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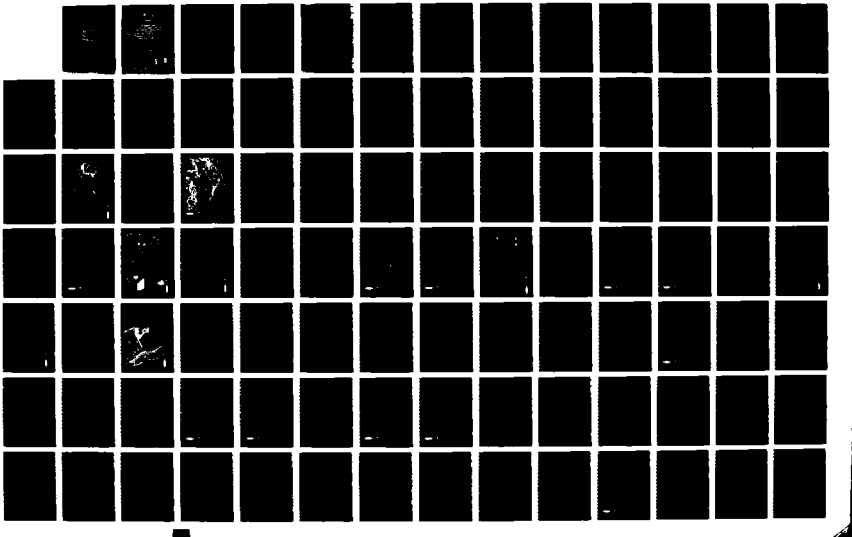

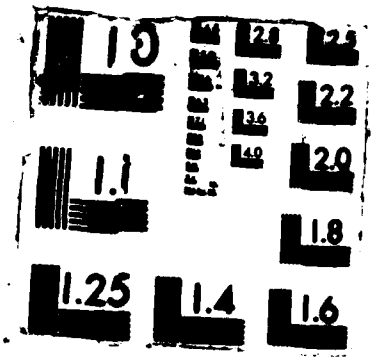
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Supplemental Environmental Impact Statement/ Environmental Impact Report for the Proposed Marathon Industrial/Commercial Business Center Tract 5167 Hayward, California

Prepared for:
City of Hayward
Planning Department
and U.S. Army Corps of Engineers
San Francisco District

DTIC ELECTE JUL 1 0 1987 S D E

June, 1987

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Joint State/Federal environmental impact document concerning a regulatory permit application by Marathon U. S. Realties, Inc. under Section 10 of the River and Harbor Act of 1899 and Section 404 of the Clean Water Act. The proposed project involves a non-water oriented industrial/business development with public utilities, and habitat mitigation.

(Keywords:

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SUPPLEMENTAL

ENVIRONMENTAL IMPACT STATEMENT/

ENVIRONMENTAL IMPACT REPORT

FOR THE

PROPOSED MARATHON INDUSTRIAL/

COMMERCIAL BUSINESS CENTER

TRACT 5167

HAYWARD, CALIFORNIA

Prepared for:

City of Hayward Planning Department
and
U.S. Army Corps of Engineers
San Francisco District

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June, 1987

Prepared by:

EARTH METRICS INCORPORATED
859 Cowan Road
Burlingame, CA 94010
(415) 697-7103

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COVER SHEET

ADMINISTRATIVE DRAFT
SUPPLEMENTAL EIS/EIR
PROPOSED MARATHON INDUSTRIAL/COMMERCIAL
BUSINESS CENTER TRACT 5167
HAYWARD, CALIFORNIA

ABSTRACT

Marathon U.S. Realties has requested a permit from the Army Corps of Engineers to fill a 134 acre site for the development of an industrial/commercial business center, and to develop two nearby sites (totaling 90 acres) as seasonal wetlands. This is in conjunction with a requested subdivision of the 134 acres into 65 lots, under the California Subdivision Map Act with Hayward as Lead Agency.

The proposed industrial/commercial business center site is located mostly in the City of Hayward, bordered on the north by the existing Bockman Canal, on the east by the Southern Pacific Railroad embankment, and on the south by the Sulphur Creek levee, and on the west by lands of the East Bay Regional Park District and Oro Loma Sanitary District.

A Draft EIS/EIR for the proposed Marathon Tract 5167 development was prepared in October 1985 by TRS Consultants Incorporated. A large number of critical responses were subsequently received during the public review period. As a result, it was judged by the lead agencies that considerable additional environmental analysis was required, particularly in the area of mitigation for loss of wetlands on the project site. This Supplemental EIS/EIR, prepared by Earth Metrics Incorporated, integrates material judged to be acceptable in the old report with the results of extensive additional work subsequently carried out under the direction of the lead agencies.

APPLICANT

Marathon U.S. Realties, Inc.
595 Market Street
Suite 1330
San Francisco, CA 94105

LEAD AGENCIES AND JURISDICTIONAL AUTHORITY

U.S. Army Corps of Engineers
(Application #15483E49)

- Section 10 Permit (Rivers and Harbors Act)
- Section 404 Permit (Clean Water Act)

City of Hayward

- EIR/EIS Certification
- Tentative Map and Final Approval
- Grading and Building Permits

LEAD AGENCY CONTACTS

Mr. Les Tong
EIS Coordinator
Environmental Branch
U.S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105
(415) 974-0439

Mr. Ron Gushue
City of Hayward
Planning Department
22300 Foothill Boulevard
Hayward, CA 94541
(415) 581-2345

REVIEW PERIOD

The Draft Supplemental EIR/EIS has a 60 day period for public review. All written comments must be submitted to one of the designated lead agency contacts by 28 AUG 1987.

1. SUMMARY

1.1 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The proposed project is an industrial/commercial development on 134 acres in the City of Hayward and the enhancement of two nearby wetland parcels as mitigation for wetland losses on the 134 acre site. The project sponsor and permit applicant is Marathon U.S. Realties, Incorporated. The enhancement parcels are owned by the Hayward Area Recreation and Parks District (HARD), which has entered into an agreement with the project sponsor for wetland enhancement on its properties.

Each permit application has an applicant's purpose and need and a public purpose and need. In most cases, when an EIS is required and the applicant is not a governmental body or agency, the applicant is a member of the private sector engaged in providing goods or services for profit. In the case of the proposed Marathon development, the applicant's purpose is to receive requested permits to subdivide all or a portion of the 134 acres, to build the necessary infrastructure, and to sell the parcels to industrial builders for profit. In addition, the applicant proposes to replace wetlands lost on the project site by improvement of the two HARD parcels or by dedication and/or enhancement of other parcels identified as mitigation alternatives in this report.

The potential public benefits associated with the proposed development are: 1) additional industrial/commercial development which would create employment for local residents and 2) the maintenance, or possibly the enhancement, of wetland habitat values in the project area.

1.2 ALTERNATIVES INCLUDING THE PROPOSED ACTION

The following alternatives are discussed in detail in this Supplemental EIS/EIR:

Alternative 1. Project as Proposed by Applicant. Marathon U.S. Realties, Inc. (Marathon) is proposing development of a 134 acre site for industrial/commercial business uses and enhancement of two nearby sites as seasonal wetlands to mitigate the loss of wetlands on site. The proposed site plan is shown in Figure 3.2-3. The proposed enhancement plan is shown in Figure 3.2-4.

Alternative 2. Proposed Project With Alternative Mitigation. Under Alternative 2, no enhancement actions would be undertaken on HARD parcels A and B for mitigation of wetland losses on the project site. Instead, approximately 90 acres of wetlands would be provided for mitigation through purchase and dedication (to a public agency) of existing wetlands under private ownership, or through active enhancement (and purchase, where the site is currently privately owned) of nonwetland or low value wetland areas.

2a. OFF SITE ENHANCEMENT/RESTORATION. The following sites have been identified by the applicant as potential sites for mitigation through creation of new seasonal wetlands in areas of little present habitat value:

2ai. Flood Control/Pacific FM site.

2aii. PACCAR Peterbilt Company site.

Site 2ai comprises a total of 161.51 acres in Hayward between, and to the south of, the HARD A and B parcels. Ownership of 116.04 acres is held by the Alameda County Flood Control and Water Conservation District (ACFCWCD) and 45.47 acres by Pacific FM Incorporated. Site 2aii comprises 34.36 acres in the City of Newark. The site is also an elevated (approximately ten feet MSL) former landfill area. As the site is currently privately owned, purchase and dedication by the project applicant would be required prior to wetland restoration. The proposed wetland restoration actions on sites 2ai and 2aii involve capping and venting of the old landfill areas followed by development of extensive shallow seasonal ponding areas for wildlife and waterfowl use.

2b. OFF SITE PURCHASE AND DEDICATION ONLY. The sites listed below have been identified as potential mitigation sites through simple purchase and dedication of acreage equivalent to that of wetlands lost on the project site. No, or minimal, habitat restoration actions are proposed because the presence of existing wetland habitat values on the sites is recognized.

2bi. Oliver Brothers property near State Route 92. (Oliver Salt Pond)

2bii. Oliver Brothers property north of Alameda Creek. (Oliver Hay Farm)

2biii. Patterson Ranch Lands parcels A, B, C and D.

Site 2bi comprises a total of 188 acres in Hayward and is presently dominated by shallow salt ponds. Site 2bii, comprising 130 acres in Hayward, is a diked historic bayland currently used for hay production. The Patterson Ranch Lands parcels (site 2biii), comprising a total of 600 acres in Fremont, are also diked historic baylands and are presently used for grazing and open space. Possible enhancement actions proposed for mitigation areas within sites 2bi, 2bii, and 2biii include breaching of marginal inboard levees and/or pumping in of water from local sources to promote seasonal freshwater inundation.

2c. PAYMENT IN LIEU TO A LAND BANK AGENCY. Under this alternative the project applicant would not acquire or improve off site mitigation areas but would provide funds directly to an open space land bank agency. The selected agency could then proceed with purchase and/or restoration of wetlands elsewhere in the south bay area. The payment in lieu alternative is likely to be feasible only if the land bank agency is able to identify an acceptable site prior to final approval of the proposed project. The applicant has identified three agencies potentially capable of facilitating a payment in lieu program: the Peninsula Open Space Trust, the Trust for Public Land and the East Bay Regional Parks District.

Alternative 3. Reduced Scale Development. Under alternative 3, the extent of site development would be limited to allow preservation of a portion of valuable wetlands on the project site. The proposed levee along the western margin of the site would not be built. Off site mitigation strategies would be the same as outlined in alternative 2 except that the required acreage of mitigation land (or in lieu fee) would be reduced commensurate with reduced on site wetland losses.

3a. DEVELOPMENT LIMITED TO 104 ACRES. Approximately 104 acres would be developed leaving 30 acres west of the western part of the loop road as undeveloped wetlands.

3b. DEVELOPMENT LIMITED TO 74 ACRES. Only 74 acres would be developed as industrial business park leaving approximately 60 acres of seasonal wetland as open space. Of this open space approximately 40 acres would lie along the western margin of the property and a 20 acre area at the north end of the site near Bockman Channel would also remain undeveloped.

Alternative 4. Acquisition of the Site by a Public Agency. Under this alternative the applicant would sell the property, "as is," to a public agency at a fair market value. The Trust for Public Land has indicated potential interest in the purchase of the property for a mitigation land bank. The site would remain undeveloped. Enhancement might be provided by a public agency or it could be developed as a park or for recreation use depending on which agency purchased the site.

Alternative 5. No Action. Under this alternative the industrial/commercial development and enhancement of the HARD parcels would not be undertaken. The site and mitigation parcels would remain in their current state for the foreseeable future.

1.3 MAJOR ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

The following discussion presents a summary of major environmental impacts associated with the proposal and alternatives, followed by recommended mitigation measures. Significant impacts which cannot be mitigated are discussed in Section 5.

LAND USE

Alternative 1. Project implementation would result in a shift in land use on site from vacant, low intensity agriculture to industrial and commercial, which is consistent with the City of Hayward General Policies Plan and the Zoning Ordinance. The proposed land use appears compatible with existing industrial land uses south and east of the site. Approval of this project is not expected to result in cumulative development and pressure on other parcels in the study area, since they are already planned and zoned for similar development.

The proposal would also modify the existing characteristics of both the HARD parcels. The plan proposes modifying these parcels through regrading their edges, providing drainage ditches, and discharging water to enhance them for wetland habitats. While these activities would change the biological characteristics of the parcels, their land uses would not be affected as they would both remain as undeveloped marsh areas.

Alternative 2. The utilization of any of sites 2ai, 2aii, 2bii and 2biii (A, B or C) as alternative wetland mitigation sites would be consistent with present General Plans and zoning. The designated open space use of these sites would remain the same. Wetland use of the site would preclude any present agricultural use such as grazing.

Alternative 3. Land use impacts of reduced density development on the project site would be similar to that of the proposed project (Alternative 1) though intensity of new industrial land use on the site would be reduced. Approximately 104 acres would be developed in Alternative 3a and 74 acres in

Alternative 3b. Such development would be consistent with the Hayward General Plans and the present zoning designation.

Alternatives 4 and 5. The No Action and Acquisition by a Public Agency Alternatives would result in a continuation of the status quo for both Tract 5167 and the mitigation parcels; therefore, no mitigation measures are necessary.

VEGETATION AND WILDLIFE

Alternative 1. Alternative 1 would result in placement of fill material and construction grading over the entire 134 acre site. Approximately 90 acres of Category 2 seasonal wetlands subject to jurisdiction of the Corps of Engineers under Section 404 of the Clean Water Act and 44 acres of upland vegetation would be lost. Development of the site with proposed Business Park use would result in significant adverse impacts to migratory waterbirds and waterfowl through loss of a valuable seasonal wetland habitat area used for feeding, resting and nesting for numerous species. Development of the project site without mitigation would contribute to the cumulative loss of seasonal salt marsh habitat both locally (loss representing one percent of all wetland types, but 20 percent of all seasonal salt marshes in Hayward's shoreline) and regionally (development of the site would contribute to the loss of approximately two percent of the 4,155 acres of known privately owned seasonal wetland habitat in Alameda and Santa Clara Counties).

A biological assessment prepared in May, 1987 by the Corps of Engineers has concluded (based on a review of existing information including that provided by Harvey and Stanley along with Howard Shellhammer) that the proposed Marathon Industrial Park would not directly affect the endangered salt marsh harvest mouse. The Corps has prepared a biological assessment with a determination of no direct effect on the mouse, which will be provided to the USFWS in accordance with the Endangered Species Act. It is the stated position of CDFG that since the species is known to be present on the adjacent EBRPD property in a marsh continuous with that of the project site, the mouse is likely to be present on the project site. The Corps points out that the USFWS believes that maintenance of even "marginal" habitat areas are important to the recovery of the salt marsh harvest mouse and must be considered.

Alternative 1 includes offsite wetland enhancement as mitigation for project site wetland losses. This mitigation measure would involve the enhancement of seasonal wetland habitat values on the two HARD Parcels neighboring Sulphur Creek by allowing them to remain wetter longer via water management. HARD Parcels "A" and "B" currently support seasonal wetland habitat similar to the project site. In terms of wildlife habitat, the HARD parcels have the highest existing value of the candidate mitigation sites, but differ from the project site; both parcels are at a slightly lower elevation, have monotypic saltmarsh habitat characteristics, and provide habitat primarily for shorebirds.

Enhancement of these individual parcels would provide smaller acreage than the project site with lower habitat diversity. In addition, the existing wetland value of the HARD parcels will be lost by altering the water regime of these sites. Mitigation of this type would, therefore, result in a net habitat loss. Also the HARD parcels provide potentially suitable habitat for the endangered salt marsh harvest mouse, and if the mouse was present, enhancement

of the habitat on these mitigation parcels could adversely affect the habitat for the endangered species by increasing the duration of inundation.

Alternative 2. Alternative 2 considers three mitigation options; (2a) enhancement or restoration of wetland mitigation parcel, (2b) purchase and dedication of existing wetland parcels or (2c) payment in lieu (for unspecified mitigation land) to a public land bank agency.

Alternative 2ai and 2aii. Utilizing one, or a combination of the Alameda County Flood Control District/Pacific FM parcel and the PACCAR/Peterbilt parcel, the mitigation plan would create new seasonal wetlands on top of historic garbage dumps. The plan would involve first capping the existing elevation with an impermeable material, creating borders to hold water on the top, planting appropriate vegetation, and possibly pumping water in the winter months to increase the inundation. The habitat analysis indicates that the two landfill sites have a limited potential for developing values (via management) similar to the project site. This result was due to the inherent artificial natue of being perched (elevated) on top of a capped landfill area, therefore significantly reducing their interrelated value in association with adjacent areas (e.g., association with surface and ground waters, ability to trap sediments is lost or quite low). Furthermore, the technology required to convert a landfill to a capped, functional wetland is, as yet, unproven. The landfill sites' value for mitigation is questionable because of their inherently artificial nature, requirement for intensive management and elevational and edaphic differences. The Alameda County Flood Control District indicated in December, 1986 that these parcels are not available to Marathon for mitigation purposes.

ALTERNATIVE 2bi. Under this alternative, the Oliver Salt property would be purchased by Marathon and dedicated to a public resource agency. Marathon is also currently developing a mitigation plan for agency review that involves reintroducing tidal action to the property. They are also exploring the potential of raising the bottom elevation of the salt ponds to the point where seasonal habitat values, like that which exist on the proposed project site, could develop. The Oliver Salt property was formerly subject to tidal action and presently provides high value intertidal shallow bottom habitat with isolated patches of upland vegetation on dike tops. This mitigation alternative could provide sufficient replacement acreage for project wetland losses, but would displace high value existing habitat on the Oliver Salt property for seasonal wetland created with the implemented mitigation. The Oliver Salt property would require minimal management once fill material was placed and graded or that the area was opened to intertidal flows. Use of this parcel for wetland mitigation would result in a net loss of seasonal habitat.

ALTERNATIVE 2bii. The mitigation measure here would be for Marathon to acquire and dedicate the Oliver Hay Farm property to a public resource agency, cease the agricultural operations on the property, and allow it to revert to a seasonal wetland. The Oliver Hay Farm property was historically an intertidal area which was diked for agricultural use. A portion of the site supports a diked saltmarsh, and presently, the property is under cultivation but has potential as seasonal wetland under proper management. This property could provide similar acreage as the project site losses in replacement for wetland mitigation losses and would be appropriate for in-kind mitigation

requirements. The Oliver Hay Farm property has been rated low for existing wildlife habitat values but has a potential for high wildlife habitat values if restored. The Oliver Hay Farm has an existing duck club operation, complete with pumps, a drainage system, and tide gates in place. For mitigation purposes the existing system could be expanded and the hydrologic regime modified. This property would require minimal management once the desired seasonal wetland habitat conditions became established. Successful achievement of Category 2 habitat conditions is largely dependent on cessation of farming and grazing operations, allowing for wetlands hydrology conditions to occur, and removing the potential for the sites to be developed as industrial, commercial or residential properties.

Alternative 2biii. This mitigation plan would involve the acquisition by Marathon and dedication to a resource agency, of a portion of the Patterson Ranch holdings in Fremont and allowing the agricultural lands to revert back to a seasonal wetland condition. The Patterson parcels once supported seasonal wetland habitat but are presently under cultivation with low wildlife habitat value. These parcels have high habitat potential as a seasonal wetland under proper management. It is expected that restoration of these parcels would require minimal management once the desired seasonal wetland habitat conditions become established. The successful achievement of Category 2 habitat conditions depend on the discontinuance of farming and grazing operations. The Patterson parcels could be used to satisfy in kind mitigation requirements. In addition, this ranch has an existing drainage system that could readily be used for seasonal wetland conversion purposes. Use of the Patterson parcels as replacement Category 2 seasonal wetland habitat mitigation to provide "no net loss of habitat" would provide a greater increase in habitat values than the present agricultural use.

Alternative 2c. Under this alternative the project applicant would not acquire or improve off site mitigation areas but would provide funds directly to an open space land bank agency. The selected agency could then proceed with purchase and/or restoration of wetlands elsewhere in the south bay area. It is well known that there is little mitigation land in the area which is available for purchase at a reasonable price. Therefore, the payment in lieu alternative is likely to be biologically feasible only if the land bank agency is able to identify an acceptable site prior to final approval of the proposed project. Until an appropriate mitigation site is selected by one of the agencies capable of facilitating a payment in lieu program, it cannot be demonstrated that "no net loss of habitat" can be successfully accomplished.

Alternative 3. Under Alternative 3, the extent of site development would be limited to allow preservation of a portion of valuable wetlands on the project site. Alternative 3a proposes site development of 104 acres with 30 acres to remain as wetland. Alternative 3b proposes a 74 acre site development with 60 remaining wetland acres. The proposed levee along the western margin of the site would be moved inland to the edge of the developed lots in Alternative 3a. Off site mitigation strategies would be the same as outlined in Alternative 2 except that the required acreage of mitigation land would be reduced commensurate with reduced on site wetland losses.

Alternative 4. Alternative 4 considers acquisition of the site by a public agency. Under this alternative the applicant would sell the property, "as is," to a public agency at a fair market value and that the site would remain

undeveloped wetlands. The Trust for Public Land has indicated potential interest in the purchase of the property for a mitigation land bank. Enhancement might be provided by a public agency or it could be developed as a part or for recreation use depending on which agency purchased the site. Mitigation parcels would not be enhanced under this alternative and would remain in their existing condition.

Alternative 5. Under Alternative 5 the industrial/commercial development and enhancement of the HARD parcels would not be undertaken. The seasonal wetlands of the site and mitigation parcels would remain in their current state.

Based on the results of the functional value assessment of the project site and mitigation parcels, the following recommendations are made. If agency mitigation requirements are to insure that no net habitat loss is achieved, then the Oliver Hay Farm, and Patterson Ranch Parcels "A", "B", "C" and "D" or similar type sites should be pursued for mitigation to offset the loss of the proposed project. If in contrast to stated policy it is determined by resource agencies that it is in the "public interest" to acquire more intertidal habitat via mitigation for the loss of seasonal wetland habitat then the Oliver Salt Property or similar sites should be considered. Mitigation parcels requiring potentially long term or continual intensive management or maintenance due to highly artificial conditions should be avoided. These include the former landfill sites, Alternative 2ai (Flood Control/Pacific FM parcel) and Alternative 2aii (PACCAR/Peterbilt parcel). (See Table 4.2-2 for in-kind and no net loss of habitat determinations for each mitigation parcel.)

TOPOGRAPHY, SOILS, GEOLOGY AND SEISMICITY

Alternatives 1, 2a, 2b, 2c, 3a and 3b. The high expansion characteristics of the near surface soils on the project site are anticipated to be the controlling factor in the final determination of design criteria for project structures. The high expansion properties of soils throughout the project site create a significant potential hazard to structures and can be mitigated by avoiding the placement of shallow footings directly in the expansive soils. Special engineering measures would be required during development.

The placement of compacted fill on the project site would require proper engineering techniques. Slabs on grade, if not properly reinforced, could experience settling and/or cracking and if not properly supported could settle away from the building itself.

The geologic setting poses seismic hazards to the proposed project; however, the hazards are similar to those in seismically active areas throughout California. The primary potential seismic hazard to the proposed development is ground shaking. There is a high probability that the project area would experience severe ground shaking during the design life of the project structures. Shaking may result in differential settlement causing extensive damage to buildings, parking areas, roadways and utilities. Ground shaking hazards can be mitigated by proper site selection, and proper design of earthwork and foundations.

Lateral spreading is a type of earthquake induced ground failure involving the lateral movements of near horizontal alluvial materials toward an exposed face, usually the banks of a stream channel. There is a potential for lateral spreading to occur along Sulphur Creek on the project site. Proper engineering design can mitigate this potential hazard.

Alternatives 4 and 5. Existing surface soils and topography would remain unchanged into the foreseeable future on the proposed site and proposed and alternative wetland mitigation sites. Since these alternatives do not include development of the site, seismic damage due to liquefaction, spreading and compaction will be minimized in the No Project Alternative and the acquisition of the project site by a public agency. Alternatives 4 and 5 are esentially no action alternatives; therefore, they do not require mitigation.

HYDROLOGY AND WATER QUALITY

Alternatives 1, 2a, 2b, and 2c

SURFACE DRAINAGE. Construction on the site under the full scale development alternatives (1 and 2) would result in increased impervious surface coverage for roofs, sidewalks, and parking area. This increased runoff is expected to increase erosion of exposed soils over the site and along the banks of existing drainage channels; mitigation measures will be required to ensure such impacts remain at insignificant levels. Existing drainage patterns would be modified by the construction and operation of an underground drainage system. Storm water would be collected by a gravity system on a lot-by-lot basis and fed under Sulphur Creek to the lift station for the development south of Sulphur Creek. This lift station is sized to handle the maximum flows from the proposed development. From the lift station, the runoff could be pumped over the levee on the south side of Sulphur Creek into the creek channel or to nearby wetland enhancement parcels.

Implementation of the proposed drainage system would have the effect of reducing the existing water supply to valuable seasonal wetland areas on the EBRPD property to the west of the project site. It is recommended that a hydrological study be undertaken and appropriate mitigation measures be implemented to ensure that the magnitude and duration of surface drainage from Tract 5167 to the EBRPD property is maintained.

Enhancement of off site wetland mitigation areas under Alternatives 1 and 2a would result in modifications of surface drainage patterns on these sites. HARD parcels A and B would be graded, followed by development of shallow seasonal ponding area. Any alteration of surface drainage would require approvals by the ACFCWCD, for utilization of the lift station, and by the RWQCB and for diversion and discharge of storm water runoff. The ACFCWCD has taken the position that the lift station should not be used for pumping of water to mitigation parcels. Wetland enhancement on the Flood Control/Pacific FM (2ai) and Paccar (2aii) parcels would involve capping the surface and margin of old landfill areas and subsequent development of elevated seasonal ponding areas on the overlying material. The primary impact of these actions would be the redirection, via pumping, of nearby surface waters onto the sites for promotion of seasonal inundation.

WATER QUALITY. Potential water quality impacts associated with this development include: erosion/siltation during construction, increase in temperatures, and storm water pollutants such as oil, grease, and heavy metals from parking lots, roadways, and impervious surfaces. The potential for erosion and subsequent sedimentation during site preparation would be affected by factors such as the timing and phasing of construction, the degree of vegetation removal, and the effectiveness of erosion control measures. The project's proposed storm water collection system would drain some of the runoff from new roadways and paved areas into Sulphur Creek and into San Francisco Bay and is not expected to significantly increase the quantity of urban runoff pollutants in San Francisco Bay.

Significant negative impacts could result if the proposed enhancement action on the landfill sites fail to contain or isolate sanitary refuse. Pumping of water onto the sites increases the risk of infiltration of water into refuse layers and subsequent generation of leachate, particularly for Alternatives 2ai and 2aii where water is to be retained directly on top of landfill areas. The effect could be severe following large failure of the proposed impermeable liner (constructed either of clay or synthetic materials). Detailed hydrogeological and engineering studies are recommended to develop a sound design plan that will satisfy the regulatory and monitoring requirements of the Regional Water Quality Control Board.

GROUNDWATER. Temporary dewatering measures would result in a localized drawdown of the upper groundwater table. Upper groundwater levels would stabilize after construction. The upper groundwater in the project vicinity contains notable levels of organic halides. Diversion or discharge of construction dewatering liquids to surface waters or mitigation parcels may introduce or exacerbate existing water quality problems. Further tests should be conducted to determine the existing quality of the groundwater table before extraction. Waste discharge requirements issued by the Regional Water Quality Control Board (RWQCB) for discharge of dewatering liquid may be necessary to assure protection of surface waters. Potential problems on the project site related to the existing shallow groundwater condition can be mitigated to insignificant levels by appropriate mitigation measures for placement of fill on the project site.

FLOODING. The proposed project would raise the existing site elevation to a minimum curb height of seven feet MSL. The existing outboard levee in the area, on the EBRPD property west of the project site, was not constructed to standards necessary for protection of an industrial development and has failed in the past. The levees would require engineering approval from the Alameda County Flood Control and Water Conservation District (ACFCWCD). A Corps permit for the levee may be required and, at this time, engineering considerations may be reviewed and commented upon by the Corps of Engineers.

Under Alternative 1, overbank tidal flooding on HARD B would still occur as no improvements are proposed for the levee on the parcel's western edge. Construction of a levee on the western edge of the Flood Control/Pacific FM site (2ai) would eliminate overbank tidal flooding on the site.

Alternatives 3a and 3b

Under the reduced density alternatives, a levee would be constructed which is different from that in the proposed plan. A dike would be constructed on the

western margin of each reduced density site plan. In addition, the site would be protected from flooding in the same way using construction related measures as under the proposed plan. Impacts related to surface drainage, water quality and groundwater would be similar to those for Alternatives 1 and 2 though reduced in an amount commensurate with the reduction in development intensity.

Alternatives 4 and 5. Under the no development alternatives, existing surface water drainage characteristics would remain unchanged into the foreseeable future on the project site and wetland enhancement parcels. No significant changes to current water quality characteristics would occur unless under Alternative 4, a public agency acquiring the project site implemented changes such as elimination of cattle grazing in the site area. No changes in existing groundwater characteristics would occur and current flooding conditions would remain unchanged.

TRAFFIC/CIRCULATION

Alternatives 1, 2a, 2b and 2c. The proposed project is estimated to generate an additional 8,710 average weekday trips (AWT) on the current road system, for a worst case analysis in which there is a trip generation rate of .65 trips per acre. With or without the proposed project, the level of service would be reduced at all intersections in the site vicinity except the intersection of W. Winton Avenue/Corsair Boulevard. The level of service at this intersection would remain the same without the project but would be slightly reduced with the project.

Ramp volumes on Interstate 880/West Winton Avenue interchange are estimated to increase by eight percent during the P.M. peak hour due to Marathon traffic. Since most of these ramps are currently operating under forced flow conditions, there would be no perceptible effect on operational characteristics; the effects would be evidenced by an extension of the area of congestion and its duration. The increases on the more critical eastbound ramps will be six percent; referring to Table 4.5-1, the service level at the intersection of the ramps with Clawiter Road will not exceed LOS D. Mitigation measures include various improvements on Clawiter Road, West Winton Road, Hesperian Boulevard and Baumberg Avenue among others.

Alternatives 3a and 3b. These alternatives would generate an additional 6,760 AWT and 4,736 AWT respectively, to the street system. Due to the reductions in developable area, the level of service would be slightly better at some of the intersections than under Alternative 1.

Alternative 4 and 5. Both these alternatives would result in a continuation of existing conditions. It is important to note that the level of service would be reduced even without the proposed project due to current traffic conditions, general growth in the area, and other currently planned projects.

AIR QUALITY

Alternatives 1, 2a, 2b, 2c, 3a, and 3b. As an increment, the Industrial Park will not have an adverse impact on local or regional air quality, and will not result in violations of State or Federal air quality standards. Construction related activities have the potential to emit dust (particulates) which may

become airborne. Air quality mitigation measures include dust mitigation measures to reduce particulates released into the air during construction activities.

Some emissions of toxic air contaminants may be expected from industry that will locate in this development, and the Oro Loma Sanitary District sewage treatment plant may subject the occupants of the development to occasional odors. Mitigation measures recommended to reduce nuisance odor impacts from the Oro Loma Sanitary District may involve planned or necessary improvements for which the developer may need to contribute a portion if such improvements are outside the constraints of normal operating procedures.

The fill material for the site is also a potential source of air contaminants. Soil contaminated with volatile contaminants such as petroleum products or industrial solvents may produce unacceptable concentrations of air contaminants in buildings built upon it. Soil with high concentrations of radium may similarly produce high concentrations of radon in buildings. Evaluation of fill material for radon and methane could reduce potential indoor air contaminants. It is recommended that any wetland enhancement development on an area underlain by sanitary refuse should include a system for collection and controlled release of methane gas.

Alternatives 4 and 5. These alternatives are essentially no action alternatives; therefore, they do not require mitigation.

NOISE

Alternatives 1, 2a, 2b, 2c, 3a and 3b. Noise impacts associated with the proposed Industrial Park will be produced by construction activity and vehicular noise (particularly trucks). Mitigation measures to minimize noise impacts include proper muffling of construction vehicles and equipment, and restriction of construction and activity time to minimize disturbance to nearby residents. Acoustic recommendations for site planning are also intended to minimize noise to sensitive receptors.

Alternatives 4 and 5. Since alternatives 4 and 5 are essentially no project alternatives, no mitigation measures are required.

PUBLIC SERVICES

Alternatives 1, 2a, 2b, 2c, 3a and 3b. Potential impacts to public services would occur in terms of police services necessary to investigate project related vandalism, burglaries and intrusions of off road vehicles on adjacent East Bay Regional Park District property. Proper environmental design could reduce occurrance of vandalism and burglary. Assistance can be provided by the City of Hayward's Crime Prevention Office. Recommendations include the provision of adequate lighting, burglar alarms and fencing along the property line between the project site and East Bay Regional Park District. Significant impacts in terms of fire protection services, water supply, sewer capacity and storm drainage would not occur.

Alternatives 4 and 5. These alternatives are essentially no action alternatives; therefore, they do not require mitigation.

SOCIOECONOMICS

Alternatives 1, 2a, 2b, and 2c. The proposed full scale project is estimated to result in approximately 4,040 employees. Based on ABAG projections, approximately 85 percent of additional jobs created in Census Tract 4371 in Hayward will be located in the proposed industrial park.

Alternatives 1, 2a, 2b, and 2c would have a beneficial fiscal impact to the City of Hayward; therefore, no mitigation measures are proposed. Alternatives 2a, 2b, and 2c would result in slightly different fiscal scenarios for the developer but revenues and operating costs in relationship to the City of Hayward would remain as in Alternative 1. Under these alternatives, the developer would enhance selected parcels, or purchase and dedicate wetlands or make a payment in lieu to a public land bank agency. The costs involved in the mitigation process may differ according to the selected alternative.

Alternatives 3a and 3b. These alternatives are reduced scale proposals that would result in fewer employees than the proposed project due to a lesser number of acres being developed. Alternative 3a would result in a total of 3,136 employees and Alternative 3b in a total of 2,231 employees. The County's labor supply should be adequate to fill these jobs, and no significant impact on the local housing supply is expected. No mitigation measures are proposed.

Alternatives 4 and 5. Under Alternatives 4 and 5 (purchased by a public agency and no action), the site would remain undeveloped. There would be no employment opportunities created and no change in the local labor market or housing demand. These alternatives would not assist in reducing the City's or County's unemployment rates. No mitigation measures are necessary.

CULTURAL RESOURCES

Alternatives 1, 2a, 2bii, 2biii, 2c, 3a and 3b. No impacts are expected for any of these alternatives because archaeological and/or historic resources are not expected on the project site or alternative wetland sites. Though 2biii is in a sensitive archaeological area, soil disturbances that could impact resources are not proposed.

Alternative 2bi. Alternative 2b proposes mitigation through purchase and dedication of property owned by Oliver Brothers. Structures which exist at the Oliver Brothers Salt Company, just south of the San Mateo Bridge (on mitigation site 2bi), were identified in the transportation corridor study as historically significant.

Because of the significance of the Oliver Brothers Salt Company in the history of the East Bay, the following mitigative measures are suggested. Before wetland mitigation begins on the site, it is suggested that the location of all structures, trolley tracks, and affected levee systems be thoroughly mapped and recorded. Extensive photographs of the area should be taken to record for posterity all aspects of the Salt Company as they now exist. Should mitigation require the draining of the salt ponds in the area of the Salt Company, it is suggested that these areas be given special attention as they may contain historic artifacts relating to the production of salt in the area. Special attention should be paid to ascertaining the eligibility of the site for inclusion in the National Register of Historic Places.

Alternatives 4 and 5. These alternatives are essentially no project alternatives and, therefore, do not require mitigation measures.

1.4 SIGNIFICANT EFFECTS THAT CANNOT BE AVOIDED

Significant effects of the development alternatives (Alternatives 1, 2 and 3) that cannot be avoided include the projects contribution to the cumulative traffic impacts in the general area. Under cumulative buildout some intersections in the project area would operate at LOS F even with mitigation. The proposed project would contribute to the traffic congestion at these intersections that would operate at less than acceptable levels even without development of the Marathon project.

Implementation of a mitigation measure to compensate for on site wetlands losses through a strategy invoking enhancement of former landfill sites (i.e., Alternatives 2ai and 2aii) raise serious questions with regard to the retention of water on top of landfill areas, the generation of additional leachate and consequent water quality concerns. Detailed hydrogeological and engineering studies are recommended to satisfy requirements of the Regional Water Quality Control Board and ensure that significant impacts do not occur.

Without an acceptable off site wetlands mitigation plan, loss of seasonal wetlands of the project site would be a significant unavoidable adverse impact. Areas off site have been identified (see Section 4.2, Vegetation and Wildlife) that could provide sufficient off site acreage of in kind habitat to compensate for wetland impacts. (See Table 4.2-2 for in-kind values of mitigation parcels.)

2. PURPOSE OF AND NEED FOR ACTION

2.1 PURPOSE OF AND NEED FOR THE PROJECT

The proposed project is an industrial/commercial development on 134 acres in the City of Hayward and the enhancement of two nearby wetland parcels as mitigation for wetland losses on the 134 acre site. The project sponsor and permit applicant is Marathon U.S. Realties, Incorporated. The enhancement parcels are owned by the Hayward Area Recreation and Parks District (HARD), which has entered into an agreement with the project sponsor for wetland enhancement on its properties.

Each permit application has an applicant's purpose and need and a public purpose and need. In most cases, when an EIS is required and the applicant is not a governmental body or agency, the applicant is a member of the private sector engaged in providing goods or services for profit. In the case of the proposed Marathon development, the applicant's purpose is to receive requested permits to subdivide all or a portion of the 134 acres, to build the necessary infrastructure, and to sell the parcels to industrial builders for profit. In addition, the applicant proposes to replace wetlands lost on the project site by improvement of the two HARD parcels or by dedication and/or enhancement of other parcels identified as mitigation alternatives in this report.

The potential public benefits associated with the proposed development are: 1) additional industrial/commercial development which would create employment for local residents and 2) the maintenance, or possibly the enhancement, of wetland habitat values in the project area.

2.2 PURPOSE OF AND NEED FOR AN EIR/EIS

The Supplemental Environmental Impact Report/Environmental Impact Statement (EIR/EIS) has been prepared to meet both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). Compliance with NEPA is required due to the Federal permitting activity of the U.S. Army Corps of Engineers. The applicants have applied for a Corps permit pursuant to Section 10 of the River and Harbor Act (RHA) of 1899 (33 USC Section 403) and Section 404 of the Clean Water Act (CWA) (33 USC Section 1344) which pertains to the discharge of dredged of fill material into waters of the United States. The Corps has required the preparation of an EIS based upon its determination that the proposed project would have significant effects on the environment.

The City of Hayward has determined that an EIR would be required for the project on the basis of an Initial Study prepared for this site and adjacent Tract 4975 in 1982, which indicated potential significant effects of development on the proposed site.

A Draft EIS/EIR for the proposed Marathon Tract 5167 development was prepared in October 1985 by TRS Consultants Incorporated. A large number of critical responses were subsequently received during the public review period (Appendix B). As a result, it was judged by the lead agencies that considerable additional environmental analysis was required, particularly in the area of mitigation for loss of wetlands on the project site. This Supplemental EIS/EIR, prepared by Earth Metrics Incorporated, integrates material judged to

be acceptable in the previous document with results of extensive additional work subsequently carried out under the direction of the lead agencies. As part of this additional work, a number of new off site areas have been identified as potential sites for mitigation of wetland losses. These sites are included in the report as alternatives to the proposed project. An additional reduced density development alternative has also been incorporated into the Supplemental EIS/EIR.

It was noted in comments on the initial Draft EIS/EIR that the document lacked a detailed analysis of the interrelationships between the Tract 5167 project and the proposed development of the State Route 61 Transportation Corridor adjacent to the project site. As in 1985, when the first EIS/EIR was prepared, the future development of the Corridor remains uncertain. Therefore, the lead agencies have directed that potential related impacts of the Corridor be discussed only briefly and in a general sense in the Supplemental EIS/EIR.

This document will be circulated through the State Clearinghouse to all permitting and review agencies for review and comment. In accordance with NEPA and CEQA requirements, this document is available to the general public for review and comment during the public comment period.

2.3 REGULATORY AND PERMIT REQUIREMENTS

This section contains a brief discussion of the purpose, mandates, and activities of local, regional, State and Federal agencies as they relate to the proposed project. The following agencies are included:

- Federal Agencies
  - U.S. Army Corps of Engineers
  - U.S. Fish and Wildlife Service
  - U.S. Environmental Protection Agency
  - U.S. Coast Guard
- State Agencies
  - California Department of Fish and Game
  - State Lands Commission
  - Public Utilities Commission
  - California Regional Water Quality Control Board
  - State Historic Preservation Office
- Regional Agencies
  - San Francisco Bay Conservation and Development Commission
  - Association of Bay Area Governments
  - East Bay Regional Parks District
  - Bay Area Air Quality Management District
- Local Agencies
  - City of Hayward
  - Hayward Area Shoreline Planning Agency
  - Hayward Area Recreation and Park District
  - Alameda County
  - Alameda County Flood Control District
  - Alameda County Local Agency Formation Commission

FEDERAL AGENCIES

U.S. Army Corps of Engineers (Corps). The Corps of Engineers, a branch of the U.S. Army, exercises final permit authority over the proposed project under the Federal River and Harbor Act of 1899, the Federal Water Pollution Control Act of 1972 as amended (the Clean Water Act, 1977), and related statutes described below. Corps permit regulations (33 CFR 320-329) require an evaluation of the extent to which a proposed permit activity is in the public interest. This is the most important criterion applied in the decision to issue a permit. For any permit application, the Corps must consider all applicable official State, regional, or local land use plans and/or policies as reflecting local factors of the public interest (33 CFR 320.4[j][2]); thus, the Corps will request review of permit applications in the study area by local governments. In addition, the Corps is required by permit regulations to coordinate and consult with certain Federal and State agencies (33 CFR 320.4) so that permit decisions will reflect factors of both national and statewide public interest. The following pertinent regulations will be considered by the Corps prior to issuance of a permit for the project.

CLEAN WATER ACT. The Federal Water Pollution Control Act of 1971 (FWPCA), amended as the Clean Water Act in 1977, was enacted to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The FWPCA established a number of goals, requirements, prohibitions, and programs to achieve that purpose and addressed the problems of water pollution by using many different approaches. Section 404 of the Act establishes a permit program, administered by the Crops, to regulate the discharge of dredged and fill material into the "waters of the United States." Jurisdiction over "waters of the United States" extends to the high tide line of tidal waters, plus "adjacent" or "neighboring" wetlands. Applications for a Section 404 permit are evaluated according to 404(b)(1) guidelines set forth by the Environmental Protection Agency which give specific requirements for the use of disposal sites for dredged or fill materials. These regulatory guidelines (40 CFR Part 230) prohibit "the discharge of dredged or fill material if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other adverse environmental consequences."

The proposed action includes structural fill for foundations and flood protection in wetlands which are considered to be within the jurisdiction of the Corps of Engineers (see Figure 2.3-1); therefore, a 404 permit will be required. Approximately 90 acres of wetlands under jurisdiction of the Corps will be subject to fill under the proposed actions. Marathon was involved in a land trade with the local sanitation district in an exchange that resulted in a transfer of 12 acres of wetland to the sanitation district. The 12 acre area received by Marathon has been surveyed by Dr. Terry Huffman, Wetland Regulatory Scientist and subconsultant to Earth Metrics, who has classified this 12 acres as uplands that would not be subject to Corps jurisdiction.

