5. ALTERNATIVES

The California Environmental Quality Act (CEQA) requires that a range of "reasonable" alternatives to the project be described to determine whether they could feasibly meet the basic project objectives and would reduce or avoid impacts of the proposed project.

The alternatives discussed in this EIR are:

- No Project
- Alternative Location within County Property
- Alternative Offsite Project Location
- Waste Reduction and Alternative Technologies

The remainder of this section discusses the comparative merits of the alternatives listed above.

A. NO PROJECT ALTERNATIVE

The No Project Alternative would result in the closure of the Union Mine Disposal Site when the existing landfill area has reached its expected capacity (estimated to occur in 1994 to 1995). Therefore, none of the expansion-related impacts identified in Section 3 of this document would occur under this alternative.

However, this alternative could result in potentially significant impacts to the county's solid waste disposal options. The county currently does not have any other active municipal solid waste landfills, and they do not have any plans to open new sites within the West Slope Waste Management Area. If the county's waste has to be transported to landfills outside of the county, this would be very expensive and would likely cause environmental impacts to air quality, traffic, human health and noise within the county. While the No Project scenario would eliminate site-specific environmental consequences beyond those resulting from the currently permitted landfill, it would also eventually result in the redirection of the Union Mine Disposal Site's waste stream to other landfills. The redirection of waste would affect the projected life of the receiving landfill(s). In addition, redirection of the waste stream may result in the need for the construction and siting

of a transfer station. Redirected waste from the West Slope Waste Management Area would require transportation by truck to the Lake Tahoe transfer station or out of the county. The additional travel distance to alternative disposal sites would significantly raise the transportation costs associated with disposal, as well as potentially create congestion and traffic safety impacts, and result in increased air pollution and noise levels.

Even without the expansion activities, the landfill site would still be subject to impacts associated with the existing operations. Impacts to surface and groundwater quality, biological resources, land use, and visual quality resulting from the existing landfill would still remain. In fact, the proposed project contains mitigation measures for the existing surface and groundwater quality impacts associated with the existing landfill (leachate collection and removal system, treatment plant and water collection and retention system). These mitigation measures would not be developed with the No Project Alternative, and significant impacts would remain.

If the proposed expansion is not implemented, the project site would still have limited land use utilization due to the nature of site topography, the existing landfill operation, and county ownership. The site is zoned for agriculture, and is located within a sparsely developed and topographically variable area. Development is precluded from the landfilled portion of the site. It will be retained for open space/grazing/recreational uses for perpetuity. The remainder of the site could be developed for other uses; however, the variable topography and county ownership would limit the opportunities for development.

B. ALTERNATIVE CONFIGURATION WITHIN COUNTY-OWNED PROPERTY

In February 1990, CH_2M HILL prepared a technical memorandum for the County of El Dorado entitled *Union Mine Landfill-Site B Preliminary Evaluation* which investigated the feasibility of developing a new landfill site on 3 alternative locations within the 217-acre county-owned Union Mine Disposal Site property. The following discussion is summarized from this technical memorandum.

Option 1. The first option investigated in the technical memorandum was the development of the drainage immediately south of the existing fill area. This is

generally the proposed project as evaluated in this EIR, and need not be discussed further in this section.

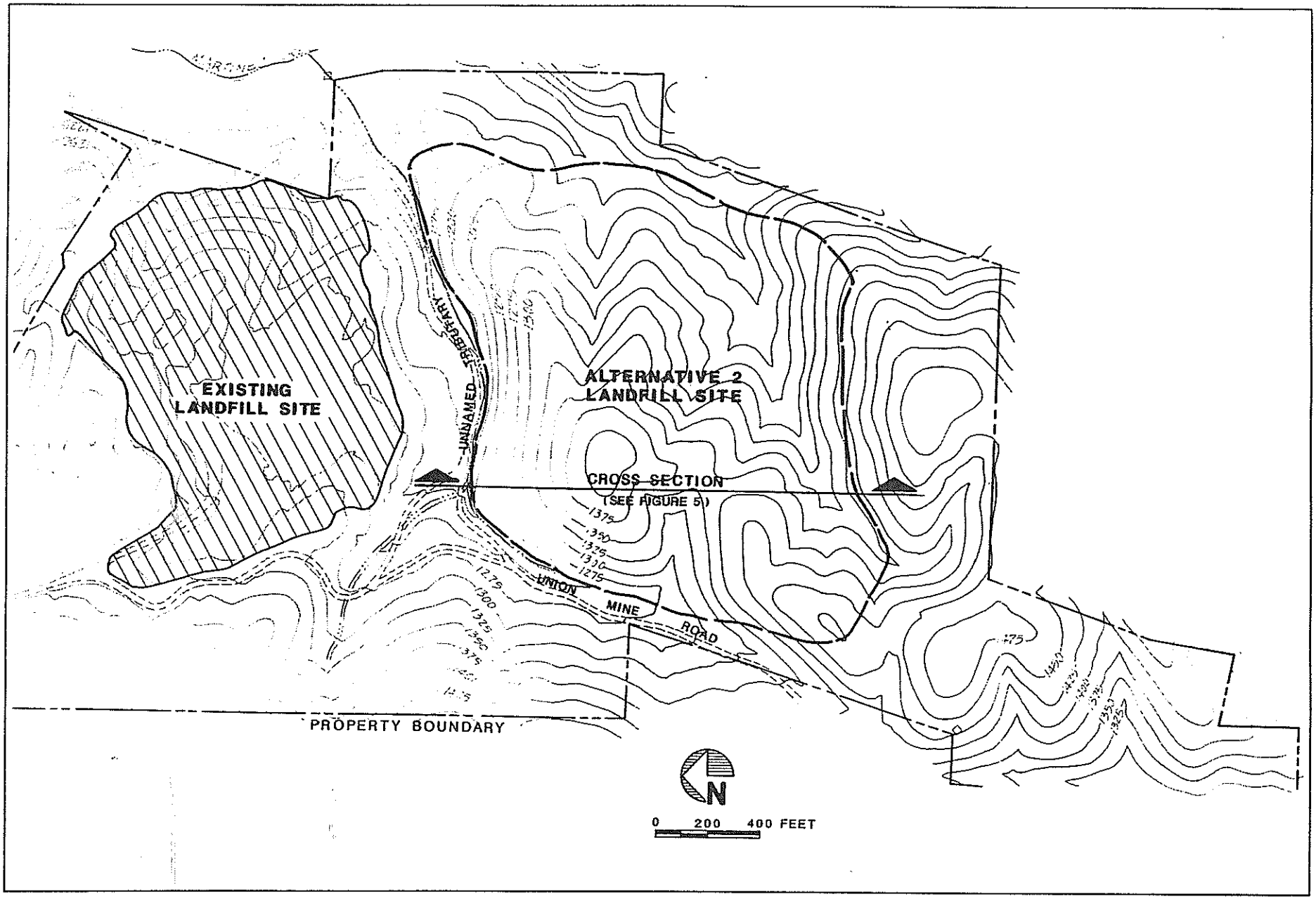
Option 2. The second option investigated was the development of a new landfill of approximately similar size as the existing landfill in a hillside and canyon system south of the existing fill (Figure 5-1). The hillside and canyon system would be cleared and shaped to accept a liner and leachate collection system. Significant excavation of weathered bedrock would be required. A cross section of the area necessitating grading is shown in Figure 5-2. Approximately 2.5 million cubic yards of rock and soil material would be excavated in order to provide for an estimated 6.5 million cubic yards of landfill space. The capacity could be increased to 7 to 8 million cubic yards by excavating additional areas near the south property line.

