness of remedy.

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View of the Site's drainage features

Figure 1: Mountain View Mobile Home Estates Site is located to the east of downtown Globe, AZ. Aerial map Source: Google Earth, 2008

I. INTRODUCTION

Mountain View Mobile Home Estates (Site) is a 17-acre deleted National Priorities List site located outside the City of Globe, approximately 75 miles East of Phoenix. The Site is owned by the State of Arizona, and both the State and the City of Globe share an interest in returning the Site to productive use. Due to the surrounding mountainous terrain and abundance of federally owned land, the City of Globe has very little industrial-zoned land available to diversify the local economy. The Site could offer a viable economic development opportunity given the location on Highway 70 at the junction of Route 77.

The purpose of this reuse assessment is to evaluate the Site's future use potential and identify a reasonable development scenario to inform near term Site planning efforts for EPA Region 9, the Arizona Department of Environmental Quality (ADEQ) and the City of Globe. This report summarizes the findings of the reuse assessment including, reuse goals, current development restrictions, market and zoning considerations, site features, future use scenarios and an outline of reuse considerations and potential next steps.

Entrance to the Site from Highway 70

II. REUSE GOALS and REMEDIAL DESIGN OBJECTIVES

In August 2008, E² Inc. conducted a Site visit to tour the Site and meet with the primary stakeholders. During initial discussions, EPA Region 9, ADEQ and the City of Globe outlined the following set of reuse goals:

Reuse Goals

- Diversify the local economy
- Improve community relations
- Minimize remedy disturbance
- Provide long-term stewardship
- Protect human health and the environment

While EPA Region 9, ADEQ and the City of Globe agree that returning the Site to productive reuse would benefit the Site and the community, all agree that development of the Site should not occur at the expense of the protection of human health and the environment. After discussing the range of potential development scenarios, from no remedy disturbance to unrestricted remedy disturbance, all parties agreed to explore a future use scenario that requires minimal to no remedy disturbance to minimize construction costs, construction management issues and community concerns. Therefore, this assessment focuses on identifying a minimal disturbance future development scenario that could offer a realistic market option for the City of Globe to pursue and return the Site to productive reuse.

Zoning and Market Considerations

The City of Globe has identified a preference for light industrial future use. The Site is currently zoned "intermediate commercial" which allows retail sales, office buildings and health services, but restricts all industrial uses. Globe includes a moderate amount of commercially zoned land, but currently no light industrial land and very little general industrial land. If the City of Globe would like to pursue a light industrial reuse scenario, they may need to coordinate with the State to rezone the property accordingly.

A preliminary market analysis indicated that the current market value of light industrial land in this location might run between $125,000 and $175,000 per acre. This land value could offer a valuable incentive to pursue a feasible reuse scenario for the Site, provided that development costs do not significantly exceed what would be expected at a site without contamination issues. Pursuing a future use scenario that minimizes remedy disturbance could help manage construction costs and preserve this incentive of below market value land.

Zoning	Permitted Uses	Restricted	Current Distribution
C-2* Intermediate Commercial	Retail sales Office buildings Health services	All industrial uses	Moderate
C-3 Central Commercial	Retail sales Office buildings Health services Food establishments	All industrial uses	Moderate
M-1 Light Industrial	Manufacturing Warehouses Government	Certain uses require conditional use permit	None
M-2 General Industrial	Any use permitted in the M-1, C-2, or C-3 districts	Certain uses require conditional use permit	Minor