The 404(b)(1) guidelines require that for nonwater dependent activities, the applicant must demonstrate that there are no practicable alternatives to the proposed fill activity (EPA 40 CFR 230.12[a][3]). To meet this requirement, a report has been prepared by Mills-Carneghi-Bantovich, Incorporated, a real estate consulting firm with experience in Alameda County, which examines the availability of alternative sites. A summary of the report is contained in

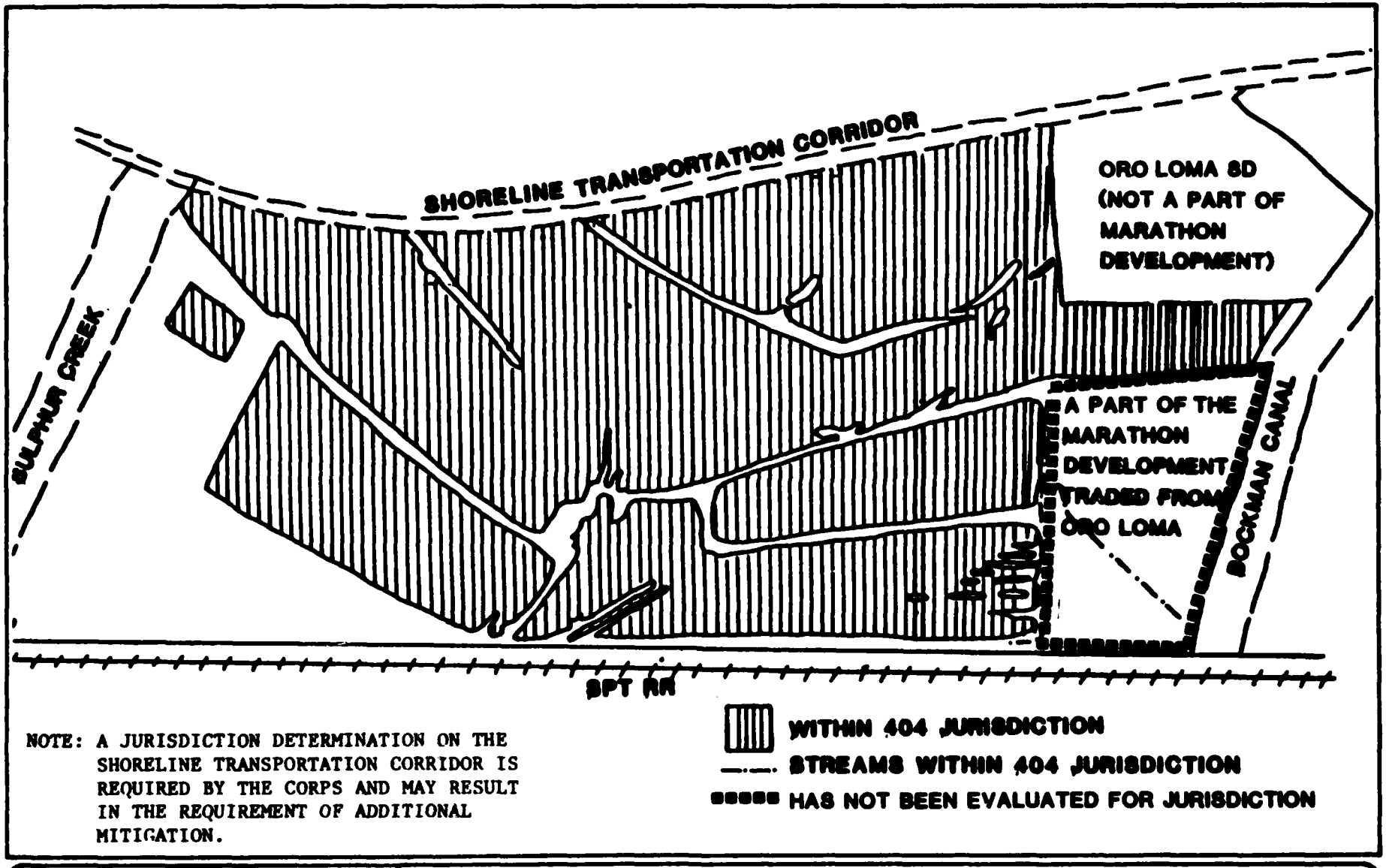


FIGURE 2.3-1 CORPS JURISDICTION ON THE PROJECT SITE (SECTION 404 OF CLEAN WATER ACT)

Appendix C; the complete report is on file with the City of Hayward and the San Francisco District Corps of Engineers. Corps staff has reviewed the determination made by Dr. Huffman and concurs.

The San Francisco District has determined that the alternative site analysis, as furnished by the applicant, meets the requirements of 40 CFR 230.10(a)(3) in that there are no practicable alternatives to the proposed fill (see Insert Appendix D). The Corps determination is based on the assumptions provided by Marathon regarding the market area. These assumptions are as follows:

> "An industrial market area is defined as that geographical area within which industrial parks compete for the same prospective buyers and tenants. From the point of view of industrial firms, the market is that area within which the firm will search for an acceptable building site or leasable space. The subject project's market area is defined as the Oakland Airport area south through Union City."

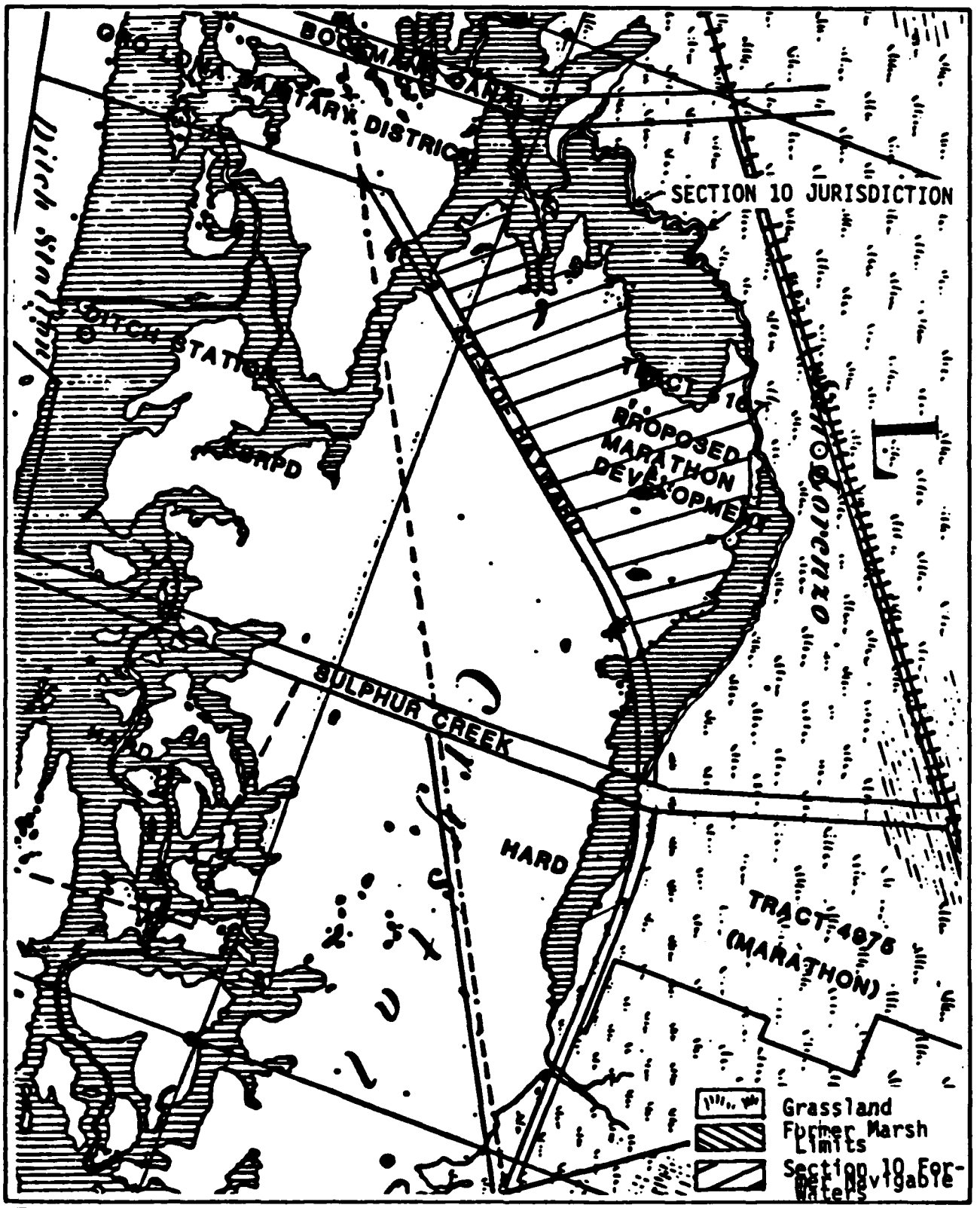
In support of the above definition, Marathon has stated that 90 percent of the real estate activity in a given community involves firms relocating or expanding within the community, and it is relatively infrequent that a firm moves 30 miles away from the same urban area.

RIVER AND HARBOR ACT OF 1899. Section 10 of the River and Harbor Act of 1899 prohibits the unauthorized obstruction or alteration of any navigable waters of the United States. The construction of any structure in or over any navigable water, excavation or deposit of material in such waters, and various types of work performed in such waters, including fill and stream channelization, are examples of activities requiring a Corps permit.

Navigable waters include all places covered by the ebb and flow of the tide to the mean high water mark in its unobstructed natural state. In San Francisco Bay, "navigable waters" include those areas which were historically part of the San Francisco Bay, including marshlands as of 1950, but are hydrologically separated from the Bay because of diking. A portion of the 134 acre site is within the Corps Section 10 jurisdiction (see Figure 2.3-2); therefore, a Section 10 permit is required.

FISH AND WILDLIFE COORDINATION ACT. This Act requires the Corps to consult with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Game during preparation of an environmental study prior to issuance of a Department of the Army permit. Formal consultation with these agencies will occur through their review of the Corps Public Notice and this Supplemental EIR/EIS. The Corps of Engineers regulatory program requires the District Engineer to give full consideration to the views of these agencies in evaluating a permit application. All three agencies have expressed concerns regarding the impacts of the proposed development on fish and wildlife resources. Section 4.2 of this report addresses those concerns.

ENDANGERED SPECIES ACT. This act was passed in 1973 to provide protection for animal and plant species that are currently in danger of extinction ("endangered") and those that may become so in the foreseeable future ("threatened"). Section 7 of this Act requires Federal agencies to ensure that their actions do not have adverse impacts on the continued existence of



earth metrics

N

SCALE
NO SCALE

FIGURE 2.3-2 CORPS JURISDICTION IN PROJECT AREA (SECTION 10 OF RIVER AND HARBOR ACT)

threatened or endangered species or on the designated areas (critical habitats) that are important in conserving those species. The U.S. Fish and Wildlife Service (FWS) maintains current lists of species which have been designated as threatened or endangered.

The FWS has notified the Corps (letter dated June 26, 1984, Appendix A) that one listed endangered species, the salt marsh harvest mouse (Reithrodontomys raviventris), may be present in the site area. The Vegetation and Wildlife Section (4.2) of the EIR/EIS describes the potential impacts of the project on this and other species. As required by Section 7(c) of the Act, the Corps has prepared a biological assessment of potential endangered species impacts. The Corps has concluded in this assessment that the habitat available on Tract 5167 remains in a condition unlikely to support the endangered salt marsh harvest mouse and that the proposed development on Tract 5167 is not likely to affect the endangered mouse. See Appendix P for the Biological Assessment.

NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED, AND EXECUTIVE ORDER 11593. This act established the National Register of Historic Places and required the Corps of Engineers to consider the impacts of proposed activities on properties included in the National Register. Executive Order 11593 requires the Corps, when considering issuance of a permit, to identify in consultation with the State Historic Preservation Office any property potentially affected by the proposed action which is eligible for listing in the National Register. No properties listed or proposed for listing in the National Register, or any other known cultural resources, are located within or adjacent to the project site.

EXECUTIVE ORDER 11988, FLOODPLAIN MANAGEMENT (MAY 24, 1977). In order to reduce the risk to human safety, health, welfare, and property associated with floods and in order to preserve the natural and beneficial values served by floodplains, Federal agencies are directed by this Order to evaluate the potential effects of actions (including the granting of permits) taken in floodplains. This Supplemental EIR/EIS evaluates these effects, including the effects of other practicable alternatives as required by the Order.

COASTAL ZONE MANAGEMENT ACT OF 1972. Section 307(c) of this Act, as amended, prohibits the Corps of Engineers from issuing a Department of the Army permit in a coastal zone unless the permit applicant has furnished certification that the proposed activity complies with and will be conducted in a manner that is consistent with the approved Coastal Zone Management Program (in this case, the Bay Conservation and Development Commission [BCDC] Bay Plan). The Coastal Zone Management Act requires any proposed activity requiring a Federal permit to be consistent with the State's program (Bay Plan) if it directly affects land or water uses with the coastal zone.

Priority uses for specific shoreline areas are indicated on Bay Plan maps. Bay Plan Map 5, San Leandro, Hayward, does not designate the project site for a priority use; therefore, the proposed development does not appear to be in conflict with the Bay Plan. As noted below under Regional Agencies (BCDC), the Tract 5167 is not within BCDC jurisdiction; however, certain of the identified wetland mitigation parcels will be within the agency's jurisdiction. Therefore, in the event that any development actions are to be implemented on these sites, the BCDC must make a final determination of

conformance with the Bay Plan and BCDC policies pertaining to protection of diked historic baylands.

EXECUTIVE ORDER 11990, PROTECTION OF WETLAND (MAY 24, 1977). This Order reiterates the need to preserve and protect wetlands as a national policy; however, it does not apply to the issuance of Corps permits for activities by private parties in wetlands on non-Federal property and is, therefore, not applicable to the proposed project.

U.S. Fish and Wildlife Service (FWS). The U.S. Fish and Wildlife Service is responsible for the Federal interest in conservation, enhancement, and protection of fish and wildlife habitat and resources. Under the Fish and Wildlife Coordination Act (16 USC 661-666c), any Federal agency proposing to modify or control any body of water must first consult with FWS; thus, this Act provides the basic authority under which FWS reviews Corps permit applications. However, the FWS is a nonregulatory agency with no permit granting authority. The service has promulgated specific policies for preserving, protecting and enhancing the fish and wildlife resources of the San Francisco Bay. The primary concern of the Fish and Wildlife Service with regard to the proposed project is the potential impacts of the proposed development on wetlands and associated fish and wildlife resources. The stated position of the service is that a development permit should not be issued because the project represents a nonwater dependent fill in a biologically productive wetland (see Appendices A and B).

U.S. Environmental Protection Agency (EPA). The EPA is responsible for the administration of the Federal Water Pollution Control Act (PL 92-500) and its Amendments (FWPCA). (See the Clean Water Act above.) In general, EPA evaluates all Corps permit applications to determine the possible impacts on water quality, air quality, toxic substances, and radiation.

The EPA has reviewed the project proposal in accordance with the regulations 40 CFR 230 promulgated pursuant to Section 404(b)(1) of the Clean Water Act, and has taken the position that the project does not meet the guidelines for discharge of dredged or fill material (see Appendices A and B).

U.S. Coast Guard. The U.S. Coast Guard (USCG) has permitting authority over bridges spanning the navigable waters of the United States. The proposed project would include a bridge over Sulphur Creek, which is considered a minor waterway which is "navigable in law, but does not actually support navigation, other than logs, rowboats, canoes, and small motorboats." Formal permits are no longer required for bridges constructed over minor waterways since the Commandant of the USCG has given his advance approval to the location and plans of such bridges (33 CFR 115.70). The clearance provided for high water stages (the 100 year flood) is considered adequate to meet the reasonable needs of navigation. The USCG requires that bridge plans and flood clearance information be submitted for their files.

STATE AGENCIES

State Department of Fish and Game (DFG). The California Department of Fish and Game, a division of the State Resources Agency, is charged with protecting and conserving the State's fish and wildlife resources including their supporting habitats and ecosystems. The DFG implements the January 9, 1987

policies for wetland resource protection as stated in the recently added Chapter 2, of Part 3, Section 660, Title 14 of the California Administrative Code, regarding the role of DFG in the "restoration, protection, preservation, enhancement and expansion of wetland habitat in California." The criteria is described for adequate compensation of wetlands losses for those projects for which it can be demonstrated that there is "no feasible, less environmentally damaging alternative location or design for the type of project being considered within a wetland." The test for adequate compensation "is that the project or action does not result in either a net decrease in the wetland acreage nor a net decrease in the wetland habitat values, which existed prior to project implementation."

Regulations of the DFG are in the Fish and Game Code (DFG, 1975 and 1976). DFG has regulatory authority over harvest of fish and game and the taking of wildlife. It also issues stream alteration agreements for any activity which will alter the natural state of any river, stream, or lake.

Although the DFG does not issue permits for development projects directly, its advice is part of the permit application and decision making processes of the Corps of Engineers, the final permitting agency. Its contributory role in the Corps of Engineers permit processes is established by the U.S. Fish and Wildlife Coordination Act, the Wetlands Resources Policies for Resource Protection and Corps regulations.

Regarding the proposed project, DFG is concerned about wetland and habitat losses as expressed in their response to Public Notice and comment on the initial Draft EIS/EIR (see Appendices A and B). A stream alteration agreement would be needed for construction of a bridge over Sulphur Creek.

State Lands Commission. The State Lands Commission issues permits, leases and licenses for the use of State and privately owned lands subject to a public trust easement for commerce, navigation and fishing. The Commission considers the public trust, resources in trust, and compensation and mitigation measures when issuing permits. Much of the land in and around San Francisco Bay has been granted by the State to local government, while other segments are privately held. Certain granted and private (nongranted) lands subject to regular tidal inundation are subject to the public trust (similar to a public easement) which restricts their use to commerce, navigation and fishery purposes. For the granted lands, the State has relinquished control of their land use and can revoke a grant only by legislative action and some violation of the public trust.

Tract 5167 is not subject to the public trust easement and the State Lands Commission has no objection to the fill on 134 acres nor to the construction on the site. Work on mitigation parcels would not require a lease permit provided that the land retains wetland status (see Appendix A).

Public Utilities Commission. In general, the Public Utilities Commission (PUC) has authority over any project which may affect the operation of a public utility. In the use of the proposed Tract 5167 development, the agency will have permit/decision authority over any change, improvement or alteration of any railroad/highway crossings in the area or any new such construction (Section 1201 et seq., Chapter 6, Division 1, California Public Utilities Code; PUC General Orders 76, 72, 75, 88 and 118). The Commission has

expressed general concern over increased vehicular and train traffic in the project area (see Appendix B).

California Regional Water Quality Control Board. The California Regional Water Quality Control Board (RWQCB) for the San Francisco Bay Area reviews activities that affect water quality in the Bay and its tributaries. Water quality standards for individual projects are established by the RWQCB as part of the National Pollutant Discharge Elimination System (NPDES) permit procedure. The RWQCB has indicated that they cannot recommend action on a water quality certification until water quality concerns are addressed in the Supplemental EIS/EIR (see Appendix B). They have also noted concern over the cumulative loss of wetlands habitat due to developments of this type.

State Historic Preservation Office (SHPO). The SHPO functions as the State component to carry out the National Historic Preservation Act and to ensure that the historic aspects of projects are in compliance with the California Environmental Quality Act. The SHPO reviews private projects and Corps permit applications for protection and preservation of historic resources. The agency reviews sites for eligibility for the National Register.

REGIONAL AGENCIES

Bay Conservation and Development Commission. The San Francisco Bay Conservation and Development Commission (BCDC), created by the McAteer-Petris Act in 1965, exercises planning, permit and enforcement responsibilities over San Francisco Bay waters and shoreline. Charged with promoting both development and conservation, BCDC has authored the San Francisco Bay Plan to identify and resolve water and land use conflicts. The project site is not within BCDC jurisdiction and hence does not require a development permit. However, permit approval may be required for any wetland enhancement actions implemented in off site areas.

The mitigation sites that would likely fall under BCDC jurisdiction include HARD B, Flood Control/Pacific FM and Oliver West (see Section 3 for site descriptions). The following criteria and guidelines apply to development on diked historic baylands of San Francisco Bay (BCDC, 1982).

- "To the maximum feasible extent, development should be restricted to the dry portions of sites containing year-round, weedy vegetation. Fill should be permitted only if there is no practicable alternative and the fill is the minimum necessary. Filling should avoid areas that (1) have, or can feasibly be enhanced to have, high wildlife values; or (2) can be opened to tidal action."

- "Development should not present a hazard to persons or property due to flooding, potential liquefaction, or strong ground motion during earthquakes."

- Mitigation to "fully offset lost or adversely affected wildlife values" should be provided in every development where filling or excavating of diked baylands or other similar unavoidable impact would occur as a result of the proposed action. Protection of adjacent wildlife, buffering, and the establishment of permanent mitigation areas must be provided through the mitigation plan. No further mitigation should be

required for cyclical or repeated losses of habitat value due to maintenance of the project.

- Mitigation should be either through acquisition, restoration, preservation and dedication of nonwetlands that can feasibly be restored to provide wetland values or through acquisition of suitable diked baylands or other wetlands which will result in "improved management practices enhancing the habitat value of the area."

- Enhancement projects should be planned in consultation with the appropriate Mosquito Abatement District and the Department of Fish and Game and all work should meet the mosquito control standards.

- The extent of public rights in the lands should be identified and resolved by the State Lands Commission prior to any project approval, improvement, or public purchase.

- Public access should be provided for along the perimeter of the baylands, except in areas where wildlife values would be adversely affected by human or animal intrusion.

- Acquisition of the diked baylands by private or public land conservation organizations should be considered as an alternative to development. First priority for acquisition should be given to scarce and valuable habitat such as fresh water marshes, rare and endangered species habitat, and sites adjacent to or near existing protected wildlife habitat and open space.

The BCDC specific policy for diked baylands currently in agricultural use states that these lands should be "maintained as long as feasible" since the current use is compatible with the preservation of their habitat value. However, agricultural uses on the baylands should be limited to "farm related activities or development that has no significant adverse effect on agricultural use of the site." "Extensions of urban services should not be permitted". The general policies for diked historic baylands should be upheld where agricultural use is determined to be no longer feasible.

Association of Bay Area Governments (ABAG). ABAG has responsibility for regional planning and A-95 review in the nine county San Francisco Bay Area. The Regional Plan and Environmental Management Plan are its major policy documents. The proposed project is not in conflict with ABAG's regional goals and strategies.

However, the following critical area policies which recommend preserving lands with valuable resources are pertinent to the proposal. Such lands include:

- land areas associated with fish and wildlife having key roles in a regional scale ecosystem;

- habitats of rare or endangered fish and wildlife that contribute to diversity of species; and

- land containing vegetative resources that are elements of an ecological zone of recognized importance or uniqueness.

Water quality policies recommend establishing programs for surface water runoff which emphasize low cost measures, such as the use of wetlands to reduce pollutant loads.

Other policies pertinent to the proposal include:

- Wetlands are important for water quality protection among other ecological benefits and should be preserved and enhanced: new wetlands should be created for urban runoff control as appropriate and feasible.

- Implement wetland treatment systems for polluted waters, where appropriate and economically justified.

- Consider wetland enhancement or creation projects as alternative mitigation measures offsetting negative environmental impacts of development projects.

ABAG recommends that all efforts be made on the proposed site and mitigation parcels to ensure that there is no net loss of wetland acreage, and that using wetlands for surface water runoff control should be considered, where appropriate.

East Bay Regional Parks District. The East Bay Regional Parks District (EBRPD) owns and maintains both developed and undeveloped parkland in the East Bay Region. The EBRPD owns the lands adjacent to and west of the proposed development site. This area is fenced and maintained as an undeveloped seasonal salt marsh.

The District expressed concern about potential water quality impacts of site development, particularly on adjacent EBRPD property (see Appendices A and B). Under the current proposal, a levee would be built which would separate the two sites.

Bay Area Air Quality Management District. The Bay Area Air Quality Management District monitors concentrations of pollutants in the San Francisco Bay Region and is responsible for development of the Bay Area Air Quality Plan to meet the 1977 Clean Air Act.

The 1982 Bay Area Air Quality Plan addresses air quality standards set by the Federal government to protect public health and sets forth an approximate time schedule for adopting and implementing the control programs necessary to attain the Federal air quality standards for ozone and carbon monoxide by the 1987 deadline specified by the Clean Air Act. The Plan's control measures include: motor vehicle inspection and maintenance, stationary source controls, transportation controls, and administrative programs. The major source of air pollutants with the proposed project is site generated traffic.

LOCAL AGENCIES

City of Hayward. Approximately 102 acres of the proposed development are within the City of Hayward and 32 are in unincorporated Alameda County. The portion of the site within the shoreline planning area of the City is designated for industrial uses according to the City of Hayward General

Policies Plan 1990. The site is also zoned for industrial uses according to Hayward's zoning ordinance. The proposed development is consistent with the City's General Plan and zoning ordinance for the site. The City of Hayward permitting authority extends to approving the applicant's subdivision map. As part of the map approval process the City must consider whether the subdivision is likely to cause substantial environmental damage or substantially and unavoidably injure fish or wildlife in their habitat (Government Code Section 66474).

Hayward Area Shoreline Planning Agency. The Hayward Area Shoreline Planning Agency (HASPA) was formed in 1971 to prepare plans and programs for Hayward's eight miles of San Francisco Bay frontage. HASPA was established under the provisions of an intergovernmental joint exercise of powers agreement and includes the East Bay Regional Park District, Hayward Area Recreation and Park District, City of Hayward, Hayward Unified School District and San Lorenzo Unified School District. Between 1971 and 1973 HASPA produced a shoreline map to indicate its conservation and development programs. The plan map designates the proposed site for urban/industrial uses. The proposal is consistent with HASPA's plan and land use designation of the site as they currently exist; however, the HASPA board is reprioritizing their planning criteria and developing guidelines specifically for wetland management within their program area (M. Storm, personal communication, 1987).

Hayward Area Recreation and Park District. The Hayward Area Recreation and Park District (HARD) owns the two proposed mitigation parcels A and B. HARD has entered into an agreement with Marathon U.S. Realties which would allow Marathon to improve the two parcels as mitigation for potential adverse impacts as a result of the proposed project. HARD desires to have Marathon construct the improvements on parcels A and B for the following reasons: (1) to enhance the natural environment; (2) to create a greater diversity of marine and wildlife habitat; (3) to enhance and protect existing plant and animal species, and other fragile resources; (4) to maintain healthy populations of all possible plant and animal species; and (5) to preserve, protect, and create an open space reserve for the benefit of the public and for its use and enjoyment. HARD does not have internal funds available for construction of the improvements and is, therefore, willing to grant Marathon the option to construct the improvements at Marathon's sole cost and expense.

Alameda County. The 32 acres of the site within unincorporated Alameda County are designated for industrial use according to the County's General Plan. The site area is also zoned for light industrial use (M1). The County's M1 zone allows manufacturing, processing, assembling, research, wholesale, storage or utility use (when conducted in an enclosed building). The proposed development would contain light manufacturing uses consistent with the County's General Plan and Zoning Ordinance.

Alameda County Flood Control and Water Conservation District. The District is responsible for review of storm water drainage plans and operation of drainage facilities in the County. The proposed project would require a permit from the District to discharge storm drainage into the lift station currently under construction south of the site at Tract 4975. The District will ultimately be responsible for maintenance of the storm drainage system for the site. The ACFCWCD is the owner of a portion of an area in Hayward identified as a potential wetland mitigation site in this report (see Section 3, Alternative 2). In a letter dated December 18, 1986 (see Appendix G), the agency has

advised the applicant that the ACFCWCD land is not available for the proposed mitigation use.

Alameda County Local Agency Formation Commission (LAFCO). Alameda County LAFCO is responsible for determining City boundaries and local City spheres of influence and for planning for the rational expansion of necessary public services and facilities in unincorporated areas. The northeast corner of the site is in unincorporated Alameda County.

The proposed development requires approval from LAFCO for annexation of the northern portion of the site to the City of Hayward and removal of the entire site from East Bay Municipal Utility District and Oro Loma Sanitary District. The portion of the site within Alameda County is also outside of Hayward's sphere of influence. LAFCO will review the annexation request to determine its consistency with annexation goals and rules. If approved by LAFCO, the site would be wholly within the City of Hayward and would be provided sewer and water service by the City.

3. ALTERNATIVES INCLUDING THE PROPOSED ACTION

3.1 DEFINITION OF PRACTICABLE ALTERNATIVES

Corps regulations on EIS preparation state that an in depth evaluation will normally be limited to those reasonable alternatives which are both practicable and are:

I. Within the capability of the applicant and the jurisdiction of the Corps.

II. Within the capability of the applicant but outside the jurisdiction of the Corps.

III. Reasonable and foreseeable but outside the capability of the applicant and within the jurisdiction of the Corps.

IV. Reasonable and foreseeable but outside the capability of the applicant and outside the jurisdiction of the Corps.

In examining alternatives for nonwater dependent activities, the Corps must presume that practicable alternatives that do not involve special aquatic sites (including wetlands) are available, unless it is clearly demonstrated otherwise. Reasonable alternatives include those that are practicable or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant. There is, however, no need to disregard the applicant's purposes or needs and the common sense realities of a given situation in the development of alternatives (CEQ FR Vol. 46, No. 55, Monday, March 23, 1981, #2a, page 10827 and FR Vol. 48, No. 146, Thursday, July 28, 1983, page 34267).

The term practicable as used in the legislation is defined as "available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes."

In order to determine the practicability of an alternative, it is important to have a defined project purpose. The purpose of the proposed development project is to provide a master planned, rail served, industrial park for a mixture of tenants in accordance with the highest and best use of the subject property. The highest and best use in real estate terms is that use that will provide the greatest net return to the land over a given foreseeable period of time. The defined "trade" or "competition" area of the development includes the Oakland Airport area south through Union City. The development will provide finished sites at a cost competitive in the market area, currently within the range of $5.00 to $6.50 per square foot.

This section describes several practicable alternatives to the proposal which would generally meet the applicant's project purpose, though not all would maximize the profitability or result in the highest and best use of the property. These include:

Alternative 1. Project as proposed by applicant (134 acres),including off site wetland mitigation.

Alternative 2. Project as proposed by applicant with wetland mitigation at alternative off site areas.

- 2a. Active enhancement/restoration of off site wetland habitat.
- 2b. Purchase and dedication of existing or easily restored wetlands.
- 2c. No off site mitigation; payment in lieu to a land bank fund.

Alternative 3. Reduced scale development (excluding a portion of on site wetlands from development).

- 3a. Development limited to 104 acres.
- 3b. Development limited to 74 acres.

Alternatives 1, 2, and 3 involve development on all, or a portion of, the on site wetlands. Alternatives which would not affect the wetlands on site are the following:

Alternative 4. Acquisition of the site by a public agency.

Alternative 5. No action.

Other alternatives were considered but were deemed impracticable. These included:

- Development on uplands only.
- Development on alternative nonaquatic sites.

These two alternatives were deemed impracticable for reasons described below.

Development on Uplands Only. Under this alternative, only the areas identified as uplands (i.e., areas not within the Corps 404 jurisdiction or approximately 44 acres would be developed. This alternative would reduce the project by 77 percent in acreage, number of businesses to locate on site, the square footage of buildings, and the number of employees and would preclude accommodation of rail service on the site. The road system would have to be built along the eastern edge of the property to avoid intruding into the wetland areas. Since the upland area along the eastern edge is relatively narrow (approximately 20 to 30 feet), it would be extremely difficult to leave the wetlands unaffected. Therefore, a Corps 404 permit would likely be required to build the roadway.

The applicant has indicated that a reduction of the scale of the project by 77 percent (90 nondevelopable acres) would not be economically feasible because of the costs (incurred and fixed) associated with construction of the bridge over Sulphur Creek in relation to project size and because of the site configuration. Resulting lots at the north end of the property would be difficult to service and market.

Development on Alternative Nonaquatic Sites. An alternative site analysis was completed by Mills-Carneghi Bautovich, Inc. and is on file with the City of

Hayward and the Corps. The summary section of the report is included as Appendix C of this EIR/EIS.

The report examined whether or not other practicable nonaquatic alternative sites were available. The criteria for practicable alternatives fall within three categories: a) the project purposes, (b) physical characteristics and logistics as defined by the proposed development requirements, and (c) availability.

The subject market area includes the industrial districts of Union City, Hayward, San Leandro and the Oakland Airport area, and the unincorporated community of San Lorenzo. The study of 15 "relevant" sites concluded that no available practicable or suitable alternative sites exist within the defined market area for the subject development based on the criteria.

The San Francisco District of the Army Corps of Engineers has determined that, based in part on the assumptions about market area provided in the alternative site analysis; there are no practicable alternatives to the proposed fill (see Appendix D). These assumptions are as follows:

> "An industrial market area is defined as that geographical area within which industrial parks compete for the same prospective buyers and tenants. From the point of view of industrial firms, the market area is that area within which the firm will search for an acceptable building site or leasable space. The subject project's market area is defined as the Oakland Airport area south through Union City."

3.2 ALTERNATIVES

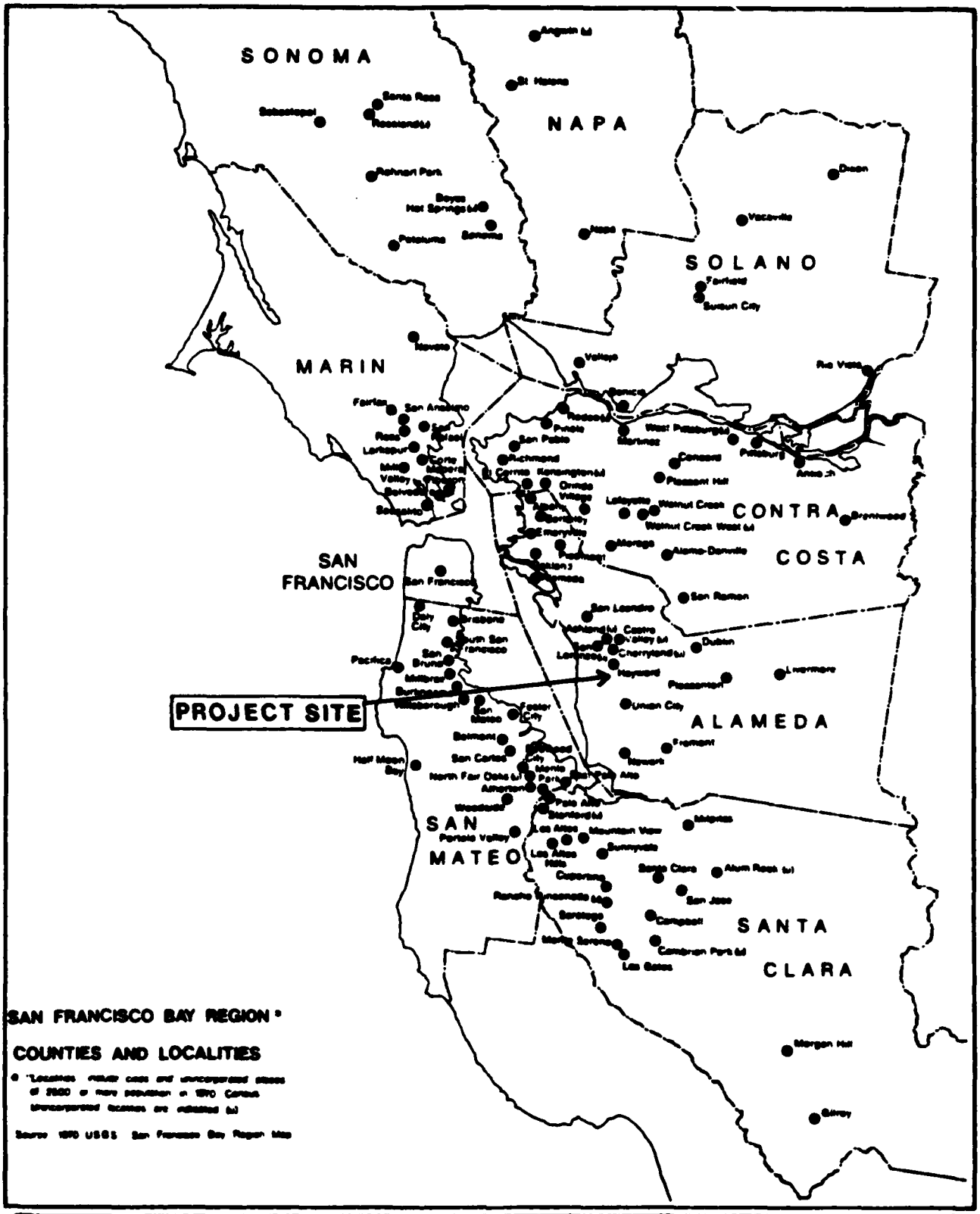
The following Alternatives are discussed in detail in this supplemental EIR/EIS:

Alternative 1. Project as Proposed by Applicant. Marathon U.S. Realties, Inc. (Marathon) is proposing development of a 134-acre site for industrial/ commercial business uses and enhancement of two nearby sites as seasonal wetlands to mitigate the loss of wetlands on site. The regional and local settings of the project site are shown in Figures 3.2-1 and 3.2-2. The proposed site plan is shown in Figure 3.2-3.

The site would be subdivided into 65 lots ranging in size from 1.1 to 5.4 acres. Lots could be grouped or purchased separately by industrial firms contractors or builders. Marathon would provide all infrastructure necessary to serve the 134 acres within the rights of way. Individual lot owners would be responsible for the infrastructure improvements on their lots. The development would provide sites for builders at $5.00 to $6.50 per square foot.

To provide flood protection on site, approximately 34,000 cubic yards of fill would be placed along the western site border to create a levee connecting to the Bockman and Sulphur Creek levees. The 134 acre site would also require 98,000 cubic yards (cy) of fill for the roadway, and regrading of 200,000 cy on site to bring the lots to finished grade.

Land uses expected at the site would be industrial and commercial oriented toward rail service. It is anticipated that the industrial activities would



earth metrics

N

SCALE
1" = 15 miles

FIGURE 3.2-1 REGIONAL SETTING OF THE PROJECT SITE

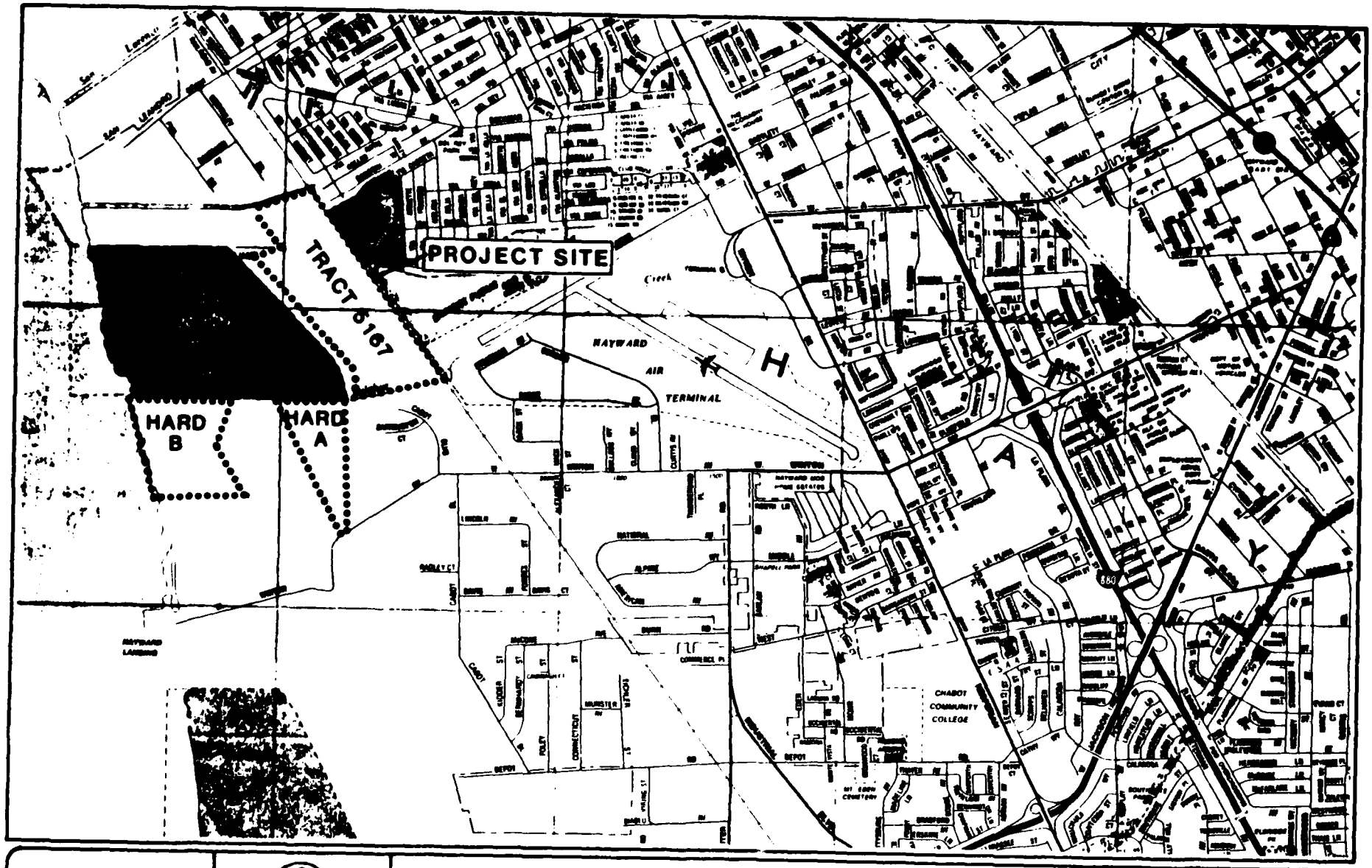
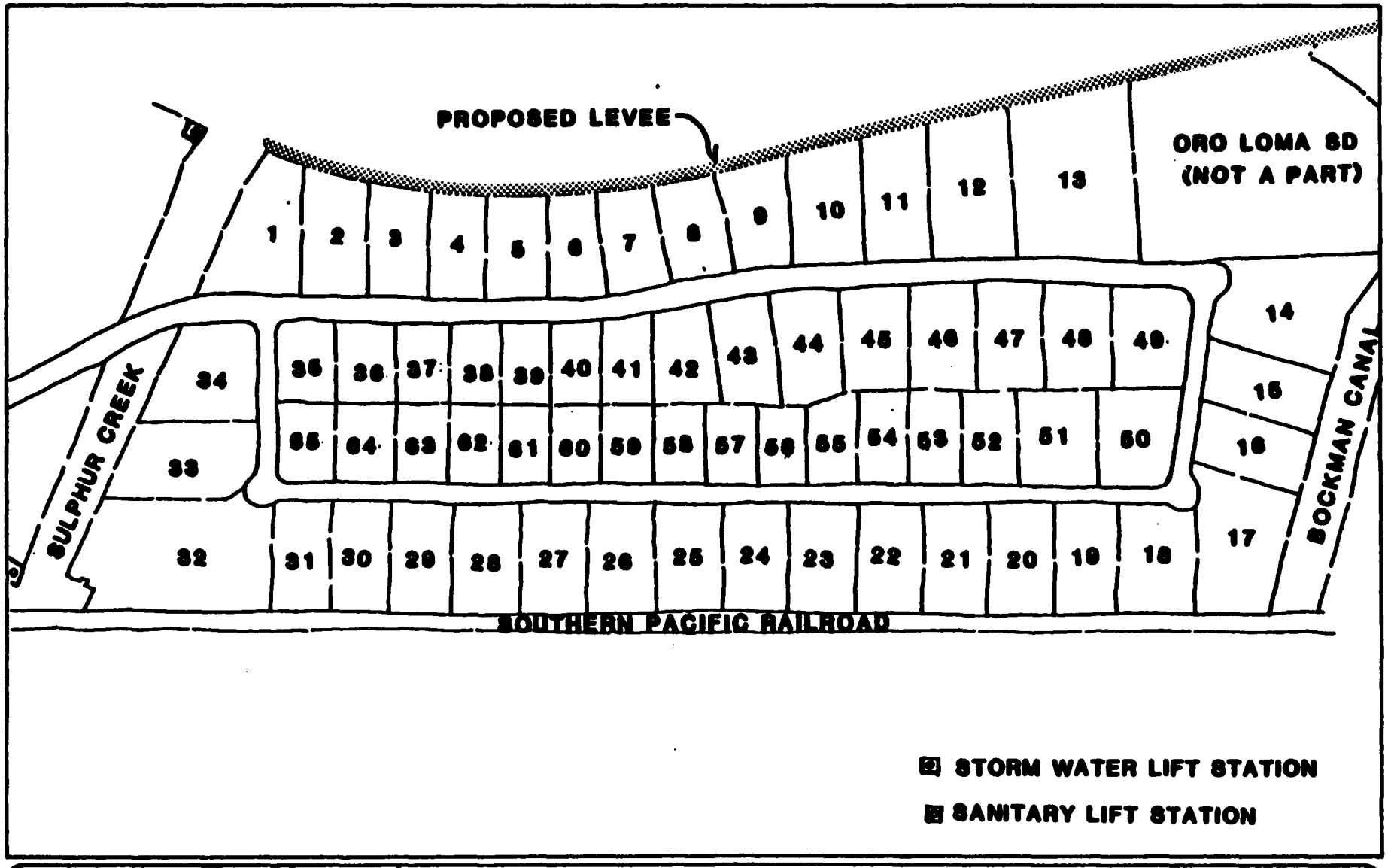


FIGURE 3.2-2 LOCAL SETTING OF THE PROJECT SITE (INCLUDING ALTERNATIVE 1 MITIGATION SITES)



earth metrics

SCALE
1" = 500'

FIGURE 3.2-3 PROJECT SITE PLAN AS PROPOSED BY APPLICANT
(ALTERNATIVE 1)

include warehouse/distribution, light manufacturing, and potentially research and development (R&D) companies. The trend in industrial buildings in this area has been toward more R&D companies and this trend may be reflected in the proposed development as well. However, the development may reflect demand for more traditional light manufacturing and distributing space for which there is ocurrently a lower vacancy rate than for R&D space. Commercial users would include businesses which support the industrial users and serve employees and the general public.