This optional landfill area could be developed starting with clearing approximately 10 to 20 acres and excavating 500,000 cubic yards. The initial area could then be put into operation and enlarged by excavating for daily cover material adjacent to the new site.

Surface runoff from areas south and uphill of this optional area would be collected in a surface runoff ditch to prevent runon into this expansion area. The ditch would terminate at the mouth of the landfill canyon. No modifications to the existing unnamed tributary would be needed. For this scenario it was assumed that no groundwater underdrain would be needed in the existing canyon bottom or in the bottom of the new landfill area.

Option 3. The third option investigated was the potential for landfilling of a 25-acre canyon area to the southeast of the existing fill as shown in Figures 5-3 and 5-4. The sideslopes within this canyon are not flat enough to construct a conventional soil liner and a fairly substantial amount of excavation would be required to create proper slopes and to provide substantial volume for refuse fill. Development of this site would require approximately 2.1 million cubic yards of excavation. This alternative would provide approximately 5.4 million cubic yards of landfill capacity.

Surface water runoff would be limited to that which falls within a 90-acre drainage area surrounding the site. Temporary diversion ditches would be used at this site to



FIGURE

5-1

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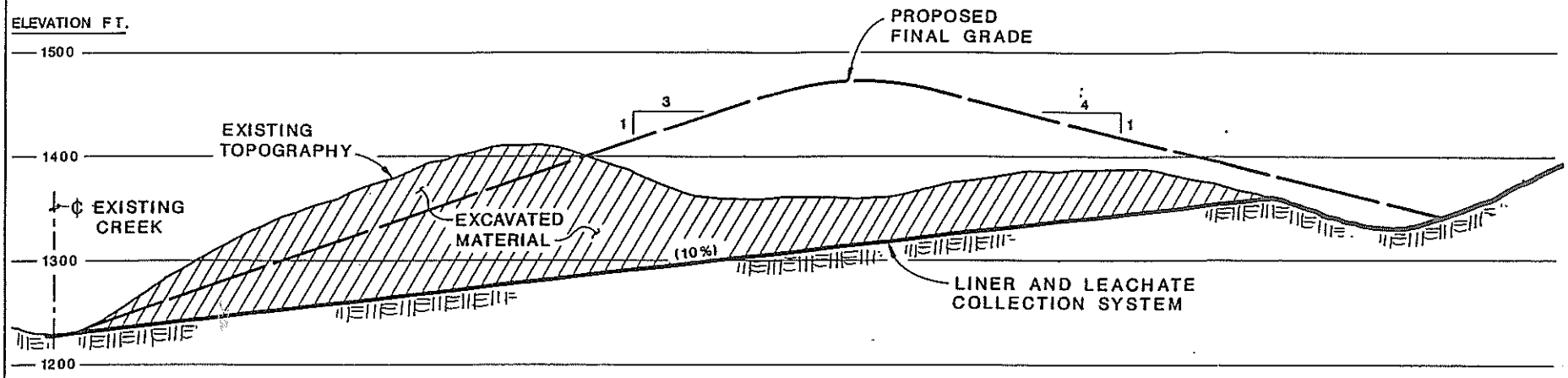
Option 2 Alternative Location



APPROXIMATE HORIZONTAL
AND VERTICAL SCALE: 1"=100 FT.