**current Site zoning*

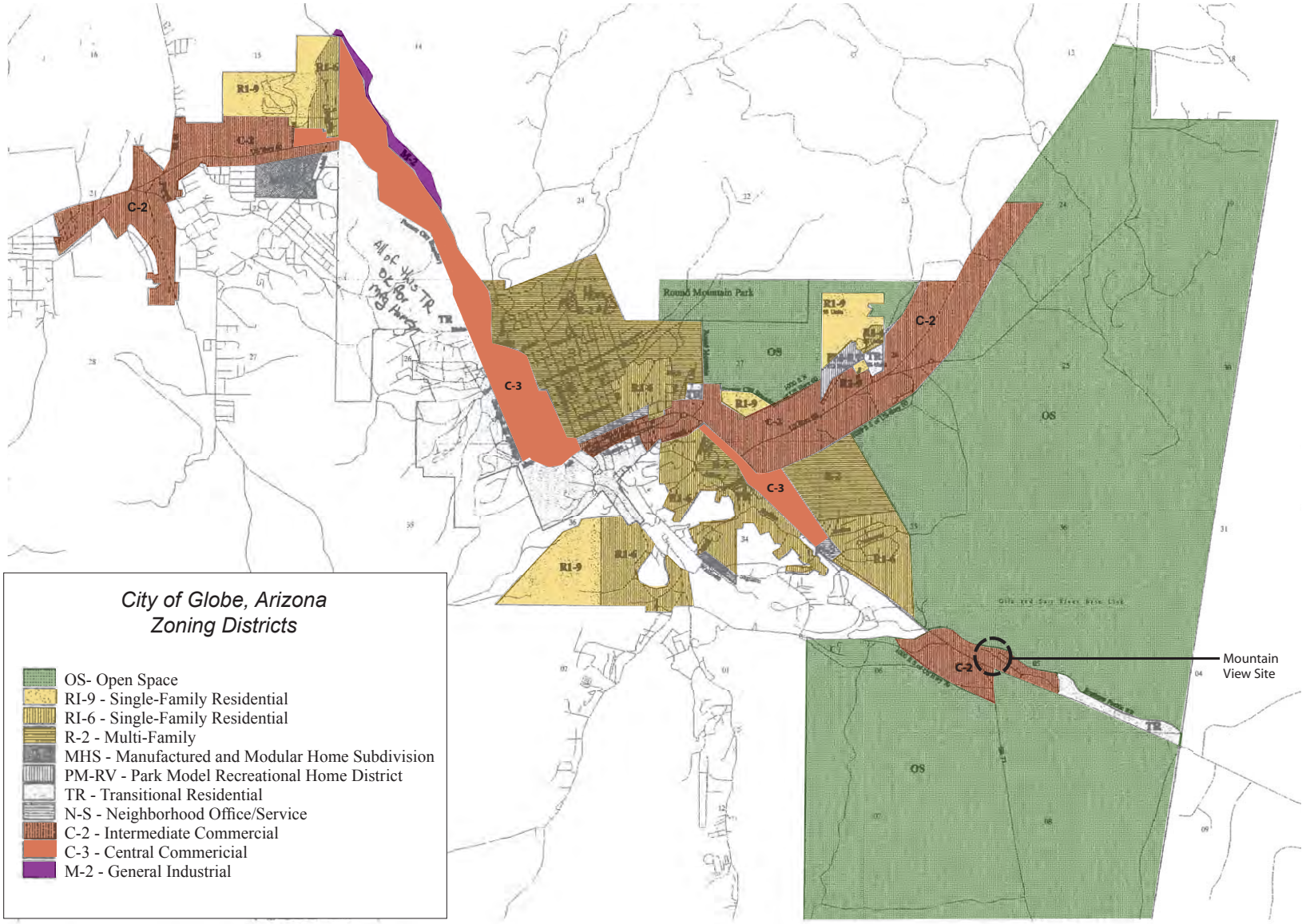


Figure 2: City of Globe Zoning Map

Remedial Considerations

As discussed previously, any future use of the Site must support the remedial objectives which include containment of the asbestos located under a soil and gravel cap throughout the Site. The remedial components of the Site are shown in Figure 3, and include a fence, a barrier fabric capped with a 24-inch soil and 3-inch gravel cover, plus surface and subsurface drainage features to protect the cap from on-site and off-site erosion.

Current development restrictions are outlined in page nine of the Operations and Maintenance Manual included in the Superfund State Contract. Some of the significant restrictions include:

- No excavation below the fabric liner;
- Footings or foundations allowed only within or on top of the two-foot cover;
- Utilities allowed only within or on top of the two-foot cover; and
- Impervious areas must include drainage conveyance to protect the cover.

Additionally, the Declaration of Environmental Use Restriction (DEUR) recorded with the property deed requires that the Site's engineering and institutional controls remain in place and does not permit residential uses.

Given these development restrictions, the Site analysis summarized in the next section evaluates extent of contamination, depth of cover and grades to identify relatively flat areas that could be developed with the least amount of grading.

Concrete lined drainage channel

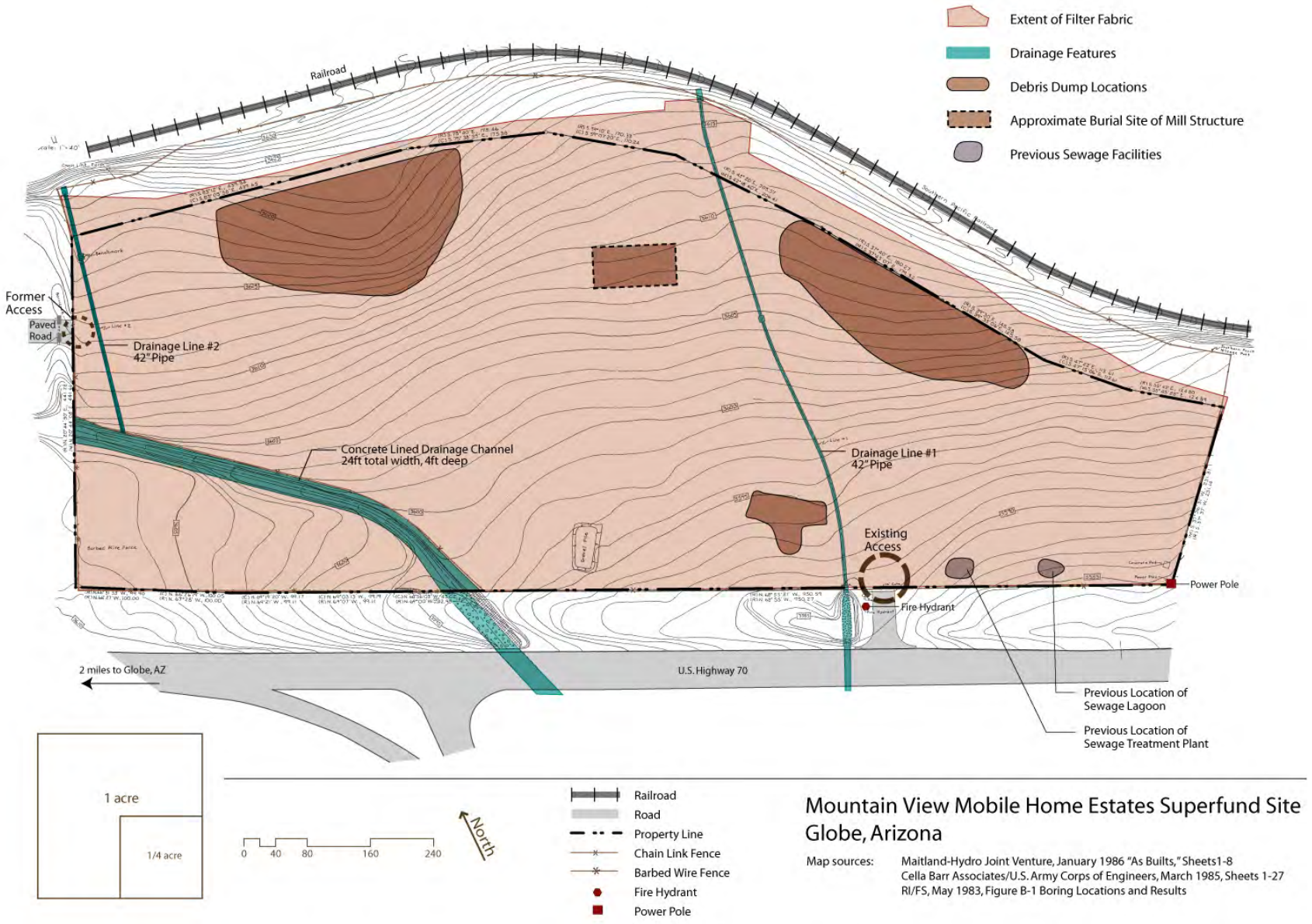


Figure 3: Remedial Components

III. SITE CONSIDERATIONS

E² Inc. evaluated remedy design plans, as-built site plans and the RI/FS[1] to develop a site analysis of access and infrastructure, contamination, depth of cover and grades. This section describes the findings of this analysis in more detail.