The City of Hayward would provide sewer, water, police, and fire protection service for the site. The Alameda County Flood Control and Water Conservation District would maintain the storm drainage system of the development.

Enhancement of mitigation parcels HARD A and B (shown in Figure 3.2-2) are also included as part of the proposal (see Appendix H for detailed description). Ten foot wide channels would be dug to a bottom elevation of 0.0 feet. National Geodetic Vertical Datum (NGVD) in parcel A, to drain the interior of the parcel. A 30 foot wide ditch would route stormwater from the northeastern corner of the site to the south end and then to the outlet at the northwestern corner of parcel A. Three islands would be built and covered with sand and fine gravel. An inlet structure at the northeast corner of parcel A, opening into Sulphur Creek, would be controlled by a screwgate and flashboards. Water would flow into parcel A for a short period each day, during the higher high tide, and flow out when the tide drops below 3.0 feet NGVD. The margin of the old landfill lying between the HARD parcels would be covered with new fill and graded to a slope of 10:1.

Parcel B would be maintained as an open water area through the summer. This would require excavation of about 15 acres to an elevation of 0.0 feet NGVD. One island of about 0.4 acres would be built in the ponded area. A 48 inch culvert with slide flapgate would be located at the upper end of the ditch which connects parcels A and B. It would remain open most of the time, but could be used to control drainage in either parcel without affecting the other. A 48 inch box culvert with dropbox flashboards and flapgate would be located at the northeast corner of parcel B. The outlet would drain into Sulphur Creek.

Alternative 2. Proposed Project With Alternative Mitigation. Under Alternative 2, no enhancement actions would be undertaken on HARD parcels A and B for mitigation of wetland losses on the project site. Instead, approximately 90 acres of wetlands would be provided for mitigation through purchase and dedication (to a public agency) of existing wetlands under private ownership, or through active enhancement (and purchase, where the site is currently privately owned) of nonwetland or low value wetland areas. Entities potentially capable of taking over ownership and management of newly acquired mitigation areas include HARD, the Peninsula Open Space Trust, the Trust for Public Lands and the East Bay Regional Parks District. The applicant has proposed that any maintenance costs associated with mitigation areas be paid through augmentation of property taxes through a maintenance assessment district and established within the proposed Marathon subdivision. Identification of an appropriate management agency and determination of acquisition and maintenance costs will be undertaken once a preferred mitigation site(s) has been selected which is acceptable to the applicant as well as the City of Hayward and Corps of Engineers.

2a. OFF SITE ENHANCEMENT/RESTORATION. The following sites have been identified by the applicant as potential sites for mitigation through creation of new seasonal wetlands in areas of little present habitat value:

2ai. Flood Control/Pacific FM site.

2aii. PACCAR Peterbilt Company site.

Site 2ai comprises a total of 161.51 acres in Hayward between, and to the south of, the HARD A and B parcels (see Figure 3.2-4). Ownership of 116.04 acres is held by the Alameda County Flood Control and Water Conservation District (ACFCWCD) and 45.47 acres by Pacific FM Incorporated. The site overlies an old sanitary landfill area and exhibits elevations in the area of 8 to 15 feet above mean sea level (MSL). The ACFCWCD parcel is presently used for silt disposal and storage of flood control materials. The Pacific FM parcel is currently unused open space and is the proposed location for several radio transmitter towers.

Prior to utilization of site 2ai for wetland mitigation, the applicant would acquire the required acreage and dedicate it to a designated public agency. The Pacific FM parcel could be purchased, possibly with retention of an easement for construction of radio towers. The applicant has proposed that ACFCWCD land be acquired through an exchange with the City of Hayward for similar land immediately to the south. However, the ACFCWCD has recently taken the position that the Flood Control parcel is not available for the proposed mitigation use (Appendix G).

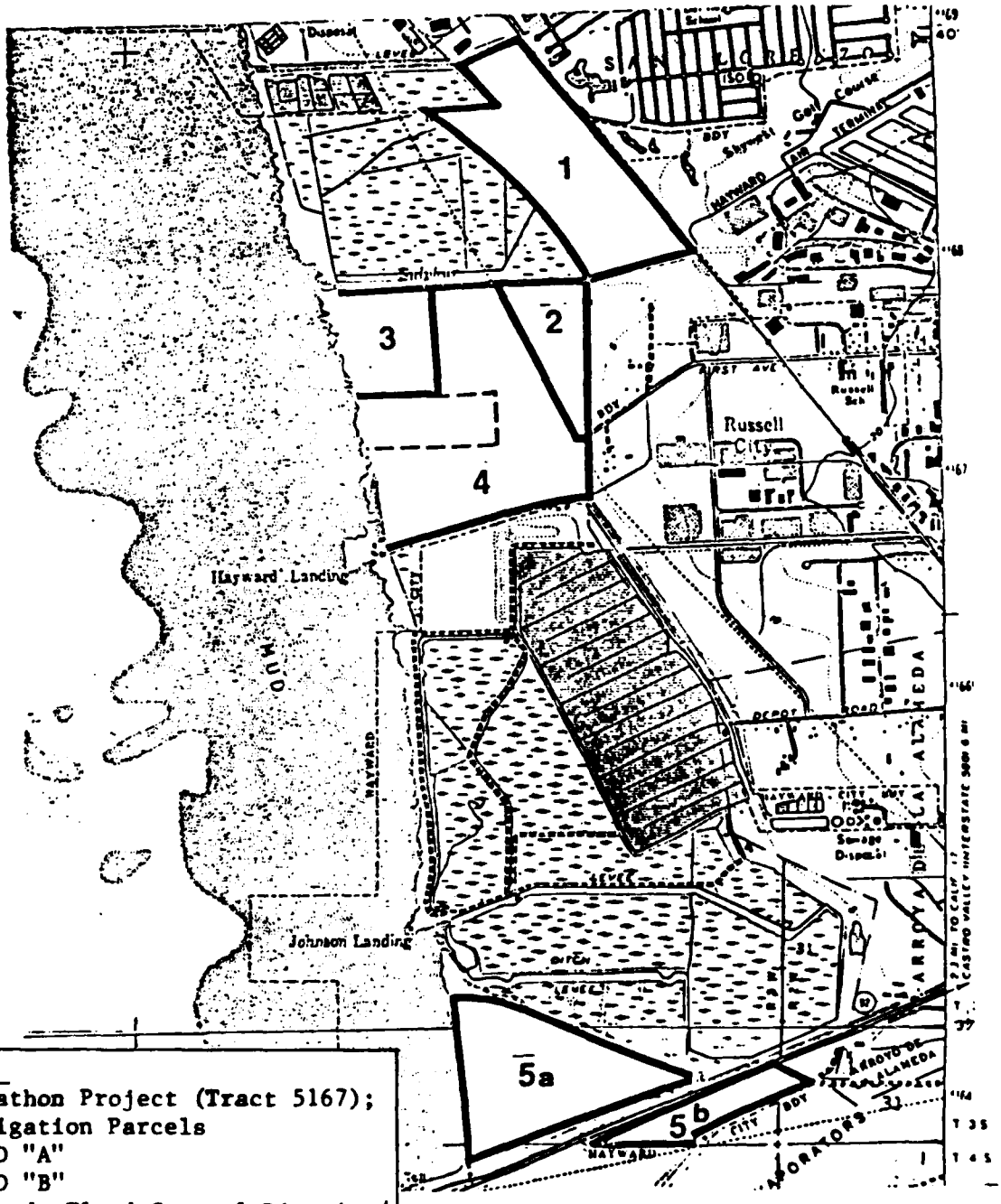
Site 2aii comprises 34.36 acres in the City of Newark (see Figure 3.2-5). The site is also an elevated (approximately ten feet MSL) former landfill area. The site is largely undeveloped open space and has most recently been used for vehicle road testing. As the site is currently privately owned, purchase and dedication by the project applicant would be required prior to wetland restoration.

The proposed wetland restoration actions on sites 2ai and 2aii involve capping and venting of the old landfill areas followed by development of extensive shallow seasonal ponding areas for wildlife and waterfowl use. Extended winter wetland ponding would be insured through pumping of freshwater from nearby surface waters. Sufficient new wetlands would be created on one or a combination of both sites to replace, on a one to one basis, the lost wetlands on the Tract 5167 project site. The mitigation plan preferred by the applicant involves utilization of 94 acres of the Flood Control/Pacific FM site (see Figure 3.2-6) and is described in detail in Appendix I.

2b. OFF SITE PURCHASE AND DEDICATION ONLY. The sites listed below have been identified as potential mitigation sites through simple purchase and dedication of acreage equivalent to that of wetlands lost on the project site. No, or minimal, habitat restoration actions are proposed because the presence of existing wetland habitat values on the sites is recognized.

2bi. Oliver Brothers property near State Route 92. (Oliver Salt Pond)

2bii. Oliver Brothers property north of Alameda Creek. (Oliver Hay Farm)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2
3
4
5a
5b
Russell City
Hayward Landing
Johnson Landing
HUD
HAYWARD
ALAMEDA
ARROYO DE LA ALAMEDA
MORAGA'S
Golf Course
TERMINAL
Skyport
BART
BART
BART
BART
FIRST AVE
Russell Sch
Shell
Union
Service
Station
Drainage
Ditch
Levee
Levee
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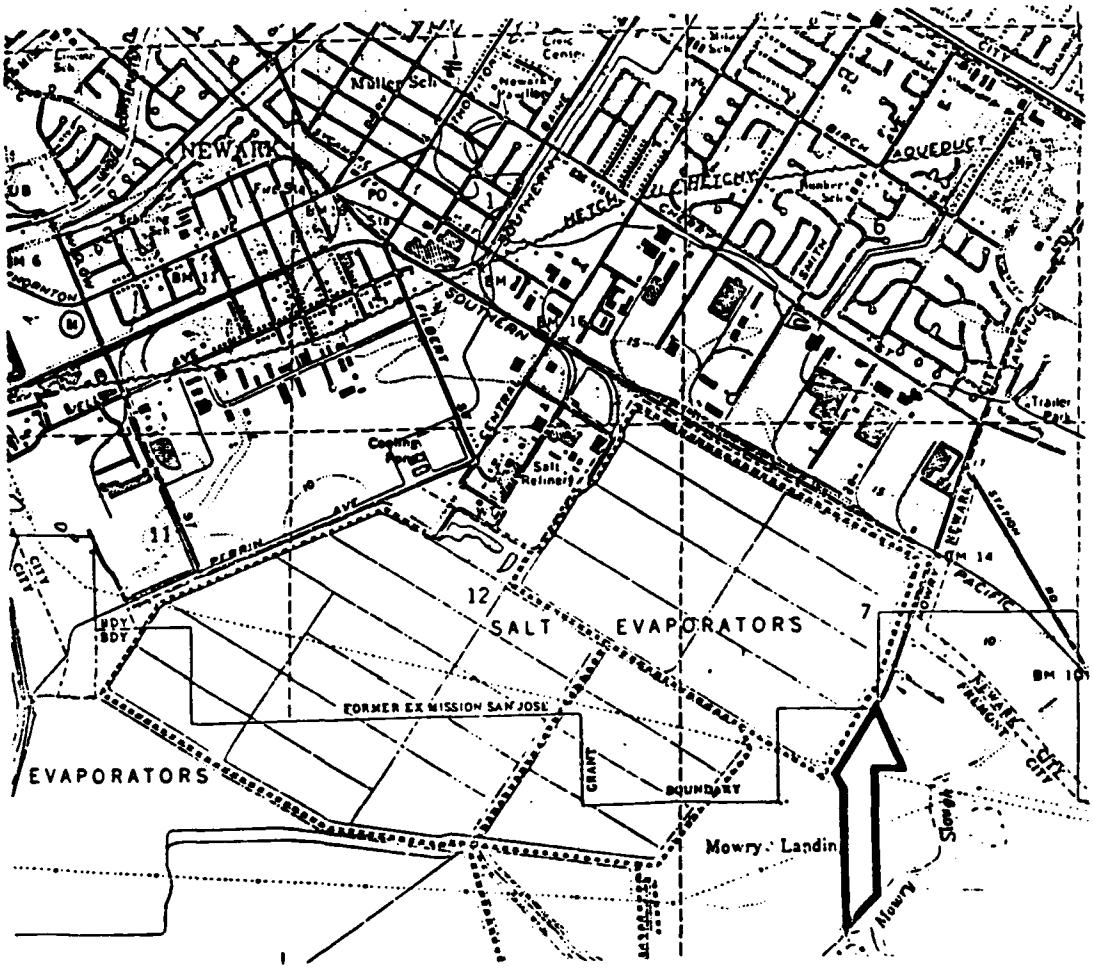

SOURCE: HUFFMAN AND ASSOCIATES

earth metrics

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SCALE
1" = 2000'

FIGURE 3.2-5 MITIGATION PARCEL 2a11
THE PACCAR PETERBUILT SITE

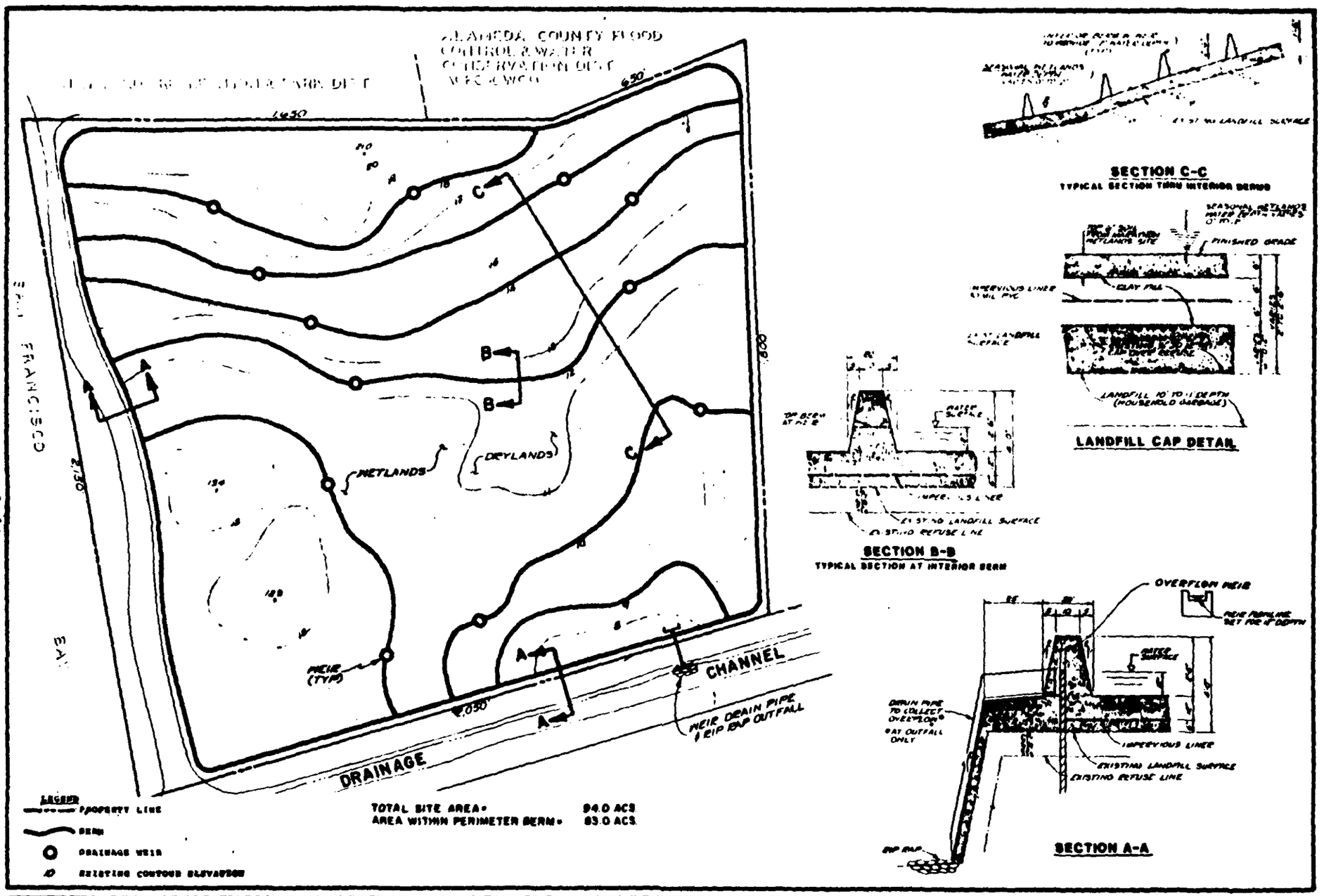

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FIGURE 3.2-6 PRELIMINARY MITIGATION PLAN FOR THE FLOOD CONTROL/ PACIFIC F.M. SITE (ALTERNATIVE 2a1)

2biii. Patterson Ranch Lands parcels A, B, C and D.

The mitigation site locations are shown in Figures 3.2-4, 3.2-7 and 3.2-8. Site 2bi comprises a total of 188 acres in Hayward and is presently dominated by shallow salt ponds. Site 2bii, comprising 130 acres in Hayward, is a diked historic bayland currently used for hay production. The Patterson Ranch Lands parcels (site 2biii), comprising a total of 600 acres in Fremont, are also diked historic baylands and are presently used for grazing and open space. Possible enhancement actions proposed for mitigation areas within sites 2bi, 2bii, and 2biii include breaching of marginal inboard levees and/or pumping in of water from local sources to promote seasonal freshwater inundation.

2c. PAYMENT IN LIEU TO A LAND BANK AGENCY. Under this alternative the project applicant would not acquire or improve off site mitigation areas but would provide funds directly to an open space land bank agency. The selected agency could then proceed with purchase and/or restoration of wetlands elsewhere in the south bay area. It is well known that there is little mitigation land in the area which is available for purchase at a reasonable price. Therefore, the payment in lieu alternative is likely to be feasible only if the land bank agency is able to identify an acceptable site prior to final approval of the proposed project. The applicant has proposed that an appropriate in lieu fee for the project would be in the area of $500,000 based on the preliminary cost estimate for the proposed enhancement of the HARD parcels and on payments made for other projects (see Caltrans payment below). However, it is recognized that other factors, such as the market value of any purchased property, may ultimately determine the in lieu fee.

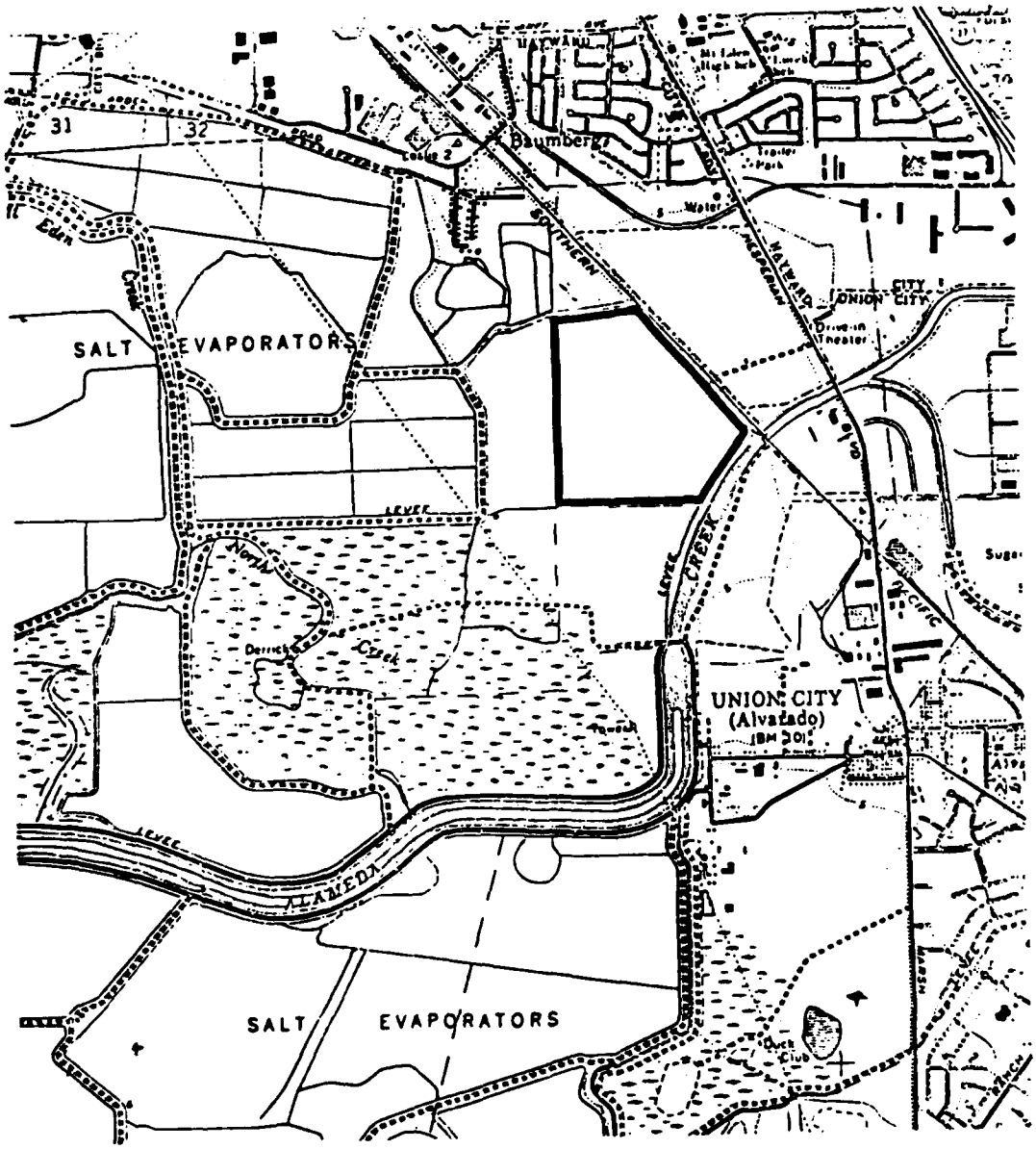
The applicant has identified three agencies potentially capable of facilitating a payment in lieu program: the Peninsula Open Space Trust, the Trust for Public Land and the East Bay Regional Parks District.

The Peninsula Open Space Trust (POST) is a private nonprofit agency dedicated to purchasing and preserving open space lands. At this time the agency is interested in purchasing a number of sites in San Mateo and Santa Clara Counties (Francisco, 1987).

The Trust for Public Land (TPL) is a national nonprofit land conservation organization. One of TPL's efforts in coordination with the Coastal Conservancy is to establish a land bank that would secure lands primarily for mitigative purposes in four regions around the San Francisco Bay (i.e., Contra Costa County, Alameda County, Marin County, and the Monterey Peninsula). At this time, no wetland mitigation sites are available in the land bank in the south and east bay (Jacques, 1986).

The East Bay Regional Parks District (EBRPD) also facilitates off site mitigation projects. For example, the California Department of Transportation (CALTRANS) was required to provide mitigation on lands north of the San Mateo Bridge. CALTRANS paid EBRPD $550,000 and the District created 200 acres of marshland.

Alternative 3. Reduced Scale Development. Under alternative 3, the extent of site development would be limited to allow preservation of a portion of valuable wetlands on the project site. Alternative 3a proposes 104 acres for development at a business park, 30 acres would remain in wetland. Under this



SOURCE: HUFFMAN AND ASSOCIATES

earth metrics

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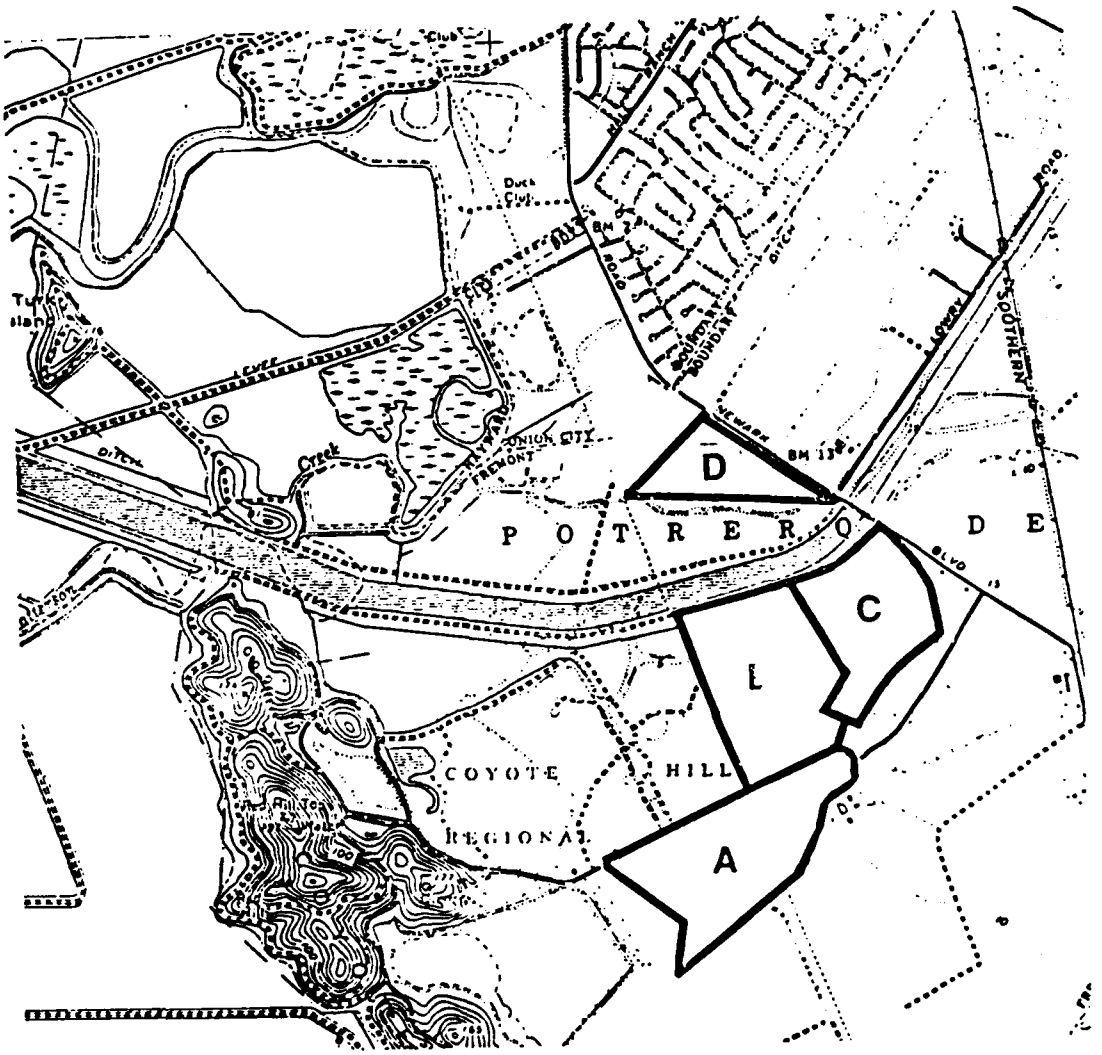
SCALE
1" = 2000'

FIGURE 3.2-7 MITIGATION PARCEL 2bii, OLIVER HAY FARM



SOURCE: HUFFMAN AND ASSOCIATES

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1" = 2000'

FIGURE 3.2-8 MITIGATION PARCEL 2b111
THE PATTERSON RANCH PARCELS

alternative the proposed levee along the western margin of the site would be moved inland to the edge of the developed lots. Alternative 3b proposes development of 74 acres for the business park with 60 acres remaining on site wetlands.

Off site mitigation strategies would be the same as outlined in alternative 2 except that the required acreage of mitigation land (or in lieu fee) would be reduced commensurate with reduced on site wetland losses.

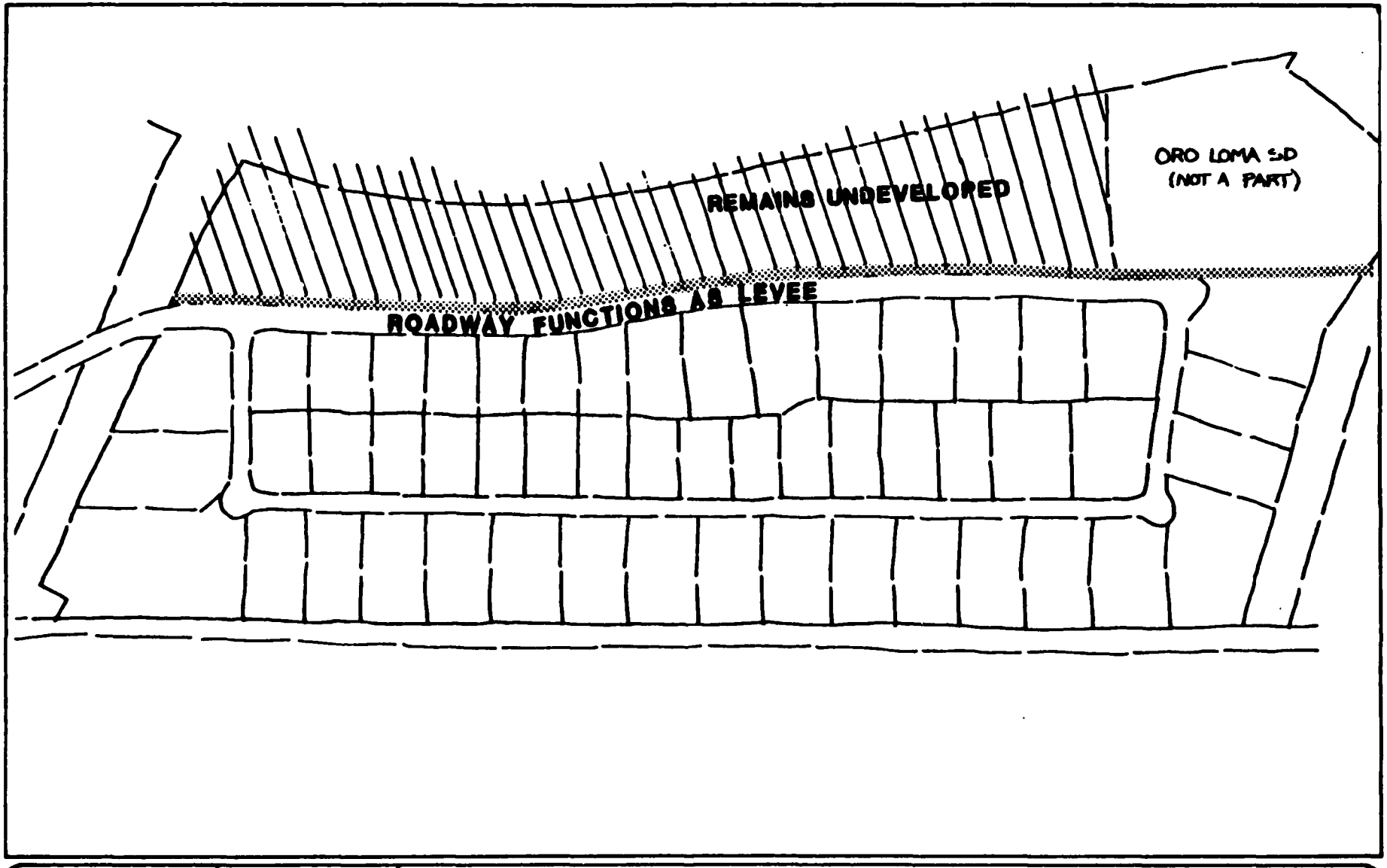
3a. DEVELOPMENT LIMITED TO 104 ACRES. A preliminary site plan for alternative 3a is shown in Figure 3.2-9. Approximately 104 acres would be developed leaving 30 acres west of the western part of the loop road as undeveloped wetlands.

3b. DEVELOPMENT LIMITED TO 74 ACRES. The alternative 3b preliminary site plan is shown in Figure 3.2-10. Only 74 acres would be developed as industrial business park leaving approximately 60 acres of open space. Of this open space approximately 40 acres would lie along the western margin of the property preserving existing wetlands in that area. A 20 acre area at the north end of the site near Bockman Channel would also remain undeveloped. This area, which is presently an upland area (relative to the rest of the site) would be excavated to the same level as existing on site wetlands. This would reduce the requirement for imported fill for the project and would insure the presence of a full 60 acres of seasonal wetlands on the site following development.

Alternative 4. Acquisition of the Site by a Public Agency. Under this alternative the applicant would sell the property, "as is," to a public agency at a fair market value. The Trust for Public Land has indicated potential interest in the purchase of the property for a mitigation land bank (Jacques, 1986). No other agencies have expressed interest in purchasing the site. It is assumed, for purposes of environmental analysis in this EIR/EIS, that the site would remain undeveloped wetlands. However, enhancement might be provided by a public agency or it could be developed as a park or for recreation use depending on which agency purchased the site.

The two mitigation parcels would not be enhanced under this alternative and would likely remain in their existing condition for the foreseeable future. This alternative would not require a Corps or City permit. It would not meet the applicant's purpose.

Alternative 5. No Action. Under this alternative the industrial/commercial development and enhancement of the HARD parcels would not be undertaken. The site and mitigation parcels would remain in their current state for the foreseeable future. This alternative would not meet the applicant's purpose but its inclusion in the Supplemental EIS/EIR is required under both NEPA and CEQA Guidelines.



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1" = 500'

FIGURE 3.2-9 ALTERNATIVE 3a REDUCED DENSITY SITE PLAN

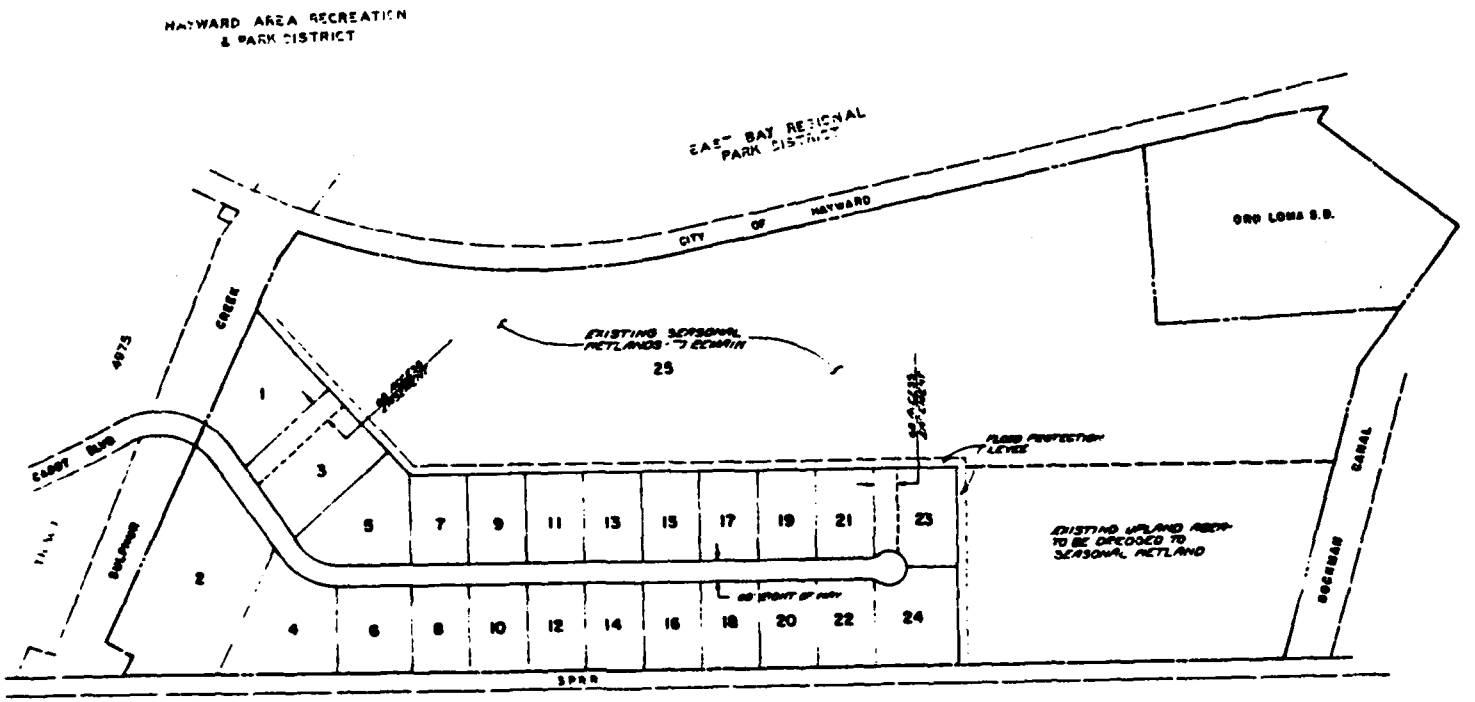

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FIGURE 3.2-10 ALTERNATIVE 3b REDUCED DENSITY SITE PLAN

4. AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND RECOMMENDED MITIGATIONS

4.1 LAND USE AND PLANNING

AFFECTED ENVIRONMENT

Land Use

PROJECT SITE. The Tract 5167 project site is currently undeveloped grassland and marshland and is used by an adjacent property owner for occasional cattle grazing. The site is bordered on the east by the Southern Pacific Railroad (SPRR), on the south by Sulphur Creek, on the west by the proposed Alameda County Industrial Transportation Corridor alignment, and on the north by the Bockman Canal.

The site is surrounded by various activities and uses. The Hayward Air Terminal and support activities are located east of the site, just east of the SPRR. The area south of the site includes developed industrial parks and business centers (see Figure 4.1-1) and west of the site is undeveloped marshland. The western area is designated as the Hayward Shoreline Recreation Area and extends from the proposed Alameda County Industrial Transportation Corridor alignment to the San Francisco Bay. This area is planned for park and recreational uses including bicycling, hiking, and a possible educational study center. North of the site is the Bockman Canal and some vacant land, with industrial uses at the west end of Grand Avenue in San Lorenzo. An area northwest of the site is used by the Oro Loma Wastewater Treatment Plant for settling ponds. The nearest residential and recreational uses are located east of the SPRR and include the Skywest Golf Club and detached single family homes.

MITIGATION SITES. HARD parcels A and B (Alternative 1) and the Flood Control/ Pacific FM site (Alternative 2ai) are located immediately to the southwest of the project site beyond Sulphur Creek. The HARD parcels, comprising a total of 94 acres, are presently undeveloped wetlands and unused open space. The more elevated Flood Control/Pacific FM site (161 acres) is a former sanitary landfill area. The portion of the site owned by the Alameda County Flood Control and Water Conservation District (ACFCWCD) is presently used for silt disposal and storage of flood control materials. The parcel owned by Pacific FM Incorporated is the proposed location for several radio transmitter towers.

The PACCAR site, owned by the Peterbuilt Trucking Company, (Alternative 2aii), comprises 34 acres in Newark. The site is a former sanitary landfill which has recently been used for vehicle road testing.

The Oliver Brothers property located near State Route 92 in Hayward (Alternative 2bi) comprises 188 acres of wetlands used as ponds for salt production. The 130 acre Oliver Brothers site north of Alameda Creek in Hayward (2bii) is used for hay production and contains a small farm residence.

A total of 870 acres of land owned by Patterson Properties in the City of Fremont are identified in Alternative 2biii. Presently this land is undeveloped and used for grazing and open space.

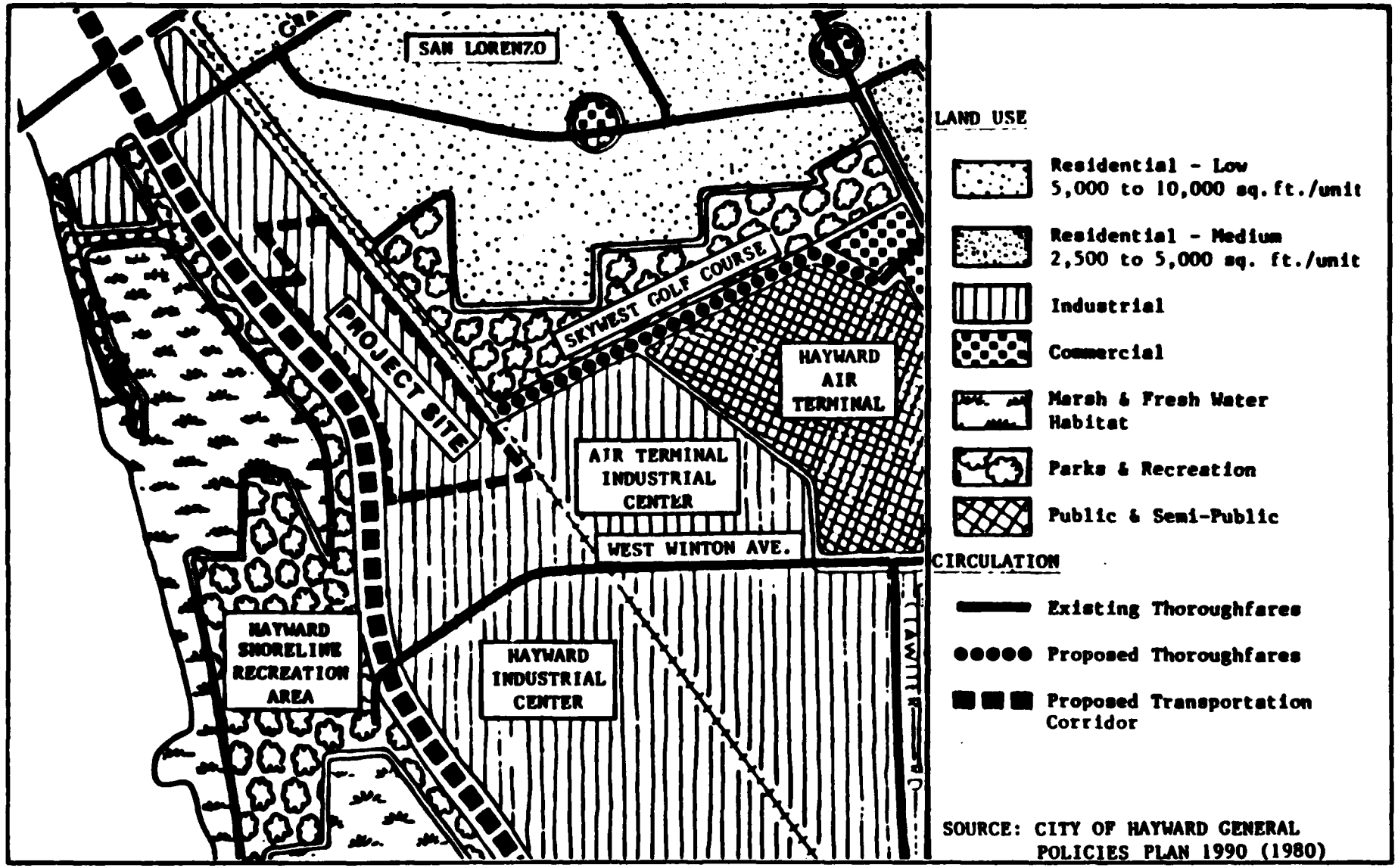


FIGURE 4.1-1 GENERAL PLAN LAND USE DESIGNATIONS IN THE PROJECT AREA

General Plans and Zoning

PROJECT SITE. The Tract 5167 site is designated for industrial uses according to Hayward's General Plan (see Figure 4.1-1). Approximately 32 acres of the northern portion of the site are within unincorporated Alameda County. This area is also designated for industrial uses according to the County's General Plan. Development of the project site would require annexation by the City of Hayward of presently unincorporated land.

The project site is located in an Industrial (I) zoning district (Allen, 1986). The northern portion of the site within unincorporated Alameda County is also zoned for industrial uses. Surrounding project area zoning is Industrial (I) to the north and south, Airport Terminal Industrial Park (AT-IP) to the southeast, Floodplain (FP) to the west, and Airport Terminal Recreation (AT-R) to the east.

According to the Zoning Ordinance, the purpose of an Industrial District is to provide for and encourage the development of industrial uses in areas suitable for same, and to promote a desirable and attractive working environment with a minimum of detriment to surrounding properties.

The following uses are permitted primary uses in an Industrial District.

- Manufacturing, repair, maintenance, preparation, compounding, processing, packaging, treating, fabricating or assembling when not specified as a conditional use.
- Wholesale establishments, warehousing and bulk storage.
- Copying or reproduction or newspaper printing facility.
- Laboratory.
- Vocational school.
- Radio and television studio.
- Administrative, business, finance, or professional office or clinic located in a building in a planned industrial park of 25 acres or more in area.