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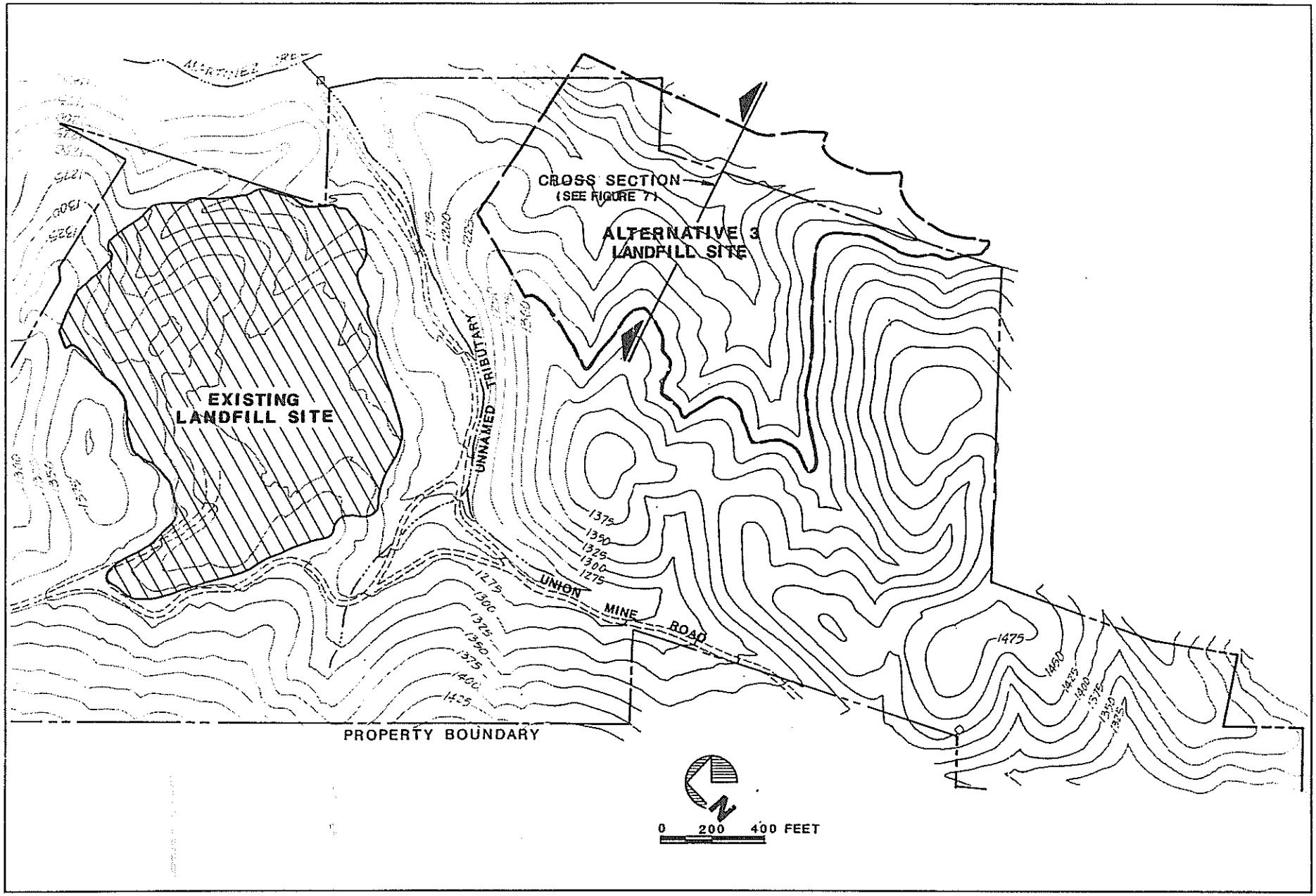
Typical Cross Section of Option 2 Alternative Landfill Site

FIGURE
5-2



FIGURE

5-3

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Option 3 Alternative Location