Access and Infrastructure

As indicated in figure 3, the Site's main access is located off Highway 70 with a secondary access located on the western boundary. The status and conditions of access easements across the adjacent commercial property is unknown at this time. Additional access if desired would need to be negotiated, and the proximity of the Site to the junction of US Highway 70 and State Route 77 will likely be a consideration.

Potable water is available to the Site as indicated by the existing fire hydrant. No public sewer is available to the Site. Given the restrictions against disturbing the remedy, sewer options such as an above grade holding tank or composting system would likely need to be considered.

The current drainage features include a concrete-lined surface swale and two subsurface drainage pipes. These conveyance systems are considered part of the remedy as they protect the cover from erosion from on-site and off-site drainage. The open drainage channel is approximately 24 feet wide and four feet deep. Given these substantial dimensions, converting the swale to a subsurface system is unfeasible without disturbing the cover system and incurring significant costs. As such the drainage conveyance systems tend to divide the Site into three distinct properties:

1) the property southwest of the drainage swale,
2) the central portion between the swale and the drainage pipe discharging near the main Site access, and
3) the remaining property east of the main access.

An active rail borders the back of the Site along the north edge of the property boundary. However, due to the grades of the Site discussed in more detail later, creating a rail spur to the Site with a level loading zone is likely impractical and cost-prohibitive.

Contamination

The RI/FS includes soil boring locations that document the extent of contamination on Site prior to the remedy. Figure 4 shows the boring locations color coded based on depth of contamination. The boring samples indicate that contamination was located throughout the Site at depths up to eleven feet. In reviewing the remedial design plans, the remedy did not include consolidating all Site contamination, and therefore contamination likely remains throughout the Site just below the cover system.

[1] Maitland-Hydro Joint Venture, January 1986 "As Builts," Sheets 1-8; Cella Barr Assoc./U.S. Army Corps of Engineers, March 1985, Sheets 1-27; RI/FS, May 1983, Figure B-1 Boring Locations and Results