The City of Hayward has a total of 3,416 acres zoned for light and medium industry. Within the general area shown on Figure 4.1-1, there are approximately 1,700 acres of industrially zoned land. Of this, approximately 1,360 are currently developed and another 110 acres are currently being developed and/or have development permits pending City review and approval (excluding the proposed Tract 5167). This leaves a total of 230 undeveloped acres of industrially zoned land in the area including the 134 acre proposed Tract 5167

In the General Policies Plan (City of Hayward, 1985) a proposed transportation corridor, State Route 61, is identified for the area which borders the western side of the project site. State Route 61 would serve as a commuter and commercial route, relieving congestion on State Route 880 in Alameda County.

A CALTRANS Draft Route Concept Report was prepared in 1985 and is on file at the City of Hayward Planning Department.

MITIGATION SITES. Both of the proposed HARD mitigation parcels and the Flood Control/Pacific FM site (2ai) are designated as Marsh/Fresh Water Habitat and Parks and Recreation in Hayward's General Plan (1985). All these parcels are located in a Floodplain Zoning District.

Mitigation site 2aii, the Peterbuilt Truck Company property, is undesignated in the Newark General Plan (City of Newark, 1984) and is located in an Agriculture Zoning District (Cashmark, 1986).

Mitigation site 2bi, the Oliver Brothers west site near State Route 92, is designated as Parks and Recreation and Saltwater Evaporation Ponds in the Hayward General Plan except for Parcel 461-85-20 which is designated for industrial uses.

All the Oliver west parcels are located in Floodplain and Industrial Zoning Districts (Allin, 1986). The Oliver Brothers east site (2bii) is designated as Marsh and Fresh Water Habitat in the Hayward General Plan and is zoned as a Floodplain District.

Patterson Ranch parcels (2biii), A, B and C are designated as open space in the Fremont General Plan (City of Fremont, 1983). Parcel D is designated as Low Density Residential. All four parcels are located in an Agriculture Zoning District (Fegley, 1986).

ENVIRONMENTAL CONSEQUENCES

Alternative 1. Project implementation would result in a shift in land use on site from vacant, low intensity agriculture to industrial and commercial, which is consistent with the City of Hayward General Policies Plan and the Zoning Ordinance. The proposed land use appears compatible with existing industrial land uses south and east of the site. The railroad tracks and the transportation corridor will serve as buffers between the site and adjacent recreational land uses. No conflict is expected with operations at the Hayward Air Terminal. Unincorporated portions of the project site would be annexed to the City of Hayward under the applicant's current plans. Approval of this project is not expected to result in cumulative development pressure on other parcels in the study area, since they are already planned and zoned for similar development (City of Hayward, 1985).

The proposal would also modify the existing characteristics of both the HARD parcels. The plan proposes modifying these parcels through regrading their edges, providing drainage ditches, and discharging water. The intent is to improve the surface water flows through both parcels and enhance them as wetland habitats. While these activities would change the biological characteristics of the parcels, their land uses would not be affected as they would both remain as undeveloped marsh areas.

Alternative 2. The utilization of any of sites 2ai, 2aii, 2bii and 2biii (A, B or C) as alternative wetland mitigation sites would be consistent with present General Plans and zoning. The designated open space use of these sites would remain the same. The only effect of use of the sites for wetland mitigation would be to preclude any present agricultural use such as grazing.

Should the Oliver Brothers west site (2bi) be chosen for wetland mitigation, it may be necessary to change the General Plan and zoning designation of one of its constituent parcels (481-85-20) from Industrial to Open Space use. However, the subject parcel is relatively small (7.7 acres) and lies in an upland portion of the Oliver Brothers 2bi holdings and, therefore, may not be needed for wetland dedication.

Dedication of Parcel D of the Patterson holdings as a wetland would require altering the present Low Density Residential designation in the Fremont General Plan. However, the proposed wetland use is consistent with the present Agricultural zoning designation (Fegley, 1986).

No direct impacts would occur as a result of payment in lieu to a public land bank agency for wetland mitigation (Alternative 2c). Impacts would only occur if the money is ultimately used for purchase of land with General Plan and zoning designations which are at variance with open space wetland uses.

Alternative 3. Land use impacts of reduced density development on the project site would be similar to that of the proposed project (Alternative 1) though intensity of new industrial land use on the site would be reduced. Approximately 104 acres would be developed in Alternative 3a and 74 acres in Alternative 3b. Such development would be consistent with the Hayward General Plans and the present zoning designation.

Alternatives 4 and 5. The No Action and Acquisition by a Public Agency Alternatives would result in a continuation of the status quo for both Tract 5167 and the mitigation parcels. However, as the site represents a large proportion of the total undeveloped industrially zoned land in the area, no development could result in increased development pressure on remaining undeveloped sites.

MITIGATION MEASURES. No mitigation measures are proposed as no significant impacts would occur.

4.2 VEGETATION AND WILDLIFE

Much of the biological information in this section of the Environmental Impact Statement is summarized from a report prepared by Huffman and Associates (Wetland Regulatory Consultants) titled "Functional Value Assessment of Areas Selected for Mitigating Wetland Habitat Losses Resulting from the Proposed Marathon Buisness Park Development", dated February, 1987. The entire report can be referenced in Appendix J. Portions of this report concerning endangered species have been taken from the Section 7 biological assessment prepared by the U.S. Army Corps of Engineers. The primary objectives of the Huffman report are to:

- provide a detailed description of existing conditions on the project site and all candidate mitigation sites;
- perform a qualitative evaluation of the present functional habitat values of the proposed project site;
- compare these values to the present and potential habitat values of various proposed candidates mitigation site alternatives; and
- utilize the comparisons to assess which of the proposed sites will best satisfy the U.S. Fish and Wildlife Service (USFWS) policy of no net loss of Resource Category 2 seasonal wetlands.

No attempt is made by this study to determine exact habitat acreage exchange/ replacement requirements. Habitat value is determined on the basis of site functional value similarity and potential for similarity as compared to that of the proposed Marathon Business Park site.

AFFECTED ENVIRONMENT

REGIONAL PERSPECTIVE ON SOUTH SAN FRANCISCO BAY WETLANDS. The San Francisco Bay is the largest estuarine ecosystem in California. The Bay ecosystem supports a very diverse and productive biota. Prior to the mid-nineteenth century there were an estimated 734 square kilometers of tidal marshlands around the Bay. Only 152 square kilometers of tidal marsh remain today, most of which have been extensively and adversely modified (USFWS, 1984).

Tidal Saltmarshes. The tidal marshes of today are fragments of the original marshes. Some are narrow strips along outboard dikes. Only 21 percent of the Bay's original tidal marshland still exists, and approximately 32 percent of that is now diked. Many have been back-filled so that various types of marsh vegetation have been eliminated. Others have dikes at their upper limits and these upper marsh zones have been reduced to narrow strips bordering the dikes. Shallow, strip-like marshes typically lack secondary tide channel networks, thus reducing their value for many birds (USFWS, 1984).

Many marshes around South San Francisco Bay have undergone vegetational changes as a result of land subsidence and increased tidal submergence. Land subsidence of up to ten feet, caused by groundwater pumping, has occurred from Palo Alto to Alviso over the last one hundred years. Many marshes have changed from predominantly pickleweed to cordgrass as a result.

Outflows of major sewage treatment plants, like the San Jose/Santa Clara Water Treatment Plant near Alviso, have changed the plant and animal communities of the marshes in South San Francisco Bay. The input of "freshwater" from these treatment plants has shifted the salt balance in portions of the Bay from a salt to a brackish condition. The marshes along that outflow have changed from diverse salt marshes to brackish water marshes dominated by alkali bulrush, a species of low value to many salt marsh animals, including the salt marsh harvest mouse and the California clapper rail, both state and federally listed (endangered) species (USFWS, 1985).

The proposed project site is located adjacent to the eastern periphery of the historic Alviso saltmarshes, as mapped by Nichols and Wright (1971). At one time, the Alviso marshes constituted one of the three largest tidal marsh systems of San Francisco Bay (the other two are the Napa and Suisun Marshes). Ranging from seven miles to a quarter mile in width, the eastern San Francisco Bay marshes formed a corridor beginning with Alviso Marsh at the south end, and extending northward to Richmond.

The only large marshes left in this area are scattered from Dumbarton Point to the headquarters of the San Francisco Bay National Wildlife Refuge in Newark, along Mowry Slough, in the triangular marsh near Alviso (near the Palo Alto Nature Center), and on Greco Island. Although other marshes can be found in South San Francisco Bay, most are narrow, interrupted strips along sloughs and bayside dikes, or highly saline, diked-off marshes with areas of sparse pickleweed (USFWS, 1985).

Seasonal Wetlands. Historically, the San Francisco Bay area contained vast freshwater and tidal wetlands. These wetlands were significantly reduced in size when they were reclaimed for salt production, agriculture and urban development and when freshwater inflow was reduced. Depressions in areas behind dikes, caused either by the remnants of old sloughs or from differential settlement, collect rainwater and runoff during the winter rainy season in sufficient quantity to support wetland vegetation. This vegetation ranges from freshwater to salt tolerant plants, depending on the soil characteristics. These areas are frequently dry during the summer months. Because of their location and ephemeral character they are called seasonal wetlands.

According to the California Department of Fish and Game and the USFWS, diked seasonal wetlands in Alameda and Santa Clara Counties are in extremely short supply. (Much of this type of habitat which is privately owned has been removed or is currently proposed for residential, commercial or industrial development.) This habitat type has become so scarce in the project area that it is now considered unique. The USFWS estimates that approximately 4,155 acres of privately owned seasonal wetlands in the form of diked salt marsh, duck clubs, inactive salt ponds, and seasonal ponds characterized by combined wetlands, transitional and upland vegetation remain in Alameda and Santa Clara Counties. However, the only other seasonal wetlands of the particular vegetative characteristics as the proposed project site in the East Bay include the "Site G" Proposed New Fremont Airport site in Fremont, and the Ponderosa Homes Property in the Union City sphere of influence, both proposed for development and a duck club in Fremont.

Freshwater seasonal wetlands and surrounding grasslands provide waterfowl nesting habitat which is not available in the surrounding areas, such as tidal zones. Seasonal wetlands are also an important refuge for waterfowl and shorebirds when storm or high tides inundate tidal mudflats and marshes and prohibit their use by these species. They are valuable as buffer areas between existing development and Bay marshes, salt ponds and open water (USFWS, 1985).

Migratory waterfowl (e.g., ducks and geese) and shorebirds (e.g., sandpipers and plovers) frequently move between tidal marshes and adjacent seasonal wetlands; together, these wetlands provide critical habitat for shorebirds migrating along the Pacific Flyway to and from their breeding grounds in the north.

Seasonal wetlands are now under greater pressure from development around San Francisco Bay than are tidal wetlands. The demand by wildlife for seasonal wetlands is significant, if not critical, as seasonal wetland habitat is valuable to the wildlife utilizing these areas for foraging and resting when high tides cover the mud and sand flats on the Bay.

ASSESSMENT METHOD. As part of the decision process to select an appropriate assessment method or methods a scoping meeting was held with representatives from the California Department of Fish and Game (CDFG), U.S. Army Corps of Engineers (COE), U.S. Environmental Protection Agency (EPA) and USFWS. Each agency representative expressed a desire to support the USFWS policy of no net loss of Category 2 seasonal wetland habitat. Only the CDFG and USFWS have officially established policies and implementation guidelines (see Appendix J). Exceptions to this policy are made when it is determined to be in the public interest to accept a lesser standard.

The Adamus assessment technique was selected for this analysis. The Adamus approach uses the USFWS wetland classification scheme (Cowardin et al. 1979) which is highly sensitive to differences among wetland sites. Unlike the USFWS Habitat Evaluation (HEP) and the COE's Habitat Evaluaution System (HES) which provide for qualitative wildlife habitat value assessment, the Adamus method is more comprehensive in that it incorporates all of the wetland functions presently recognized as being significant. However, the Adamus technique does not provide a detailed qualitative habitat evaluation system that is species specific (e.g., the site offers high or low habitat value for the salt marsh harvest mouse). For this reason it was determined that no attempt could be made to estimate the amount of mitigation habitat acreage necessary to support species of agency or public concern. By using the Adamus technique, habitat value was assessed in terms of site functional value similarity, dissimilarity, and potential for similarity (if habitat values could be developed (via management) according to the Category 2 seasonal wetland values of the proposed Marathon Business Park site.

Following the above described meeting, an availability assessment was made of the sites listed above with the exception of the Sonoma Land Company site. It was determined that the following seven sites could be potentially purchased. Site "f" and "g" were added based on recommendations provided by the City of Hayward as a result of discussion with the project applicant.

Location of the following mitigation sites can be found in Section 3, (Alternatives Including the Proposed Action) Figures 3.2-4 through 3.2-9.

- HARD Parcel "A".
- HARD Parcel "B".
- Oliver Hay Farm (Oliver East B - West of Southern Pacific R.R.).
- Oliver Salt Property (Oliver West).
- Patterson Ranch Parcels A, B, C & D.
- Alameda Regional Flood Control District/Pacific FM.
- PACCAR Landfill site.

Adamus Assessment of Existing and Potential Functional Values. Each site, including the proposed project development area, was visited in August 1986. A fixed wing aerial survey was also made in August 1986. After these reconnaissance efforts, habitat maps for each site were prepared and ground-truthed during December 1986 and January/February, 1987. An analysis of the proposed project site and seven alternative sites was conducted using the wetland functional assessment techniques developed by Adamus (1983). Observations (qualitative data) made during the field reconnaissance were converted into preliminary statements regarding each site's values for the following wetland functions: (1) Ground water recharge and discharge; (2) Flood storage and desynchronization; (3) Shoreline anchoring and dissipation of erosion process; (4) Sediment trapping; (5) Nutrient retention and removal; (6) Food chain support; (7) Habitat for fisheries; (8) Habitat for wildlife; (9) Active recreation; (10) Passive recreation and heritage value.

The Adamus analysis consisted of following a procedure which provides an estimate of the likelihood that a single wetland is of high, moderate or low value for each of the functions listed above. Two steps are followed during this procedure. The assessment procedure was used to determine what potential future values might result if the sites were managed to encourage Category 2 seasonal wetland development. These values were determined based on the general mitigation management plans provided to the City of Hayward by the project applicant. Appendix J provides an expanded discussion of these steps and the assumptions used in the habitat assessment.

THE PROPOSED PROJECT SITE

Vegetation. The proposed project site is situated on a 134 acre parcel located within the city limits of Hayward, California. Elevation on the site ranges from 2 to 10 feet MSL. The site is seasonally inundated and supports three habitat types; diked saltmarsh, upland pasture and upland dike surfaces (Figure 4.2-1).

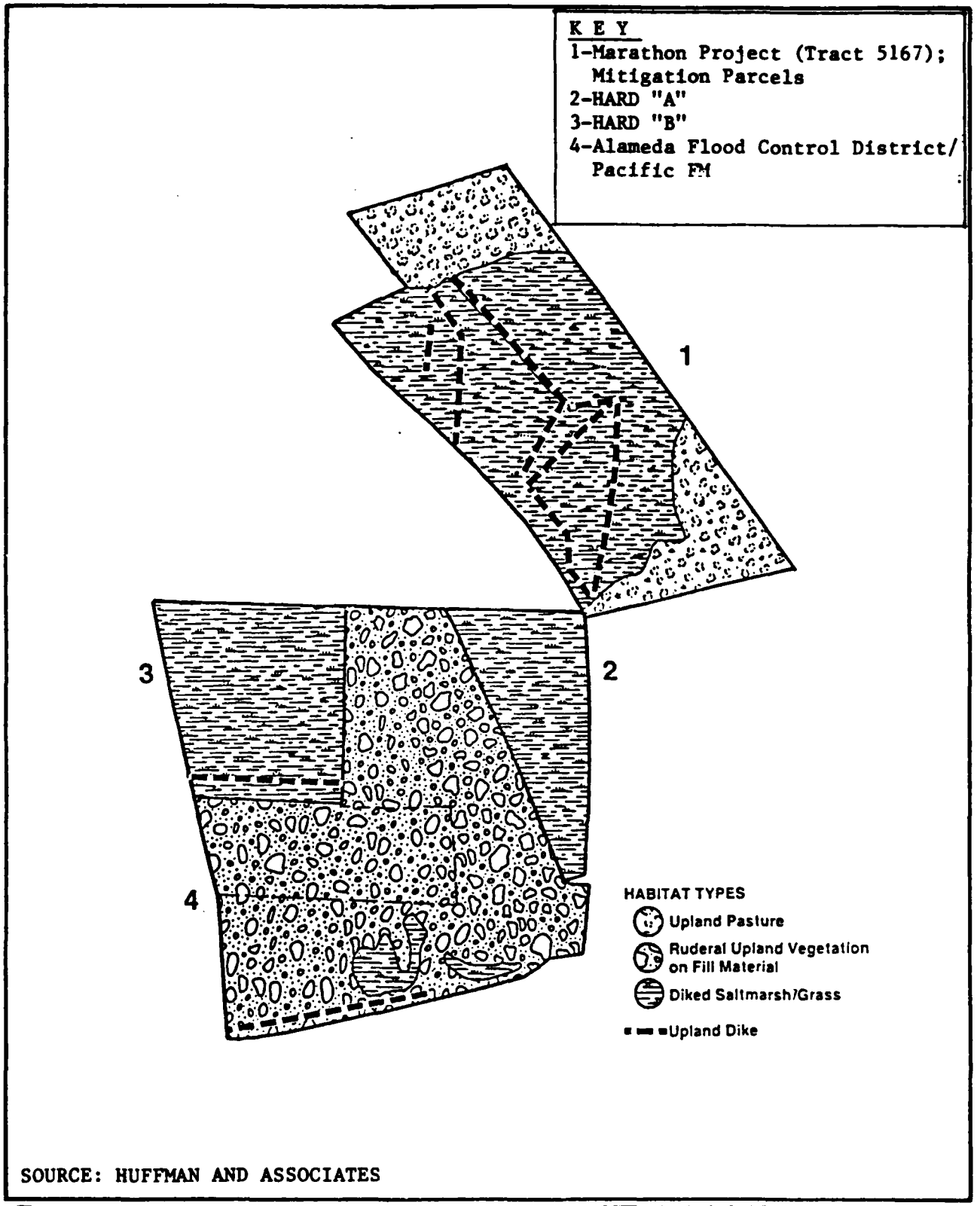
DIKED SALTMARSH. Approximately 90 acres of the site are diked saltmarsh (Table 4.2-1) (seasonal wetlands) as determined by both a COE jurisdictional determination, an independent study by Harvey and Stanley (1984) and confirmed by this analysis.

Seasonal wetlands occur primarily at elevations below 4.5 feet MSL. Several small ponds are present on the site during a typical winter season (Figure 4.4-1). The period of inundation varies significantly on an annual basis. Ponding is present on the site from two to seven months annually, depending on rainfall regime (TRS Consultants, 1985). A study of the project site (TRS Consultants and Shapiro and Associates, 1985) concluded that most habitats were inundated only during a portion of the year. Vegetative cover in these lower seasonally inundated areas is approximately 60 percent (40 percent pickleweed (Salicornia virginica, S. europaea), 20 percent brass buttons (Cotula coronopifolia)) with 40 percent bare ground. In slightly higher areas rabbitfoot grass (Polypogon monspellensis) and mediterranean barley (Hordeum geniculatum) occur with pickleweed.

UPLAND PASTURE. Upland pasture occurs on approximately 41 acres of the site (Table 4.2-1), primarily at elevations above 4.5 feet MSL. Typical perennial and annual grassland species dominate this type.

TABLE 4.2-1. HABITAT ACREAGES FOR THE PROJECT SITE AND CANDIDATE MITIGATION SITES

SITE	HABITAT TYPES	ACREAGE
Project Site	Upland Dike	1
	Upland Pasture	41
	Diked Saltmarsh/Grass	90
HARD "A"	Diked Saltmarsh	42
	Upland Dike	<1
HARD "B"	Diked Saltmarsh	52
	Upland Dike	<1
Alameda Flood Control District/ Pacific FM	Ruderal Upland Vegetation on Fill Material	154
	Upland Dike	1
	Diked Saltmarsh/Grass	6
Oliver Salt	Abandoned Salt Pond	130
	Upland Dike	13
	Diked Saltmarsh	0.5
Oliver Hay Farm	Agricultural	100
	Managed Duck club	30
Patterson Ranch	Agricultural	600
PACCAR	Ruderal Upland Vegetation on Fill Material	32
	Diked Saltmarsh	6



SOURCE: HUFFMAN AND ASSOCIATES

earth metrics

N

SCALE
1" = 1000'

FIGURE 4.2-1 HABITAT TYPES

UPLAND DIKE SURFACES. A network of dikes traverses the site. Upper dike surfaces are generally above 5 feet MSL. Diked surfaces are typically densely vegetated with annual grass species, thistles, mustards, and other ruderal species that provide cover throughout the year and refuge from flood waters during winter storm periods.

Wildlife. There are three primary wildlife habitats on the project site: seasonal wetlands, upland pasture, and upland dike surfaces (Figure 4.2-1). Seasonal wetlands provide a transitional habitat between daily inundated tidal wetlands and upland habitat. Upland pasture supports numerous small mammals, reptiles species, and song birds. Upland dike surfaces are typically densely vegetated and provide cover and refuge during flood periods.

DIKED SALTMARSH (SEASONAL WETLANDS). Seasonal wetlands on the project site provide resting, feeding and breeding areas for a wide variety of migratory and resident bird species. During the winter season avian use is particularly heavy. High tide censusing was conducted from March through May in 1982 (TRS Consultants, 1985). Flocks of over 2,000 dowitchers, 400 black bellied plover, and approximately 3,000 other shorebirds of various species were observed on a single day in April of 1982 (TRS Consultants, 1985). Data collected indicated regular use of the site by black-necked stilt, willet, yellowlegs, great egret, and American avocet, although their numbers were generally less than 100 per observation. Primary duck species using the site during March to May 1982 were: pintail (7,200) and cinnamon teal (>100). Observations of bird use from January to May 1983 reflected a similar pattern of high use by a variety of shorebirds and dabbling ducks. Shorebird counts, including dowitcher, willet, yellowlegs, black-bellied plover, killdeer, black-necked stilt, and American avocet, were greater than 4,000. Duck species observed included pintail (>300), shoveler (7,100), and cinnamon teal (7,300). Selected observations in winter 1984 revealed high use by pintail, shoveler, cinnamon teal, egret and heron. Two pair of cinnamon teal were observed nesting on the upland dike area near the railroad tracks north of Sulphur Creek (TRS Consultants, 1985). Longbilled curlews, willets, plovers dunlin, western gull, forster's fern and yellowlegs are also frequent users. A number of raptor species including the red-tailed hawk, American kestrel, Northern harrier, black-shouldered kite, short-eared owl, burrowing owl and barn owl were observed foraging on the site in 1983 (TRS Consultants, 1985) and in 1986.

UPLAND PASTURE. Upland areas have been heavily grazed by livestock over a period of years, resulting in trampling, soil compaction, proliferation of weedy species, and absence of vegetative cover essential to many small mammals. Harvey and Stanley (1984) listed the beechey ground squirrel, black-tailed hare, pocket gopher, field vole and field mouse as common mammals using upland portions of the site. The gopher snake and western fence lizard were also observed in upland areas. Common bird species observed on upland sites included the western meadowlark, savannah sparrow, rock dove, horned lark and water pipit.

UPLAND DIKE SURFACES. Upland dike surfaces are valuable as refuge areas for various small mammals, and as resting areas for avian fauna.

Rare and Endangered Species. The habitat of endangered, threatened and rare species takes on special significance because of federal and California state laws enacted to protect these species and their habitats. These laws include the Federal Endangered Species Act of 1973 with 1978 Amendments, the California Endangered Species Act of 1970, and the California Native Plant Protection Act of 1977.

During preliminary biological consultation, the California Department of Fish and Game (CDFG) was contacted for information from its Natural Diversity Data Base (CNDDB), a file of all recorded sitings of rare and endangered species in the State of California. The Data Base information from the San Leandro and Hayward U.S.G.S. Quadrangle maps did not report previous observation of any listed or candidate State or Federal endangered species of plants or animals.

The Point Reyes bird's beak (Cordylanthus maritimus ssp. palustrus) and Jepson's pea (Lathyrus jepsonii ssp. jepsonii) are on the California Native Plant Society list for sensitive plant species of salt marshes. The transition zone between typical wetland and upland communities is the habitat where the two plant species are often found, and they require frequent inundation by tidal or brackish water for proper growth and reproduction. Based on the plant associations found at the Marathon site, it appears that the site could provide suitable habitat for the bird's beak which generally occurs in transitional peripheral halophyte zones subject only to extreme tidal action (U.S. Army Corps of Engineers, 1987). Neither species was observed during field surveys conducted during 1985 and 1986 by numerous biological investigators, including two experienced biologic surveyors from the U.S. Army Corps of Engineers on April 24, 1986. See Appendix P for details of this investigation.

The burrowing owl is animal species of concern to the State of California due to declining numbers statewide. Burrowing owls have been observed on the site by both TRS Consultants and Earth Metrics in the last couple of years.

Pursuant to the Endangered Species Act the USFWS notified the Corps in a letter dated June 26, 1984, that one listed endangered species, the salt marsh harvest mouse (Reithrodontomys raviventris ssp. raviventris) may be present in the project area. The salt marsh harvest mouse is designated on both state and federal lists as being endangered. In 1985 Howard Shellhammer, a recognized species expert, indicated to Earth Metrics that habitat requirements for the salt marsh harvest mouse include a dense, persistent cover of vegetation of at least 60 percent pickleweed (30 to 50 cm in height during the summer), but of moderate species diversity (including species such as fat hen, alkali heath or saltgrass) (Shellhammer, 1985). In a 1987 letter to USFWS, Shellhammer indicated that diked marshes in the South Bay are much more important as salt marsh harvest marsh habitat than previously believed and indicated mice may be high in numbers in such areas as part of the East Bay Regional Park District's marsh development area just north of the San Mateo Bridge (Shellhammer, 1987).

Salt marsh havest mice are critically dependent upon dense vegetative cover with a preference toward pickleweed (Salicornia spp.). They are seldom found in cordgrass (Spartina spp.) for alkali bulrush (Scirpus spp.). In addition, saltgrass (Distichlis spicata) and brass buttons (Cotula coronopifolia) provide very poor habitat for salt marsh harvest mice; they are low growing,

lack stratification and provide poor cover. In marshes with an upper zone of peripheral halophytes, mice use the vegetation to escape high tides. In some instances, mice may spend considerable time in the upper transitional zone of dense vegetation. The availability of the transitional halophyte zone is significant to the presence of the mouse since the vegetation would provide cover during high tides. Marsh areas without such cover would not be conducive for mouse populations, as the mouse would be subject to predation and drowning.

Historical studies have demonstrated that the population of the salt marsh harvest mouse diminished in conjunction with salt marsh habitat losses resulting from urbanization and development around San Francisco Bay. It is documented that about 80 percent of the historic intertidal marshland has been eliminated by diking, draining and filling. Loss of marsh habitat has been greatest in south San Francisco Bay in Santa Clara County. Many remaining marshes are too small and too widely separated to support viable populations of the mouse. As a direct result of marshland losses, the salt marsh harvest mouse population is listed as endangered with extinction and has been so identified by the Department of the Interior (October 13, 1970).

"Historically, diking and filling typically occurred out to the bayward edge of marshes, eliminating vast expanses of higher elevation marsh and leaving only a narrow band of low marsh along outboard levees. The salt marsh harvest mouse, being a creature of the mid to upper pickleweed (Salicornia virginica) marsh zone, cannot survive the rigors of daily tidal inundation at lower elevations dominated by cord grass (Spartina foliosa) (Fisler, 1965). Although salt marsh harvest mice are uniquely adapted to a tidal environment, they must escape the seasonally extreme high tides of June, July, December and January. The fact that the highest tides in the Bay occur in the Alviso district (a mean tidal range of 7.2 feet) (Fisler, 1965), and that the southern end of the bay supports the largest and centrally most important area for the southern subspecies (in current and historical times), unfortunately coincides with the fact that south San Francisco Bay has also undergone the most extensive habitat loss within the range of R. r. raviventris. Because of the habitat loss, even lesser tides now post a serious threat to the salt marsh harvest mouse survival in many tidal marshes." (Meyer, 1983)

With the declining trend in the habitat of the endangered mouse in tidal marshes, more importance has been assigned to nontidal diked marshes for the long term survival of the mouse. While the absence of tidal influence is a radical departure from the accustomed tidal conditions, the documented existence of mouse populations in these nontidal areas indicates their habitat value (Meyer, 1983). While the importance of such nontidal areas to the salt marsh harvest mouse has been noted, the location of such nontidal marshes in association with nearby tidal areas indicates the significance of remaining habitat, both tidal and nontidal.

In the species account for the salt marsh harvest mouse provided by the Fish and Wildlife Service biological opinion, 1-1-82-F-1120, dated January 12, 1983, the following is stated: "The smaller and more isolated the area to which the species population is confined, the greater the probability that the species will be extirpated from that area. Especially (emphasized) when related to the salt marsh harvest mouse populations which are in small numbers and not able to disperse and colonize new or adjacent habitat."

Of the remaining bay marshlands within the range of R. r. raviventris, approximately 60 percent are tidal and 40 percent are nontidal diked marshes (Jones and Stokes, et al., 1979). All remaining nontidal diked marshes are also small individual parcels partitioned by dikes and/or bay-commercial, salt ponds and urban-industrial complexes. Where habitat conditions are marginal for the endangered mouse, mortality rates are high (Meyer, 1983). Such conditions heighten the potential threat to the survival of the species in the restricted areas where they may be presently found. It is also stated in the U.S. Fish and Wildlife Service's 1983 opinion (Meyer, 1983) that "Nontidal diked marshes are important to survival of the mouse."

Certain nontidal diked habitats are subjected to two land use practices not shared by tidal marshes - the mosquito abatement practice of discing marshlands, and the flood control practice of diverting stormwater runoff into diked retention ponds. The discing practice eliminates habitat values of the marsh for the salt marsh harvest mouse during the period of time needed to restore the vegetative cover, if site conditions are not otherwise altered. If no peripheral higher elevation refugia are available, stormwater diversions result in the inundation of the area threatening the mouse with drowning. Impacts to the mouse are obviously severe and have undoubtedly extirpated many subpopulations throughout the Bay Area (Meyer, 1983).

Diked nontidal habitats exist under a wide array of environmental conditions, some conducive to the mouse, others not. Some nontidal habitats support no or only limited vegetative growth and do not provide suitable habitat. Data resulting from several trapping efforts after 1980 indicate that the previously considered unsuitable habitat is being used by the endangered mouse. Before 1980, most nontidal wetland habitat has been routinely categorized as "marginal" habitat for the salt marsh harvest mouse. When, however, the degraded condition of almost all remaining tidal habitat is considered, survival of the salt marsh harvest mouse is highly dependent on maintaining even "marginal" areas. The 1983 opinion concludes that there is very little prime habitat left in the range of the salt marsh harvest mouse, including marshes being administered by Federal, State and local agencies. Thus, maintaining all known salt marsh harvest mouse populations, even those residing in "marginal" habitats, is important in the effort to attain recovery of the species. With proper management, many areas of "marginal" habitat have the potential to be greatly improved for the mouse in terms of habitat quantity and quality (U.S. Army Corps of Engineers, 1987).

The present status of the salt marsh harvest mouse as indicated in the draft Recovery Plan is declining. The estimated number totals a few thousand at their peak during the summer. Their distribution around the Bay is limited to small, disjunct populations, often in marginal habitat and almost always in marshes lacking an upper edge of vegetation.

BIOLOGICAL DESCRIPTION OF POTENTIAL MITIGATION SITES

HARD Parcel "A". HARD Parcel "A" covers 42 acres immediately south of Sulphur Creek and the project site in the City of Hayward (Figures 3.2-4 and 4.2-1). Site elevation ranges from two to three feet within the diked area. The site is drained by a ditch at the north end which flows to the HARD B parcel. The westerly side is bounded by a 12 foot levee formed from the landfill owned by

the Alameda County Flood Control District. The entire site is classified as diked saltmarsh habitat (Table 4.2-1). Pickleweed stands form the dominant cover on the site. Parcel "A" provides valuable seasonal wetland habitat for shorebirds such as the dowitcher and yellowlegs, and ducks such as cinnamon teal. During March 1983, 33 species were observed on the site (TRS/Shapiro Consultants, 1985). HARD parcel "A" provides habitat potentially suitable for the endangered salt marsh harvest mouse.

HARD Parcel "B". HARD Parcel "B" (52 acres) is located southwest of the project site, immediately adjacent to San Francisco Bay (Figures 3.2-4 and 4.2-1). Prior to diking (early 1900's) the site was covered by natural salt ponds, separated from the Bay by beaches. Pickleweed marsh was also present on the site at that time. The property was diked in the early 1900's and used for commercial salt production. Cattle were observed grazing the property in December, 1986.

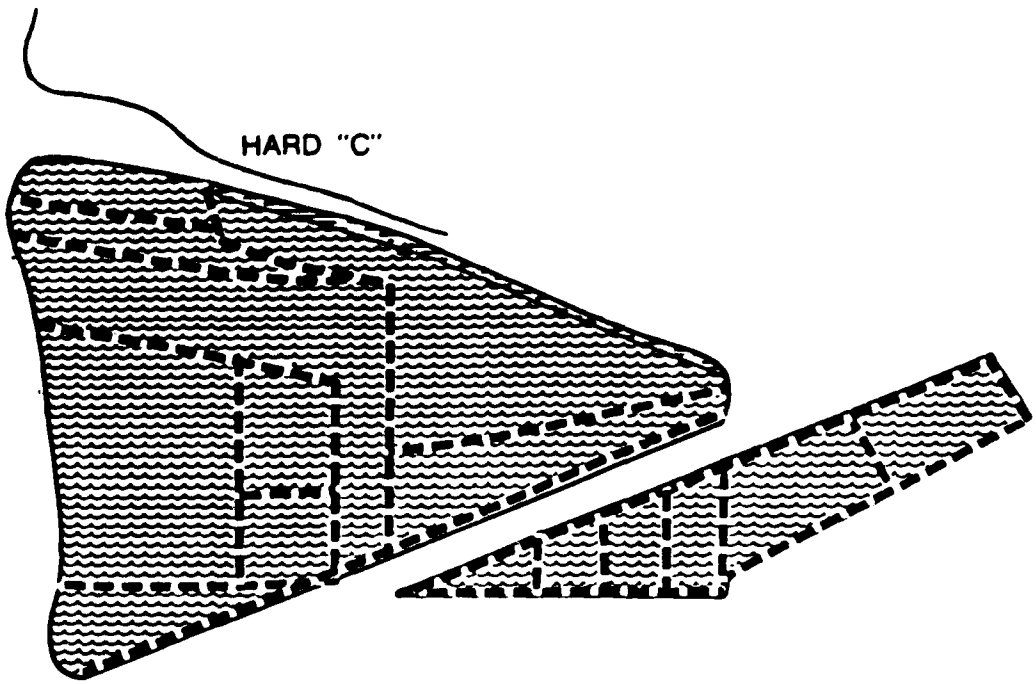
The site is generally level, with elevations ranging from one to three feet MSL. The site is entirely diked saltmarsh (Table 4.2-1), the majority covered by pickleweed with patches of bare ground in low areas (Figure 4.2-1). Ponding was present on the southeastern portion of the site in December, 1986 despite the relatively low amount of precipitation received during the winter of that year. Numerous shorebird species and over 1,000 ducks were observed using seasonal ponds on the site in March, 1984 (Phillips Williams and Associates, 1984, see Appendix H). HARD parcel "B" provides habitat potentially suitable for the endangered salt marsh harvest mouse.

Alameda County Flood Control District/Pacific FM Property. The 161 acre site (Alameda Flood Control District - 116; Pacific FM-45) is located on the Hayward landfill in the City of Hayward (Figure 4.2-1). The site was diked prior to 1950. In the 1950's portions of the area were used to dispose household waste. In subsequent years, the Oakland Scavenger Company utilized the entire area as a landfill. Fill activity continued until the mid 1970's.

Vegetation on the site is largely composed of ruderal, upland species. Small areas of diked saltmarsh grass are located in the southern portion of the property (Table 4.2-1). The majority of the site is weedy pasture land with diked saltmarsh occurring in the low-lying southeastern portion of the site. An abundance of ground squirrels were observed on the site during field reconnaissance. Several Northern harriers, a red-tailed hawk and six ducks (two pintail, four mallards) were also sighted.

Oliver Salt Property. Total acreage for the northern and southern sites is 144 acres. Both sites are abandoned salt ponds with a network of dikes separating them. Soils on the majority of the site are hypersaline and therefore do not support vegetation. Three habitat types are found on the Oliver Salt Property (Figure 4.2-2). Abandoned salt pond occurs on approximately 90 percent of the property (130 acres). Upland dike habitat occurs on approximately nine percent of the property (13 acres). A narrow band of pickleweed (diked saltmarsh) that occurs along the length of one of the dikes (Figure 4.2-2) covers less than one percent of the total acreage 0.5 acres (Table 4.2-1).

Patterson Ranch Parcels A, B, C, D. The Patterson Ranch contains four potential mitigation parcels. Parcels A, B, and C are situated adjacent to one another, encompassing approximately 600 acres (Figure 4.2-3). Parcel D,



HABITAT TYPES

Abandoned Salt/Pond

Upland Dike

Diked Saltmarsh

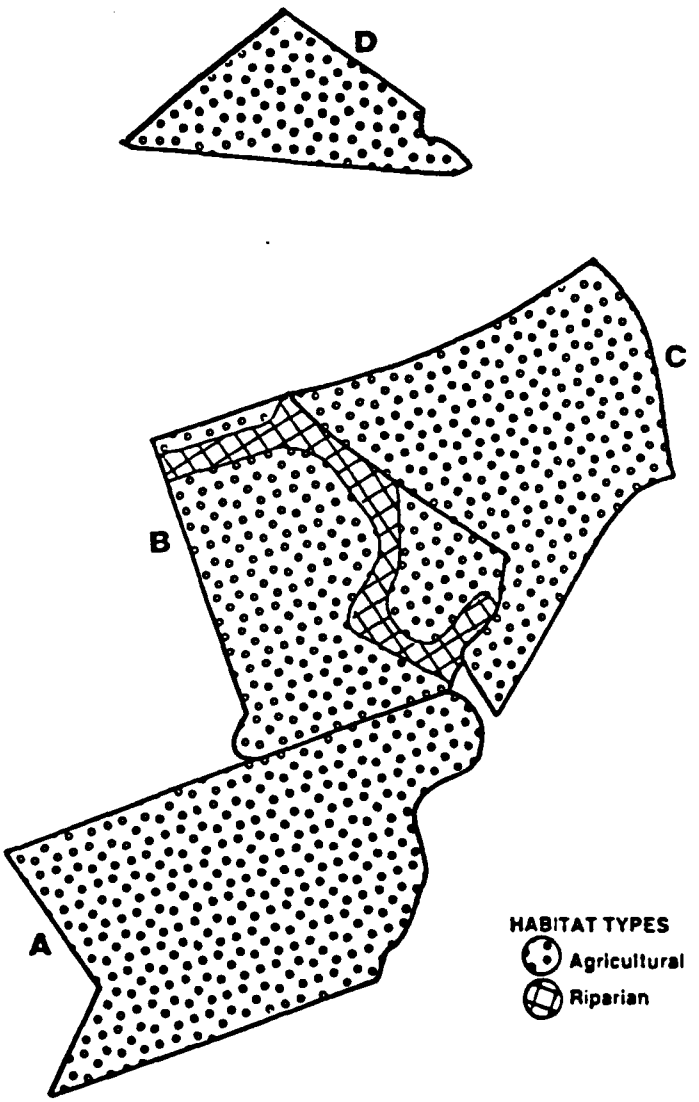
SOURCE: HUFFMAN AND ASSOCIATES

earth metrics

N

0 FEET 875

FIGURE 4.2-2 HABITAT TYPES: OLIVER SALT



SOURCE: HUFFMAN AND ASSOCIATES

earth metrics

N

0 FEET 1,000

FIGURE 4.2-3 HABITAT TYPES: PATTERSON RANCH A, B, C, D

located north of the drainage channel covers approximately 125 acres. All four sites are presently under cultivation but have the potential to support seasonal wetland habitat. Riparian vegetation borders a flood control channel that forms the northern border of parcels B and C and a drainage channel drains both parcels. Elevation on the parcels range from 5 to 10 feet MSL.

Oliver Hay Farm Property. The Oliver Hay Farm property (130 acres) is located in the vicinity of the City of Hayward (Figures 3.2-7 and 4.2-4). The parcel is generally level, with elevation ranging from four to five feet MSL. Approximately 100 acres of the property is presently cultivated (Figure 4.2-4). The remaining 30 acres is operated as a duck club. The duck club is flooded annually by pumping water from Alameda Creek via a drainage system.

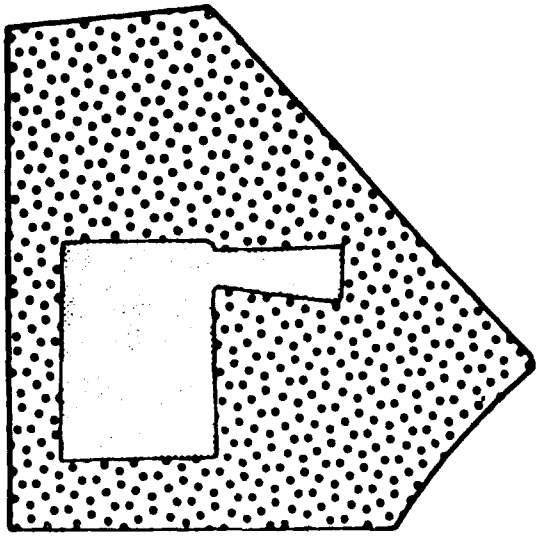
PACCAR/Peterbuilt Site. The PACCAR Noise test site (38.7 acres) is located at the terminus of Mowry Avenue in the City of Fremont (Figures 3.2-5 and 4.2-5). The site is generally level, sloping down on the western perimeter. A sanitary landfill was operated at this site in the 1960's. Elevation on the site ranges from 2 to 10 feet MSL. Fill activities were terminated in 1964 (Harding Lawson Associates, 1976). The noise test facility consists of an asphalt roadway with turning circles.

Vegetation on the site is primarily weedy (Ruderal Vegetation on Upland Fill (Figure 4.2-5). Annual grasses, and dense stands of wild mustard (Brassica sp.) form the dominant plant cover. Scattered patches of alkali heath also occur on the property. Two drainage ponds are located below the test track. Both are seasonally inundated (both held water in February of 1987). Dense pickleweed vegetation (Diked saltmarsh habitat; Table 4.2-1) occurs along the margins of both ponds, forming potential habitat for the Salt Marsh Harvest Mouse.

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1: PROPOSED SITE AND HARD "A" AND "B" MITIGATION PARCELS

Project Site Development Impacts. Alternative 1 (full scale development of the proposed Business Park) would result in placement of fill material and construction grading over the entire 134 acre site. Approximately 90 acres of seasonal wetlands would be lost. Wetland portions of the site have the following values: high wildlife habitat value; high flood storage value; water quality enhancement; aesthetic value; and educational value. Approximately 44 acres of upland vegetation would be lost. Although upland vegetation is not a unique resource, when situated adjacent to seasonal wetland, upland areas serve as important buffers to urban areas and can be used as areas of refuge by waterfowl and shorebirds during flood episodes. Development of the site with proposed Business Park use would result in significant adverse impacts to migratory waterbirds and waterfowl through loss of a valuable habitat area used for feeding, resting and nesting for numerous species. Use of the site as refugia for waterbirds and shorebirds during high tides and periods of high waves in the bay would be lessened, as would possible nesting by certain species of waterfowl. On site construction noise, human encroachment and hydrologic impacts associated with development of the proposed project would degrade surrounding wildlife habitat.