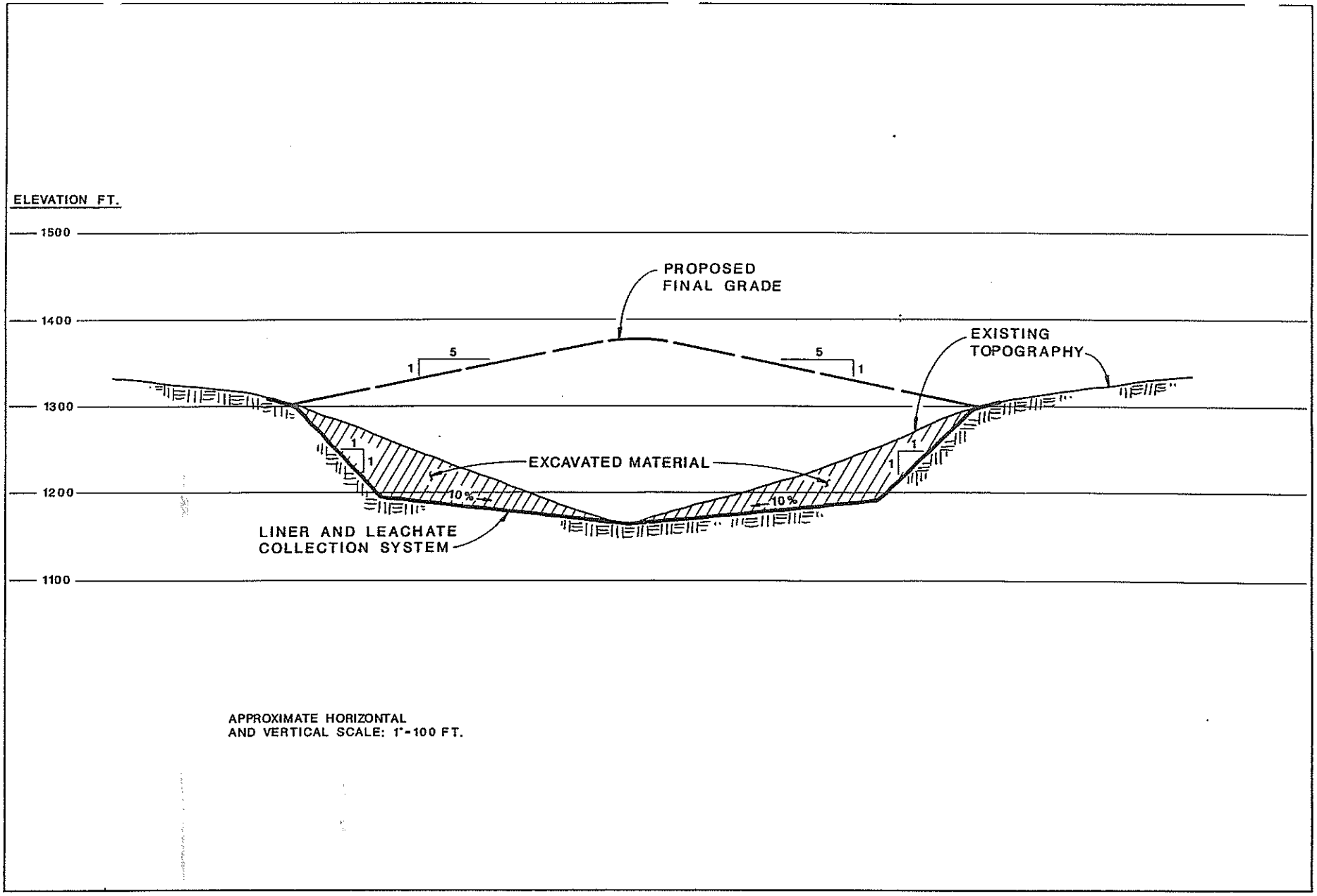


FIGURE 5-4

Typical Cross Section of Option 3 Alternative Landfill Site

prevent runoff from entering the active disposal area. No rerouting of the unnamed tributary to Martinez Creek would be necessary. Borrow soil for daily cover would be obtained from either the canyon area or the hillside west of the canyon. It was assumed by CH_2M HILL that no groundwater underdrain would be necessary, and no costly excavation methods would be necessary to develop the site.

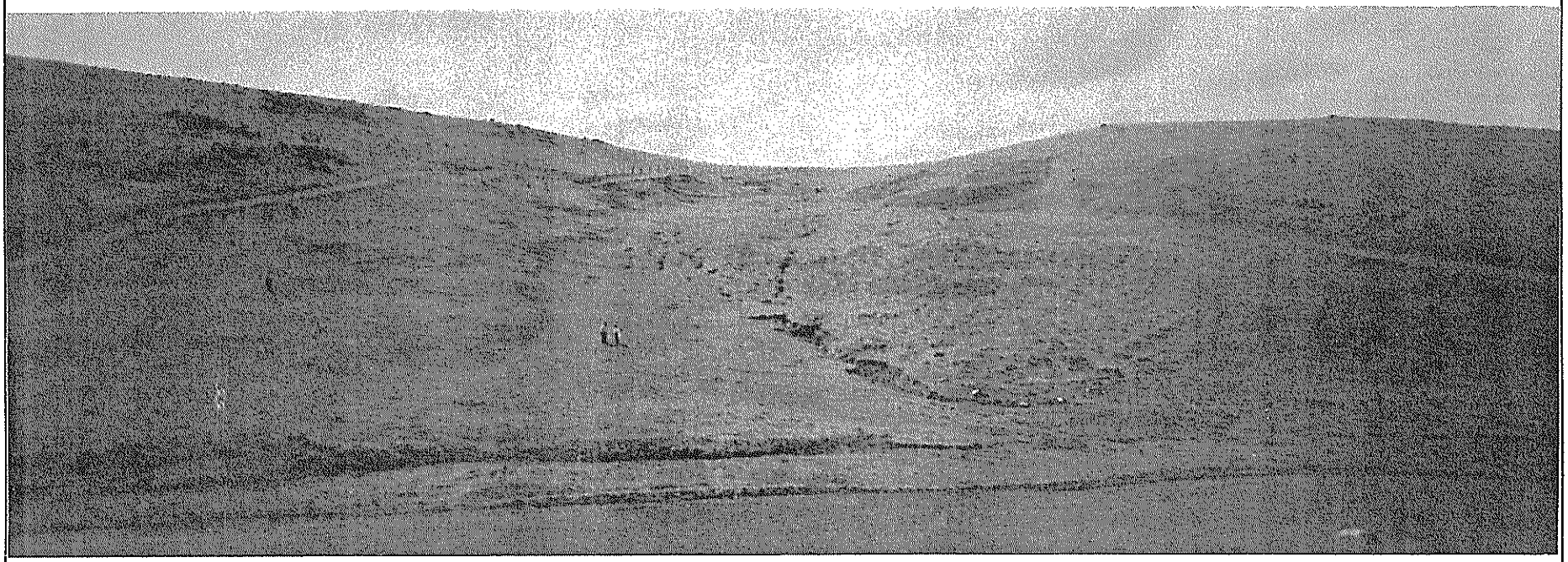
Comparison of Options. Option 1 was determined to have the lowest order-of-magnitude cost estimate of the three. However, option 1 would result in the least amount of refuse capacity (3.3 million cubic yards versus 6.5 million for option 2, and 5.4 million cubic yards for option 3). Option 2, as identified would not provide a visual buffer between its active fill area and Union Mine Road. Option 3 would provide some visual and noise buffers between the fill area and Union Mine Road. The slopes of the canyon for this option are 1:1, which are in excess of the slopes allowed by current regulations. The slopes could be fit with synthetic liners, although it is unknown if this would be acceptable to the regulatory agencies.

All of the optional configurations identified by CH_2M HILL would result in similar impacts to noise, traffic, etc. Impacts to biological resources would also occur for each alternative, although to varying degrees and to different habitats. Impacts to surface and groundwater resources should be generally similar for all of the alternatives.

C. ALTERNATIVE OFFSITE PROJECT LOCATION

This alternative provides an option to the proposed Union Mine Disposal Site expansion through the re-activation of a old landfill site in southwestern El Dorado county. The old El Dorado Hills landfill was identified by the county as a potential site for a landfill development as an alternative to the expansion of the Union Mine Disposal Site.

The old El Dorado Hills landfill is located just to the east of Latrobe Road in El Dorado Hills, approximately 3 miles south of Highway 50. It is situated in a shallow canyon with steep slopes ascending upwards to the east and west and occupies approximately 2 acres (Youngdahl and Associates 1990) (Figure 5-5). The site and surrounding area is generally vegetated with grass species, and contains a few scattered oak trees.