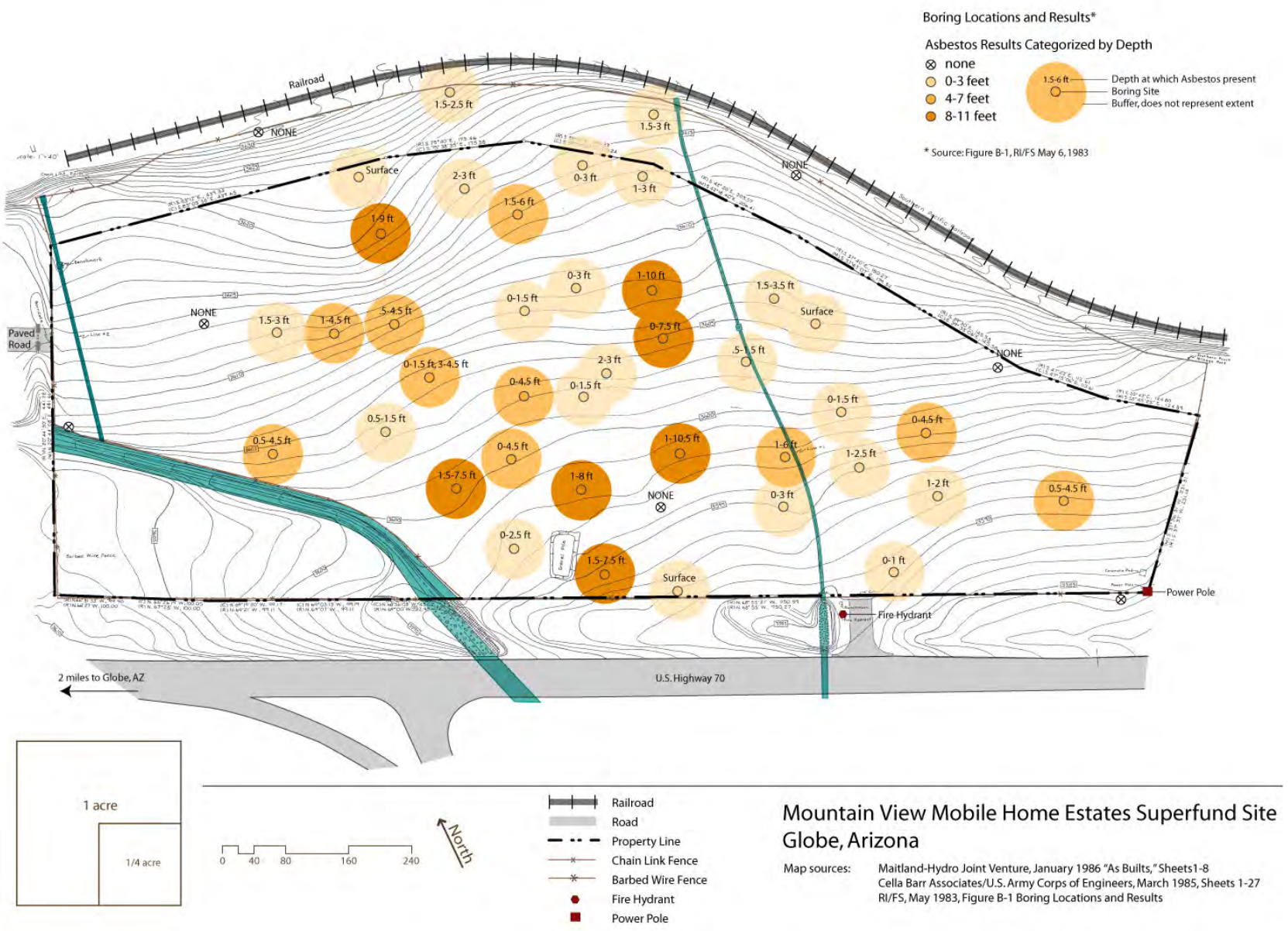


Figure 4: Depth of Contamination

Depth of Cover

The depth of cover specified in the remedy documents is 24 inches of soil plus 3 inches of gravel. Figure 5 illustrates the depth of cover at construction completion. E^2 Inc. calculated these depths by subtracting the filter fabric elevations from the finished grade elevations prior to adding the gravel cover as recorded in the 1986 as-built documents. This figure illustrates that the majority of the Site contains a two-foot cover, and in several locations the cover may actually be less than two feet. Figure 5a shows depth of cover less than three feet and greater than three feet. There are only a few isolated locations, for example along the drainage conveyance pipe, where the cover is deeper than two feet. This minimal depth of cover indicates that very little grading can occur without compromising the filter fabric.

The as-built records show that the 24 inches of clean fill was compacted to 90% compaction standards and the 3-inch gravel cover was compacted to 95% compaction standards. Given these compaction results, a compaction study is deemed unnecessary at this time.