HABITAT TYPES
Agricultural
Managed Duck Club

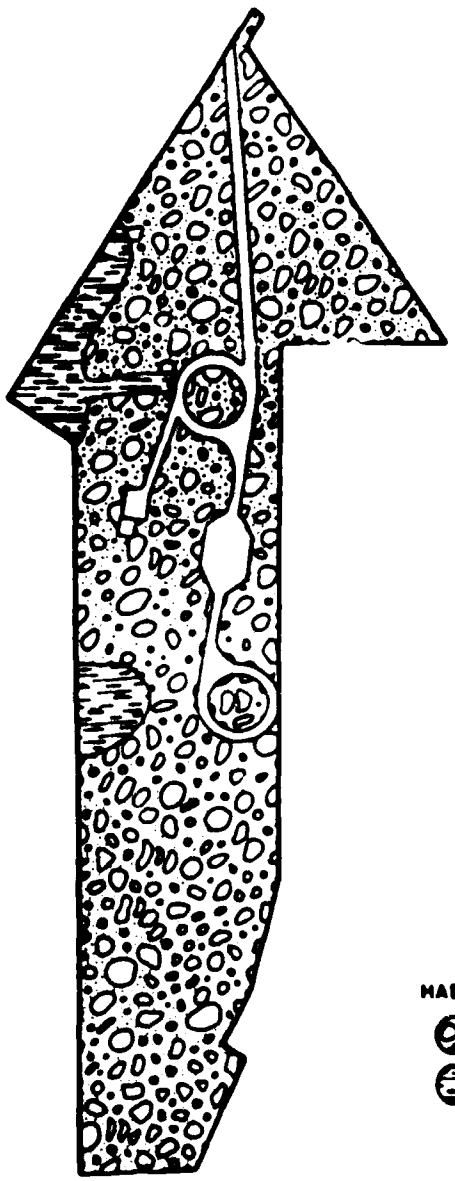
SOURCE: HUFFMAN AND ASSOCIATES

earth metrics

N

0 FEET 1000

FIGURE 4.2-4 HABITAT TYPES: OLIVER HAY FARM



HABITAT TYPES

- Ruderal Upland Vegetation on Fill Material
- Diked Saltmarsh

SOURCE: HUFFMAN AND ASSOCIATES

earth metrics

FIGURE 4.2-5 HABITAT TYPES: PACCAR/ PETERBUILT SITE

Cumulative Wetland Losses

CITY OF HAYWARD. Development of the project site without mitigation would contribute to the cumulative loss of seasonal salt marsh habitat. The EBRPD property, the Marathon site, and the two HARD parcels represent one of the largest contiguous areas (approximately 380 acres) of seasonal salt marsh remaining in the southeast Bay. The impact would be a loss of approximately 24 percent of the total remaining seasonal salt marshes in that part of the shoreline (TRS, 1985).

REGIONAL. Without mitigation, development of the site with industrial uses as proposed would contribute to the loss of the type of seasonal wetland in Alameda and Santa Clara Counties characterized by the proposed project site, "Site G" in Fremont and Ponderosa Homes Property in Union City. Development of the site would contribute to the loss of approximately two percent of the 4,155 acres of known privately owned seasonal wetland habitat in Alameda and Santa Clara Counties. Virtually every privately owned seasonal salt marsh habitat in the Fremont and Newark vicinity is proposed for development (P. Kelly, DFG, personnal communication, 1984). Three major development proposals would eliminate approximately 550 acres of seasonal salt marsh habitat in this area. When considering that approximately 80 percent of the original intertidal marshland which existed around San Francisco Bay has been lost since 1850, these cumulative losses would be significant on a national, regional, and local basis.

Functional Value Assessment. Alternative 1 includes offsite wetland enhancement as mitigation for wetland losses. This mitigation measure would involve the enhancement of seasonal wetland habitat values on the two HARD Parcels neighboring Sulphur Creek by allowing them to remain wetter longer via water management (See Appendix H for Mitigation Plan). HARD Parcels "A" and "B" currently support seasonal wetland habitat similar to the project site. These parcels were formerly tidal/intertidal areas which were diked from tidal action in the early 1900's. In the functional value assessment, the HARD parcels rated High in flood storage capacity (as did the project site) and Moderate in sediment trapping, nutrient retention and removal, food chain support, and wildlife habitat (as compared to High for the project site). In terms of wildlife habitat, the HARD parcels have the highest existing value of the candidate sites, but differ from the project site; both parcels are at a slightly lower elevation, have monotypic saltmarsh habitat characteristics, and provide habitat primarily for shorebirds. In-kind habitat values and functional values for the project site and candidate mitigation sites are discussed in Table 4.2-2.

Enhancement of these individual parcels would provide smaller acreage than the project site with lower habitat diversity. In addition, the existing wetland value of the HARD parcels will be lost by altering the water regime of these sites. The two HARD Parcels, given their existing near comparability (Appendix J, Tables 5 through 14) with the project site, would require little increase (via land management) in habitat value to achieve similar value status. Mitigation of this type would, therefore, result in a net habitat loss.

Rare and Endangered Species. Development of the project would eliminate burrowing owl habitat, a species of concern to CDFG. More importantly though

TABLE 4.2-2. IN-KIND HABITAT VALUE AND FUNCTIONAL SIGNIFICANCE OF PROJECT SITE AND CANDIDATE MITIGATION SITES

SITE	HABITAT TYPES	ACREAGE	CURRENT HABITAT STATUS	EXISTING FUNCTIONAL SIGNI-FICANCE	POTENTIAL FUNCTIONAL SIGNI-FICANCE	SATISFY IN-KIND NO NET LOSS OF HABITAT	POST ENHANCEMENT MANAGEMENT
Project Site	Upland Dike Upland Pasture Diked Salt-marsh/Grass	1 41 90	- Formerly a tidal/ intertidal area (diked from tidal action in the early 1900s). - Currently supports seasonal wetland habitat.	High	N/A	N/A	N/A
HARD Parcel A	Diked Saltmarsh Upland Dike	42 <1	- Formerly a tidal/ intertidal area (diked from tidal action in the early 1900s). - Currently supports seasonal wetland habitat similar to project site. - Would provide smaller acreage (than project site) with lower habitat diversity.	Moderate	High	No	None required
HARD Parcel B	Diked Saltmarsh Upland Dike	52 <1	- Formerly a tidal/ intertidal area (diked from tidal action in the early 1900s). - Currently supports seasonal wetland habitat similar to project site. - Would provide smaller acreage (than project site) with lower habitat diversity.	Moderate	High	No	None required

TABLE 4.2-2 (CONTINUED). IN-KIND HABITAT VALUE AND FUNCTIONAL SIGNIFICANCE OF PROJECT SITE AND CANDIDATE MITIGATION SITES

SITE	HABITAT TYPES	ACREAGE	CURRENT HABITAT STATUS	EXISTING FUNCTIONAL SIGNI-FICANCE	POTENTIAL FUNCTIONAL SIGNI-FICANCE	SATISFY IN-KIND NO NET LOSS OF HABITAT	POST ENHANCEMENT MANAGEMENT
ACFCD/ Pac. F.M.	Ruderal Upland Vegetation on Fill Material Upland Dike Diked salt-marsh/Grass	154 1 6	- Formerly a tidal/ intertidal area. - Entire site is a landfill. - Elevation is 5-10 feet higher than project site; primarily weedy upland vegetation. - Single similarity is acreage; in order to provide mitigation, landfill would have to be converted to seasonal wetland.	Unranked	Moderate	Unknown	Continuous management and maintenance needed.
Oliver Salt	Abandoned Salt Pond Upland Dike Diked Saltmarsh	130 13 0.5	- Formerly tidal area. - Presently provides high value intertidal shallow bottom habitat with isolated patches of upland vegetation on dike tops. - Sufficient acreage, but displacement of high value habitat (for seasonal wetland mitigation) would be inappropriate.	High	Unranked (a)/ High (b)	No	Once fill is placed and graded, minimal management would be required.
Patterson Ranch (Parcels A,B,C,D)	Agricultural Riparian	100 90	- Formerly a seasonal wetland. - Presently cultivated; has good habitat potential as seasonal wetland under proper management. - Sufficient acreage to mitigate for project impacts; lower potential habitat diversity.	Low	High	Yes	Minimal management required.

TABLE 4.2-2 (CONTINUED). IN-KIND HABITAT VALUE AND FUNCTIONAL SIGNIFICANCE OF PROJECT SITE AND CANDIDATE MITIGATION SITES

SITE	HABITAT TYPES	ACREAGE	CURRENT HABITAT STATUS	EXISTING FUNCTIONAL SIGNI-FICANCE	POTENTIAL FUNCTIONAL SIGNI-FICANCE	SATISFY IN-KIND NO NET LOSS OF HABITAT	POST ENHANCEMENT MANAGEMENT
Oliver Hay Farm	Agricultural Managed Duck Club	635 90	- Formerly an intertidal area. - Most of the site is presently cultivated. - A portion of the site is diked saltmarsh. - Oliver Hay Farm West (presently cultivated) has potential as seasonal wetland under proper management. - Similar acreage to project site.	Low	Low	Yes	Minimal management required.
PACCAR/ Peterbilt Site	Ruderal Upland Vegetation on Fill Material Diked Saltmarsh	32 6	- Formerly a tidal area. - Presently a landfill site (elevation averages 10 feet MSL). - Low habitat value; in order to provide suitable mitigation landfill would need to be converted to seasonal wetland.	Unranked (a)	Moderate	Unknown	Continuous management and maintenance needed.

(a) Unranked intertidal mitigation plan. Unranked because the site was found after field assessment and baseline data analysis to consist of a habitat type totally different from the seasonal wetland habitat type of the proposed project site (e.g., intertidal saltpond; capped landfill). Value comparison would be like comparing apples and oranges.

(b) Value based on mitigation plan to raise bottom elevation using fill material.

Source: Huffman Technologies, 1987.

with regard to the salt marsh harvest mouse, as indicated in the May, 1987 biologic survey by the Corps of Engineers (Appendix P), the Corps has concluded (based on a review of existing information including that provided by Harvey and Stanley along with Howard Shellhammer) that the proposed Marathon Industrial Park would not directly affect the endangered salt marsh harvest mouse. The Corps has prepared a biological assessment with a determination of no adverse effect on the mouse, which will be provided to the USFWS in accordance with the Endangered Species Act. The Corps has pointed out in the biological assessment that "the proposed Marathon development will not directly affect the salt marsh harvest mouse population. None presently are known to occupy the proposed development site. Although trapping of the site was not determined necessary as indicated by Dr. Shellhammer in his January, 1986 letter, the view of the U.S. Fish and Wildlife Service that maintenance of even "marginal" habitat areas is important to the recovery of the species must be considered."

HARD parcels "A" and "B" provide potentially suitable habitat for the endangered salt marsh harvest mouse. If the mouse was present, enhancement of the habitat on these parcels as proposed in Alternative 1, could in fact adversely affect the habitat with regard to its suitability for the endangered species by increasing the duration of inundation.

ALTERNATIVE 2, THE PROPOSED PROJECT WITH ALTERNATIVE MITIGATION. Biologic impacts associated with the proposed project are discussed under alternative 1. Alternative 2 considers three mitigation options; (2a) enhancement or restoration of wetland mitigation parcels, (2b) purchase and dedication of existing wetland parcels or (2c) payment in lieu (for unspecified mitigation land) to a public land bank agency. These alternatives are discussed in detail in Section 3, Alternatives including the proposed project. Parcels identified under Alternative 2a (for enhancement) are:

- 2ai: Alameda County Flood Control District/Pacific FM parcel;
- 2aii: PACCAR/Peterbilt parcel (34 acres);

Parcels identified for Alternative 2b (purchase and dedication) include:

- 2bi: Oliver Brothers property near State Route 92 (Oliver Salt Pond) (188 acres);
- 2bii: Oliver Brothers property north of Alameda Creek (Oliver Hay Farm) (130 acres);
- 2biii: Patterson Ranch Lands, parcels A, B, C and D (600 acres).

ALTERNATIVES 2ai AND 2aii: Utilizing one, or a combination of these properties, the mitigation plan would create new seasonal wetlands on top of historic garbage dumps. The plan would involve first capping the existing elevation with an impermeable material, creating borders to hold water on the top, planting appropriate vegetation, and possibly pumping water in the winter months to increase the inundation (see Appendix I for the Mitigation Plan).

Subsequent to careful evaluation, the landfill sites (Alameda Flood Control/ Pacific FM, and PACCAR) were not ranked with the project and other candidates. As previously explained (Appendix J, Section 2, Methods), it is assumed (in the Adams method) that sites are of the same habitat type for the sake of a meaningful comparison. The landfill sites occur largely at significantly

higher elevations, have foreign parent material and surface soils, and therefore constitute an entirely different potential habitat.

The analysis indicates that the two landfill sites have a limited potential for developing values (via management) of a less than equally similar level. This result was due to the inherent artificial nature of being perched (elevated) on top of a capped landfill area, therefore significantly reducing their interrelated value in association with adjacent areas (e.g., association with surface and ground waters, ability to trap sediments is lost or quite low). Furthermore, the technology required to convert a landfill to a capped, functional wetland is, as yet, unproven. The landfill sites' value for mitigation is questionable because of their inherently artificial nature, requirement for intensive management and elevational and edaphic differences. The Alameda County Flood Control District indicated in December, 1986 (refer to Appendix G) in no uncertain terms that these parcels are not available to Marathon for mitigation purposes.

ALTERNATIVE 2bi: Under this alternative, the Oliver Salt Property would be purchased by Marathon and dedicated to a public resource agency. Marathon is also currently developing a mitigation plan for agency review that involves reintroducing tidal action to the property. They are also exploring the potential of raising the bottom elevation of the salt ponds to the point where seasonal habitat values, like that which exists on the proposed project site, could develop.

The Oliver Salt property was formerly subject to tidal action and presently provides high value intertidal shallow bottom habitat with isolated patches of upland vegetation on dike tops. In the functional value assessment, the Oliver Salt property, like the project site, rated high in flood storage capacity, sediment trapping, nutrient retention and removal, food chain support, and wildlife habitat. With respect to the other values assessed, the Oliver Salt Property had equal or higher values than the project site. These differences relate primarily to the Oliver Salt site's geographic proximity to the Bay. In addition, the Oliver Salt Property, regardless of the resulting similarity rating, has existing fishery and wildlife habitat values of a different kind.

This mitigation alternative could provide sufficient replacement acreage for project wetland losses, but would displace high value existing habitat on the Oliver Salt Property for seasonal wetland created with the implemented mitigation. The Oliver Salt property would require minimal management once fill material was placed and graded or that the area was opened to intertidal flows. Use of this parcel for wetland mitigation would result in a net loss of seasonal habitat.

ALTERNATIVE 2bii: The mitigation measure here would be for Marathon to acquire and dedicate the Oliver Hay Farm property to a public resource agency, cease the agricultural operations on the property, and allow it to revert to a seasonal wetland.

The Oliver Hay Farm property was historically an intertidal area which was diked for agricultural use. A portion of the site supports a diked saltmarsh. Presently, the property is under cultivation but has potential as seasonal wetland under proper management. This property could also provide similar

acreage as the project site losses in replacement for wetland mitigation losses. The Oliver Hay Farm property has been rated low for existing wildlife habitat values but has a potential for high wildlife habitat values if restored. This parcel would be appropriate for in-kind mitigation requirements. The Oliver Hay Farm has an existing duck club operation, complete with pumps, a drainage system, and tide gates in place. For mitigation purposes the existing system could be expanded and the hydrologic regime modified. This property would require minimal management once the desired seasonal wetland habitat conditions became established. Successful achieivement of Category 2 habitat conditions is largely dependent on cessation of farming and grazing operations, allowing for wetlands hydrology conditions to occur, and removing the potential for the sites to be developed as industrial, commercial or residential properties.

ALTERNATIVE 2biii: This mitigation plan would involve the acquisition by Marathon and dedication to a resource agency, of a portion of the Patterson Ranch holdings in Fremont and allowing the agricultural lands to revert back to a seasonal wetland condition.

The Patterson parcels once supported seasonal wetland habitat but are presently under cultivation with low wildlife habitat value. These parcels have high habitat potential as a seasonal wetland under proper management. It is expected that restoration of these parcels would require minimal management once the desired seasonal wetland habitat conditions become established. As discussed in the Oliver Hay Farm mitigation scenario above, the successful achievement of Category 2 habitat conditions depend on the discontinuance of farming and grazing operations. The Patterson parcels could be used to satisfy in-kind mitigation requirements. In addition, this ranch has an existing drainage system that could readily be used for seasonal wetland conversion purposes. Use of the Patterson parcels as replacement Category 2 seasonal wetland habitat mitigation to provide "no net loss of habitat" would provide a greater increase in habitat values than the present agricultural use.

ALTERNATIVE 2c PAYMENT IN-LIEU TO A LAND BANK AGENCY. Under this alternative the project applicant would not acquire or improve off site mitigation areas but would provide funds directly to an open space land bank agency. The selected agency could then proceed with purchase and/or restoration of wetlands elsewhere in the south bay area. It is well known that there is little mitigation land in the area which is available for purchase at a reasonable price. Therefore, the payment in lieu alternative is likely to be biologically feasible only if the land bank agency is able to identify an acceptable site prior to final approval of the proposed project. Until an appropriate mitigation site is selected by one of the agencies capable of facilitating a payment in lieu program, it cannot be demonstrated that "no net loss of habitat" can be successfully accomplished.

ALTERNATIVE 3, REDUCED SCALE DEVELOPMENT. Under Alternative 3, the extent of site development would be limited to allow preservation of a portion of valuable wetlands on the project site. Alternative 3a proposes site development of 104 acres with 30 acres to remain as wetland. Alternative 3b proposes a 74 acre site development with 60 remaining wetland acres. The proposed levee along the western margin of the site would be moved inland to the edge of the developed lots in Alternative 3a. Off site mitigation strategies would be the same as outlined in Alternative 2 except that the

required acreage of mitigation land (or in lieu fee) would be reduced commensurate with reduced on site wetland losses. As discussed in Alternative 1, construction noise impacts and human intrusion could degrade existing wildlife habitat on site and in the site vicinity.

ALTERNATIVE 4. Alternative 4 considers acquisition of the site by a public agency. Under this alternative the applicant would sell the property, "as is," to a public agency at a fair market value. The Trust for Public Land has indicated potential interest in the purchase of the property for a mitigation land bank (Jacques, 1986). No other agencies have expressed interest in purchasing the site. It is assumed, for purposes of environmental analysis in this EIR/EIS, that the site would remain undeveloped wetlands. However, enhancement might be provided by a public agency or it could be developed as a part or for recreation use depending on which agency purchased the site.

The two mitigation parcels would not be enhanced under this alternative and would likely remain in their existing condition for the foreseeable future. This alternative would not require a Corps or City permit. It would not meet the applicant's purpose.

ALTERNATIVE 5. Under Alternative 5 the industrial/commercial development and enhancement of the HARD parcels would not be undertaken. The site and mitigation parcels would remain in their current state for the foreseeable future. This alternative would not meet the applicant's purpose but its inclusion in the Supplemental EIS/EIR is required under both NEPA and CEQA Guidelines.

MITIGATION MEASURES

Mitigation for loss of resources is a requirement under the Federal Fish and Wildlife Coordination Act, the Corps of Engineers Policies on Wetlands, and the California State Wetland Policy. There is no documented consensus on implementation of the mitigation guidelines; however, the resource agencies generally agree to the following priorities for mitigation:

1. On site mitigation with no net loss of habitat value.

2. Off site mitigation if on site mitigation is not feasible.

In-kind replacement of habitat is preferred over out-of-kind, although both are acceptable providing there is no net loss of habitat value. Careful analysis of the habitats and the proposed enhancement activities is necessary to arrive at a satisfactory solution to the compensation requirements.

A preferred mitigation alternative has not been identified at this time. Table 4.2-2 discusses satisfaction of in-kind mitigation requirements with no net loss of habitat. In addition, post enhancement management requirements are presented for each mitigation site.

Based on the results of the Adamus analysis the following recommendations are made:

- If agency mitigation requirements are to insure that no net habitat loss is achieved, then the Oliver Hay Farm, and Patterson Ranch Parcels "A",

"B", "C" and "D" or similar type sites should be pursued for mitigation to offset the loss of the proposed project. Oliver Salt and the HARD parcels A and B fail to satisfy the in-kind habitat requirements for mitigation (see Table 4.2-2).

- If in contrast to stated policy it is determined by resource agencies that it is in the "public interest" to acquire more intertidal habitat via mitigation for the loss of seasonal wetland habitat then the Oliver Salt Property or similar sites should be considered.

- Mitigation parcels requiring potentially long term or continual intensive management or maintenance due to highly artificial conditions should be avoided. These include the former landfill sites, Alternative 2ai (Flood Control/Pacific FM parcel) and Alternative 2aii (PACCAR/ Peterbilt parcel).

4.3 TOPOGRAPHY, SOILS, GEOLOGY AND SEISMICITY

The following section discusses topography, soils, geology and seismic factors associated with the Tract 5167 project site. A brief discussion of off site areas proposed for active wetland enhancement, and therefore potentially subject to impact, is also included. The discussion of the project site has been largely summarized from the "Soils Investigations 182-Acre Marathon Development Site" report prepared by Harding-Lawson Associates (1981) which is included as Appendix K. The discussion below is general in nature and is not intended to provide formal foundation recommendations for buildings that will be constructed on site. Site specific soil investigations should be performed to develop foundation recommendations for each building when applying for individual building permits.

AFFECTED ENVIRONMENT

Soils and Topography

REGIONAL. Most of the surface layer of soils in the shoreline area of Hayward is made up of grey, saline, silty clays. When drained these soils usually exhibit strongly acidic conditions and subsidence. The acid condition occurs only in those areas that contain high levels of sulfide in the subsoil. Several places along the Hayward shoreline have been used for sanitary land fills. These areas are not considered suitable for development and the soils used to cover these fills are varied and shallow.

The primary soils series in the shoreline area of Hayward have the following characteristics: high clay content, high moisture content throughout much of the year, poor subsoil permeability, acid or saline topsoil conditions, and high shrink-swell potential.

LOCAL. The Tract 5167 project site slopes gently downward toward the north and west with surface elevations ranging from approximately three to seven feet above mean sea level (MSL). The southern half of the site is bordered by Sulphur Creek, a channelized flood control canal approximately ten feet wide and five feet deep. The top of the dike ranges from about two to five feet above adjacent ground levels.

The soils on the site range from soft, compressible clays to firm alluvial deposits. The firm clayey alluvial soils consist of Holocene and late Pleistocene alluvial deposits and they contain some interlayered sand and gravel below the water table. In the northwest portion of the property, soft to medium stiff, compressible clayey soils exist. The upper one to two feet are desiccated and form a firm crust; the entire thickness of these soft soils varies from six to seven feet deep. These soft soils are Holocene estuarine muds.

Nearly all of the clayey soils on the rest of the site are expansive and have a high shrink swell potential. The surface clay layer is highly expansive and it extends to depths of at least four feet. No large gravel or deep sandy deposits or evidence of underlying sanitary refuse were found on the proposed development site.

Soils on the proposed HARD wetland enhancement parcels and on the alternative sites proposed for active wetland enhancement (Sites 2ai and 2aii) show many of the same characteristics as the project site. However, there is evidence of underlying sanitary refuse on or immediately adjacent to all these sites (see Appendices H, I and L). Environmental impacts such as water quality contamination could occur as a result of disturbance of landfill materials due to enhancement efforts (see Section 4.4, Hydrology and Water Quality).

Geology and Seismicity

The project site and wetland mitigation sites are located in the seismically active San Francisco Bay region. The nearest known major active faults to the site are the Hayward, Calaveras and San Andreas Faults. The Hayward and Calaveras fault zones lie approximately three and 13 miles west of the project site, respectively; the San Andreas fault zone lies approximately 15 miles west of the s te (USGS, 1971). Each of these faults has produced major earthquakes in historic time. Maximum credible earthquake magnitudes (the maximum earthquake magnitude that is reasonably capable of occurring under existing known geologic conditions) are 7.5 for the Hayward and Calaveras faults and 8.25 for the San Andreas fault on the Richter scale (Greensfelder, 1974).

An active fault is defined by the State Mining and Geology Board as a fault along which surface displacement has occurred within Holocene time (the last 11,000 years). A potentially active fault is defined as a fault which shows evidence of surface displacement during Quaternary time (the last two to three million years). Under the Alquist-Priolo Special Studies Zones Act, the State Geologist is required to delineate appropriately wide special studies zones to encompass all potentially and recently active fault traces deemed sufficiently active and well defined (fault trace clearly detectable) as to constitute a potential hazard to structures from surface faulting or fault creep. There are no known active or potentially active faults that traverse the project site. Consequently, there are no special studies zones identified on the site.

ENVIRONMENTAL CONSEQUENCES

Soils and Topography

ALTERNATIVES 1, 2a, 2b, 2c, 3a AND 3b. The high expansion characteristics of the near surface soils on the project site are anticipated to be the controlling factor in the final determination of design criteria for project structures. The high expansion properties of soils throughout the project site create a significant potential hazard to structures. Shallow footings for the structures should not be placed directly in the expansive soils. Special engineering measures would be required during development. In providing for the support for foundations and pavements, consideration should be given to including deepened perimeter footings, and placing a layer of select fill (consisting of nonexpansive, granular materials) under slab-on-grade floors and possibly under pavements. Because of the low resistance values of these materials, relatively thick pavement sections will be required. Native soils can be stockpiled for later use in non- structural areas.

The project site would be graded to an approximate elevation of 5.5 feet, which will require fills of as much as three feet deep near the northwestern corner of the property. The dikes along Sulphur Creek will be raised one or two feet, to elevations of five to eight feet above Mean Sea Level (MSL). It has been previously estimated that grading to these elevations would require at least 350,000 cubic yards of fill. Potential erosion impacts associated with project grading are discussed in Section 4.4, Hydrology and Water Quality.

When fill is placed upon mud (compressible clayey soils), the water in the voids in the mud is subjected to additional pressure and tends to be squeezed out. If the fill is applied slowly and is not too heavy, the water would escape through the voids and the solid particles would be forced closer together until they could carry the weight of the fill. This process, called consolidation, allows the mud to gain strength from the gradual pushing together of the grains. The degree of compression, and the amount of subsidence, depends on the following factors:

- variations in the depth and weight of the overlying fill, resulting in part from improper fill placement;

- the age of the fill which dictates the amount of consolidation which has already occurred;

- the compressibility of the fill itself; or

- the compressibility of the bay mud which is in turn related to its depth, which is seldom uniform.

The placement of compacted fill on the project site would require proper engineering techniques. Slabs on grade, if not properly reinforced, could experience settling and/or cracking and if not properly supported could settle away from the building itself.

The soils report in Appendix E indicates that ground settlement is estimated at approximately one to two inches of compaction for four feet of soft soil after placement of approximately three feet of fill. At this rate, consolidation should be complete within six months of fill placement. The soils are firm in the areas proposed for the sewer pump station, storm drain lift stations, and the Sulphur Creek crossing.

Any excavations extending below the water table will need to be dewatered. This is particularly true for the pump and lift stations and possibly will be necessary for some of the utilities. These facilities should be designed to resist hydrostatic uplift. Seepage into excavations through the clayey soils would occur at relatively slow rates. In the sandy and gravelly soils, relatively large seepage quantities can be expected. Shoring systems for excavations extending below the water table should be designed to control seepage.

Potential impacts associated with disturbance of refuse as a result of wetland enhancement actions on off site areas (HARD A and B, Sites 2ai and 2aii) are discussed in Section 4.2, Vegetation and Wildlife, and Section 4.4, Hydrology and Water Quality.

ALTERNATIVES 4 AND 5. Existing surface soils and topography would remain unchanged into the foreseeable future on the proposed site and proposed and alternative wetland mitigation sites.

Geology and Seismicity

ALTERNATIVES 1, 2a, 2b, 2c, 3a AND 3b. The geologic setting poses seismic hazards to the proposed project; however, the hazards are similar to those in seismically active areas throughout California. The primary potential seismic hazard to the proposed development is ground shaking. There is a high probability that the project area would experience severe ground shaking during the design life of the project structures. Shaking may result in differential settlement causing extensive damage to buildings, parking areas, roadways, and utilities. The intensity of ground shaking at the project site would depend on a combination of the type of fault, the distance to the earthquake epicenter, the magnitude of the earthquake, the types of materials between the fault and the site, and the properties and thickness of the foundation materials at the project site. Ground shaking hazards can be mitigated by proper site selection, and proper design of earthwork and foundations.

Liquefaction is a process by which water saturated, cohesionless (clay free) soils lose strength and become liquid during earthquake induced ground shaking. The severity of liquefaction depends upon groundwater depth, soil types, relative density of soils, confining pressure, and the intensity and duration of ground shaking. The sands encountered in two of the test borings on Tract 5167 (one on the southern edge of Sulphur Creek and one on the northwestern corner of the property) appear to be susceptible to liquefaction. However, the thickness of the clayey soil overburden is expected to limit any surface expression and effects of liquefaction on surface structures. The risk of soil densification or lurching during earthquake shaking is considered remote (see Appendix E).

Lateral spreading is a type of earthquake induced ground failure involving the lateral movements of near horizontal alluvial materials toward an exposed face, usually the banks of a stream channel. The magnitude and severity of lateral spreading is directly associated with the height of the exposed bank, the nature and character of the foundation soils near the channel bank, and the magnitude and duration of ground shaking. There is a potential for lateral spreading to occur along Sulphur Creek on the Project site. Proper engineering design can mitigate this potential hazard.

The potential for differential compaction and settlement, which normally occur in loose, unconsolidated sandy soils during ground shaking, is considered to be generally low on the site. The potential for ground rupture (which usually occurs along lines of previous faulting) is low since no known active or potentially active faults are identified on the project site.

The predicted 100 and 500 year runup heights for a tsunami (seismic sea wave) are 4.4 and 6.1 feet above MSL, respectively, in the immediate project vicinity (U.S. Army Engineer Waterways Experiment Station, 1975). The project site (at the planned final grade elevation of 5.5 feet) would not be subject to inundation by a 100 year tsunami, but is below the predicted 500 year tsunami runup height.

ALTERNATIVES 4 AND 5. Since these alternatives do not include development of the site, seismic damage due to liquefaction, spreading and compaction will be minimized in the No Project Alternative and the acquisition of the project site by a public agency.

RECOMMENDED MITIGATION MEASURES

ALTERNATIVES 1, 2a, 2b, 2c, 3a AND 3b. Although the soft soils and seismic activity are not expected to be serious problems, the following mitigating measures are recommended to limit potential adverse effects on the project site and on the wetland mitigation sites where applicable. Alternatives 4 and 5 are essentially no action alternatives, therefore, they do not require mitigation.

Soils and Topography

- During site preparation, the upper few inches of soil containing vegetation should be stripped from all areas to be graded.
- In soft soil areas care should be taken during construction to not disturb the crust.
- In all fill areas, the upper six inches of soil should be scarified, moisture conditioned to three to six percent above optimum moisture, and compacted to at least 90 percent relative compaction.
- Approved fill (possessing a plasticity index less than 15 and liquid limit less than 40) should be placed in layers eight inches or less in loose thickness, moisture conditioned, and compacted to at least 90 percent relative compaction.
- Where the expansive clayey soils are determined appropriate for fill by a qualified soils engineer, they should be conditioned to three to six percent above optimum before being compacted.
- All cut and fill slopes should be no steeper than 2:1 (two horizontal to one vertical).
- Fill slopes should be compacted or overbuilt and cut back to expose firm compacted soil.
- The surfaces in all graded areas should be sloped to drain away from the tops of the slopes to minimize erosion (see Section 4.4, Hydrology).
- Since the Sulphur Creek bridge site is proposed on stiff clayey soils, a relatively lighweight bridge should be sufficiently supported on shallow spread footings bottomed on natural soils. Deeper foundations such as drilled or driven piles may be required if the bridge is relatively heavy.
- Subsurface drains should be provided at any slopes located in seepage areas.

- Site specific soil investigations should be performed to develop foundation recommendations for each building.

- All site grading should be observed by a qualified soils engineer and laboratory tests should be performed to check material quality and compaction.

- Additional recommendations for soil preparation, building foundations and pavements made in Appendix K or in subsequent engineering site investigations, should be incorporated into final project designs.

- Any enhancement actions on off site areas should be carried out so as not to disturb existing refuse deposits or increase landfill leachate generation (see Section 4.4, Hydrology).

Geology and Seismicity

- Building design should comply with seismic requirements of the current Uniform Building Code.

- Foundation support and retaining walls should be designed to resist the effects of ground shaking.

- Low rigid structures should be considered rather than tall, flexible structures (which tend to sway and torque under the seismic conditions present at the site), to limit the resonance set up between structures and fill deposits, and to reduce the potential hazards from liquefaction.

- Utility lines should be designed to provide sufficient flexibility to withstand the ground motion induced by earthquakes. Utility piping and conduits should be designed to accommodate differential settlement between pile supported structures and adjacent nonsupported paved and landscaped areas.

- Additional specific engineering recommendations as proposed by the geotechnical engineers should be incorporated into the final designs of the proposed development.

4.4 HYDROLOGY AND WATER QUALITY

Included below is a discussion of setting, impacts and mitigation measures pertaining to the Tract 5167 project site as well as the four off site areas where wetland enhancement actions are proposed (possibly resulting in hydrology and water quality impacts). Much of the data and information used in this section were taken from a report prepared in June, 1984 by Philip Williams and Associates entitled "Marsh Restoration Design for Two Parcels in the Hayward Shoreline" (see Appendix H). Other sources of information are incorporated by reference.

AFFECTED ENVIRONMENT

Project Site

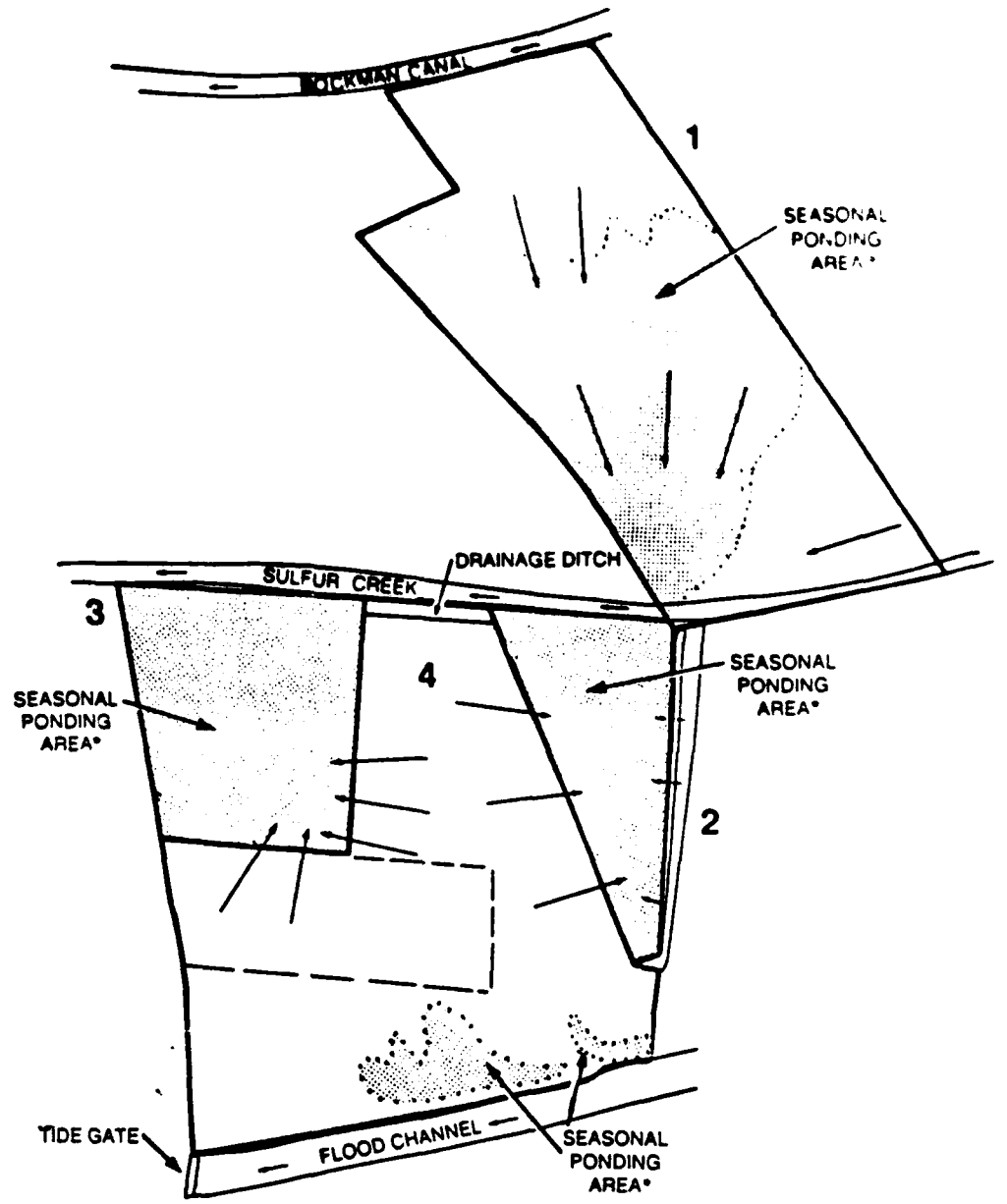
SURFACE DRAINAGE. The Tract 5167 project site lies 4,000 feet east of San Francisco Bay between Bockman Canal on the north and Sulphur Creek on the south (see Figure 4.4-1). The site is flat and drains primarily from east to west. The property is divided by a number of dikes and ditches which redirect the flow either toward Bockman Canal to the north or Sulphur Creek to the south. In the northeast corner of the property is a rectangular 13-acre parcel bordered by a drainage ditch to the south and west, and railroad tracks to the east; all drainage in this parcel is routed through the ditches to Bockman Canal. Just to the south of this parcel, a low lying area, about 25 acres in area and varying from three to five feet National Geodetic Vertical Datum (NGVD), drains south and west to drainage ditches behind low dikes. These ditches consolidate near the center of the tract and drain southwest on to the East Bay Regional Park District (EBRPD) property near Sulphur Creek.

The southeast corner of the property drains westward to a large ditch and dike. The ditch is almost level, with less than a 0.5 foot change in elevation over its 1,800 foot length. Although the ditch is high at both ends, when it is overfilled it drains to the north and empties into the major collection ditch just described near the center of the property.

The southwest portion of the property drains generally to the south into a large ditch which parallels Sulphur Creek. This in turn empties onto the EBRPD property. Given the flat gradient of the land and poor condition of the ditches, it is apparent that much of the runoff ultimately leaves the property by evaporation rather than drainage.

No runoff from the site currently enters Sulphur Creek due to its levees which range in height from two to five feet above the surface of the site. The channel of the Creek lies three to eight feet below the top of the dikes, which are approximately ten feet high. The creek bank consists of stiff clay and erosion occurs in insignificant amounts.

Sulphur creek carries runoff from the area east of the site including the Skywest Golf Course, Hayward Municipal Airport, and residential development. Flows in the creek are typically low velocity except during storm events. The Alameda County Flood Control and Water Conservation District (ACFCWCD) has identified the following ultimate flows for Sulphur Creek based on maximum development potential within the creek's drainage basin:



* Varies significantly from year to year

SOURCE: HUFFMAN AND ASSOCIATES

earth metrics

N

SCALE
1" = 1000'

FIGURE 4.4-1 GENERALIZED SCHEMATIC OF DRAINAGE CHARACTERISTICS AT MARATHON, HARD "A" & "B" ALAMEDA FLOOD CONTROL DISTRICT/ PACIFIC FM

- 15 year peak flow: 706 cubic feet per second.

- 100 year peak flow: 1,070 cubic feet per second.

Both Bockman Canal and Sulphur Creek are designed to contain the 100 year flood (Johnson, 1984).

WATER QUALITY. In 1974 ACFCWCD instituted a surface water quality sampling program in major channels in the project site area. An estimate of expected water quality was derived from samples taken from the major channels, including Sulphur Creek, at points near the channel outfalls to the Bay, but upstream from tidal action. The mineral quality of all waters tested generally satisfied U.S. Public Health drinking water standards. The waters were classified as "very hard" (Marathon Industrial Development Tract 4975 EIR, 1982). The ACFCWCD has no more recent data on water quality in Sulphur Creek (Baker, 1986).

Currently, any surface runoff from the proposed development site will have characteristics similar to those of agricultural runoff: high nutrient levels, high suspended solids, and high coliform counts (ABAG, 1982).

GROUNDWATER. The San Leandro cone underlies the general area of the project site, and the proposed mitigation parcels, and contains water bearing strata at various depths and locations. Aquifers in the San Leandro and San Lorenzo cone can be divided into two zones. The upper aquifer zone to a depth of 400 feet contains water bearing deposits derived from San Leandro and San Lorenzo Creeks. The three confined aquifers in this zone are equivalent to the Newark, Centerville, and Fremont aquifers under the Niles cone to the south. The aquifers consist of discontinuous beds of sand and gravel which extend westward under San Francisco Bay and are capped by confining clay layers. The lower aquifer zone, which occurs below a depth of 400 feet, contains considerably more water bearing deposits than the upper zone. A nearby test well (353/3W/24 J-1-Alameda County) regularly sampled by the County between 1931 and 1978 indicates that the lower aquifer water quality is good and has improved during this sampling period (Monser, 1986).

Recharge of the higher aquifer occurs through permeable beds in the local streams, mainly San Leandro and San Lorenzo Creeks. Recharge of the lower aquifers is by leakage and subsurface inflow. No evidence of leachate leakage from Old Bayshore landfills has been found in the lower aquifer (Monser, 1986).

The Newark aquifer does not appear to be a single continuous layer, but rather several interfingering sand and gravel lenses separated by thin clay beds five to ten feet thick. These lenses may be hydraulically connected near the upper reaches of the San Leandro and San Lorenzo alluvial cones. Lower on the cones the lenses are most likely separate hydraulic units. The yields of wells tapping the Newark aquifer are typically 20 to 100 gallons per minute (gpm).

Groundwater in the Newark aquifer moves toward San Francisco Bay and is believed to be replenished principally by the infiltration of streamflow in the upper part of the alluvial cones and by leakage through the confining clay bed. Provision was made for recharge from the concrete lined channel portion of San Lorenzo Creek.

The soils on the project site are predominantly uniform clay deposits and do not provide substantial surface infiltration. The site has some sand and gravel interbeds between the clay deposits but these do not provide substantial recharge to the upper aquifer due to the clay. The northwest portion of the site contains soft muds occurring as a six to seven foot deep layer of compressible clay. These soils are not very permeable, so water percolation is slow; free groundwater is located near the surface. Groundwater was found to be 1.5 feet below the ground surface in the northwest portion of the site and 6.5 feet in the southeast corner of the site. The overall average depth of groundwater was two to four feet (see Appendix K).

The ACPCWCD has records of wells in the Hayward and San Leandro areas, although not all the wells in the area may be on file. (ACPCWCD, 1985). The records show that since 1900, 78 wells have been constructed for various uses in the area. The area covered for this table is the land west of the Southern Pacific Railroad tracks, south of the Estudillo Canal, and north of the West Jackson Highway (see Table 4.4-1). Further detailed information is on file with the U.S. Army Corps of Engineers.

Hydrographs for wells producing from the Newark aquifer show virtually no change in water levels over a 30 year period. Hydrographs for wells tapping the lower aquifers indicate that water levels have been gradually rising in the last 20 years.

Groundwater in the San Leandro and San Lorenzo alluvial cones is used mainly for industrial water supply and for irrigation purposes. The chemical quality of the groundwater is good for most uses and is of a calcium bicarbonate to calcium-sodium bicarbonate type. Saltwater intrusion is a problem only in localized portions of the Newark aquifer.

With the exception of several private wells in the Mt. Eden area and several manufacturing/industrial wells, the City no longer uses well water for domestic water supplies; it now uses the Hetch Hetchy system. Therefore, the groundwater aquifers are considered primarily as potential sources of City water in the event of an emergency.

FLOODING. The City of Hayward participates in the National Flood Insurance Program and enforces the Federal Flood Disaster Protection Act. That Act requires that non-residential structures must have their lowest floor elevation above the base flood elevation or be floodproofed to or above that level. Flood protection can be accomplished through levee channels, pumps, membrace waterproofing of floors and perimeter walls, and/or raising buildings. If flood protection is accomplished with levees, FEMA requires the levees to be three feet higher than their estimated highest tide. The estimated 100-year highest tide set by FEMA at the proposed site is seven feet mean sea level (MSL).

Wetland Enhancement Sites

SURFACE DRAINAGE. Alternative 1 includes a plan for wetland enhancement on two off site parcels (A and B) owned by the Hayward Area Recreation District (HARD) Tract 5167. These parcels are located south and west of the Tract 5167 project site (see Figure 4.4-1). Both parcels are below tidal levels between 65 and 90 percent of the time. They are protected from tidal flows by a levee

TABLE 4.4-1. WELL INVENTORY

	USES						
Year Built	Unk.	Mun.	Ind.	Dom.	Irr.	Ab./Des.	Liv.
1900-1940	0	2	1	3	1	13	0
1940-1960	0	0	2	9	2	1	0
1960 +	2	0	1	0	3	0	0
Unknown Date	5	0	1	13	1	15	3
Total	7	2	5	25	7	29	3

Total Recorded Wells = 78

Unk. = unknown
Mun. = municipal
Ind. = industrial
Dom. = domestic
Irr. = irrigation
Ab./Des. = abandoned or destroyed
Liv. = used to water livestock

Source: Alameda County/Bay Plain Groundwater Study
Well Inventory Report, 14 January 1985

along the western edge of parcel B and by the levee along the property south bank of Sulphur Creek.