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Photograph of Old El Dorado Hills Landfill Site

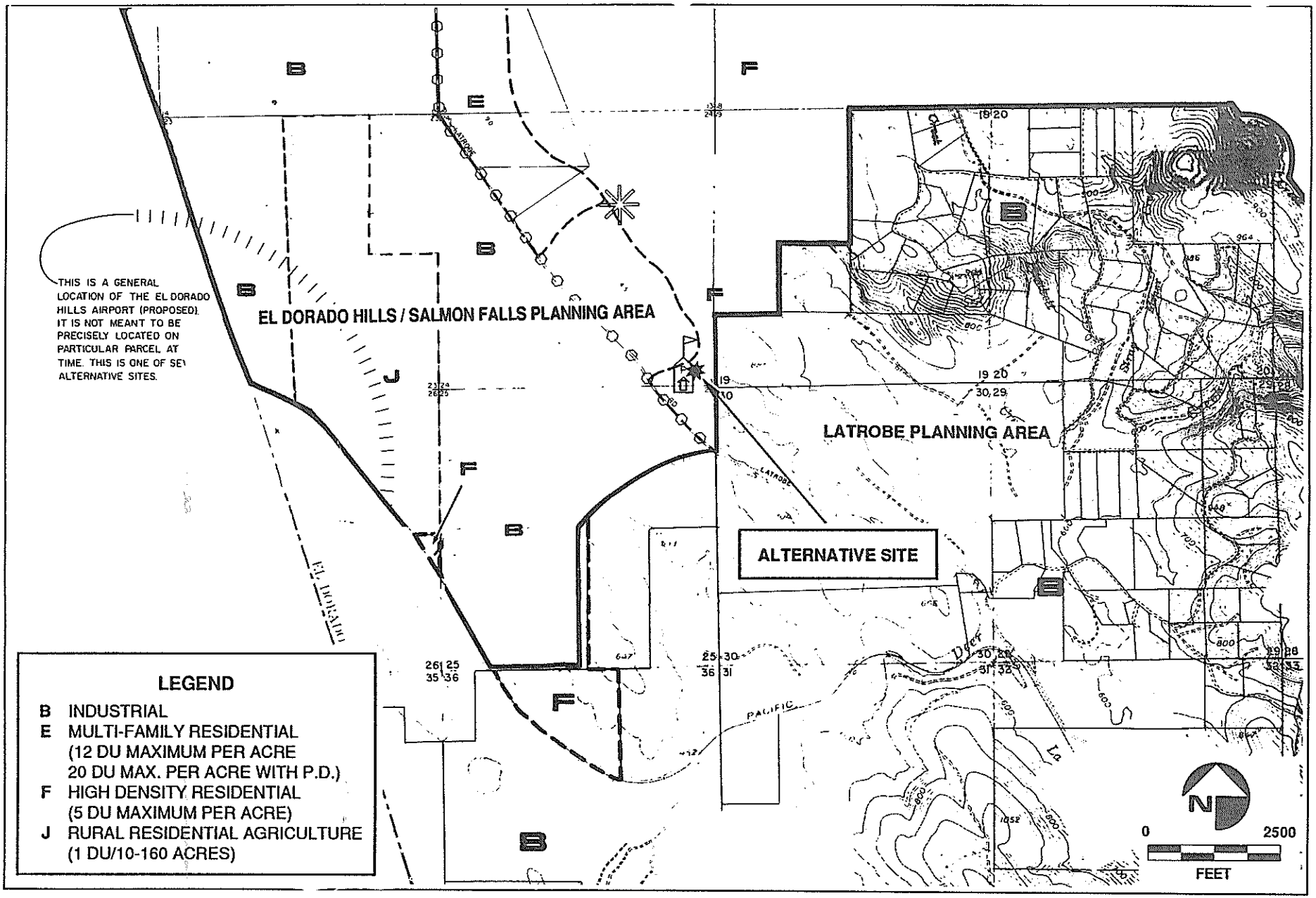
FIGURE 5-5

It is believed that waste disposal operations began at the site in the early 1960s. The County of El Dorado began operations at the site in 1966. While operations were believed to have been limited, no records of the volume of waste material disposed of at the site exist.

The site operated as a burn dump and a landfill. Open burning of accumulated material was done periodically to prevent the build up of flammable materials. Open burning operations were believed to have taken place until 1971, when they were prohibited. The operations ceased in October 1971, and the site was subsequentially covered and graded.

The El Dorado Hills Landfill site is located in the El Dorado Hills-Salmon Falls planning area, just to the northwest of the Latrobe planning area. The area is currently sparsely developed, with the exception of recent industrial and research and development (R&D) construction to the northwest. The county's zoning maps show the site zoned RE-10 for estate residential development (1 dwelling unit per 10 acre minimum) (Figure 5-6) (El Dorado County 1991b,c). However, the county's land use maps designate the site for high density residential (5 dwelling units maximum per acre) (Figure 5-7) (El Dorado County 1991b,d). The land use maps also show a proposed school site adjacent to the site. Land use designations surrounding the site include a planned R&D complex to the west and northwest, multifamily residential development to the northwest, estate residential development to the east and southeast, and agriculture-residential to the south.

Redevelopment of the El Dorado Hills landfill site for landfilling operations has the potential to result in significant land use conflicts with the surrounding area if the area is built-out to plans. The primary land use conflict would occur if the proposed school is developed adjacent to the site. Significant incompatibilities resulting from landfill operations would include impacts associated noise, health and safety, aesthetics, and traffic. The development and operation of a landfill at the site would also have some incompatibilities with the planned residential and industrial developments surrounding the site. Primarily incompatibility impacts would be associated with traffic, noise, and aesthetics. No geotechnical and hydrological data currently exist for this site by which to make even a preliminary determination with regard to site suitability.