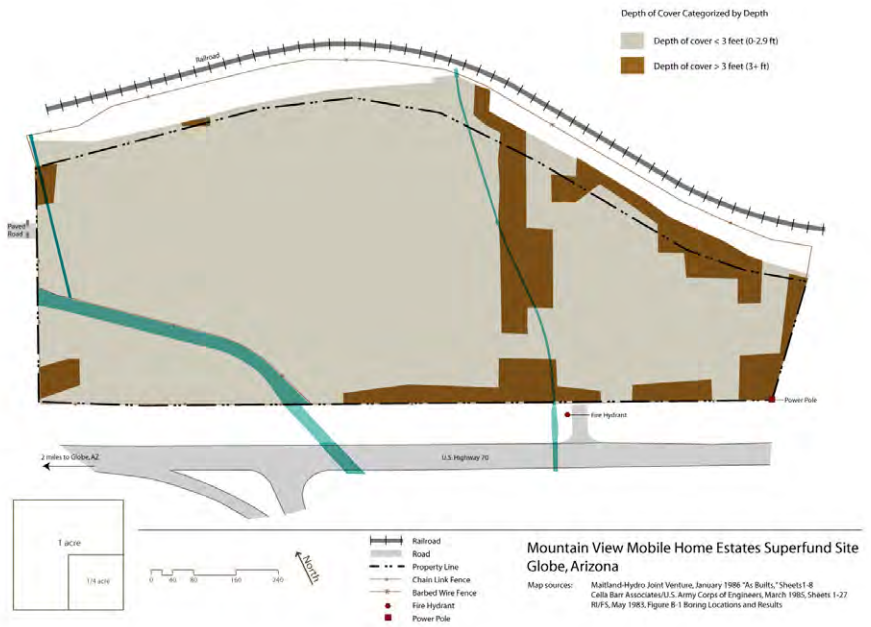


Figure 5a: Average Depth of Cover

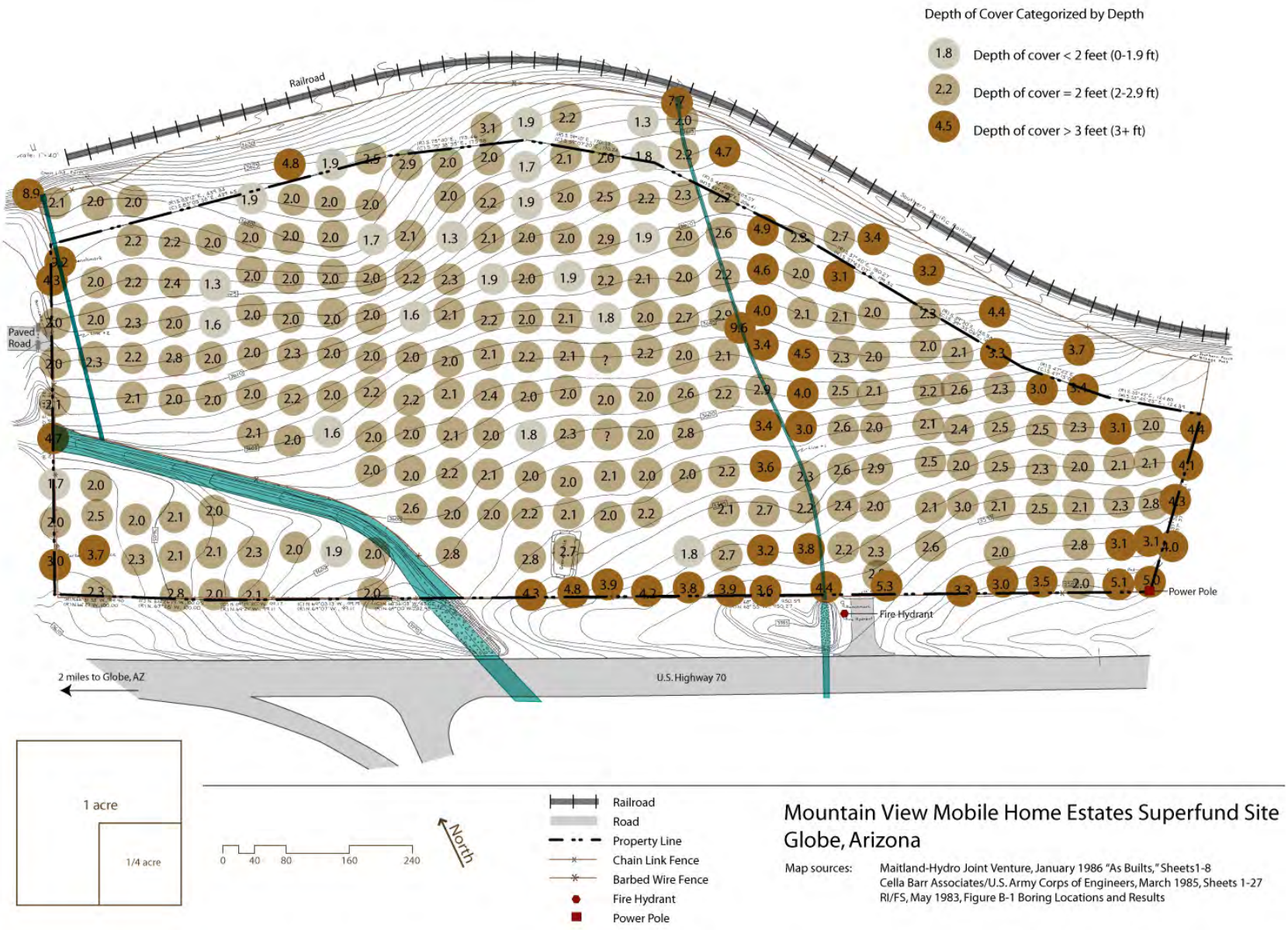


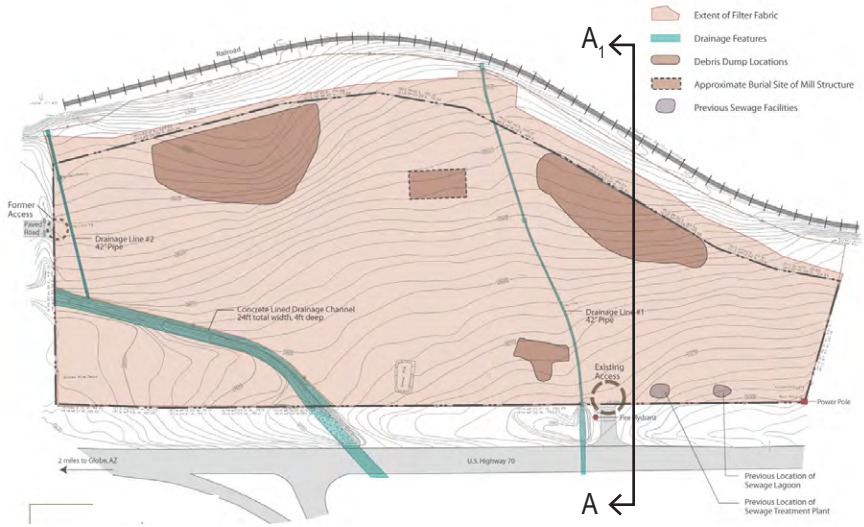
Figure 5: Depth of Cover

III. SITE CONSIDERATIONS (continued)

Grades

The Site slopes from north to south, from the rail line to the road, at an average grade of five percent. As the cross section in figure 6 illustrates, considerable fill would be needed to create a level building pad for most of the Site.

However, the grade analysis shown in figure 7 highlights that there are pockets of relatively level grade at less than three percent. The grade analysis characterizes the Site in terms of grades five percent or greater, grades of three to five percent, and grades less than three percent. The majority of the grades at less than three percent occur in the southwest portion of the property near the highway.