Surface water and groundwater enter the HARD parcels from several sources. Surface runoff enters parcel A from a ditch on the north side of Winton Avenue at the southern tip of the parcel, and a ditch at the east side of the parcel. Runoff entering parcel A comes from leachate from the adjacent garbage dump, the wrecking yards, and an undetermined area along Winton Avenue.

HARD parcels A and B are connected by a ditch just south of the levee on the south side of Sulphur Creek. Surface water enters both parcels A and B from the Alameda County Flood Control District property located between the two parcels. Tidal waters also enter parcel B during extreme high tides, when the western levee is overtopped by waves.

Two alternative areas for active wetland enhancement are identified in alternative 2ai, the Flood Control/Pacific F.M. site (2ai) comprising 16 acres in Hayward between HARD A and HARD B and the Peterbilt site comprising 34 acres in Newark (2aii) (see Figures 4.4-1 and 4.4-2 and Appendices G, K and L).

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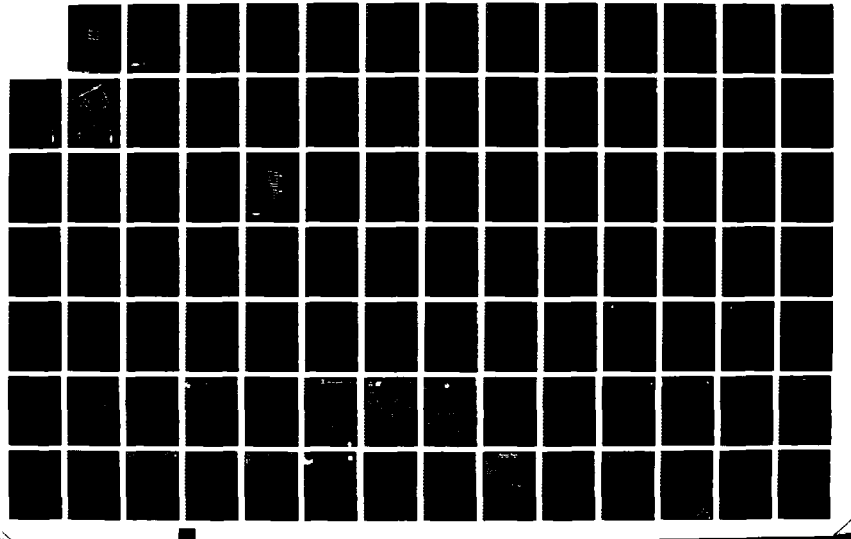

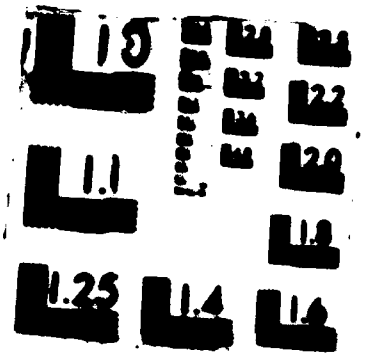
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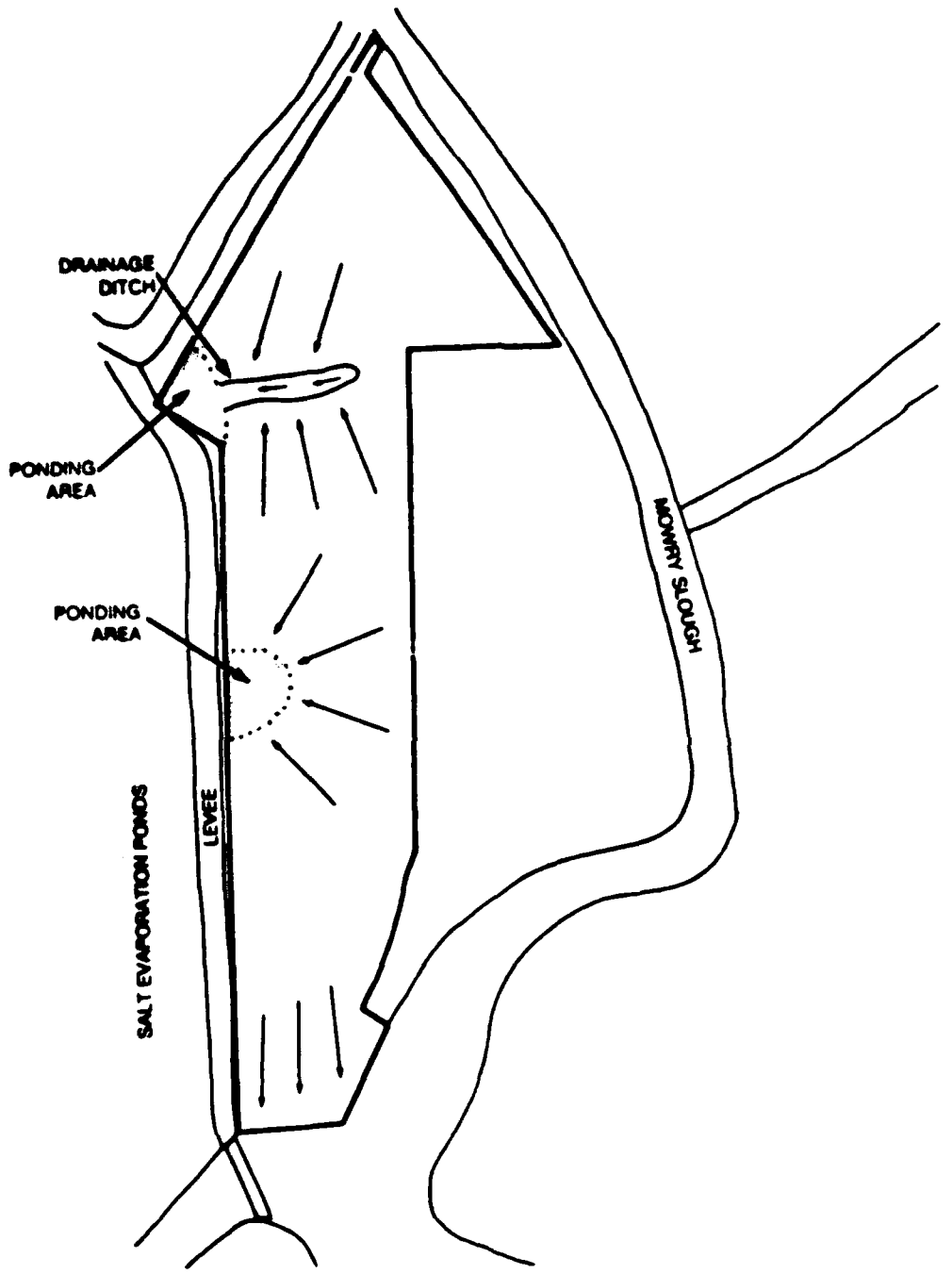

SOURCE: HUFFMAN AND ASSOCIATES

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FIGURE 4.4-2 GENERALIZED SCHEMATIC OF DRAINAGE CHARACTERISTICS AT PACCAR/PETERBUILT SITE

The Flood Control parcel on site 2ai is presently being used by the Alameda County Flood Control District for silt disposal. The southeastern portion of the property is elevated resulting from the previous use of this site as a portion of an old municipal refuse dump. Surface drainage on the southern portion of the parcel flows into a flood control channel at the Southern boundary. Runoff from the northern portion of the property flows towards Sulfur Creek and is intercepted by the ditch between HARD parcels A and B and on the inbound side of the Sulphur Creek levee. The 45 acre parcel owned by Pacific F.M. drains to the flood control parcel and to HARD parcel B. Tidal waters may enter the site 2ai parcels occasionally during extreme high tides, when the western border levee is overtopped by waves.

Alternative 2aii (the PACCAR/Peterbilt site consists of 35 acres located at the foot of Mowry Landing near Mowry Slough in Newark. This site is generally flat with surface water runoff draining into Mowry Slough to the west. The site is not subject to tidal action. A sanitary land fill was operated at this site in the 1960s. Elevations range from two to ten feet. Fill activities were terminated in 1964 (Harding Lawson Associates, 1976). Test drilling by Harding Lawson (1976) revealed strong organic odors resulting from methane leakage at boring sites.

WATER QUALITY. A water quality survey (see Appendix H) was performed by Phil Williams and Associates in 1984 on HARD A and HARD B because of the following concerns:

1) leachate from the landfill (now inactive) on the Flood Control/Pacific F.M. site between the two HARD parcels.

2) oil from wrecking yards to the east of HARD B.

3) animal wastes from livestock grazing on adjacent properties.

Samples were taken at ten locations around the two HARD parcels and were analyzed for pH, specific conductance, total organic carbon (TOC), total organic halides (TOX), lead, arsenic, cadmium, chromium, copper, mercury, and zinc. The values for pH, specific conductance, and TOC indicate that the samples are brackish, contain high concentrations of dissolved organic matter, and are not contaminated with strong acids. None of the heavy metal concentrations were high enough to cause concern. The total organic halide concentrations were slightly elevated, possibly indicating contamination by pollutants such as DDT and PCB. Further testing would be required to confirm the presence of such contaminants.

Since the water quality samples were taken, the pump station for Marathon Phase I has been completed and now handles the drainage from the wrecking yards. Therefore, the water quality on HARD parcels A and B is probably slightly better than previously reported.

Alternative mitigation enhancement sites 2ai and 2aii are primarily of concern as sources of water contaminants to surrounding low lying areas as they are underlain with municipal refuse (Fulton, 1986; Burger, 1986) (see Section 4.4, Soils and Topography). Ponding has been identified on site 2aii in February of 1987 (Huffman, 1987). Additionally, some ponding has been observed in depressions of Site 2ai in December 1986 (Huffman, 1987). No water quality data is currently available for these sites.

The project site and the wetland enhancement sites are located within Zone A-1 of the National Flood Insurance program established by the Federal Emergency Management Agency (FEMA). Lands in this category are subject to deep flooding during the 100-year higher high tide, the tide with a one percent chance of occurrence in any given year (FEMA, National Flood Insurance Program, 1981).

The eastern portion of the Flood Control parcel (part of site 2ai) is found in FEMA Zone C, which is an area of minimal flooding. This area is elevated above the Zone A-1 level due to a history of deposition of sanitary refuse and flood control materials.

GROUNDWATER. See "Project Site" for groundwater discussion related to the wetland enhancement sites.

FLOODING. See "Project Site" for discussion of flooding as it relates to wetland enhancement sites.

ENVIRONMENTAL CONSEQUENCES

Alternatives 1, 2a, 2b, and 2c

SURFACE DRAINAGE. Construction on the Tract 5167 site under the full scale development alternatives (1 and 2) would result in increased impervious surface coverage for roofs, sidewalks, and parking area. At about 40 to 50 percent coverage by impervious surfaces for such development, Alternatives 1 and 2 would result in 54-67 acres of impervious surface. After development, the increase in impervious surface area would decrease the amount of percolation and time of concentration, thereby producing more runoff from less intense storms. This increased runoff is expected to increase erosion of exposed soils over the site and along the banks of existing drainage channels. This is particularly of concern during construction phases where large amounts of soil may be exposed; mitigation measures will be required to insure such impacts remain at insignificant levels. Increased runoff from the project site is not expected to have a significant downstream effect on the carrying capacity of Sulphur Creek as the channel has been designed to handle drainage flows from maximum development in the watershed, which includes the project site (Johnson, 1984).

Existing drainage patterns on Tract 5167 would be modified by the construction and operation of an underground drainage system. Storm water would be collected by a gravity system on a lot-by-lot basis in 15" to 48" pipes, then drained to approximately the central north/south axis of the project site to a point between lots 1 and 2 of the full scale development plan. From there it would be fed under Sulphur Creek to the lift station for the development south of Sulphur Creek (Marathon's Phase 1). This lift station is sized to handle the maximum flows from the proposed development as well as those from the Phase I development of the Tract 4975. From the lift station, the runoff could be pumped over the levee on the south side of Sulphur Creek into the creek channel or to nearby wetland enchancement parcels (see observation below).

Potential users of the site would have to apply for a use permit from the City of Hayward. Any waste discharge other than surface water would be discharged into the sewer system rather than the storm drainage system and would be

subject to applicable permits from agencies such as the Regional Water Quality Control Board. Therefore, it is assumed that drainage generated from the site would be limited to storm runoff and landscape watering associated with open space areas of the site.

Implementation of the prepared drainage system would have the effect of reducing the existing water supply to valuable seasonal wetland areas on the EBRPD property to the west of the project site. It is recommended that a hydrological study be undertaken and appropriate mitigation measures be implemented to ensure that the magnitude and duration of surface drainage from Tract 5167 to the EBRPD property is maintained.

Enhancement of off site wetland mitigation areas under Alternatives 1 and 2a would result in modifications of surface drainage patterns on these sites. HARD parcels A and B would be graded, followed by development of shallow seasonal ponding areas (see Appendix H). Surface flow on and between the parcels would be augmented by pumping (via the Tract 4975 lift station) of water from Tract 5167 and 4975 runoff or from Sulphur Creek. Such action would require approvals by the ACFCWCD, for utilization of the lift station, and by the RWQCB, for diversion and discharge of storm water runoff. The ACFCWCD has taken the position that the lift station should not be used for pumping of water to mitigation parcels (see Appendix G).

Wetland enhancement on the Flood Control/Pacific FM (2ai) and Paccar (2aii) parcels would involve capping the surface and margin of old landfill areas and subsequent development of elevated seasonal ponding areas on the overlying material (see Appendix I for detailed description of plan for site 2ai). The primary impact of these actions would be the redirection, via pumping, of nearby surface waters onto the sites for promotion of seasonal inundation (currently minimal). It is recommended that once a source of water is identified, appropriate mitigation measures be implemented to ensure that sufficient water will remain year round in the source stream to ensure maintenance of downstream wetland habitat values.

WATER QUALITY. The creation of impervious surfaces on the Tract 5167 project site such as roads, parking lots, and roof tops that accompany development would create new "source areas" for direct storm water runoff. This runoff would pick up pollutants generated on site. Potential water quality impacts associated with this development include: erosion/siltation during construction, increase in temperatures, and stormwater pollutants such as oil, grease, and heavy metals from parking lots, roadways, and impervious surfaces. Elimination of the cattle from the site could reduce total coliform bacteria in Sulphur Creek.

During site preparation when soils are exposed, sediment could enter surface and storm runoff. The potential for erosion and subsequent sedimentation during site preparation would be affected by factors such as the timing and phasing of construction, the degree of vegetation removal, and the effectiveness of erosion control measures. Sediment would largely be restricted to the site vicinity due to the very shallow slope of the property.

Table 4.4-2 shows the pollutant levels in storm water runoff from light industrial development, as defined by monitoring in the 1976-1977 rainy season in Santa Clara County. Water quality from runoff for the uses proposed on the

project site would be estimated by these figures. In general, runoff from light industrial development is of higher quality than that from commercial, heavy industrial, or medium to high density residential development and is in fact similar to runoff from low density residential neighborhoods (ABAG, 1982). Trace element concentrations in urban runoff (lead, zinc, etc.) are generally low (less than one mg/l) while hydrocarbons (oil, grease) average 10 mg/l (ABAG, 1982).

TABLE 4.4-2. POLLUTANT LEVELS IN STORM WATER RUNOFF FROM LIGHT INDUSTRIAL DEVELOPMENT

POLLUTANT	AVERAGE CONCENTRATION (mg/l)
Biological Oxygen Demand (BOD)(5)	38.1
Suspended Solids	72.0
Volatile Suspended Solids	21.0
Total Nitrogen	3.1
Total Phosphorus	0.4

Source: The Use of Wetlands for Water Pollution Control, ABAG, 1982.

The change from grazing/open space to industrial development on the site would mean a change from agricultural runoff to urban runoff characteristics. Thus, higher concentrations of oil/grease and metals and lower concentrations of nutrients, coliform bacteria and suspended solids would be expected in the runoff after development is completed on the site.

The project's proposed storm water collection system would drain some of the runoff from new roadways and paved areas into Sulphur Creek and into San Francisco Bay. In addition, natural water treatment provided by existing wetlands on the site would be reduced in proportion to the acreage of lost wetlands. These factors would tend to increase the level of urban pollutants in the Bay. However, due to the size of the proposed development and the characteristics of light industrial runoff, none of these alternatives (1, 2a, 2b, and 2c) is expected to significantly increase the quantity of urban runoff pollutants in San Francisco Bay.

In terms of water quality, there are several potential benefits of the proposed alternative wetland enhancement actions in off site areas. Creation of new wetlands on HARD A and B (Alternative 1), Flood Control/Pacific FM (2ai) and Paccar (2aii) would provide a local increase in natural treatment of water through trapping of sediments and uptake of nutrients. However, technical analysis performed by Huffman and Associates has indicated that the two landfill sites (2ai and 2aii) have a limited potential for sediment

trapping or removal of contaminants due to the inherent artificial nature of the elevated wetland site on top of a capped landfill. All of the proposed actions involve sealing of landfill areas, either underlying or lying adjacent to the sites, and the subsequent development of controlled on site drainage. Such actions, if properly implemented, would reduce existing landfill seepage problems and provide a source of water for dilution and flushing of any remaining seepages.

Significant negative impacts could result if proposed enhancement actions fail to contain or isolate sanitary refuse areas. Pumping of water onto the sites increases the risk of infiltration of water into refuse layers and subsequent generation of leachate, particularly for Alternatives 2ai and 2aii where water is to be retained directly on top of landfill areas. The effect could be severe following large failure of the proposed impermeable liner (constructed either of clay or synthetic materials). Possible causes of such a failure include seismic events, unequal settling of underlying fill, and degeneration of liner materials. Detailed hydrogeological and engineering studies will have to be performed to develop a sound design plan that will satisfy the regulatory and monitoring requirements of the Regional Water Quality Control Board (see Mitigation Measures).

GROUNDWATER. During construction on the Tract 5167 project site, dewatering (elimination of groundwater) would be necessary to control groundwater seepage and to ensure stabilized final grades. These temporary dewatering measures would result in a localized drawdown of the upper groundwater table. Upper groundwater levels would stabilize after construction. The dewatering measures would not affect lower groundwater tables. As stated in the discussion of affected groundwater environment, the upper groundwater in the project vicinity contains notable levels of organic halides (also see Appendix H). Diversion or discharge of construction dewatering liquids to surface waters or mitigation parcels may introduce or exacerbate existing water quality problems. Further tests should be conducted to determine the existing quality of the groundwater table before extraction. Waste discharge requirements issued by the Regional Water Quality Control Board (RWQCB) for discharge of dewatering liquid may be necessary to assure protection of surface waters. If the dewatered liquid is found to be unacceptable for direct discharge, treatment prior to discharge or disposal to a legal disposal site may be necessary. A Report of Waste Discharge must be filed with the RWQCB at least 120 days prior to any discharge.

Following full scale or reduced scale development on the project site, much of the existing ground surface would be replaced with impervious surfaces, thus reducing recharge of the near surface groundwater on the site; however, this would have an insignificant effect on the Newark aquifer. Storm water that would normally infiltrate into the soils would be diverted off the site. The placement of three to five feet of structural fill on site, to bring the site to finished grade, would allow upper groundwater flows to move more freely than the natural clay soils.

Potential problems on the project site related to the existing shallow groundwater condition are listed below. Placement of fill on site and implementation of appropriate mitigation measures can reduce such impacts to insignificant levels.

1. Complications in the installation of underground utilities, storage tanks, pipelines and other subsurface structures, and subsequent deterioration of such objects;

2. Complications in landscaping due to fungal growth, root rot, and other plant diseases;

3. Differential settlement of buildings with inadequate foundations;

4. Building damage from alternating swelling and shrinking of soils as the water table rises and declines;

5. Severe earthquake damage to buildings due to liquefaction and amplification of seismic waves in water saturated sediments;

6. Contamination of groundwater from surface contaminants due to the lack of natural filtering provided by a thick unsaturated zone; and

7. Increased storm runoff, sediment transport, and erosion in areas where a shallow water table prevents the percolation of significant amounts of storm runoff into the ground (Webster, 1973).

Proposed enhancement actions on HARD A and B (Alternative 1), Flood Control/ Pacific FM (2ai) and Paccar sites (2aii) would have minor impacts on local shallow groundwater levels. Groundwater levels would likely increase on the HARD parcels due to augmentation of surface drainage on site. Levels are likely to decrease on the landfill sites following deployment of the proposed impermeable surface liner. As stated in the discussion of water quality impacts, the primary consideration of the design of the accepted enhancement plan would be to insure that contaminated groundwater or leachate, is isolated from surface drainage, both during and after construction.

FLOODING. Development on the Tract 5167 site would require flood protection measures. The proposed project would raise the existing site elevation to a minimum curb height of seven feet MSL. The existing outboard levee in the area, on the EBRPD property west of the project site, was not constructed to standards necessary for protection of an industrial development and has failed in the past (Lindenmeyer, 1986). Therefore, a new levee system must be constructed. New levees on the north bank of Sulphur Creek and along the western site boundary of the project site would be constructed to elevation +10.0 feet MSL. The levees would require engineering approval from the U.S. Army Corps of Engineers and the Alameda County Flood Control and Water Conservation District (ACFCWCD). It is expected that the project's excess surface water runoff which is not diverted to the proposed local enhancement mitigation parcels would be discharged into Sulfur Creek.

Under Alternative 1, overbank tidal flooding on HARD B would still occur as no improvements are proposed for the levee on the parcel's western edge. Construction of a levee on the western edge of the Flood Control/Pacific FM site (2ai) would eliminate overbank tidal flooding on the site.

Alternatives 3a and 3b. Under the reduced density alternatives, a levee would be constructed which is different from that in the proposed plan. A marginal dike would be constructed on the western margin of each reduced density plan

(see Figures 3.2-9 and 3.2-10). Otherwise, the site would be protected from flooding in the same way as under the proposed plan.

Alternative 3a would have 42-52 acres and Alternative 3b would have 30-37 acres of impervious surfaces. Impacts related to surface drainage water quality and groundwater would be as those identified for Alternatives 1 and 2 though reduced in amount commensurate with the reduction in development intensity.

Alternatives 4 and 5

SURFACE DRAINAGE. Under no development alternatives, existing surface water drainage characteristics would remain unchanged into the foreseeable future on the project site, and on the four proposed alternative wetland enhancement parcels.

WATER QUALITY. No significant changes to current water quality characteristics would occur unless under Alternative 4, a public agency acquiring the project site implemented changes such as elimination of cattle grazing in the site area. In this event, levels of suspended solids and coliform in the runoff would decrease. Mitigation parcels A and B and alternative sites 2ai and 2aii would remain in their current undeveloped states. Leaching from old landfills would continue at present rates on these off site areas.

GROUNDWATER. No changes in existing groundwater characteristics would occur.

FLOODING. Current conditions would remain unchanged.

MITIGATION MEASURES

Surface Drainage. The following mitigation measures are recommended to reduce the drainage and runoff impacts of the proposed full scale and reduced scale developments.

- A hydrologic study should be completed to determine the runoff generated from the project site as a result of development.

- A storm drainage system should be designed that conforms to the extent possible with overall natural drainage patterns of the site. The system should insure that the existing magnitude and duration of runoff to the adjacent EBRPD parcel is maintained. For the reduced density alternatives, maintenance of natural drainage to undeveloped on site open space areas should also be insured.

- A hydrologic study should be implemented to determine surface drainage patterns in the area of the proposed mitigation parcels. The detailed enhancement plan should be subsequently designed to insure that the magnitude and duration of natural drainage on any adjacent wetland parcels is maintained.

- Standard erosion control measures should be implemented on the project site to retain sediment on site during the construction period. An erosion control plan should be prepared and implemented in coordination with the RWQCB.

- On site storm drains and catch basins should be maintained to insure proper functioning.

Water Quality. The following mitigation measures are recommended to minimize the impacts of the proposed Tract 5167 development on surface water and ground water quality.

- Runoff from the project site should be conducted through one or more retention basins which could be used to prevent spilled materials from reaching off site watercourses, flood control channels and mitigation parcels.

- A regular roadway cleaning program should be implemented to clean on site roadways and parking areas of litter, gasoline and oil spills.

- A regular street sweeping program should be implemented on all project roadways to reduce urban runoff contaminants.

- Trash disposal facilities should be provided in public areas.

- Utilize grease and sediment traps to prevent urban pollutants and sediment from leaving the site. During construction phase, utilize sediment control methods to prevent sediment from impacting drainage lines and facilities.

- All businesses in the proposed development that manufacture or use hazardous materials, as defined by the City of Hayward Fire Code and/or Title 22 of the California Administrative Code, should be required to adhere to the following condition:

  * The City Fire Department should be advised of the type and quantity of materials stored or used and notified of significant changes in the types and/or amount of hazardous materials within 24 hours of the change(s).

  * A plan for safe storage and handling of these materials should be submitted to the City Fire Department and the County of Alameda for approval.

  * All spills should be reported in the manner prescribed by the Fire Department and the County of Alameda.

The proposed project includes the discharge of storm runoff into wetlands on Parcels A and B (Alternative 1) and the Flood Control/Pacific FM site (Alternative 2ai). This aspect of the design is in itself a mitigating measure, for the natural treatment capabilities of wetlands have been extensively documented (ABAG, 1982). Wetlands natural water treatment capability is related to four principal features of these habitats:

- dispersion of surface water over a large area through intricate channelization of flows;

- use and transformation of elements by micro-organisms;

- physical entrapment through absorption in the surface soils and organic debris; and

- uptake and metabolism of pollutants by plants.

The following measures are recommended to minimize water quality impacts in off site areas due to implementation of the proposed wetland enhancement actions:

- A hydrogeological study, including surface and subsurface water testing, should be undertaken to determine the following:

  * The extent of sanitary refuse underlying or adjacent to HARD A and B and sites 2ai and 2aii.

  * The subsurface drainage conditions at each mitigation site and the existing levels of groundwater contamination.

  * The existing quality of surface water to be used for pumping on to each proposed mitigation parcel.

- Once a preferred mitigation site is identified, a detailed design plan should be developed by a qualified engineer in coordination with the RWQCB and other agencies such as the Solid Waste Management Board. The plan must satisfy the requirements for Closure and Post-closure maintenance of landfills under Title 23 of the California Administrative Code. The plan must include, but not be limited to the following considerations:

  * Effective long term isolation of refuse materials from the surface water drainage system.

  * Collection and discharge (venting) of methane gas generated in underlying refuse.

  * Control of elevation of ponded water in the artificial wetland area.

  * Regular surface and groundwater quality monitoring.

  * A contingency plan for protection of on site and downstream wetlands following failure of the landfill liner system.

Groundwater. The following mitigation measures are recommended to reduce impacts on the project site associated with groundwater supplies:

- The proposed project buildings should not be designed with subsurface foundations, such as basements or underground garages.

- Construction design of underground utilities should take into account the saturated ground and high water table that can cause rapid deterioration of materials.

- A detailed geotechnical investigation and report should be performed to provide engineering recommendations prior to final design of the fill program and project structures. Test borings, seismic refraction, and laboratory analysis should be conducted to determine the engineering properties of existing fill and bay mud, such as thickness, depth, compressibility, water saturation and presence of other underlying soil layers or sand or peat lenses.

- Final engineering plans should be reviewed by a soils engineer prior to construction to ensure the stability of the final design.

- Due to the high potential for instability of fill on bay muds and saturated soils the following considerations should be followed during fill operations to ensure proper placement:

  * preconsolidation of fill areas with surcharge fill;

  * construction of a base blanket;

  * avoid excessive rates of fill placement;

  * proper design of slopes at edges of fill areas to avoid heaving.

Flooding. The following mitigation measures are recommended to reduce impacts due to flooding:

- Enlarge and improve levees along Sulphur Creek (proposed).

- Construct levee along west side of project site, capable of resisting wave action from the west in case EBRPD parcel is flooded during 100 year tidal event or collapse of its protecting dike (proposed).

- Structures must have the lowest floor elevation above the base flood elevation (seven feet MSL) or be floodproofed in accordance with standards of the National Flood Insurance Program.

4.5 TRAFFIC AND CIRCULATION

This section summarizes the traffic study prepared by John J. Forristal which is included in Appendix M of this Supplemental EIS/EIR. The appended report supercedes an earlier report (October 1984) prepared for the initial (1985) EIS/EIR.

AFFECTED ENVIRONMENT. The major street system and average daily traffic volumes are shown on Figure 4.5-1 and 4.5-2.

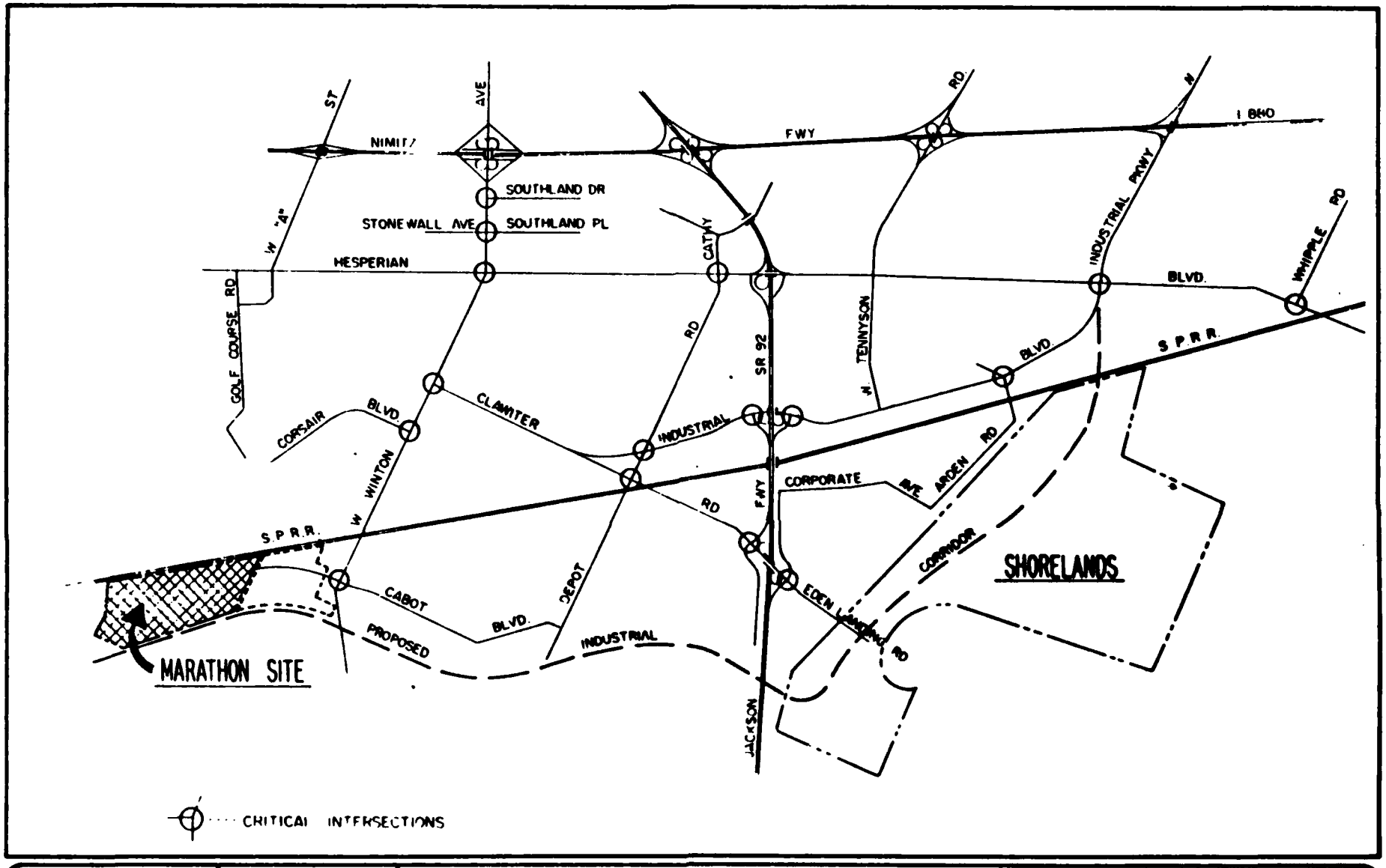
Regional Access. Regional access in the general project area is provided by Interstate 880 (the Nimitz Freeway) and by State Route 92 along West Jackson Street and the San Mateo Bridge. The Nimitz Freeway provides service northerly to the San Leandro and Oakland areas and to San Francisco via the Bay Bridge. For traffic oriented to the north, there are interchanges at West Winton Avenue, A Street, and Hesperian Boulevard. To the south, the Nimitz Freeway extends through Union City and Fremont to San Jose. South oriented trips are served by interchanges at West Winton Avenue and at Jackson Street.

State Route 92 runs in a general northeasterly direction, ending in downtown Hayward at a junction with Mission Boulevard. To the west, the San Mateo Bridge provides service to the San Francisco Peninsula and to the Cities of San Francisco and San Jose via U.S. Highway 101.

Major Street System. Primary access to the site is proposed from West Winton Avenue via Cabot Boulevard which currently services the Marathon Tract 4975 development immediately south of Tract 5167. Through the Cabot Boulevard intersection, West Winton Avenue has a four lane roadway section plus a median turn lane. This four lane section extends a short distance west of Cabot Boulevard, then narrows to two lanes with minimal shoulders and ends at Shoreline Park approximately one mile to the west. West Winton Avenue also extends easterly to Clawiter Road, Hesperian Boulevard, Stonewall Avenue/Southland Place, Southland Drive, Interstate 880, and to State Route 92 on the periphery of downtown Hayward.

The major north/south streets in the area are Cabot Boulevard, Clawiter Road/Industrial Boulevard and Hesperian Boulevard. Cabot Boulevard extends south of West Winton Avenue to Depot Road. Clawiter Road has a T intersection with West Winton Avenue, approximately one mile east of Cabot Boulevard. Clawiter Road runs southerly to an intersection with Industrial Boulevard a short distance north of Depot Road. The main roadway alignment then curves to the southeast as Industrial Boulevard to and through an interchange with West Jackson Street and continues to Industrial Parkway in the south part of Hayward. Clawiter Road continues south of Industrial Boulevard to an interchagne with West Jackson Street. Hesperian Boulevard is a major arterial, extending northerly through Hayward, San Lorenzo and San Leandro to East 14th Street and southerly to Union City. In the vicinity of West Winton Avenue, it has a six lane section with a raised median island. On street parking is prohibited along much of its length, and access is limited on those portions where frontage roads are provided.

The intersections of West Winton Avenue-Hesperian Boulevard and Depot Road-Clawiter Road are currently operating at Level of Service (LOS) E. All other intersections are at Level D or better including Interstate 880 and State Route 92 ramps (see Table 4.5-1, column 1).



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SCALE

FIGURE 4.5-1 MAJOR STREET AND FREEWAY SYSTEM

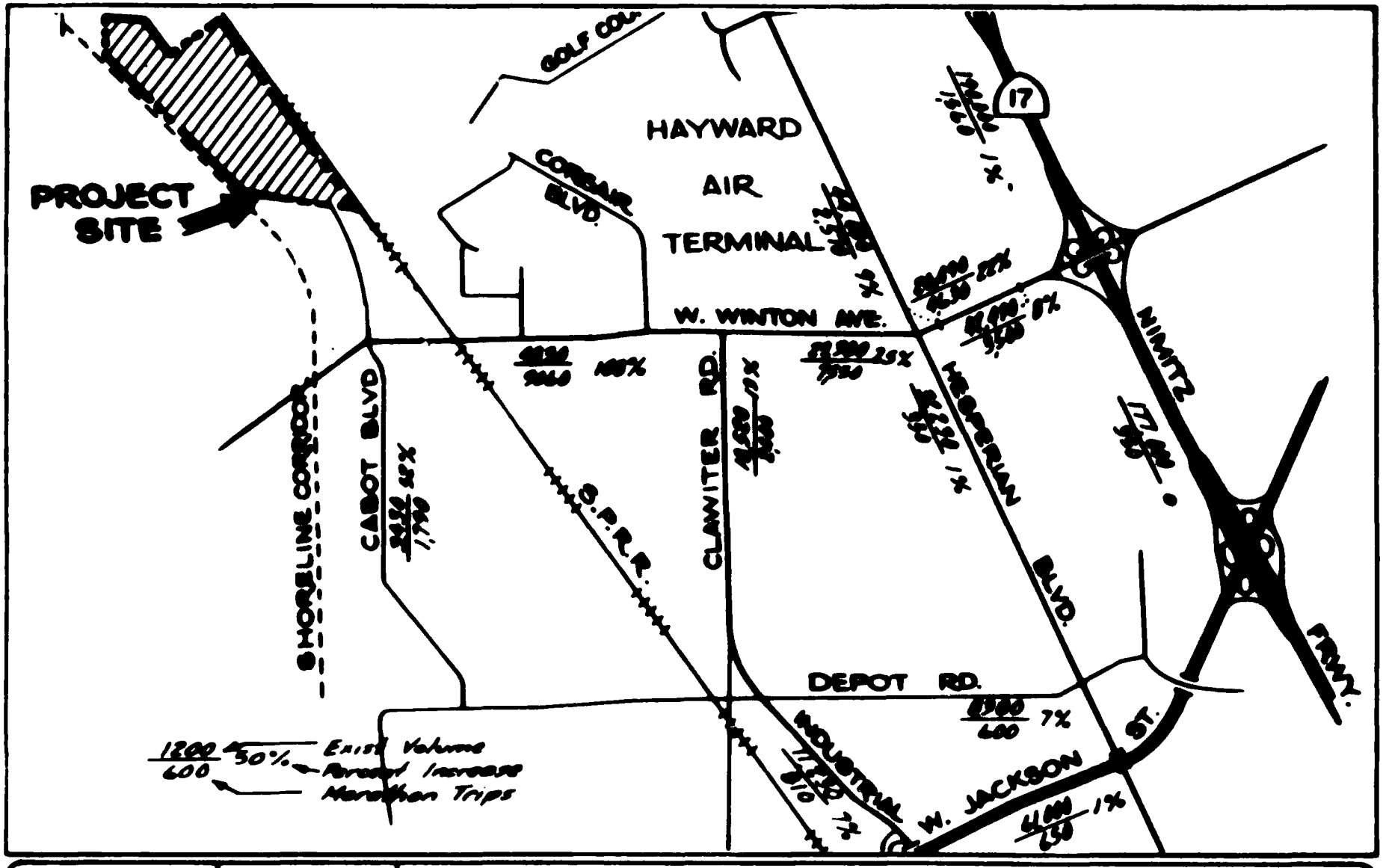

FIGURE 4.5-2 AVERAGE WEEKLY TRAFFIC VOLUMES

ENVIRONMENTAL CONSEQUENCES

Alternatives 1, 2a, 2b and 2c. The proposed project and Alternatives 2a, 2b and 2c are each estimated to generate 8,710 average weekday trips (AWT) to the current road system. This assumes a "worst case analysis" with a trip generation rate of 65 trips per acre. In the P.M. peak hour, the project would generate 950 trips (11 percent of the AWT). The inbound/outbound traffic split would be 250/700.

The impacts on intersection operations under full development of the Marathon Project are listed in the second column of Table 4.5-1. The range of impacts are greatest on those West Winton Avenue intersections nearest the project, diminishing in proportion to distance away from the site. The intersection of West Winton Avenue/Hesperian Boulevard will drop from LOS E to LOS F. Since no intersection can accommodate traffic volumes above its theoretical capacity, the implication here is the extent and duration of congestion will be increased beyond that already experienced. At the Depot Road/Clawiter Road intersection, the level would remain at LOS E. All other intersections will be at LOS D or better.

Ramp volumes on Interstate 880/West Winton Avenue interchange are estimated to increase by eight percent during the P.M. peak hour due to Marathon traffic. Since most of these ramps are currently operating under forced flow conditions, the effect would be an extension of the area of congestion and its duration. At the State Route 92/Clawiter Road interchange, increases are estimated at 22 percent on the westbound ramps, but total volumes will be approximately 1,000 vehicles per hour, which is below theoretical ramp capacity. The increases on the more critical eastbound ramps will be six percent; referring to Table 4.5-1, the service level at the intersection of the ramps with Clawiter Road will not exceed LOS D. The most congestive factor at this interchange is the merge of eastbound on-ramp traffic with freeway traffic; the Marathon addition to this movement is minimal.

In assessing traffic impacts, potential trips from other undeveloped parcels were also considered. There are approximately 283 undeveloped acres in the area north of State Route 92, between the wetlands and Hesperian Boulevard. Daily and P.M. peak hour trips were estimated for these vacant areas and distributed in accordance with the trip generation assumptions made for the Marathon Project. The cumulative volume of these trips together with the Marathon Project trips are listed in column 3 of Table 4.5-1. For most intersections, there is a drop of one or two service level designations. In the immediate Marathon area, the intersections of West Winton Avenue with Hesperian Boulevard and with Clawiter Road, and of Clawiter Road with Depot Road, will fall to LOS F. East of Hesperian Boulevard, the intersections of Winton Avenue with Southland Place/Stonewall Avenue and with Southland Drive will also be at LOS F. According to the Community and Economic Development Department, West Winton Avenue is already a major source of dissatisfaction with Hayward for industrial firms in the northwestern portion of the industrial area. Traffic, in general, has repeatedly been cited as the main disadvantage of doing business in Hayward (Sternberg, 1987).

The cumulative traffic impacts from the proposed Shorelands project, south of State Route 92, also were considered in this analysis. The resultant intersection volume/capacity ratios and levels of service from all sources are listed in the fourth column of Table 4.5-1. Virtually all intersections would be operating at Level E or F under the assumed full development condition.

TABLE 4.5-1. P.M. PEAK HOUR VOLUME/CAPACITY RATIOS AND LEVELS OF SERVICE

INTERSECTION	EXISTING	EXISTING +MARATHON	EXISTING +MARATHON +OTHER*	EXISTING +MARATHON +OTHER +SHORELANDS	EXISTING +MARATHON +OTHER WITH MOD-IFICATIONS
1. W. Winton Ave.- Cabot Blvd.	0.14-A	0.64-B**	0.78-C**	0.78-C	-
2. W. Winton Ave.- Corsair Blvd.	0.35-A	0.56-A	0.74-C	0.74-C	-
3. W. Winton Ave.- Clawiter Rd.	0.73-C	0.85-D	1.04-F	1.08-F	0.93-E
4. W. Winton Ave.- Hesperian Blvd.	1.05-E	1.15-F	1.31-F	1.35-F	1.01-F
5. W. Winton Ave.- Southland Pl./ Stonewall Ave.	0.76-C	0.80-D	0.94-E	0.96-E	-
6. W. Winton Ave.- Southland Dr.	0.88-D	0.89-D	0.97-E	0.98-E	-
7. Depot Rd.- Clawiter Rd.	0.91-E	0.94-E	1.50-F	1.59-F	0.92-E
8. Depot Rd.- Industrial Blvd.	0.73-C	0.74-C	0.86-D	0.88-D	-
9. Depot Rd.- Hesperian Blvd.	0.79-C	0.80-D	0.86-D	0.86-D	-
10. SR 92 WB Ramps/ Breakwater Ave./ Clawiter Rd.	0.78-C	0.80-D	0.89-D	1.01-F	-
11. SR 92 EB Ramps/ Eden Ldg. Rd./ Clawiter Rd.	0.74-C	0.77-C	0.85-D	1.54-F	-
12. SR 92 WB Ramps/ Cryer St./ Industrial Blvd.	0.76-C	0.77-C	0.97-E	0.98-E	-

(CONTINUED)

TABLE 4.5-1 (CONTINUED). P.M. PEAK HOUR VOLUME/CAPACITY RATIOS AND LEVELS OF SERVICE

INTERSECTION	EXISTING	EXISTING +MARATHON	EXISTING +MARATHON +OTHER*	EXISTING +MARATHON +OTHER +SHORELANDS	EXISTING +MARATHON +OTHER WITH MOD-IFICATIONS
13. SR 92 WB Ramps/ Sleepy Hollow/ Industrial Blvd.	0.58-A	0.60-B	0.72-C	1.27-F	-
14. Industrial Blvd.- Baumberg Ave.	0.74-C	0.76-C	0.96-E	1.58-F	0.69-B
15. Industrial Blvd.- Hesperian Blvd.	0.84-D	0.88-D	1.02-F	1.77-F	-
16. Union City Blvd.- Whipple Ave.	0.45-A	0.48-A	0.74-C	1.03-F	-

* - "Other" assumes full development of all vacant lands North of SR 92 except Marathon.

** - Assumes Cabot Boulevard realigned to intersect W. Winton Ave. opposite Bruzzoni. (Note: this change has been implemented.)

Source: Forrestal (1986).

Future operations at the intersections of West Winton Avenue/Clawiter Road, West Winton Avenue/Hesperian Boulevard, Depot Road/Clawiter Road and the Industrial Boulevard/Clawiter Road intersections could be improved with implementation of the mitigation measures recommended in the traffic analysis, as shown in the last column in Table 4.5-1.