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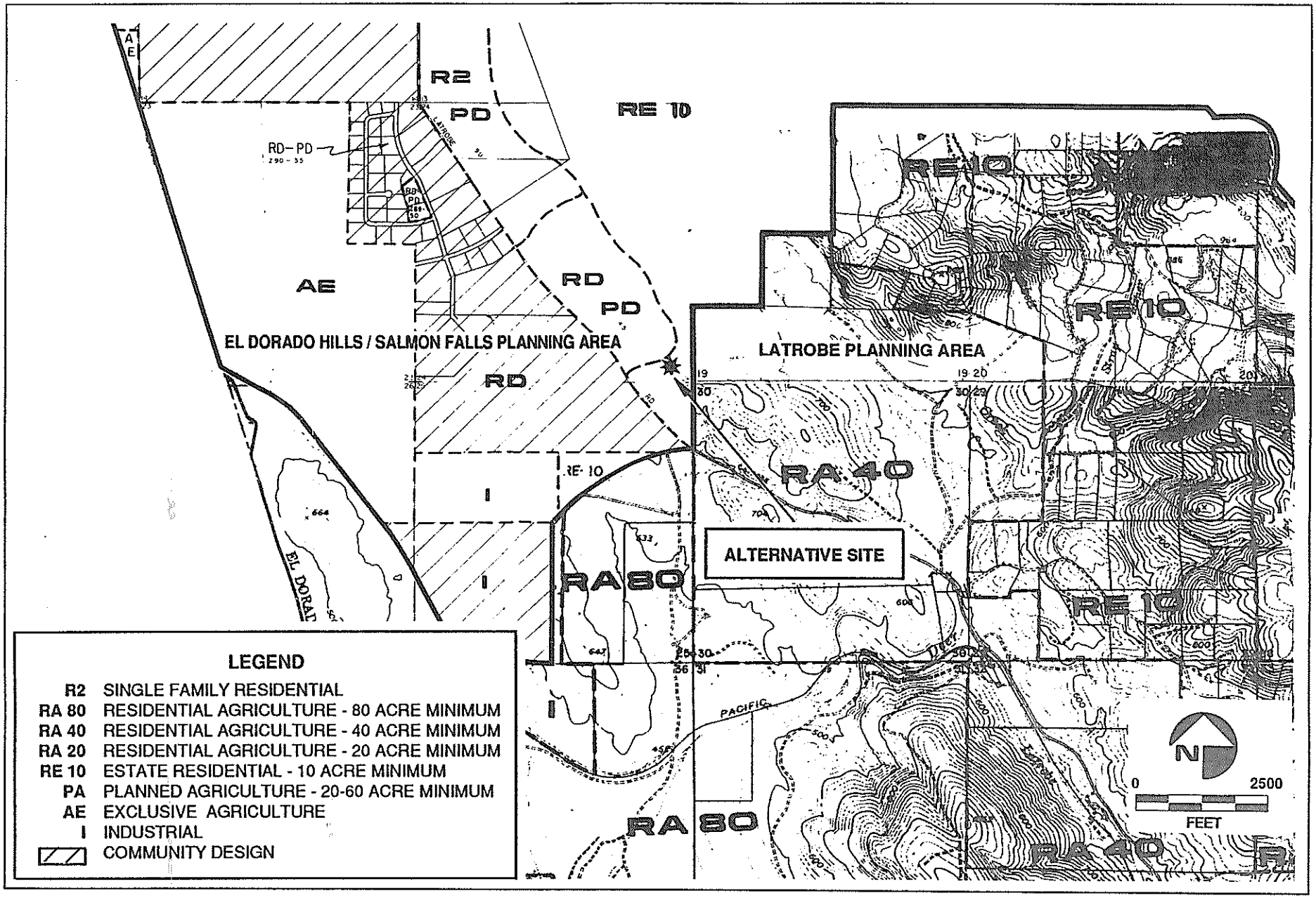
County Land Use Map for Area Surrounding Alternative Site

FIGURE 5-6



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County Zoning Map for Area Surrounding Alternative Site

FIGURE 5-7

The old El Dorado Hills landfill site and surrounding canyon area which is suitable for landfilling is much smaller in size than the suitable area surrounding the existing Union Mine Disposal Site. Development of the El Dorado Hills landfill site would not provide the county with the needed landfill capacity as the Union Mine Disposal Site. In addition, the existing Union Mine site would exhaust its refuse capacity before the El Dorado Hills site could be permitted. An estimated 7 years is necessary to permit a site, and the existing Union Mine Disposal Site is expected to reach capacity within about 5 years. Because no other active landfill sites exist in the county, a solid waste disposal shortfall in capacity would occur if this alternative were implemented.

Locating and constructing a new landfill site to meet the county's waste disposal needs would be responsive to long-term demand, but would fail to provide necessary short-term disposal capacity. Under this alternative, a capacity short-fall would occur between closure of the existing Union Mine Disposal Site and commencement of operations at the El Dorado Hills or other new site. Due to investigative and permitting requirements associated with technical, environmental, and economic evaluation, it is anticipated that approximately 7 years would be required to bring a new landfill site on-line (Figure 5-8). Due to the controversial nature of landfill siting, additional time may be needed. The existing Union Mine Disposal Site is expected to reach capacity in about 5 years (1995). Using the estimate of 7 years to bring a new site on-line, a short-fall of approximately 2-3 years in available refuse disposal capacity would occur within the West Slope Waste Management Area of the county. This capacity short-fall would require transportation of wastes to the Lake Tahoe transfer station or out of the county. As described under the No Project Alternative, transfer of the Union Mine waste stream to other landfills would reduce the operating capacity of those sites, as well as potentially generate a number of adverse environmental effects.

Because this alternative could involve a potential lapse of at least 2-3 years in available landfill space, it is not considered to feasibly attain the stated project objective, and is not considered a viable alternative under CEQA. Additional landfill space is urgently needed, however, to fulfill long term waste disposal needs.