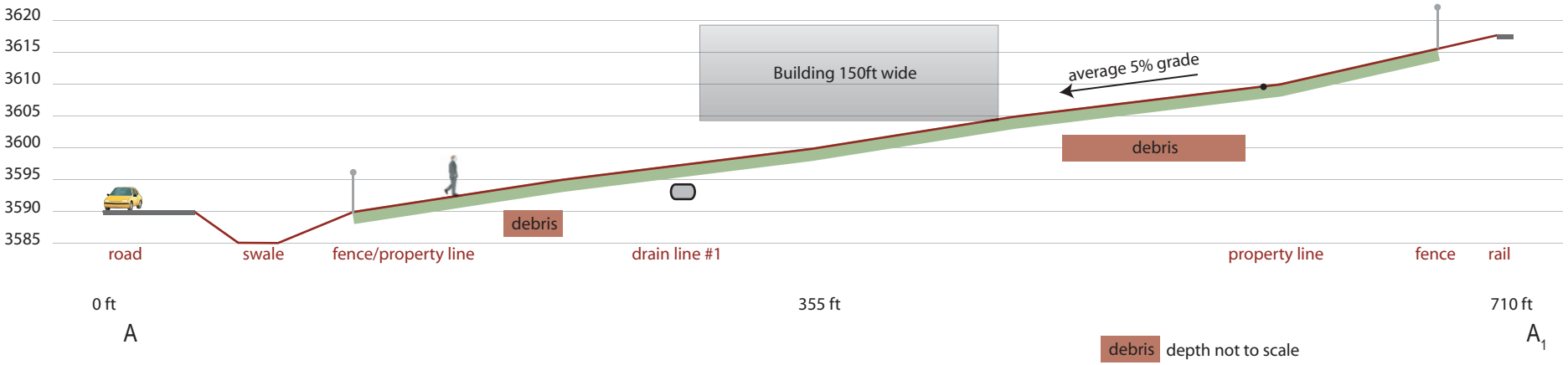


Figure 6: Site Cross Section

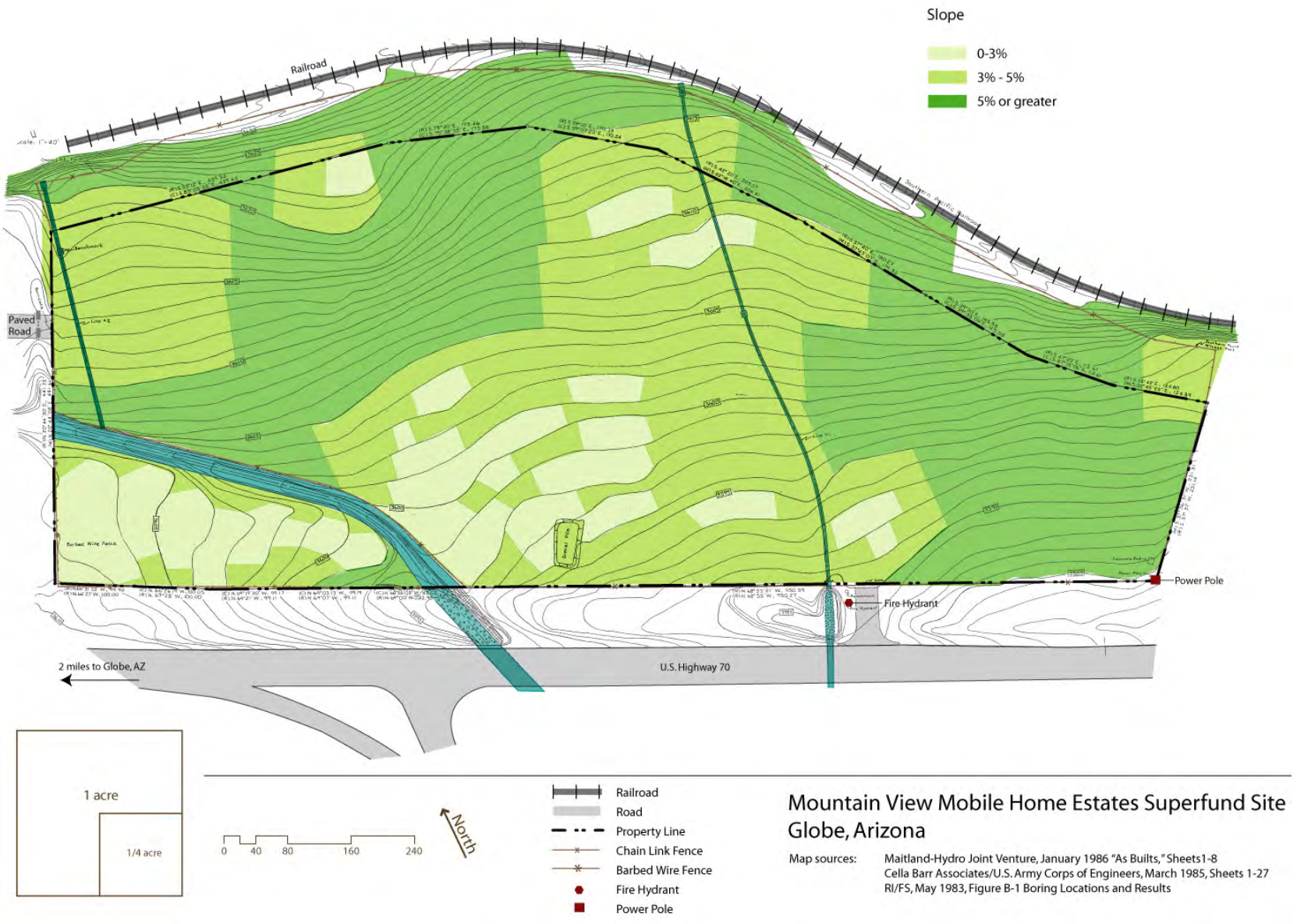


Figure 7: Grade Analysis

IV. FUTURE USE SCENARIOS

Potential Development Areas

Based on the Site analysis, E² Inc. developed a future development scenario that would minimize remedy disturbance on the Site. Figure 9 outlines four potential development areas with conceptual building pad footprints. Potential building pad footprints were identified as areas with contiguous level grade (defined as three percent or less) with adjacency to the highway for potential access. Adding a buffer to each of the building pads creates development areas B, C and D. These potential development areas would require less grading and fill to create level development pads. Development area "A" also outlined in the figure has steeper grades, but was identified based on the existing access. Area A could potentially provide parking or staging for Area B.

Note that these potential development areas are conceptual, and intended to provide a starting point for outlining more detailed proposals. However, in general, the potential development areas range in size from approximately ½ acre to 1-½ acres with building footprints ranging from approximately 5,000 square feet to 35,000 square feet as summarized below:

Development Area	Acreage	Building footprint	Access
A	¾ acre	None	Potential easement
B	1 acre	20,000 sf	None currently
C	1½ acres	33,400 sf	None currently
D	½ acre	4,800 sf	Existing access

While development area D has an existing access route, access would need to be confirmed for development area A, and access would need to be negotiated if new parcels were created for development areas B and C.

In summary, a realistic development scenario might consider the Site in terms of three to four separate parcels ranging in size from ¼ acre to 1-1/2 acres. These parcels could be operated by one business or three separate businesses.

Given these potentially smaller development areas, zoning setbacks could further reduce possible building footprint zones. The zoning setbacks highlighted in figure 8 illustrate that setbacks for heavy industrial zoning could significantly reduce the building footprints for development areas A and B.