Assuming no change in train traffic, the impacts of increased vehicular traffic on railroad operations would be minimal, but vehicular traffic backups would be increased substantially during peak hours by train movements over the grade crossings. The effects of these periodic stoppages would be felt primarily at the downstream intersections (to the east for westbound traffic), where the surges in traffic flow would impose excessive demands for one or two signal phases. Available records do not show any significant accident experience which could be further aggravated by increased traffic. In the past, the California Public Utilities Commission has expressed concern over the potential increase in train traffic if the Southern Pacific and Santa Fe Railroads merged into one operation, but this proposal has recently been turned down.

Alternatives 3a and 3b. Alternative 3a proposes industrial/commercial development on only 104 acres of the project site and would generate an additional 6,760 ADT to the street system. Alternative 3b, which proposes development of 74 acres, would generate 4,736 ADT. As a result, the projected levels of service would be slightly better at most intersections, relative to conditions under Alternative 1.

Alternatives 4 and 5. Both these alternatives would result in no action or a continuation of existing conditions into the future. The level of service at most intersections would be reduced even without the proposed project due to current traffic conditions, general growth in the area, and other currently planned projects.

RECOMMENDED MITIGATIONS

Alternatives 1, 2a, 2b, 2c, 3a, and 3b. Mitigation measures proposed to mitigate traffic impacts which are applicable to all the alternatives involving development of the project site include:

- The City of Hayward should consider the following mitigations. (The fifth column of Table 4.5-1 shows the service levels which could be achieved.)

  * The addition of a third eastbound lane on West Winton Avenue from east of Hesperian Boulevard and a separate right turn lane on the northbound approach of Hesperian Boulevard.

  * Conversion of the existing through lane on the northbound Clawiter Road approach to an optional right turn through lane. This would require removal of the right turn channelization island and relocation of the signal.

  * Planning for ultimate four lane sections for Clawiter and Depot Road. Intersection operations could be improved by an interim widening to provide turning lanes on one or more approaches. The addition of right and left turn lanes and an extra through lane on the eastbound Depot Road approach, and a separate right turn lane on the northbound Clawiter Road approach would be most effective for reducing traffic congestion at this intersection.

- Industrial property owners should consider:

  * The formation of an assessment district by the property owners in the industrial area for implementation of roadway improvements in the site area (this is currently in process).

  * Encouraging car and van pooling and transit ridership.

  * "Flex-time" operations which could minimize peak hour traffic volumes associated with the project. Flex-time operations spread arrival and departure times over more extended periods to reduce concentrated traffic surges.

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- "Flex-time" operations which could minimize peak hour traffic volumes associated with the project. Flex-time operations spread arrival and departure times over more extended periods to reduce concentrated traffic surges.

4.6 AIR QUALITY

The air quality study presented in the 1985 DEIR prepared by TRS Consultants has been superseded by work performed by Earth Metrics.

AFFECTED ENVIRONMENT. The climate of Hayward in the vicinity of the project site is dominated by the nearby San Francisco Bay. Weather is typically cool and windy much of the year. Late night and early morning low clouds frequently occur during the summer months, while the afternoons are normally clear. Winter skies are cloudy during the passage of low pressure storms. As in the rest of the Bay Area, the rainfall is highly seasonal with most of the rain received in the October to April period. Very little rain is received in the summer months from June to September.

The prevailing wind direction in Hayward is from the northwest during most of the year. Northwesterly winds occur over 70 percent of the time during the months from May through August. However, from November through January, northwesterly winds generally occur only about 25 percent of the time. Southeasterly winds are normally dominant in December and January, occurring approximately 40 percent of the time during the daytime hours (BAAPCD, 1970).

Prevailing northwesterly winds generally limit the summertime high temperatures to the upper 20 degrees Celsius (80s Fahrenheit). Occasionally the temperature rises into the low 30s C (100s F). The highest temperatures in the summer are generally associated with a strong inversion with low inversion base height. Nights in summer are generally cool near 10 degrees C (50 degrees F). In the winter, daytime temperatures average approximately 15 degrees C (60 degrees F), with nights cooling to just above 0 degrees C (32 degrees F). However, it is not uncommon for the temperature to dip to below 0 degrees C (32 degrees F), with occasional frosts or freezes occurring.

Air Quality Criteria. The applicable air quality criteria for the proposed project are the State of California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards (NAAQS). The two standards are presented in Table 4.6-1. The standards for California and the nation are very similar, being promulgated to protect the public from various known effects.

Attainment Status. The project area is located in the San Francisco Bay Area Air Basin, which contains individual nonattainment areas for the air pollutants ozone, carbon monoxide, and total suspended particulates (TSP). Nonattainment areas are those locations which do not conform with the National Ambient Air Quality Standards (NAAQS). The entire air basin is a nonattainment area for ozone.

As a nonattainment region, the region must participate in the State Implementation Plan (SIP) pursuant to the Clean Air Act and amendments thereto. The Bay Area Air Quality Management District (BAAQMD) has prepared plans to reduce emissions in order to achieve and maintain the standards. Transportation Control Measures (TCM) are included to reduce emissions from motor vehicle exhaust from the baseline emission. Attainment of the standard is expected no later than 1987, the date of extension granted to the State by the U.S. Environmental Protection Agency.

TABLE 4.6-1. AMBIENT AIR QUALITY STANDARDS

COMPARISON OF FEDERAL AND STATE AIR QUALITY STANDARDS

Pollutant Averaging Time	Federal Standards Primary	Federal Standards Secondary	State Standard	Objective
Ozone				
1-hour	0.12 ppm 240 $\mu g/m^3$	Same —	0.10 ppm 200 $\mu g/m^3$	To prevent eye irritation, breathing difficulties.
Carbon Monoxide				
8-hour	9 ppm 10 mg/m^3	Same	9.0 ppm 10 mg/m^3	To prevent carboxyhemoglobin levels greater than 2%.
1-hour	35 ppm 40 mg/m^3	Same	20 ppm 23 mg/m^3	
Nitrogen Dioxide				
Annual	0.05 ppm 100 $\mu g/m^3$	Same	—	To prevent health risk and improve visibility.
1-hour	—	—	0.25 ppm 470 $\mu g/m^3$	
Sulfur Dioxide				
Annual	0.03 ppm 80 $\mu g/m^3$	—	—	To prevent increase in respiratory disease, plant damage & odor.
24-hour	0.14 ppm 365 $\mu g/m^3$	—	0.05 ppm 131 $\mu g/m^3$	
3-hour	—	0.5 ppm 1310 $\mu g/m^3$	—	
1-hour	—	—	0.25 ppm 655 $\mu g/m^3$	
Sulfates				
24-hour	—	—	25 $\mu g/m^3$	To improve visibility and prevent health effects.
Particulate				
Annual Mean	75 $\mu g/m^3$	60 $\mu g/m^3$	30 $\mu g/m^3$ PM_{10}*	To improve visibility and prevent health effects.
24-hour average	260 $\mu g/m^3$	150 $\mu g/m^3$	50 $\mu g/m^3$ PM_{10}*	
Visibility Reducing Particles	State Standard: One observation. In sufficient amount to reduce the prevailing visibility to less than ten miles when the relative humidity is less than 70%.			
Lead				
30-day	—	—	1.5 $\mu g/m^3$	To prevent health problems.
Calendar quarter	1.5 $\mu g/m^3$	Same	—	
Hydrogen Sulfide				
1-hour	—	—	0.03 ppm 42 $\mu g/m^3$	To prevent odor problems.
Vinyl Chloride (Chloroethene)				
24-hour	—	—	0.010 ppm 26 $\mu g/m^3$	To prevent health problems
Ethylene				
8-hour	—	—	0.1 ppm	To prevent plant damage.
1-hour	—	—	0.5 ppm	

* PM_{10} = Particulate matter ten microns or less in size.

SOURCE: BAY AREA AIR QUALITY MANAGEMENT DISTRICT, AIR QUALITY HANDBOOK, 1985-1986.

Air Quality Record. The Bay Area Air Quality Management District (BAAQMD) monitors the concentration of pollutants of 24 sites within the air basin. The BAAQMD monitoring station closest to the project site is located on La Mesa Street in the City of Hayward. This station is six miles east of the project site and is instrumented to measure ozone only. The closest fully instrumented monitoring station is located in the City of Fremont on Chapel Way which is 11 miles southeast of the project site. A summary of recent violations of air pollution standards at the Hayward and Fremont monitoring stations is presented in Table 4.6-2.

The data in Table 4.6-2 indicate that occasional violations of the NAAQS for ozone and total suspended particulates (TSP) have occurred in the project vicinity during the last five years. Oxides of nonmethane hydrocarbons and NOx are of concern as precursors of photochemical oxidants, which are dominated by ozone. Hydrocarbons combine with NO2 in the atmosphere (and in the presence of sunlight) to form ozone and create a condition commonly known as smog. Mobile sources (i.e., motor vehicles) account for the majority of CO, hydrocarbon and NOx in Alameda County, while most particulate and oxides of sulfur (SOx) pollution is caused by stationary sources.

Existing vehicle emissions were quantified by determining the amount of emissions generated by vehicles traveling in Alameda County. The calculations of existing and future air pollutant emissions were based on the Bay Area Air Quality Management District's (BAAQMD) most recent vehicle emission factors update. These emission factors were developed from the California Air Resources Board's (CARB) emission factor program, EMFAC6D, which is based on EPA's methodology (MOBILE2) but corrected to reflect California's stringent emission standards, vehicle mileage, and vehicle age distributions. Table 4.6-3 presents existing vehicle emissions in tons per day. These emissions are diluted as they mix with the surrounding air, yielding levels of pollutants which are dependent on the degree of mixing and the amount of pollutant emitted. These pollutant levels may then be compared with ambient air quality standards.

AIR QUALITY CONSEQUENCES

Construction Dust

ALTERNATIVES 1, 2a, 2b, 2c, 3a AND 3b. Particulates may become airborne during project related construction activities such as grading, excavating and road widening. The amount of particulates potentially emitted is proportional to the area of concentration. For instance, Alternatives 1 and 2, which propose the creation of wetland mitigation sites, would involve soil redistribution on additional parcels and create particulates which may become airborne. Alternative 3a and 3b are reduced density alternatives and would create particulates in a lesser quantity. During any such dust creating activities, the Bay Area Air Quality Management District would require certain mitigation measures which are described in Table 4.6-3.

ALTERNATIVES 4 AND 5. Since Alternatives 4 and 5 are essentially no project alternatives, construction related dust would not be of concern.

TABLE 4.6-2. VIOLATIONS OF AIR POLLUTION STANDARDS AT MONITORING STATIONS IN THE PROJECT VICINITY, 1981-1985

		DAYS EXCEEDING AIR QUALITY STANDARDS				
POLLUTANT (CURRENT STANDARDS)	BAAQMD STATION	1981	1982	1983	1984	1985
Ozone	Fremont	3	3	7	5	4
(12 pphm, 1 hour) F	Hayward	0	0	3	3	1
Carbon Monoxide, CO (9 ppm for 8 hours) F	Fremont	0	0	0	0	0
Nitrogen Dioxide, NO2 (25 pphm, 1 hour) S	Fremont	0	0	0	0	0
Sulfur Dioxide, SO2 (50 pphm for 1 hour or 5 pphm for 24 hours) S	Fremont	0	0	0	0	0
Total Suspended Particulates, TSP (100 ug/m3 for 24 hours over 60 ug/m3 annual geometric average) S	Fremont	0	2	1	0	0

Source: BAAQMD, Contaminant and Weather Summary, 1981-1985.

ppm: parts per million
pphm: parts per hundred million
S: State standard
F: Federal standard
ug/m3: micrograms per cubic meter

TABLE 4.6-3 DUST CONTROL REQUIRED MEASURES

I. During clearing, grading, earth moving or excavation:

a. Water trucks or sprinkler systems to be used in sufficient quantities to prevent dust raised from leaving the site.
b. The entire area of disturbed soil to be wet down, sufficient to create a crust, after each day's activities cease.

II. After clearing, grading, earth moving or excavation is completed:

a. The entire area of disturbed soil is to be treated to prevent wind pick up of the soil. This may be accomplished by:

1. Seeding and watering until grass cover is grown.
2. Spreading soil binders.
3. Wetting the area down, sufficient to form a crust on the surface with repeated soakings as necessary to maintain the crust and prevent dust pick up by the wind.
4. Other methods approved in advance by the Air Pollution Control District.

III. During Construction:

a. Water trucks or sprinkler systems to be used to keep all areas of vehicle movement damp enough to prevent dust raised from leaving the site.

1. As a minimum, this will include wetting down such areas in the late morning and after work is completed for the day.
2. Increased watering frequency will be required whenever the wind speed exceeds 15 mph.

b. All roadways, driveways, sidewalks, etc., should be paved as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

IV. Activation of Increased Dust Control Measures:

The contract of builder shall designate a person or persons to monitor the dust control program and t order increased watering, as necessary, to prevent transport of dust off site. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District.

Source: San Francisco Bay Area Air Quality Management District, 1983.

Motor Vehicle Emissions

ALTERNATIVES 1, 2a, 2b, AND 2c. Table 4.6-4 summarizes air contaminant (vehicle) emissions for Alameda County (in 1982) and the proposed project in the year 2000. The concentrations of carbon monoxide appearing in Table 4.6-4 were modeled for the intersection of West Winton and Hesperian which is the busiest intersection in the project vicinity. Project emissions were based on 8,720 weekday trip ends, an average speed of 25 mph, and an average trip length of ten miles. These projections were made using a Gaussian dispersion model, EMFAC6D emission factors at 25 mph, and worst case meteorology which consisted of a one meter per second wind and Pasquill stability class D. Background CO levels were projected by the BAAQMD (J. Roggenkamp, 1986). As shown in Table 4.6-5, violations of neither the one or eight hour standard are anticipated for the proposed project. Based on the California Air Resources Board EMFAC6D emission factors, the impact on air quality from project traffic increases is expected to be offset by the reduced emissions projected for the fleet of vehicles in the year 2000. While traffic is expected to increase approximately seven to eight percent in the year 2000 with the project, the emissions of carbon monoxide from automobiles is projected to decrease by 15 to 17 percent. Thus, the overall effect is for the concentrations of vehicular contaminants to be reduced in the future, with or without the proposed project.

The project developer proposes to physically enhance wetland mitigation parcels which would not be used for motorized vehicles other than construction vehicles at the time of enhancement; thus, vehicle emission would not be of concern on the proposed mitigation parcels. The impact on air quality, from the traffic increases as a result of the project, is expected to be offset based on the California Air Resources Board EMFAC6D emission factors which project decreased emission.

ALTERNATIVES 3a AND 3b. Reductions in the scale of the proposed project will further reduce the projected vehicle contaminant emissions and concentration. Thus, no additional mitigations regarding vehicular emissions are required.

Stationary Emissions. There are three potentially significant stationary sources of air contaminants: industrial toxic gas emissions, odorous emissions from Oro Loma Sanitary District Sewage Treatment Plant, and toxic gas emissions from nearby landfill areas.

ALTERNATIVES 1, 2a, 2b, 2c, 3a AND 3b. Industrial emissions of toxic gasses may be expected from industry that might locate within this development. Table 4.6-6 provides some estimates of the contaminant emission rates from various industries.

The proximity of the project site to the Oro Loma Sanitary District Sewage Treatment Plant may subject the occupants of the site to occasional odors. The prevailing winds are out of the northwest, which places portions of the project site directly downwind of the plant. There have been no formal complaints about odors filed against the Oro Loma Sanitary District at the BAAQMD, and there are companies in San Lorenzo just northeast of the sanitary district's tract which are as close to the ponds as is much of the project site. However, it should be noted that the portions of the project site situated closer to the sewage treatment plant are directly downwind of the

TABLE 4.6-4. AIR CONTAMINANT EMISSIONS INVENTORY FOR ALAMEDA COUNTY AND THE PROPOSED PROJECT POLLUTANT EMISSIONS (TONS/DAY)

POLLUTANT	ALAMEDA COUNTY TOTAL EMISSIONS (a) (1982)	PROJECT VEHICULAR EMISSIONS (b) (2000)
Carbon Monoxide	634	1.2
Oxides of Nitrogen	78	0.1
Hydrocarbons	462	0.1
Particulates	106	0.2

(a) Includes both mobile and stationary (industrial) sources.

(b) Projected daily emissions assuming project related traffic of 8,720 weekday trip ends, an average speed of 25 mph and trip length of 10 miles, and vehicular emissions from EMFAC6D.

Source: Earth Metrics Incorporated, 1986.

TABLE 4.6-5. PROJECTED MICROSCALE PEAK ONE AND EIGHT HOUR CARBON MONOXIDE LEVELS FOR THE WEST WINTON-HESPERIAN INTERSECTION IN HAYWARD, CALIFORNIA WITH AND WITHOUT THE MARATHON PROJECT (FULL SCALE DEVELOPMENT)

SCENARIO CALIFORNIA STANDARD	PEAK PERIOD	AIR QUALITY STANDARD	PROJECTED CONCENTRATIONS (ppm) MICROSCALE (a) (50 feet)	BACKGROUND (b)	TOTAL
Existing (1985)	1 hour	20	4.6	7.0	11.6
	8 hour	9	2.9	5.5	8.4
Without Project	1 hour	20	4.0	6.4	10.4
	8 hour	9	2.5	5.0	7.5
With Project (2000)	1 hour	20	4.2	6.4	10.6
	8 hour	9	2.6	5.0	7.6

(a) Using a Gaussian dispersion model and the following input parameters: receptor located 50 feet from edge of roadway, 1 M/S windspeed, D-class stability, and EMFAC6D emission factors.

(b) Personal communication from Ms. Roggenhamp, BAAQMD.

Source: Earth Metrics Incorporated.

TABLE 4.6-6. GENERALIZED EMISSION FACTORS FOR SELECTED INDUSTRY GROUPS

Based on U.S. Standard Industrial Classification (S.I.C.) Code* Groupings

Industry Group (Sub-groups)	Average Emissions per Facility (lbs/acre/day)				
	Part	TOG	NOx	SO2	CO
Manufacturing					
Food Canning (2032, 2033)	0.3	0.5	19.0	22.0	2.2
Paper Products (2643, 2647, 2649, 2653, 2654)	0.2	4.4	2.8	0.01	0.6
Printing & Publishing (2700-2771)	3.5	31.0	42.0	0.2	6.0
Inorganic Chemicals (2812, 2813, 2816, 2819)	1.6	0.6	4.9	2.6	5.9
Paints, Varnishes, etc. (2851)	0.2	20.0	0.5	0.00	0.1
Organic Chemicals (2861, 2865, 2869)	1.4	8.5	3.0	0.5	1.6
Petroleum Refining (2911)	1.4	18.0	26.0	16.0	1.3
Paving & Roofing (2951, 2952)	17.0	1.9	11.0	0.7	5.3
Plastic Products, Misc. (3079)	1.1	51.0	0.6	0.00	0.1
Stone, Clay, Glass & Concrete Products (3200-3299)	14.0	2.4	17.0	4.6	3.0
Iron & Steel Foundries (3321, 3324, 3325)	11.0	44.0	5.0	2.8	23.0
Metal Containers (3411, 3412)	0.5	90.0	5.5	0.03	0.8
Heating Equipment (3433)	0.1	2.7	0.2	0.00	0.03
Metal Work (3443, 3444, 3448, 3449)	5.3	11.0	1.3	0.01	0.2
Metal Coating (3471, 3479)	0.3	13.0	0.8	0.00	0.1
Machinery, except electrical (3500-3599)	72.0	23.0	0.5	0.02	0.1
Semiconductors, etc. (3674)	0.1	32.0	0.3	0.01	0.1
Electronic Components (3679)	0.1	5.6	0.1	0.00	0.02
Instruments (3800-3873)	0.3	23.0	1.4	0.01	0.2
Other					
Electric Utility plus Other Services (4931)	17.0	12.0	410.0	78.0	32.0
Petroleum Bulk Stations & Terminals (5171)	0.01	150.0	0.1	0.02	0.01
Dry Cleaning Plants (7216)	0.00	6.6	0.1	0.00	0.01
General Hospitals (8062)	2.9	2.3	30.0	0.2	6.0
National Security (9711)	2.8	2.5	22.0	0.01	5.5

* As compiled by the Statistical Policy Division, Office of Management and Budget.

prevailing northwest winds. There are no plans to improve or alter the facility (Stanton, 1985).

Emissions from the Oro Loma Sanitary District may require mitigation to insure that local concentrations are maintained at acceptable levels.

The fill material for the site is also a potential source of air contaminants. Soil contaminated with volatile contaminants such as petroleum products or industrial solvents may produce unacceptable concentrations of air contaminants in buildings built upon it. Soil with high concentrations of radium may similarly produce high concentrations of radon in buildings.

ALTERNATIVES 1, 2ai, 2aii. These alternatives propose physical creation of wetland mitigation sites on or near old sanitary landfills. Emission of toxic and hazardous gases such as methane from sanitary landfills is only expected to be a potential problem in areas underlain or immediately adjacent to refuse deposits and at which some form of construction or soil disturbance is proposed. These are limited to the HARD A and B sites and mitigation sites 2ai and 2aii. Construction of methane gas collection systems may be required to control emissions at these sites.

ALTERNATIVES 4 AND 5. Since Alternatives 4 and 5 are essentially no project alternatves, stationary emissions are not expected to pose any problems.

RECOMMENDED AIR QUALITY MITIGATION MEASURES

ALTERNATIVES 1, 2a, 2b, 2c, 3a AND 3b. The projected decreases in motor vehicle contaminant emission rates will offset the anticipated increase in traffic associated with this project. Thus, no additional mitigation measures are required for reducing vehicular emissions. It is suggested, however, that prior to permitting industrial development, the City of Hayward should consider the potential for emissions of toxic air contaminants to insure that the local concentrations can be maintained at acceptable levels.

- In the event that odors from the Oro Loma Sanitary District Sewage Treatment Plant create a nuisance to the project site, the plant may need to modify its operations to prevent odors from disturbing the occupants of the site. If such improvements are outside the constraints of normal operating procedures or planned improvements, outside funding (i.e., Tract 5167 tenants) may need to be obtained.

- Care should be exercised in evaluating the source of all fill material underlying building structures for potential indoor air contaminants (i.e., methane, radon).

- Any wetland enhancement development on an area underlain by sanitary refuse should include a system for collection and controlled release of methane gas.

- Dust control measures recommended in Table 4.6-3 should be implemented to reduce air quality impacts related to dust.

ALTERNATIVES 4 AND 5. No mitigation measures are necessary.

4.7 NOISE

AFFECTED ENVIRONMENT

Sensitive Receptors. The primary sensitive receptors in the site vicinity are single family residences located approximately 100 feet east of the north end of the Tract 5167 parcel in the San Lorenzo subdivision. Other residences in the area are located near Winton Avenue west of Hesperian Road.

Noise Sources. The proposed project site is exposed to noise from three main sources: the Southern Pacific Railroad on the eastern boundary, the Metropolitan Oakland International Airport (MOIA) about five miles northwest, and the Hayward Municipal Airport, southeast of and adjacent to the site. Of these, the railroad is considered to be the most significant as the sound level contours from the Oakland Airport do not extend south of San Lorenzo, and the high level contours from the Hayward Airport do not extend west of the railroad tracks.

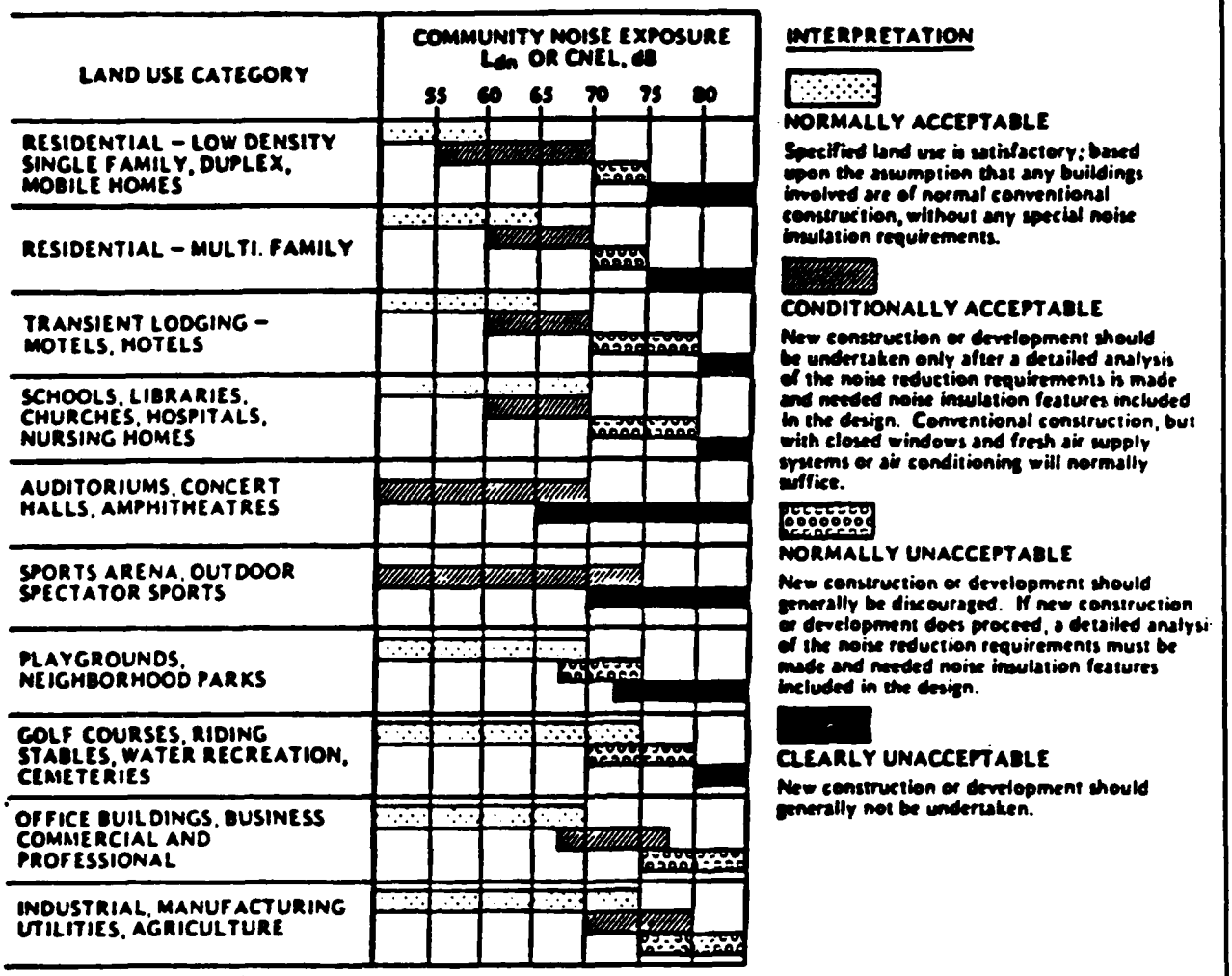
The nearest roadways are West Winton Avenue and Cabot Boulevard, both south of the site, and several local streets north of Bockman Canal that serve the industries north of the site. The proposed Alameda County Industrial Transportation Corridor, if approved and constructed, would run along the western site boundary and would substantially add to the existing noise levels at the site.

The Southern Pacific Railroad line immediately east of the site is used by 16 trains per day (two passenger trains and 14 freight trains) (Cogswell, 1984). There are no plans for increased use of this line in the near future.

The Hayward Municipal Airport operates 24 hours per day and is used only by general aviation aircraft. The air terminal had a volume of 225,000 annual operations as of 1983, and the number is projected to increase to 500,000 in the year 2005. The types of aircraft range from single seat aircraft to corporate jets. All planes leaving the main runway make a left turn approximately over the site. This turn is made to help minimize noise impacts on the residences in San Lorenzo Village. At the site area the planes are approximately 800 to 1,500 feet above the site (Mendez, 1984).

Noise Standards. The City of Hayward has adopted Land Use Compatibility Standards for Community Noise Environments from the California Office of Noise Control. These standards are shown in Figure 4.7-1. (The CNEL scale is a sound level unit based on the A scale which weighs evening and nighttime noise more heavily than daytime sound.)

Existing Sound Levels. The existing CNEL levels at the site are between 65 and 75 dB on the eastern side of the property and less than 65 dB on the western half of the property. As shown by reference to the standards, industrial developments are generally acceptable in areas having a Community Noise Exposure Level (CNEL) of 70 dB or less, and conditionally acceptable in areas with a CNEL between 70 and 75 dB.



SOURCE: CITY OF HAYWARD (1977)

earth metrics

FIGURE 4.7-1 LAND USE COMPATIBILITY STANDARDS FOR COMMUNITY NOISE ENVIRONMENTS

ENVIRONMENTAL CONSEQUENCES

Alternative 1

CONSTRUCTION NOISE. Temporary noise impacts would occur due to construction activity on the Tract 5167 site. Construction noise, which includes noise from the operation of paving equipment, trucks and other equipment, would increase ambient noise levels in the construction vicinity. Major sources of construction noise and the typical A-weighted sound levels at 50 feet are: dump trucks (88), portable air compressors (81), concrete mixer (85), piledriver (101), jackhammer (88), bulldozer (87), paver (89), pneumatic tools (85), backhoes (85) (EPA, 1971). It should be noted that the effect of construction noise would be temporary and confined to relatively small areas at any one time.

PROJECT GENERATED TRAFFIC NOISE. As a result of development on the project site, some additional traffic and noise in the area will be created. The predicted sound level increases for full scale development (134 acres) are summarized in Table 4.7-1 below. These sound level increments were calculated using existing and projected traffic volume data from the traffic study (see Section 4.5), assuming that the sound energy generated is proportional to the volume of traffic. Thus, the calculation is in accordance with the following relation: Δ dBA = 10 log V2/V1, where Δ dBA is the sound level increment and V2 and V1 are the projected and original volumes, respectively.

TABLE 4.7-1. PREDICTED SOUND LEVEL INCREASES (IN REFERENCE TO EXISTING VALUES IN 1986)

ROADWAY SEGMENT	SOUND LEVEL INCREASE, dBA		
	EXISTING PLUS MARATHON	WITHOUT MARATHON, YEAR 2000	WITH MARATHON, YEAR 2000
Winton Avenue, west of Cabot	-1.5	+5	+5
Winton Avenue, east of Cabot	+5	+4	+7
Cabot, south of Winton Avenue	+2	+6	+6
Winton Avenue, west of Hesperian	+1	+0.5	+1.5
Winton Avenue, east of Hesperian	+0.9	+0.5	+1
Hesperian, north of Winton Avenue	+0.3	-0.5	0
Hesperian, south of Winton Avenue	<0.1	+1	+0.7

Source: Earth Metrics Incorporated, 1986.

Thus, as shown the highest sound level increase due to the project after completion is five dBA and occurs on Winton Avenue east of Cabot. For year 2000 traffic conditions, the highest cumulative increase with the project will be seven dBA, again on Winton Avenue east of Cabot. The project related increase there will be three dBA. This location is not sensitive, however, as there are no residences along Winton and Cabot near the project site.

At residential receptor locations on Winton Avenue west of Hesperian, the highest traffic noise increases associated with the project on completion will be approximately one dBA as shown by Table 4.7-1. At these locations, the highest cumulative sound level increase with the project for the year 2000 will again be one dBA, but the project related increase will be only 0.5 dBA. This amount of increase over ambient levels is not noticeable and is not significant.

NOISE IMPACTS AT THE PROJECT. Based on information provided in the previous EIS/EIR for the Tract 5167 site, along with noise contours developed for the Hayward Airport (Hodges & Shute, 1984 and 1986) and a consideration of the traffic projection data, the following evaluation of future noise impacts at the site is obtained. The CNEL levels at the site will be between 65 and 75 dB on the eastern and also on the western side of the property. As noted under "affected environment", industrial developments are normally acceptable in areas having a Community Noise Exposure Level (CNEL) of 70 dB or less, and conditionally acceptable in areas with a CNEL between 70 and 75 dB. These predicted levels include a general allowance for noise created by vehicle traffic on the proposed Corridor 61, although specific information on this route has not been available to date.

SOUND LEVEL IMPACTS AT BAYLANDS. Some sound due to vehicle traffic and other sources at the project would be transmitted to the adjacent baylands. These potential impacts, which are not expected to be significant with implementation of appropriate mitigation, are discussed further in Section 4.2, Vegetation and Wildlife.

OTHER NOISE IMPACTS. Nearby residences could be impacted by sound originating from truck operations, depending on the type of tenancy which will occupy the parcels at the north end of the site. Trucks typically produce a sound level of 75 to 80 dBA at a distance of 50 feet. The sound levels diminish at the rate of four to six dBA per doubling of distance from the source. The specific impact on the residential receptors would depend on the volumes and times of operation of the trucks. Similar noise impacts could also result from the operation of mechanical equipment at the project site. These projected noise impacts are not expected to be significant if recommended mitigation measures are carried out.

Project Alternatives 2a, 2b, 2c. The sound level impacts for these alternatives will be identical to those for Alternative 1, as these alternatives simply involve the use of alternative off site parcels for wetlands mitigation.

Alternatives 3a and 3b. Under the reduced development density alternatives, the project generated traffic noise impacts would be incrementally less than for the full scale project. Since the reduced project alternatives will have approximately three fourths (3a) or one half (3b) the acreage of the planned

project (Alternative 1), it is estimated that the total traffic generation will be three fourths or one half of that for the project. Accordingly, the predicted project generated traffic noise impacts along roadways in the site vicinity will be one to two dBA less than those which are predicted for the full scale project. Other potential noise impacts will be generally similar to those for the proposed project.

Alternatives 4 and 5. No sound level impacts are expected under these no development alternatives.

RECOMMENDED MITIGATION MEASURES

Alternatives 1, 2a, 2b, 2c, 3a and 3b. The following mitigation measures will reduce the temporary adverse impacts associated with construction activity:

- To minimize the noise impact of construction, all construction related vehicles and equipment will be properly muffled.

- Construction activities at the project site will be restricted to the weekdays and to the hours of 7 A.M. and 6 P.M. to minimize disturbance to local residents.

- Inform the public of proposed construction timelines to minimize potential annoyance related to construction noise. This is important for homes located within a few hundred feet of construction activity.

In accordance with provisions of the City of Hayward Noise Element, a detailed analysis of the reduction requirements for traffic noise affecting the site should be made by the developer and include the needed noise insulation features necessary in the design of the project. Conventional construction may utilize closed windows and fresh air ventilation systems or air conditioning systems. Either design will normally suffice.

To mitigate potential noise impacts from trucks and equipment at the site following project completion, the following is recommended:

- As far as possible, ensure that all truck loading bays and noisy equipment bays are located such that they do not open to the direction where sensitive receptors are located. In this regard, wetland areas on, or to the east of, the site should be considered as sensitive receptors.

- To the extent feasible, consideration should be given to limiting truck operations near residences to the daytime hours of 7:00 A.M. to 7:00 P.M.

- Require all HVAC and rooftop mechanical equipment to be acoustically shielded in order to protect sensitive receptors.

Alternatives 4 and 5. There are no acoustical mitigation measures required.

4.8 PUBLIC SERVICES AND UTILITIES

POLICE

Affected Environment. Police protection in the project area is provided by the City of Hayward Police Department, located at 300 West Winton Avenue, and the East Bay Regional Park District (EBRPD) Police. The Tract 5167 site currently demands little to no police service. Public safety budget requirements are provided for in the City's General Fund which is supported by tax revenues, primarily property tax and sales tax (see Appendix O).

Environmental Consequences

ALTERNATIVES 1, 2a, 2b, 2c 3a AND 3b. The proposed development, and all alternatives resulting in site development, would create little additional demand for police service. Industrial parks typically do not place much demand on police services (Lt. Wallace, 1986). The types of calls which are associated with industrial development include vandalism and burglary both during construction and after project completion. It is expected that no increase in the annual cost of delivering police service to the City of Hayward will result from either the full scale or reduced scale alternatives. Existing manpower and facilities are adequate to serve the project area (see Appendix O).

Increased traffic, resulting from development of the site, may increase off road vehicle intrusion and illegal hunting on adjacent East Bay Regional Park District land. This problem currently exists on park property as a result of industrial development south of Sulphur Creek (Lindenmeyer, 1985). Without mitigation, the increase in intruders on EBRPD property could be potentially significant for EBRPD, requiring additional public safety officers to patrol the park property (Lindenmeyer, 1986).

ALTERNATIVES 4 AND 5. These alternatives would not result in site development and, therefore, would not create new police service demands.

Recommended Mitigation Measures

ALTERNATIVES 1, 2a, 2b, 2c, 3a AND 3b. Proper lighting and burglar alarms both during and after construction would help deter burglaries and vandalism. Impacts to EBRPD property can be reduced by constructing fencing along the property line between the Industrial Park and Regional Park. The City of Hayward Police Department's Crime Prevention Office can assist the developer with appropriate environmental design which may reduce crime impacts associated with burglaries and vandalism.

ALTERNATIVES 4 AND 5. None are required.

FIRE

Affected Environment. The nearest fire station to the proposed site is located at 1401 West Winton Avenue, approximately 1.2 miles east of the site. The station maintains a staff of 6 firefighters, 7 days per week, 24 hours per day. Equipment at the station includes a 1,250 gallon pumper and a ladder

truck. Response time to the site is about 5 minutes. The backup station closest to the site is located near the intersection of Harder and Santa Clara Roads.

The Fire Department has a total of six stations within the City, with 30 personnel on duty at all times. Total staff for the Department fluctuates around 120.

Environmental Consequences

ALTERNATIVES 1, 2a, 2b, AND 2c. The proposed Tract 5167 development would result in a increase in demand for fire protection and ambulance responses from the West Winton and other nearby stations. The increased demand is not anticipated to be significant nor would it require additional equipment or personnel, according to the Fire Department (Baykin, 1986). The Fire Marshal has stated that (preferred) access must be provided from West Winton Avenue to avoid considerable delay in Fire Department response time (Franke, 1987). No increase in the annual cost of delivering fire service to the City of Hayward will result from the project. Existing manpower and facilities are adequate to serve the project area. Public Safety budget requirements are provided for in the City's General Fund which is supported by tax revenues - primarily property tax and sales tax (Appendix O).

ALTERNATIVE 3a AND 3b. The impacts of these alternatives would be similar to those of the proposed action. Because of the reduced density of development, alternatives 3a and 3b would require proportionally less service.

ALTERNATIVES 4 AND 5. No impacts.

Recommended Mitigation Measures

ALTERNATIVES 1, 2a, 2b, 2c, 3a AND 3b. The water system on Tract 5167 should be sized to meet fire flow requirements. All buildings over 24,000 square feet are required by code to have sprinkler systems. The City is reviewing a proposed ordinance that would require all buildings over 10,000 square feet to have a sprinkler system. If the ordinance passes, the Department believes it will help to reduce fire damage.

ALTERNATIVES 4 AND 5. None are required.

ROAD MAINTENANCE

Affected Environment. The City of Hayward provides roadway maintenance in the site area. Street cleaning occurs once every week or two.

Environmental Consequences. On a marginal cost basis, there will be no increase, in manpower costs or equipment investment, placed upon the City of Hayward's Street Maintenance Department as a result of the proposed project (Appendix O).

ALTERNATIVES 1, 2a, 2b, 2c, 3a AND 3b. The proposed on-site looped roadway for alternative 1 would place additional demands on the City for maintenance service; less maintenance would be required for alternatives 3a and 3b. Under any alternative, additional maintenance requirements are not expected to be significant.

ALTERNATIVES 4 AND 5. No impacts.

Recommended Mitigation Measures. None are required.

WATER

Affected Environment. The proposed project site is entirely within the East Bay Municipal Utility District (EBMUD) and does not currently have water service.

The City of Hayward serves the area just south of Sulphur Creek. The City has a supply contract in perpetuity for water from the San Francisco Hetch Hetchy System. The City also maintains a well field in its industrial area as an emergency reserve. The nearest water lines are along Cabot Boulevard south of Sulphur Creek.

The East Bay Dischargers Authority (EBDA) maintains lines immediately northeast of the site which transport reclaimed wastewater to the Skywest Golf Course for irrigation. The reclaimed water has been treated to a coliform level of 23 most probable number (mpn) per 100 milliliters which complies with the State of California standards for landscape irrigation. No reclaimed water is currently used on site.

Environmental Consequences

ALTERNATIVES 1, 2a, 2b, AND 2c. The proposed site would require annexation from the East Bay MUD to the City of Hayward. (See Section 2.3 of this Supplemental EIR/EIS which discusses annexation requirements.)

The site would be served by a 12 inch looped system which would cross Sulphur Creek at Cabot Boulevard and connect with the 12 inch line serving Tract 4975 development and currently terminating at Cabot Boulevard and Sulphur Creek. With an average usage factor of 2,100 gallons per acre per day (City of Hayward, 1984), the proposed development would require approximately 281,400 gallons of water per day. The City does not anticipate any problems with serving the site (Gushue, 1986).

Reclaimed water from the EBDA would not be used on site. It could be used, however, to supplement the water flows into the two mitigation parcels HARD A and B. (See storm drainage discussion, below.)

The City of Hayward's proposed well near fire station number six will not be affected by this project (Lindberg, 1987). The City of Hayward's water treatment plant and water distribution system, are maintained as enterprise funds within the City budget. The annual costs of water operations are directly offset by fees collected from consumers. Fees are directly related to service demands. Since the services are self funding the net cost to the City is zero (Appendix O).

ALTERNATIVES 3a AND 3b. These alternatives would also require annexation. Alternative 3a would require 218,400 gallons and alternative 3b would require 155,400 gallons of water per day. No problems in meeting these levels of service are anticipated.

ALTERNATIVES 4 AND 5. No impacts anticipated.

Recommended Mitigation Measures

ALL ALTERNATIVES (EXCEPT 4 AND 5). Water conservation fixtures should be installed at the time of project construction.

ALTERNATIVES 4 AND 5. None are required.

SANITARY SEWER

Affected Environment. The site is entirely within the Oro Loma Sanitary District. It does not currently generate sewage effluent and is not connected to the existing Oro Loma system.

The City of Hayward serves the area south of Sulphur Creek. The City has an 18 inch sanitary sewer line beneath West Winton Avenue to which the flows from Tract 4975 are routed (Wilson, 1986).

The City of Hayward's wastewater treatment plant is located at the west end of Enterprise Avenue, approximately one mile south and west of the proposed site. The plant has recently been upgraded with a new fluidized bed reactor process which is capable of processing 13.1 million gallons per day (mgd) without violating the federal and regional treatment standards. The average daily flows in 1985 have been 12.1 mgd. The highest recorded peak flows occurred in January of 1983, when early flows reached 28 mgd. During peak months flows generally range between 12 and 13 mgd (Higares, 1986).

The City of Hayward's waste water treatment plant and sanitary sewer system are maintained as enterprise funds within the City budget. The annual costs of operations are directly offset by fees collected from consumers. Fees are directly related to service demands. Since the services are self funding the net cost to the City is zero (Appendix O).

Environmental Consequences

ALTERNATIVES 1, 2a, 2b AND 2c. Tract 5167 sanitary sewage would flow to the lift station constructed as a part of Tract 4975 and would be pumped into a force main through a portion of Cabot Boulevard to a manhole and then gravity flow thru a 15 inch pipe to a connection with the City's 18 inch gravity pipe in West Winton Avenue. Tract 5167 would have to be withdrawn from the Oro Loma Sanitary District (Davis, 1987).

The City's sewage treatment plant was upgraded by spring of 1985. The completed project would constitute 2.6 percent of the plant's 13.1 mgd operating capacity. During peak flows the plant would be operating just under its capacity. The City has no plans for plant expansion beyond the fluidized beds and does not anticipate having any problems serving the proposed site (Lundgren, 1986).

ALTERNATIVE 3a AND 3b. These reduced-scale alternatives would also require annexation to the City of Hayward for sewer service. Alternative 3a would generate approximately 270,400 gpd and alternative 3b would generate approximately 192,400 gpd of effluent. These alternatives would use less of the reserve capacity of the treatment plant (approximately 2 and 1.5 percent of the plant's operating capacity) than the proposed full scale plan.

ALTERNATIVES 4 AND 5. No impact.

Recommended Mitigation Measures

ALL ALTERNATIVES. None are necessary.

STORM DRAINAGE

Affected Environment. The City of Hayward and the Alameda County Flood Control and Water Conservation District (ACFCWCD) are responsible for storm drainage in the site area. The site does not contain improved storm drainage lines. Sulphur Creek on the southern site boundary is part of the County flood control system and carries runoff from the Municipal Airport and residential areas east of the site, as well as from areas south of the site including the Tract 4975 development.

The storm water pump station located in the northwest corner of Tract 4975, south of Sulphur Creek has been constructed and was designed to lift storm runoff from both Tracts 4975 and 5167 up into Sulphur Creek which drains to the bay. A 72 inch reinforced concrete pipe has been stubbed out of the pump station to be the connection point for the storm drainage system servicing the proposed Tract 5167 development. The City would maintain the storm drain lines and the Flood Control District would continue to operate and maintain the pump station (Wilson, 1986).