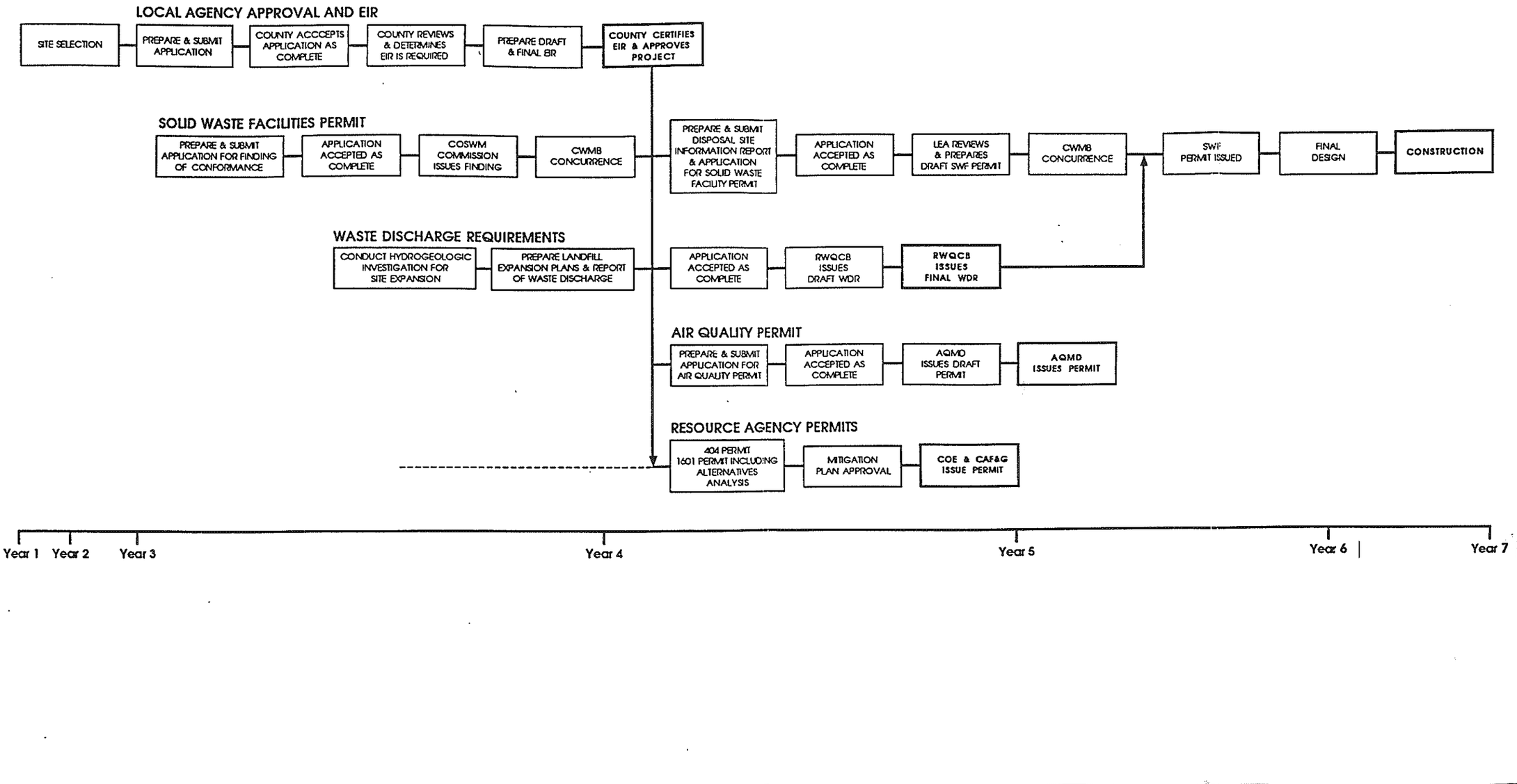
D. WASTE REDUCTION AND ALTERNATIVE TECHNOLOGIES

The completion of a county-wide source reduction and recycling program by mid-1991 is a requirement of the recently passed the California Integrated Waste Management Act of 1989 (AB 939). Although source reduction and recycling are not complete alternatives to the use of solid waste disposal sites, a successful waste reduction and recycling program can reduce the amount of wastes entering the landfills and thereby extend the service life of existing landfills. Section 41780 of the 1989 legislation calls for a diversion goal of 25% of all solid wastes through source reduction, recycling, and composting by 1995, and a diversion goal of 50% of all solid wastes by the year 2000. This alternative describes and evaluates waste reduction techniques and certain waste disposal technologies that could potentially be applied to waste management in El Dorado County. On April 16, 1991, the El Dorado County Board of Supervisors directed County staff to release a RFP (Request for Proposal) to privately finance, operate, site and construct a Materials Recovery Facility (MRF) and three (3) countywide transfer stations strategically located throughout the County to support the MRF. The express goal of this process is to comply with AB 939, reduce local landfilling and to provide recycling opportunities for County residents and businesses.

Source Reduction

Source reduction generally involves the alteration of manufacturing and packaging techniques and a change in consumer purchasing and utilization habits to minimize the amount of waste that is generated. In the United States, a significant reduction in unnecessary disposable items could result in a substantial reduction of the overall waste stream. Specific source reduction techniques which city and county jurisdictions will be evaluating to meet the requirements mandated by the recent Integrated Waste Management Act include:

- increasing the use of recycled materials
- reducing packaging and increase the use of reusable containers
- reduce the generation of yard wastes and encourage composting or other similar measures



ERC Environmental and Energy Services Co.

Class III Landfill Schedule and Flow Diagram

FIGURE 5-8

- purchasing repairable items
- provide economic incentives to reduce waste generation and to recycle materials
- provide convenient recycling programs such as curbside pick up or neighborhood recycling centers
- promote the efficient use of raw and manufactured materials

Mechanical Volume Reduction

Generally speaking, mechanical volume reduction involves physically diminishing waste volumes through compaction, baling, shredding or other similar measures. Mechanical reduction can take place prior to disposal at the landfill or at the landfill site itself.

Compaction: The compaction of wastes can occur one or more times starting from the point of residential, commercial, or industrial generation to final disposal. Typical compaction methods include:

- Compaction units at the waste source such as under the counter garbage compactors in homes, and larger units capable of servicing large business or industrial refuse;
- Compaction of wastes by collection vehicle, which can also maximize load capacities and collection efficiency;
- Compaction of refuse at a transfer station; and
- Compaction at the landfill site during fill operations.

The Union Mine Disposal Site currently uses compactor bulldozers to accomplish compaction as part of conventional landfill operations.

Baling: Baling, or the balefill method, is a special type of compaction whereby waste material is bound into uniform size bales prior to being placed in a fill area.