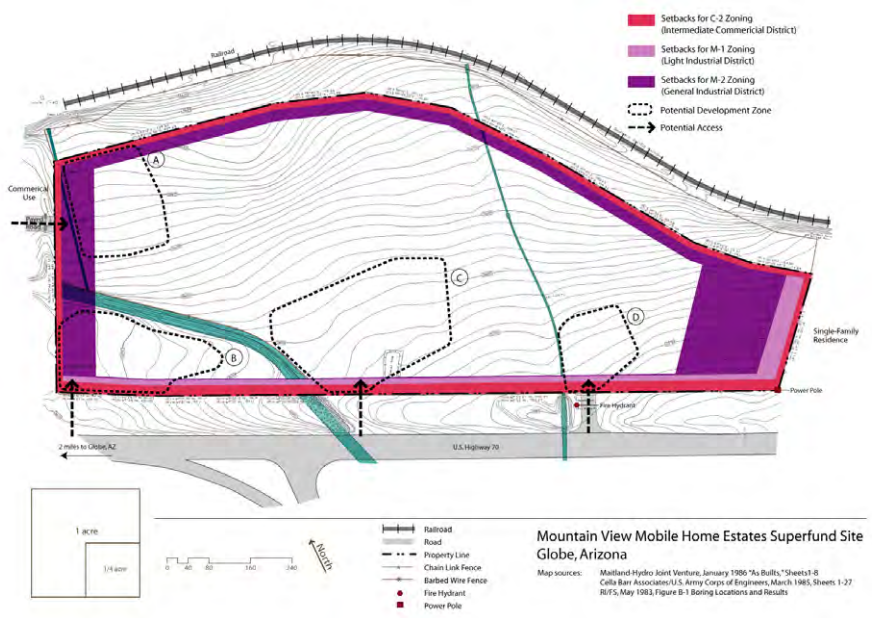


Figure 8: Zoning Setbacks

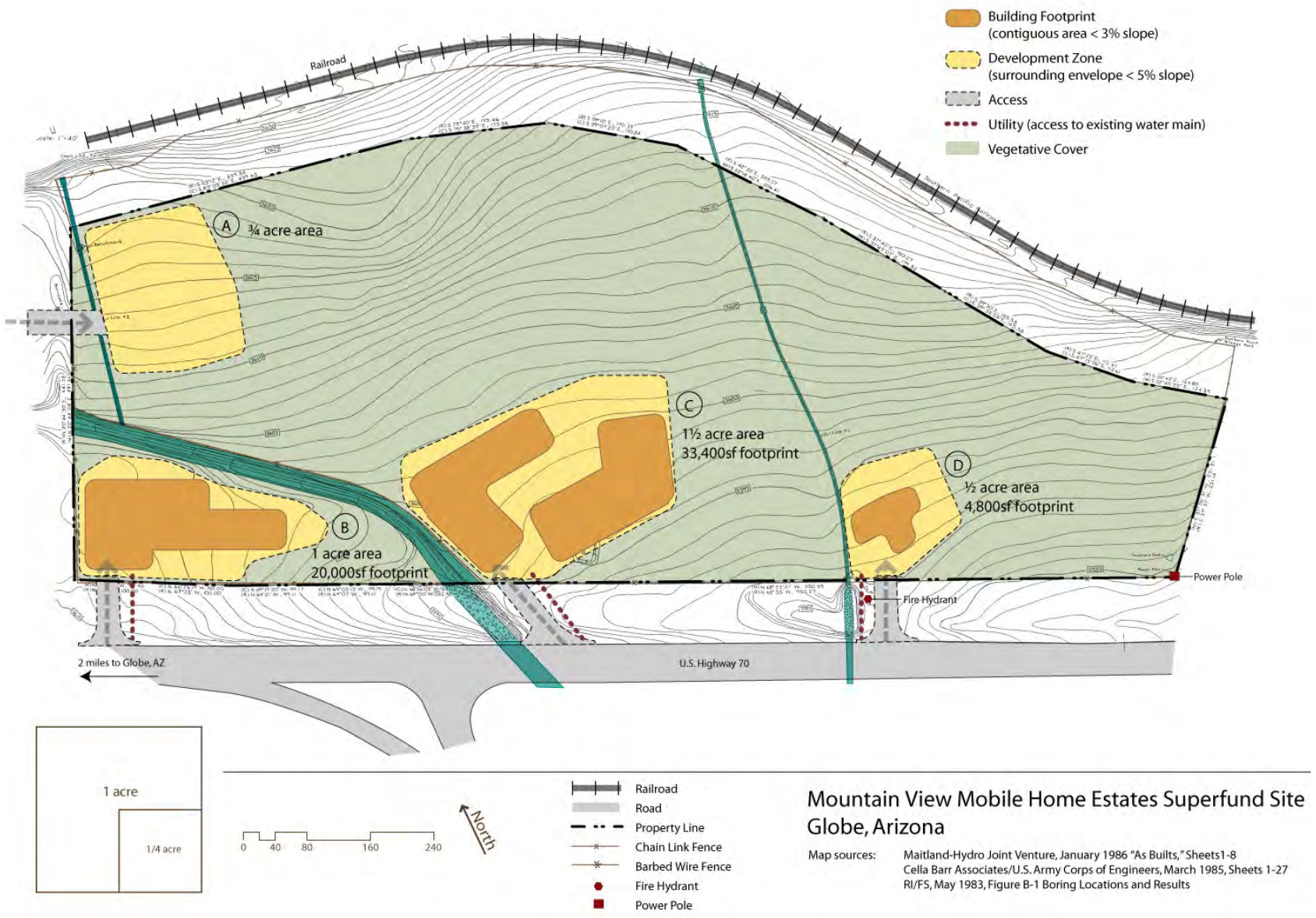


Figure 9: Potential Development Areas

Grading Options

To further minimize construction costs and potential disturbance to the remedy, E² Inc. explored several grading options including a) full cut, b) balance cut and fill, and c) clean fill for a 150-foot by 150-foot building. Grading options need to be carefully considered to limit cost as well as remedy disturbance. These options are further described below and in the summary table.

Option A

A full cut scenario with a 150-foot by 150-foot prototypical building would require a minimum of 972 cubic yards of contaminated soil to be hauled to an appropriate disposal facility. This scenario could cost an estimated $86,000 given a local estimate of $88 per cubic yard of contaminated soil. This estimate does not include costs associated with air quality monitoring and implementing a health and safety plan.

Option B

The balance cut and fill option would require moving asbestos on site for buildings greater than 100 feet wide north to south. To balance cut and fill for the same sized prototypical building, an estimated 300 cubic yards of contaminated soil would need to be moved on Site and capped with a building pad. Again, this option would include costs associated with air quality monitoring and implementing a health and safety plan.

Option C

The clean fill option for the prototypical building would require a minimum of 1,800 cubic yards of clean fill, which could cost approximately $40,000 given a local clean fill estimate of $22 per cubic yard. This estimate does not account for fill needed for staging, vehicular access, footings and utilities. This option would likely be the most cost-effective given the reduced construction management costs that could be associated with exposing the on-site contamination.

Summary of Grading Options and Costs

Estimates for a 150-foot x 150-foot building on 3% grade

Grading Options	Cubic yard estimate	Unit cost estimate (per cubic yard)	Estimated cut and fill cost	Additional monitoring and safety costs	Estimated total costs
A) Full cut	972	$88	$86,000	high	high
B) Balance cut and fill	300	NA	NA	medium	medium
C) Fill only	1800	$22	$40,000	low	low

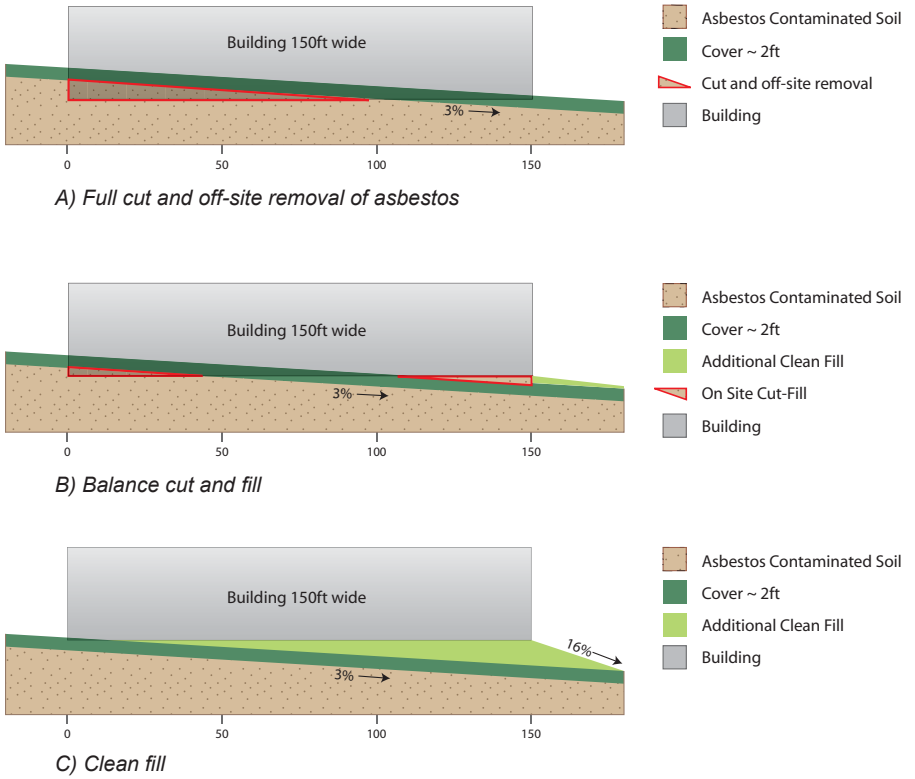


Figure 10: Grading Options

V. REUSE CONSIDERATIONS AND RECOMMENDATIONS

In summary, given the Site's prime location adjacent to Highway 70, the need for additional light industrial in the community, and the relatively high market value of light industrial land, the Mountain View Mobile Home Estate Site could be returned to productive reuse with the right development proposal. A reasonable future use of the Mountain View Mobile Home Estates Site could focus on several smaller parcels, ranging from ¼ acre to 1-1/2 acres, adjacent to the highway. Targeting existing level areas of the site with grades three percent or less could minimize construction costs, construction management issues associated with remedy disturbance and community concern. This section outlines additional reuse considerations and potential next steps for returning the Site to productive reuse.

Construction Management

Due to the contamination on Site, any development will need a health and safety plan, as well as an air quality monitoring plan. The degree of monitoring required will depend on the level of disturbance expected. Any contaminated soil removed from the Site will require special handling and disposal. Therefore, development proposals that seek to minimize remedy disturbance will reduce the significant costs associated with exposed contamination.

Community Involvement

Due to the history of the Site which included the relocation of residents and removal of residences during the remedial action, this site in particular could benefit from early community involvement regarding potential future use scenarios. Early discussion of the benefits of reuse, along with the expected land disturbance, health and safety plan, and air monitoring plan will increase the likelihood of community support of the productive reuse of the Site.

Regulatory Considerations

Any development of the Site will need to be consistent with the regulatory restrictions. Coordination with EPA Region 9 early in the reuse process will ensure that development plans align with any regulatory process necessary to support the productive reuse of the Site. A prospective user of the property may have to request a Record of Decision amendment and renegotiate the Declaration of Environmental Use Restriction (DEUR) recorded with the property deed, for anything but the most minimal disturbance.

Utility Considerations

As discussed previously, due to the limited depth of cover, utilities will need special attention on this Site. Above ground septic options, such as composting or holding tank systems could be explored based on the expected use and capacity of the future development scenario. Special provisions may need to be negotiated to approve limited water line or other utility location below the protective fabric layer.

Additional Site Planning

Depending on the reuse proposal developed by the City of Globe, EPA Region 9 and ADEQ may want to evaluate additional reuse options for the steeper areas of the site. Reuse options could be identified that do not require a level base or any disturbance below the two-foot cap. If desired, additional future uses for the remainder of the Site could compliment commercial and light industrial uses along the highway.

Recommended Next Steps

During a site meeting in October 2008, EPA Region 9, ADEQ and the City of Globe agreed that the City of Globe can take the next step in transitioning the Site into productive reuse by developing a reuse proposal for consideration by ADEQ and EPA Region 9. The development scenario outlined in this reuse assessment could serve as a useful starting point for exploring commercial or light industrial uses suitable for the development areas outlined for the Site. The reuse proposal could include a more detailed plan including any potential phasing and proposed locations for buildings, parking and utilities. As a first step in this process, the City of Globe should meet with Arizona Department of Transportation to identify feasible access options to the Site from Highway 70, and outline associated costs, conditions and review and approval timelines.

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