According to baling equipment manufacturers, baling can result in as much as a 50% reduction in volume and result in substantially increasing the service life of a landfill. Because the amount of waste surface is reduced by baling compaction, the balefill method can also result in a significant reduction in stray litter, rodents and birds (Mosley 1990). If baling occurs offsite of the landfill, economic advantages could include reduced transportation costs due to the high density and uniform bales which increases the efficiency of transport vehicle space. Other segments of the solid waste industry have argued that the balefill method is not without its own problems. Refuse density governs the degree to which the service life of a landfill can be extended. Densities achieved by conventional landfilling range from 1,100 to 1,300 pounds per cubic yard for in-place refuse. Depending on the baling equipment, the balefill method can achieve a refuse density that ranges from 800 to 2500 pounds per cubic yard. Even though the waste is highly compacted (dense), the bales do not resemble perfect blocks. When stacked in the landfill, air space or voids between the bales reduce the effective refuse density by approximately 5%. This 5% reduction, if accurate, would significantly increase the refuse-to-cover material volume ratio over that of a conventional landfill operation. This would mean that daily soil cover requirements could increase substantially. If the additional soil requirements were not available from excavation activities onsite, this soil would need to be imported from an offsite location.

The Union Mine Disposal Site does not currently received baled materials nor does it bale waste on site, and the proposed expansion has no plans to do so. In fact, no solid waste balefill facility currently exists in the entire state of California.

Shredding: Shredding, or the shredfill method, is the process whereby solid waste is shredded prior to placement in a landfill. A shredfill operation in Lewiston, Maine attributed a 35 to 40 percent reduction in waste volume at a city-operated landfill to the shredfill method. The primary advantage of shredding is that it essentially eliminates the need for daily soil cover. If true, this would result in reduced cover material requirements and an extended service life of the facility. The shredfill method has achieved a refuse density of 1,600 pounds per cubic yard. This is somewhat higher than common densities for conventional landfilling, and in the middle of the refuse density range for the balefill method. Potential disadvantages of shredding may include increased wind erosion and wind dispersal. To date, the economics of shredfills as compared to conventional fills

has been discouraging. It is possible that future conditions will result in a greater emphasis on the value and benefits of extending a landfill's service life, maximizing transport vehicle densities, and reducing daily cover requirements. Such a shift could serve to offset the relative additional costs of both baling and shredding.

Resource Recovery

Resource recovery includes the salvaging of recyclable or valuable materials from the waste stream prior to disposal. Resources which can be recovered include reusable materials, energy in the form of landfill gas or through the incineration of wastes (refuse to energy process), and organic matter through composting.

Recycling: Recyclable material includes paper, glass, aluminum, copper, iron and other ferrous metals, cardboard, some plastics, construction debris and green garden wastes. The most cost-effective recycling program is one that captures recyclables before refuse is deposited in the municipal waste stream. AB 2020, also known as the "Bottle Bill", requires that a beverage container redemption center be in operation within one half-mile of a major grocery store. This measure, along with the recycling center in place at the Union Mine Disposal Site and privately-owned redemption centers, provide the public with easy and convenient disposal options for recyclable materials. While many recycling centers are government subsidized, the use of recycled materials is beginning to be more economical than producing new products, and may produce fewer adverse environmental effects than producing products from raw materials. A small recycling and salvage center is currently in operation at the disposal site. El Dorado Disposal Inc., the operators of the Union Mine Disposal Site, recovered and recycled approximately 130 tons of materials brought to the landfill in 1988 (El Dorado County 1989). This included 45 tons of glass, 35 tons of aluminum, and 50 tons of newspaper. In 1990, the recycling operations recovered more than 182 tons of aluminum, 475 tons of glass, and 14 tons of plastic through the on-site buy back center. In addition, approximately 303 tons of miscellaneous metals (aluminum, copper, brass, iron, etc.) were recovered through the active salvaging operations at the landfill.

Composting: The composting of all green garden wastes (a process where organic wastes decompose biologically into a stable nutrient rich humus-like material) can

potentially reduce the residential waste stream by up to 30% and the commercial waste stream by 6%. Compost can be used as a soil amendment and may potentially be used as a daily soil cover in landfills. Since most citizens would not like to have a compost pile in their backyard, an organized collection system would be needed to achieve a high diversion rate. This would require that residents separate their recyclables and garden wastes from their other household wastes. At the present time there is not a market available in the El Dorado County area which is capable of consuming the quantities of compost which potentially can be produced. Once such a market is realized, composting programs would constitute a significant element of overall waste reduction. Compost could be sold for use as a soil enhancement, could potentially be used onsite as daily cover, or could augment the soil used for daily cover.

Burning of Landfill Gas: The methane and other gasses produced by the decomposition of buried refuse can be effectively collected and burned for energy. This alternative is currently utilized at several landfills in the state. The existing Union Mine Disposal Site does not have an operating gas extraction system and does not currently produce enough landfill gas to necessitate an extraction system. However, landfill gas may be produced in sufficient quantities after the proposed expansion. A landfill gas energy facility could then potentially be developed.

Incineration: Another method of converting waste to energy involves the direct incineration of wastes. Incineration can reduce the waste volume by 80 to 95% and is the most effective method known for reducing refuse volumes. Incineration, or mass burn, is also highly controversial. Particular concerns have been raised about possible health effects associated with the air emissions and the ash component of the residue. Because the El Dorado County area is in nonattainment for several air emissions, permitting agency approval and public acceptance of a process which could result in further air quality degradation is unlikely. Once air pollution control systems are available that can convincingly demonstrate that no negative effects would occur, this alternative may become a viable option.

The alternative waste reduction technologies described above are not considered viable alternatives to the proposed project in and of themselves. That is, none of these techniques (alone or in combination) can completely offset the need for additional landfill capacity. However, these alternative waste reduction

technologies are capable of extending the operational capacity of landfills as well as reducing the need for further expansion and/or establishment of new landfill sites. If the AB 939's waste diversion goals of a 25% reduction in wastes entering landfills by 1995 and a 50% reduction by 2000 are met, significant landfill capacity would be conserved. It is the conclusion of this EIR analysis that alternative waste reduction technologies should be employed to the maximum extent feasible. In contrast, technologies such as incineration are not realistic options at this time due to the debate over health and air quality concerns.