Environmental Consequences

ALTERNATIVE 1. The proposed plan would include several 15 inch to 48 inch storm drainage lines which would be gravity-fed to the southwest part of the site where one line would cross Sulphur Creek to the existing lift station on the south side of the creek. The applicant has further proposed that the pump station be retrofitted to divert water to the HARD A and HARD B wetland mitigation sites (see Appendix H). Storm water from the Tract 5167 and 4975 sites, as well as brackish water from Sulphur Creek, are identified as potential sources of water to maintain ponded areas on the HARD sites. The ACFCWCD has identified several constraints to such use of the pump station and has therefore taken an opposing position (Appendix G).

The project applicant has a optional agreement with EBDA to use reclaimed wastewater for the HARD parcels if necessary (particularly in the low flow months to maintain the projected water levels on both parcels). The applicant does not propose to use reclaimed water for irrigation purposes on the proposed Tract 5167 site.

ALTERNATIVE 2a. This alternative would involve utilization of surface runoff to enhance alternative off site wetland mitigation areas (see Section 3, Description of Alternatives). Utilization of Site 2ai would involve pumping of water from the Tract 4975 lift station, as in Alternative 1 (see Appendix I). A suitable source of water has not yet been identified for enhancement of mitigation site 2aii. In either case, the storm runoff system on the Tract 5167 site would remain the same as in Alternative 1 and no action would be undertaken on the HARD parcels.

ALTERNATIVES 2b AND 2c. Under these alternatives, the proposed Tract 5167 development site would be served with a drainage system as in alternative 1 but no services would be constructed for enhancement of off site wetlands.

ALTERNATIVES 3a AND 3b. The impacts of the reduced density alternatives would be similar to those of Alternative 1, with a commensurate reduction in the extent of the on site drainage system.

ALTERNATIVES 4 AND 5. None are anticipated.

Recommended Mitigation Measures

ALTERNATIVES 1, 2 AND 3. Under all alternatives involving development on the project site, a storm drainage maintenance fee, payable to the ACFCWCD, will be required. The agency is unique in that a one-time only fee is collected to offset annual maintenance costs. In the use of tract 5167, a one-time fee of $150,000 has been identified as appropriate (Appendix O). Any additional storm drainage works which are required in order to facilitate ponding of water on designated mitigation parcels may also require maintenance fees. The amount required should be determined by the ACFCWCD following review of final engineering plans for wetlands mitigation.

ALTERNATIVES 4 AND 5. None are required.

4.9 SOCIOECONOMICS

Much of the information presented in this section of the report was obtained from the Reimer Associates Report titled Projected Fiscal Impact Upon Local Jurisdictions Resulting from Marathon Hayward Industrial Park (1986) included in Appendix O. Association of Bay Area Government (ABAG, 1985) projections on land use, employment, population and income were also used to supplement the discussion in this section.

BUSINESS AND EMPLOYMENT SETTING. The City of Hayward has experienced rapid industrial growth over the past 20 years. Since 1965 the number of industrial firms located in the City increased by nearly 300 percent (as of 1978). The proposed site is in the industrial area west of Hesperian Boulevard and is included in Census Tract 4371. The average annual industrial growth rate in the area west of Hesperian Boulevard was about 63 acres per year between 1966 and 1971, and almost 58 acres per year between 1971 and 1978. Table 4.9-1 presents land use, employment per sector, population, and income data projections for Census Tract 4371 between 1980 and 2005, compiled by the ABAG Regional Data Center (ABAG, 1985). Table 4.9-1 illustrates that total land acreage in Census Tract 4371 is 12,421 acres of which only 1,100 acres will be available for commercial and industrial development between 1980 and 2005. Commercial and industrial acreage development was 91 acres between 1980 and 1985, an average of 18 acres per year.

There are 2,534 acres in the City limits zoned for light and medium industry with about ten percent vacant and available in parcels ranging from 0.5 to 50 acres in size. Included in this acreage total are 29 industrial and business parks. Typical sales prices during 1984 ranged from $130,000 to $195,000 per acre (Chamber of Commerce, 1984).

The City's industrial base includes a wide range of wholesale trade, services, construction, transportation and miscellaneous manufacturing industries. There are over 300 manufacturing plants in the City. Leading classes of products include computers, electronics, bus manufacturing, can and glass containers, postal meters, beverages, and machine equipment. Approximately one quarter of the industrial work force is employed in the manufacture of electronic equipment, instruments and chemicals (Research and Development, or R&D firms). This is comparable to Alameda County's general work force distribution which also shows that 20 percent of the employment was in business services (including R&D firms).

The City experienced a large and rapid population growth rate between 1960 and 1970 of 2.8 percent per year but growth has slowed in recent years to one percent per year between 1980 and 1984. The current population is estimated at 99,469 (Costa, 1986) and the labor force is estimated at approximately 51,700.

The City's unemployment rate has fluctuated slightly over the past four years from 6.7 percent in 1980 to nine percent in 1983 and to 7.3 percent for the first half of 1984. The City's unemployment rate has been higher than that of Alameda County as a whole over the past five years. Table 4.9-1 illustrates that total employment in Census Tract 4371 is expected to increase by 5,266 (23 percent) between 1985 and 1995. Types of jobs which may be found in

TABLE 4.9-1. ABAG REGIONAL DATA CENTER LAND USE, EMPLOYMENT PER SECTOR, POPULATION AND INCOME DATA PROJECTIONS FOR CENSUS TRACT 4371 IN THE CITY OF HAYWARD, 1980 THROUGH 2005

CATEGORY	1980	1985	1990	1995	2000	2005
DEVELOPED ACRES						
Residential Acres	268	268	268	268	268	268
Commercial/Industrial Acres	1,136	1,227	1,252	1,289	1,387	1,424
Streets/Highway Acres	335	363	371	383	400	413
EMPLOYMENT SECTOR						
Agriculture and Mining	54	51	40	34	29	23
Manufacturing	9,606	10,887	11,211	11,472	13,053	13,712
Wholesale Trade	2,502	2,829	2,855	3,240	3,491	3,682
Retail Trade	4,813	4,998	6,496	5,522	5,869	5,901
Services	1,303	1,748	1,684	2,298	2,607	3,001
Other	2,763	2,587	3,096	5,800	6,247	5,963
Total Employment	21,041	23,100	25,382	28,366	31,296	32,282
POPULATION						
Total Population	7,707	7,866	8,074	7,741	7,296	7,064
Household Population	7,703	7,866	8,074	7,741	7,286	7,055
Households	2,642	2,749	2,770	2,787	2,694	2,756
INCOME (in 1979 $)						
Mean Household Income	24,020	24,700	25,500	25,700	26,800	28,100
ACRES IN CENSUS TRACT 4371: 12,421						
AVAILABLE ACRES FOR COMMERCIAL AND INDUSTRIAL DEVELOPMENT 1980-2005						1,100
SOURCE: ABAG (1985)						

industrial developments include manufacturing and wholesale related jobs and service jobs. No retail, agricultural or mining related jobs would be found in an industrial development. ABAG's "Manufacturing and Wholesale" employment category and ABAG's "Other" employment category include many jobs represented in industrial parks in Hayward. Although ABAG's "Services" employment is not represented in traditional manufacturing settings, such employment is being increasingly represented in modern industrial parks such as those being developed in Hayward. An estimated 4,757 additional jobs will be located in industrial developments in Census Tract 4371 in Hayward (ABAG, 1985).

CONSEQUENCES TO BUSINESS AND EMPLOYMENT

Alternatives 1, 2a, 2b and 2c. The proposed full scale project is estimated to result in approximately 4,040 employees. This estimate was derived using the assumptions outlined below.

In an industrial development and employment survey conducted by the City of Hayward for 1981, the City found that about one quarter of the work force was R&D, with an average employment density of 62 employees per acre. Without R&D industries the average density was about 13 employees per acre (Hayward Industrial Commission, 1981).

Recent surveys of high tech R&D industries in the Santa Clara and San Jose areas indicate that new R&D industries range in employment densities from 60 to 200 persons per acre. The high figure of 200 employees per acre is a result of several recently proposed mid-rise structures (six to ten stories) in San Jose which would be occupied by R&D users. In the past, most R&D users have been in one to two story structures. The mid-rise R&D structures appearing in the San Jose market are not expected on the proposed site due to site characteristics such as fill requirements and the nature of surrounding comparable land uses.

The City of Hayward will likely be experiencing more R&D development in the future than is reflected in the current 25 percent share of the industrial market. It was, therefore, assumed for a "worst case" analysis that 35 percent of the proposed site would contain R&D type users and 65 percent would be general light industrial users. Using the City's estimate of 13 employees per acre for light industrial and 62 employees per acre for R&D, the proposed site would result in 2,908 R&D and 1,132 light industrial jobs, totaling 4,040 jobs. This is an average of about 30 employees per gross acre (without R&D users the site would generate approximately 1,716 employees). The total 4,040 jobs created by this project is close to ABAG's 1985-1995 employment projections for Census Tract 4371 which projected an increase of 4,757 jobs in the Census Tract. Based on ABAG projections, approximately 85 percent of additional jobs created in Census Tract 4371 in Hayward will be located in the proposed industrial park.

The proposed development is expected to attract the majority of its employees from the City of Hayward and Alameda County and would help reduce unemployment rates in these areas. Given the number of unemployed persons within the County (56,000 in 1982, 51,700 in 1983 and an estimated 38,500 in 1984), the County's labor force is expected to be adequate to supply the labor for this development. In 1980, approximately 75 percent of employed Alameda County residents worked in Alameda County. With the same commuting pattern, this development would result in approximately 3,030 employees who would live within the County and 1,010 who would commute from other counties in the Bay Area to the site.

This development is expected to place some demand on the local housing market from those commuters who might eventually relocate closer to their jobs. Such demand is not expected to be significant since not all of these commuters would be expected to relocate closer to their jobs at once; in other words, the impact will be spread out incrementally over a period of time.

Alternatives 2a, 2b and 2c would result in virtually the same impacts as would the proposed plan (Alternative 1).

Alternatives 3a and 3b. These alternatives are reduced scale proposals that would result in fewer employees than the proposed project due to a lesser number of acres being developed. Alternative 3a would result in 2,275 R&D employees and 879 other industrial employees for a total of 3,136 employees. Alternative 3b would result in 1,606 R&D employees and 625 other industrial employees for a total of 2,231 employees. Again, the County's labor supply should be adequate to fill these jobs, and no significant impact on the local housing supply is expected.

Alternatives 4 and 5. Under Alternatives 4 and 5 (purchase by a public agency and no action), the site would remain undeveloped. There would be no employment opportunities created and no change in the local labor market or housing demand. These alternatives would not assist in reducing the City's or County's unemployment rates.

FISCAL SETTING. The Tract 5167 project site currently produces $20,000 in annual revenues, based on a tax rate of 1.1511 percent (1.1457 percent in addition to a flood assessment rate of 0.0054 percent) for Tax Code Area 25-060. At present, the property is undeveloped and requires virtually no public services or utilities.

FISCAL CONSEQUENCES

Annual Operating Costs for Alternatives 1, 2a, 2b, 2c, 3a and 3b

PUBLIC SAFETY. No increase in the annual cost of delivering fire and police service to the City of Hayward will result from the Marathon project. Existing manpower and facilities are adequate to serve the project area. Public safety budget requirements are provided for in the City's General Fund which is supported by tax revenues, primarily property tax and sales tax.

WATER AND WASTEWATER TREATMENT. The City of Hayward's water treatment plant, water distribution system, sewage collection, and wastewater treatment plant are maintained as enterprise funds within the City budget. The annual costs of water and wastewater operations are directly offset by fees collected from consumers. Fees are directly related to service demands. Since the services are self funding the net cost of the City is zero.

STORM DRAINAGE. The Alameda County Flood Control and Water Conservation District (ACFCWCD) is unique in that it collects a one time only fee to offset the annual maintenance costs of its storm drainage system. The Marathon project will contribute $150,000 to ACFCWCD in response to their requirement.

An additional maintenance fee may be required if a separate storm drainage system is to be developed on an alternative mitigation parcel for the purpose of wetland enhancement (see Section 4.8, Public Services).

STREET MAINTENANCE. On a marginal cost basis there will be no increase, in manpower costs or equipment investment, placed upon the City of Hayward's Street Maintenance Department as a result of the proposed project.

STREET LIGHTING. Pacific Gas and Electric owns and provides power for street lights within the City of Hayward. The proposed budget for FY 1985-86 is $781,536. With 250 miles of City streets, the average annual street lighting cost is $3,126 per mile. With 1.7 miles of new streets proposed in Alternative 1, the marginal increase in street lighting costs is estimated to be $5,300. Costs for Alternatives 3a and 3b would be proportionally reduced.

DEVELOPMENT PROCESSING. Building inspection - The costs of development processing, plus permit review and building inspection are directly offset by fees charged for these services. The net cost to the City is zero.

OTHER ANNUAL OPERATING COSTS. Other departments within the City of Hayward such as City administrative offices, the airport, the library, etc., and other jurisdictions which serve the project area such as the park district and school district, will not incur any additional operating expense as a result of the proposed industrial park project.

ANNUAL OPERATING COSTS FOR ALTERNATIVES 4 AND 5. No additional costs would result under these alternatives.

Capital Improvement Costs for Alternatives 1, 2a, 2b, 2c, 3a and 3b. On site streets, water, sewer, and storm drainage will be provided by the developer and dedicated to the City of Hayward.

Off site water and sewer facilities will not require any additional investment to serve the proposed project. Off site storm drainage improvements will be borne by the project sponsor. (For further discussion of capital improvement costs, see Appendix O.)

Capital Improvement Costs for Alternatives 4 and 5. No additional costs would result under these alternatives.

Annual Revenue Production for Alternatives 1, 2a, 2b and 2c

PROPERTY TAXES, SECURED PROPERTY. Based upon recent experiences with proximate sites, the improved land value (graded land, with street and utilities in place) of the full scale development is estimated to be 26.3 million dollars. The value of buildings is estimated to be $12.2 million dollars for research and development (R&D) structures (shell only) and 22.8 million dollars for warehouse space. Tenant improvements will provide an additional 6.1 million dollars. The total value of real property subject to property tax is 67.4 million dollars. Taking the 1985-1986 tax rate of 1.1511 percent from Tax Code Area 25-060 as "typical" for this site, the property tax yield, from secured property, will be $776,000 in current tax year dollars (see Table 4.9-2).

PROPERTY TAXES, UNSECURED PROPERTY. The current value of unsecured property within the City of Hayward is 448.3 million dollars. Current employment is estimated to be 51,683 persons. Using the present average tax rate of 1.2764 percent for the City of Hayward, and dividing the tax revenue product by the total of employed persons, yields an average value of $110.73 per employee. The Marathon project's anticipated employment is 4,040 persons. Given the average revenue from unsecured property at $110.73 per employee, the projected annual revenue yield from this source is $447,300 in current year dollars.

TABLE 4.9-2. MARATHON HAYWARD PROJECT ANNUAL REVENUE PRODUCTION SUMMARY FOR FULL SCALE DEVELOPMENT (ALTERNATIVES 1, 2a, 2b, AND 2c)

	YEAR 1 (20% COMPLETE) (000's)	YEAR 2 (60% COMPLETE) (000's)	YEAR 6 (BUILDOUT + 1 YEAR) (000's)
Property Taxes Secured Property	115.2	465.6	776.0
Property Taxes Unsecured Property	89.5	268.4	447.3
Property Transfer Tax	14.8	14.8	7.4
Business License Fee	1.2	3.5	5.9
Total	260.7	752.3	1236.6

* These figures include revenue generated at the 1.1511 percent rate for Tax Code Area 25-060. Taxes collected above the one percent countywide flat rate are used to pay pre Proposition 13 general obligation bond assessments. This rate may fluctuate from year to year. Total property tax, for both secured and unsecured property, is estimated to be $1.024 million under the Countywide one percent flat rate.

Source: Reimer Associates, 1986 (Appendix O).

PROPERTY TRANSFER TAX. A portion of the project will be absorbed into the real estate market each year until buildout occurs; following buildout, it can be assumed that a part of the project will be resold each year. Consequently, from first sale onward, throughout the life of the project, property transfer taxes will be a continuing source of revenue to the City of Hayward. Property transfer taxes are levied at the rate of $1.10/$1,000 of value. The total project value of 67.4 million dollars will have yielded $74,140 in property transfer taxes at buildout. Assuming a five year buildout period, that annual revenue stream from this source, until buildout is reached, is $14,828. Following buildout, it is assumed that 10 percent of the project will be resold annually. In current year dollars, the annual revenue stream from this tax source beginning in the sixth year will be $7,414.

BUSINESS LICENSE FEES. There is no specific rate for R&D uses. Where an industry is not specifically identified in the City Business License Fee Ordinance, the manufacturing business license fee applies. Business license fees for manufacturing firms are based upon employment levels for each firm. Assuming 23 R&D firms with an average employment level of 126 persons and 42 light manufacturing firms with an average employment of 27 persons, the annual business license fee will be $5,868. (See Table 4.9-3 for a comparison of property tax revenues and demand for services from the Marathon Hayward project.)

TABLE 4.9-3. MARATHON HAYWARD PROJECT (TAX CODE AREA 25-060) DISTRIBUTION OF PROPERTY TAX DOLLARS (ONE PERCENT FLAT RATE) AT FULL DEVELOPMENT (ALTERNATIVES 1, 2a, 2b, and 2c) COMPARED TO DEMAND FOR SERVICES

AGENCY	PERCENT	REVENUES RECEIVED	MARGINAL INCREASE IN SERVICE DEMAND NOT MET BY OTHER FEES
Alameda County	34.73	355,635.20	00.0
South County Community College	2.51	25,702.40	00.0
San Lorenzo Unified School District	19.16	196,198.40	00.0
School Institute Pupils	0.16	1,638.40	00.0
Juvenile Hall Education	0.03	307.20	00.0
County Superintendent of School Service	0.10	1,024.00	00.0
County Superintendent of School Capital	0.08	819.20	00.0
School Development Center	0.10	1,024.00	00.0
School Audio Visual Capital	0.02	204.80	00.0
County Flood Control	0.21	2,150.40	00.0
Flood Zone 2	3.23	33,075.20	00.0
Bay Area Air Quality Control District	0.21	2,150.40	00.0
Mosquito Abatement	0.14	1,433.60	00.0
AC Transit Service 1	5.21	53,350.40	0.00
BART	0.61	6,246.40	0.00
Hayward Area Recreation and Park District	10.01	102,502.40	00.0
East Bay Regional Parks District	2.93	30,003.20	00.0
City of Hayward	20.56	210,534.40	5,300.00
Total	100.00	1,024,000.00	5,300.00

Source: Reimer Associates, 1986 (Appendix O).

Based on the revenue estimates presented above, Alternatives 1, 2a, 2b, and 2c would have a beneficial fiscal impact to the City of Hayward. Alternatives 2a, 2b, and 2c would result in slightly different fiscal scenarios for the developer but revenues and operating costs in relationship to the City of Hayward would remain as in Alternative 1. Under these alternatives, the developer would enhance selected parcels, or purchase and dedicate wetlands or make a payment in lieu to a public land bank agency. The costs involved in the mitigation process may differ according to the selected alternative.

Alternatives 3a and 3b. These alternatives are reduced scale proposals that would result in the same types of fiscal effects as Alternative 1; however, revenues from property and building taxes would be lower due to the smaller gross acreage of development.

Alternatives 4 and 5. Under Alternatives 4 and 5 (purchase by a public agency and no action), the site would remain undeveloped. The property would continue to produce approximately $20,000 in annual revenues based on a tax rate of 1.1511 percent for Tax Code Area 25-060. The property in an undeveloped state would require virtually no public service or utility. The current property taxes could actually decrease under Alternative 4 if the site were bought by a tax exempt public agency.

MITIGATION MEASURES. None are required except for fees required by various public agencies for maintenance and provision of services.

4.10 CULTURAL RESOURCES

AFFECTED ENVIRONMENT. The project site is located wholly within an area surveyed as part of "An Archaeological Reconnaissance of the Hayward-San Leandro Transportation Corridor, Alameda County, California" (Sawyer, et al., 1978). This report is on file with the City of Hayward. An archaeological and historical literary search and site survey were performed in 1978 as part of this survey effort. The entire site was covered by an archaeological reconnaissance crew who walked transects of the site and other sites for the proposed State Route 61 corridor. No prehistoric remains of significance were encountered during the course of the survey and no record was found of historic or prehistoric sites within the survey area.

In January of 1985, the Northwest Information Center at Sonoma State University conducted an archaeological records search for the project site (see Appendix P). The search results indicated that there were no National Register Properties, California Inventory of Historic Resources sites or California Historical Landmarks within or adjacent to the project area. The site is, therefore, determined to be of low archaeological sensitivity and further archaeological study is not recommended.

All wetland mitigation parcels proposed for active enhancement (Alternatives 1 and 2a) are located outside the transportation corridor study. Because these parcels have been previously altered and filled, it is expected that they are of low archaeological value. Alternative 2b proposes mitigation through purchase and dedication of properties owned by Oliver Brothers Company in Hayward and by Patterson Properties in Fremont. The Jefferson Properties mitigation sites are open space bayland areas with little expected cultural or historical value, though some archaeological sites representing remnants of the Ohlone culture are known to occur in the general vicinity. Structures which exist at the Oliver Brothers Salt Company, just south of the San Mateo Bridge (on mitigation site 2bi), were identified in the transportation corridor study as historically significant.

ENVIRONMENTAL CONSEQUENCES

Alternatives 1, 2a, 2bii, 2biii, 2c, 3a and 3b. No impacts are expected for any of these alternatives because archaeological and/or historic resources are not expected on the project site or the alternative wetland mitigation sites. Dedication of seasonal wetlands under Alternantive 2biii would not involve soil distrubances that could impact archaeological resources were they to exist.

Alternative 2bi. No impacts are expected for this alternative provided that historic structures are left intact on the Oliver Brothers wetland mitigation site. The area containing the structures is relatively small and lies in an upland portion of the Oliver Brothers 2bi site and, therefore, should not be needed for wetland dedication.

Alternatives 4 and 5. Under these alternatives all the sites would remain in their current undeveloped states and no impacts would occur to unknown archaeologic or historic resources.

RECOMMENDED MITIGATION MEASURES

Alternatives 1, 2a, 2bii, 2biii, 2c, 3a and 3b. In the event that archaeological and/or historical remains are found during any project related construction, work in the immediate vicinity should be temporarily discontinued and a qualified archaeologist should be notified to examine the find and recommend appropriate action.

Alternative 2bi. Because of the significance of the Oliver Brothers Salt Company in the history of the East Bay, the following mitigative measures are suggested. Before wetland mitigation begins on the site, it is suggested that the location of all structures, trolley tracks, and effected levee systems be thoroughly mapped and recorded. Extensive photographs of the area should be taken to record for posterity all aspects of the Salt Company as they now exist. Should mitigation require the draining of the salt ponds in the area of the Salt Company, it is suggested that these areas be given special attention as they may contain historic artifacts relating to the production of salt in the area (e.g., platforms for windmills used to power pumps, wooden pipes, Archimedes screws, etc.). Oral histories should be taken from the Oliver brothers and any of their longtime employees, and any others who may have knowledge of the salt works in this area. Special attention should be paid to ascertaining the eligibility of the site for inclusion in the National Register of Historic Places (Sawyer, et al., 1978).

Alternatives 4 and 5. None are required.

5. SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED

Significant effects of the development alternatives (Alternatives 1, 2 and 3) that cannot be avoided include the projects contribution to the cumulative traffic impacts in the general area. Under cumulative buildout some intersections in the project area would operate at LOS F even with mitigation. The proposed project would contribute to the traffic congestion at these intersections that would operate at less than acceptable levels even without development of the Marathon project.

Implementation of a mitigation measure to compensate for on site wetlands losses through a strategy invoking enhancement of former landfill sites (i.e., Alternatives 2ai and 2aii) raise serious questions with regard to the retention of water on top of landfill areas, the generation of additional leachate and consequent water quality concerns. Detailed hydrogeological and engineering studies are recommended to satisfy requirements of the Regional Water Quality Control Board and ensure that significant impacts do not occur.

Without an acceptable off site wetlands mitigation plan, loss of seasonal wetlands of the project site would be a significant unavoidable adverse impact. Areas off site have been identified (see Section 4.2, Vegetation and Wildlife) that could provide sufficient off site acreage of in kind habitat to compensate for wetland impacts. Table 4.2-2 identifies in-kind habitat values and maintenance requirements for each of the proposed alternatives.

6. RELATIONSHIP BETWEEN SHORT TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG TERM PRODUCTIVITY

The relationship between local short term uses of man's environment and the maintenance and enhancement of long term productivity is often one of the tradeoffs of a balancing of social, economic, and environmental impacts over time. In some cases, a relatively short term benefit may have adverse cumulative effects, with the possibility that future generations and the future economy may be burdened with unwarranted social and environmental costs. The opposite situation in which long term benefits occur at the expense of short term dislocations, is also possible. Decisions that influence the balancing of such impacts for this project are the responsibilities of the City Council of Hayward and the U.S. Army Corps of Engineers as part of their policy making, regulatory function, and project directorship.

Short term costs of the development alternatives (Alternatives 1, 2 or 3) include the loss of valuable seasonal wetland habitat, traffic increases to already congested roadways, as well as geological considerations, incremental water quality impacts, and generation of dust and noise during construction.

Long term costs result in an increase in traffic and circulation in the project vicinity and on major arterials and freeway ramps closest to the project site. Without an acceptable off site wetlands mitigation plan, loss of seasonal wetlands of the project site would be a significant long term environmental cost, lands have been identified (see Section 4.2, Vegetation and Wildlife) that could provide sufficient off site acreage of in-kind habitat to compensate for wetland impacts.

Enhancement of regional long term productivity would occur through the creation of an estimated 4,040 new jobs (Alternative 1) and increased tax revenue accrued to the City of Hayward paid as a result of the industrial park development.

7. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES RESULTING FROM APPROVAL OF THE PROPOSED ACTION

Certain types of resource consumption are irreversible or irretrievable, once committed to an alternative use considered in this report. Pertinent irretrievable resources include energy and land. The use of these resources is considered permanent; however, their permanent utilization for one of the alternative actions does not necessarily imply that they have been used unproductively.

ENERGY. Energy consumed during operation of an industrial park under any of the development alternatives (Alternatives 1, 2 or 3) is an irretrievable commitment of resources. A combination of electrical energy and/or energy derived from petroleum products are necessary for operation. Energy demand for construction varies according to the type and magnitude underway.

LAND. Use of the land that would be irretrievably lost under any of the development alternatives (Alternatives 1, 2 or 3) includes the current use of the site for valuable seasonal wetland habitat. Without an acceptable off site wetlands mitigation plan, loss of seasonal wetlands of the project site would be a significant irretrievable resource commitment. Areas off site have been identified (see Section 4.2, Vegetation and Wildlife) that could provide sufficient off site acreage of in kind habitat to compensate for wetland impacts.

8. GROWTH INDUCING IMPACTS

A project is generally considered to be growth inducing if it could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth. Increases in the population may further tax existing community service facilities, so consideration must be given to this impact. The characteristics of the proposed project which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively, also must be discussed. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment. Growth is often induced through one or more of the following actions: extending urban services into a previously unserved area, extending a major roadway into a previously unserved area, or establishing major new employment opportunities.

The industrial park that would be developed under any of the development alternatives (Alternatives 1, 2 or 3) would not be considered growth inducing. The proposed development is within an area zoned and designated for industrial use by both the City of Hayward and Alameda County. Urban services (e.g., sewer lines, water mains, storm drains) would need to be extended on to the site from the previously constructed Phase I Marathon Industrial Park, and roadway extensions onto the site over Sulphur Creek from the Phase I area would be constructed. None of this infrastructure or roadway would be extended through a previously unserved area, and would not be considered growth inducing. Development of the site would result in an incremental demand on commercial facilities which would serve the site employees (i.e., restaurants, delicatessens, and gas stations). This may result in some new commercial uses in the general site area; however, a significant change is not expected.

The development alternatives are expected to generate between 2,231 employees (Alternative 3b) and 4,040 employees (Alternative 4). The local labor force is expected to be sufficient to fill most employment created on site. There may be some employees who would move into the area to be close to their employment and thus induce housing growth. However, this number is not expected to be a significant growth inducing factor.

9. PUBLIC INVOLVEMENT AND DISTRIBUTION LIST

9.1 PUBLIC INVOLVEMENT

Public involvement in the preparation of the EIR/EIS has been solicited by the Corps of Engineers and the City of Hayward through the actions described below.

March 13, 1984	Notice of Preparation of a Draft EIR issued by the City of Hayward inviting participation in the scoping process.
June 7, 1984	Public Notice No. 1548E49 issued by the Corps of Engineers for the Marathon U.S. Realties Permit application.
June 27, 1984	Notice of Intent to prepare a Draft EIR/EIS published in the Federal Register by the Corps to invite participation in the scoping process.
July 18, 1984	Joint Corps of Engineers/City of Hayward public meetings held in Hayward City Hall at 2:00 P.M. and 7:00 P.M.
October, 1985	Draft EIR/EIS distributed for comment

9.2 DISTRIBUTION LIST

FEDERAL

Department of Agriculture, Soil Conservation Service
Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service
Department of Energy
Department of Health and Human Services
Department of Housing and Urban Development
Department of Interior, Fish and Wildlife Service
Department of Interior, Geological Survey
Department of Interior, Heritage, Conservation and Recreation Service
Department of Interior, Office of Environmental Project Review
Department of Transportation, Coast Guard Twelfth District
Environmental Protection Agency
Navy Department, Mare Island Naval Shipyard

STATE

State Clearinghouse, for

- Office of Planning and Research
- Resources Agency
- Department of Fish and Game
- Department of Transportation, CALTRANS
- Water Quality Control Board, San Francisco Bay Region
- Air Resources Board
- Department of Boating and Waterways
- Office of Historic Preservation

REGIONAL AND COUNTY

Alameda County Flood Control and Water Conservation District
Alameda County Health Department
Alameda County Local Agency Formation Commission
Alameda County Mosquito Abatement District
Alameda County Planning Department
Association of Bay Area Governments
Bay Area Air Quality Management District
Bay Conservation and Development Commission
East Bay Dischargers Authority
East Bay Regional Parks District
Metropolitan Oakland International Airport
Oro Loma Sanitary District
Regional Water Quality Control Board, San Francisco Bay Region

LOCAL

Hayward Planning Commission
Hayward City Council
Hayward Chamber of Commerce
Hayward Metropolitan Airport
Hayward Area Recreation and Park District
Hayward Area Shoreline Planning Agency
Pacific Telephone, Hayward Area Office
Pacific Gas & Electric Company, Hayward Area Office
San Lorenzo Unified School District.

GROUPS

California Waterfowl Association
Citizens for Urban Wilderness Areas
National Audubon Society - Ohlone Chapter
San Francisco Chronicle
San Lorenzo Homeowners Association
Save San Francisco Bay Association
Skywest Golf Course
Southern Pacific Transportation Company

PRIVATE PARTIES

Marathon U.S. Realties, Inc.

COPIES ARE AVAILABLE AT THE FOLLOWING PLACES:

City of Hayward Planning Department, City Hall
City of Hayward Public Library
San Francisco Public Library
University of California at Berkeley Library
U.S. Army Corps of Engineers, San Francisco District Library

10. LIST OF PREPARERS

This report was prepared by Earth Metrics Incorporated, environmental consultants of Burlingame, California. Earth Metrics has no financial interest in the approval or disapproval of the proposed project.

EIS/EIR CONSULTANTS. The following individuals from Earth Metrics prepared the EIS/EIR:

C. Michael Hogan, President, Ph.D., Principal in Charge; Supervision of EIS/EIR preparation.

Gary S. Deghi, M.S., Vice President, Project Manager; Manager of EIS/EIR preparation, ecological studies.

Lynn M. Alexander, B.A., Environmental Analyst; alternatives, public services and cultural resources analysis, EIS/EIR synthesis.

Ballard W. George, M.A., Acoustical Engineer; acoustical analysis.

Sepehr Haddad, B.A., Economist; socioeconomic analysis.

Dan B. McCullar, M.A., Geologist; geological analysis.

Tom O. Morrison, M.A., Senior Project Manager, Aquatic Biologist/Water Quality Analyst; alternatives, ecological analysis, hydrology/water quality analysis, EIS/EIR synthesis.

Francis J. Offermann III, P.E., Air Quality Engineer; air quality analysis.

Richard Vonarb, B.A., Environmental Planner; land use and planning analysis.

Diane Schuck, Production Manager; EIS/EIR production.

Caesar Jhanapin, Graphics Technician; report graphics.

The following individuals also participated in EIS/EIR preparation as subconsultants to Earth Metrics.

Terry Huffman, Ph.D., Wetlands Regulatory Scientist, Huffman Technologies; Ecological Studies, wetlands mitigation.

John J. Forristal, Registered Professional Traffic Engineer, John J. Forristal Incorporated; traffic analysis.

LEAD AGENCIES

U.S. Army Corps of Engineers
Les Tong, EIS Coordinator

City of Hayward
Ron Gushue, EIR Coordinator

OCTOBER 1985 EIS/EIR

TRS Consultants Incorporated
(Prime Consultant: Authors)
Jill Shapiro, Ph.D.: Principal-In-Charge
Ellen LaPorte: Project Manager
Nancy Olmsted: Natural Resource Manager

Shapiro and Associates Incorporated
(Habitat Evaluation and Wetlands Analysis)
Marc Boule: Wetlands Biologist

John J. Forristal Incorporated
(Consulting Traffic Engineer: Traffic Analysis)

Harvey and Stanley Associates Incorporated
(Habitat Evaluation Assistance and Wetlands Analysis)
H. Thomas Harvey, Ph.D.: Wetland Ecologist
Ronald Duke: Wildlife Biologist

M O'C Physics Applied
(Air Quality Analysis)
Michael J. O'Connor, Ph.D.

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12. APPENDICES

APPENDIX A

COMMENTS RECEIVED ON THE PUBLIC NOTICE

Ken

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

JUL 17 1984

District Engineer
San Francisco District
U. S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

Re: Public Notice No. 15483E49 7 June 1984
Marathon U. S. Realties, Inc.

Dear Sir:

This is in response to the Corps of Engineers Public Notice referenced above, pertaining to an application to the Department of the Army for a permit to discharge dredged or fill material into waters of the United States in accordance to Section 10 of the River and Harbor Act and Section 404 of the Clean Water Act.

The proposed project is to develop an industrial-commercial business center in the City of Hayward. The public notice states that approximately 80% of the 134-acre site are wetlands. We have reviewed the proposed activities in accordance with the regulations 40 CFR 230 promulgated pursuant to Section 404(b)(1) of the Clean Water Act, and have determined that they do not meet the guidelines for discharge of dredged or fill material at 40 CFR 230.10(a)(3). The regulations require that the discharge of dredged or fill material into wetlands shall not be permitted unless: 1) the activity associated with the discharge is water dependent (i.e., require access or proximity to or siting within the wetland in order to fulfill its basic purpose), or 2) the applicant demonstrates that there are no practicable alternatives to the proposed discharge.

Mitigation for adverse impacts are considered only after the above noted demonstration has been made. The public notice states that the applicant proposes to mitigate for adverse impacts by enhancing two nearby sites as seasonal wetlands. Based on our site visit and our discussions with state and federal resource agencies, we understand that the proposed mitigation sites are already functioning as valuable seasonal wetlands. As such, the mitigation proposal does not appear to be adequate to offset the adverse impacts that would result from the project and therefore does not comply with the regulations at 40 CFR 230.10(d).

Based on our review of this public notice and our determination that the project, as proposed, does not comply with the 404(b)(1) guidelines, we recommend that the permit be denied. We understand that an Environmental Impact Statement (EIS) will be prepared for this project. EPA will provide additional comments following our review of the EIS which satisfactorily addresses all of the factors identified in the 404(b)(1) guidelines at 40 CFR 230.

Questions on this matter should be directed to Ms. Lily Wong at (415)974-8310 or FTS 454-8310.

Sincerely yours,

Frank M. Covington
Director, Water Management Division

cc: CDFG - Yountville
CRWQCB - San Francisco
USFWS - Sacramento
NMFS - Tiburon

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

24 SEP 1984

Edward M. Lee, Jr., Colonel
District Engineer
San Francisco District, Corps of Engineer
211 Main Street
San Francisco, California 94105

Dear Colonel Lee:

The Environmental Protection Agency (EPA) has reviewed the Notice of Intent for the project titled MARATHON DEVELOPMENT PROJECT, REGULATORY PERMIT APPLICATION NO. 15483E49, ALAMEDA COUNTY, CALIFORNIA.

Our review is based on the Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500-1508). We have the enclosed comments to offer at this time.

We appreciate the opportunity to comment on the proposed project. Please send five copies of the Draft Environmental Impact Statement (DEIS) to this office at the same time it is officially filed with our Washington, D.C. office. We also request notification of any public hearings to be held on this project. If you have any questions, please contact Patrick J. Cotter, Federal Activities Branch, at (415) 974-0948 or FTS 454-0948.

Sincerely yours,

Loretta Kahn Barsamian, Chief
Federal Activities Branch

Enclosures (6 pages)

404(b) Permit Comments

As stated in the NOI, a Section 404 permit will be required. EPA will review the project for compliance with Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR 230), promulgated pursuant to Section 404(b)(1) of the Clean Water Act. Our evaluation would focus on the maintenance of water quality and the protection of wetlands, fishery and wildlife resources. If applicable, the results of further study should indicate the amount of dredging required, potential disposal sites, types of fill material to be utilized, and quantities to be discharged into waters and wetlands that fall under Section 404 jurisdiction.

Please see the enclosed letter from Frank M. Covington, dated 7/17/84, that is addressed to the District Engineer expressing EPA's initial concerns regarding this project.

General Comments

1. The DEIS should rigorously explore and objectively evaluate all reasonable alternatives and, for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated (40 CFR 1502.14).

2. The DEIS should clearly explain the relationship between the project's cost benefit analysis and any analyses of unquantified environmental impacts, values, and amenities. (40 CFR 1502.23).

Water Quality Comments

For each alternative the DEIS should:

1. Demonstrate the proposed project's consistency with Executive Order 11988 titled "Floodplain Management," dated May 24, 1977.

2. Completely describe current drainage patterns in the project locale.

3. Assess how altering drainage patterns and characteristics will affect drainage hydrology, surface runoff, erosion potential, soils, vegetation, and therefore water quality of the Bay.

4. Discuss the project's conformity with state and local water quality management plans and Federal-state water quality standards.

5. Evaluate likely changes in the salinity of ground water or surface water resulting from this project.

6. Evaluate the potential for increased toxicity in the Bay due to either discharge to the streams or runoff from surrounding areas.

7. Discuss the present capacity of the existing sewage conveyance and treatment system and the potential sewage flow increases as a result of the project. Assess the impact of increased flows on the existing system, especially on the system's ability to meet National Pollutant Discharge Elimination System (NPDES) or state-issued permit conditions.

8. Identify appropriate mitigation measures to protect water quality both during and after project construction.

Ground Water Comments

For each comment the DEIS should:

1. Describe current ground water conditions in the project locale. Assess all likely changes in ground water resulting from this project, such as water table or chemical composition changes, and provide appropriate mitigation measures.

2. Address primary and secondary impacts to soils, riparian habitat and other vegetation resulting from ground water withdrawal.

3. Identify any potential impacts to surface and ground water quality as a result of construction-related activities. Special attention should be given to erosion problems.

Air Quality Comments

The DEIS should provide the following information for each alternative:

1. Based on current emissions inventory, provide worst case ambient air quality levels for carbon monoxide, nitrogen dioxides, ozone, and total suspended particulates.

   Ambient air quality levels shouls be compared to the NAAQS including data for the following:

   a. Existing conditions,

   b. Conditions at the estimated time of completion (ETC),

   c. Conditions from ETC until the predicted year of attainment of the National Ambient Air Quality Standards (NAAQS).

2. Discuss the likelihood of toxic air emissions from the "high tech" firms expected to locate in the project area and mitigation proposed to eliminate possible problems.

3. Provide the following information for all major access roads and intersections in the project vicinity from EFC until the predicted year of NAAQS attainment:

   a. Projected average daily traffic (ADT),

   b. Projected volume to capacity ratios,

   c. An evaluation of the potential for violation of CO National Ambient Air Quality Standards (NAAQS) using techniques given in Carbon Monoxide Hot Spot Guidelines EPA-450/3-78-033, -034, -035, -036, -037, -040 (August, 1978). Where these procedures are inappropriate or where further analysis is warranted, use Guidelines for Air Quality Maintenance Planning and Analysis Volume 9 (Revised): Evaluating Indirect Sources EPA-450/4-78-001 (September, 1978). In most cases the 8-hour standard is the controlling factor.

4. Alameda County has been designated as a nonattainment area for carbon monoxide and ozone. The DEIS should document contact with the Association of Bay Area Governments (ABAG) regarding:

   a. Whether project emissions have been considered in formulating the Nonattainment Area Plan (NAP), and are consistent with emission reduction requirements of the State Implementation Plan (SIP),

   b. Whether the project is consistent with the transportation control measures in the SIP and the Regional Transportation Plan,

   c. Whether project-associated population growth is consistent with the population projections in the NAP.

   Since conformity procedures (Section 176(c) of the Clean Air Act) have been adopted by ABAG, the conformity finding should be presented in the DEIS.

5. Discuss the existing mass/public transit available in the project area. Also, analyze potential mass/public transit options and identify means to encourage their use.

Endangered Species Comments

EPA recommends that the DEIS discuss the project's impact on State and Federally listed rare, threatened and endangered species and species proposed for such listing. The impacts of the project on the designated critical habitat of any listed or candidate species should also be addressed, i.e., whether critical habitat would be degraded, harmed or destroyed.

Hazardous Waste Comments

1. The DEIS should determine if any hazardous wastes, as defined in 40 CFR 261, are generated as a result of this project. If so, the generation and transportation, as well as the treatment, storage or disposal of those wastes, are regulated under the Resource Conservation and Recovery Act (RCRA). RCRA regulations are detailed in 40 CFR 260-267, 270-271 and 124. The DEIS should discuss means to comply with RCRA regulations.

2. New facilities used for treatment, storage or disposal of wastes must obtain a permit prior to construction. Such facilities would be required to comply with applicable design standards (40 CFR 264) in order to obtain a permit. The DEIS should indicate how this project will meet permit requirements.

3. The DEIS should indicate that in the event of a release of a hazardous material into the environment, including air, water, soil, or groundwater, or of an oil spill to waters of the U.S. or tributaries thereto, the responsible party shall immediately inform the National Response Center at 800-424-8802, providing details of the incident and responsive measures taken. Local U.S. Coast Guard or Environmental Protection Agency offices may be notified in lieu of the National Response Center.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Division of Ecological Services
2800 Cottage Way, Rm. 1803
Sacramento, California 95825

June 26, 1984

District Engineer
Corps of Engineers, San Francisco District
211 Main Street
San Francisco, California 94105

Subject: PN No. 15483E49, Marathon U.S. Realties, San Francisco, CA; South San Francisco Bay

Dear Sir:

We have reviewed the public notice dated June 7, 1984 regarding a proposal by Marathon to fill a 134-acre site for the development of an industrial-commercial center and to develop two nearby sites (90 acres) as seasonal wetlands. An Environmental Impact Statement will be prepared for this project.

These comments have been prepared under the authority, and in accordance with the provisions, of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended, 16 U.S.C. 661 et seq.).

The 134-acre project site contains a minimum of 90 acres of seasonal saltmarsh of high wildlife value. The site provides feeding and resting habitat for migratory shorebirds and waterfowl and nesting habitat for several of these species including black-necked stilts, killdeer, mallards and cinnamon teal. Seasonal wetlands, such as occur on the project site, are an integral part of the overall Bay wetland ecosystem. They provide wildlife values that most Bay tidal marshes do not have, such as feeding habitat for shorebirds during high tides, shelter for all wildlife during high tides and storms, and, as mentioned above, nesting habitat for waterfowl and shorebirds.

Seasonal wetlands also provide an abundance of food resources for waterfowl and shorebirds when migratory birds are wintering or traveling through the Bay area. These seasonal resources supplement food resources found in tidal wetlands at a time of year when additional food resources are critical to supporting higher numbers of resident wildlife. Although these wetlands may fluctuate in value from year to year depending on rainfall, their value over time may play a distinct role in long-term maintenance of population levels of some species of migratory birds.

The 35- and 55-acre parcels that the applicant proposes to enhance to offset project impacts are owned by the Hayward Area Recreation District (HARD), a public agency. It is our understanding that both parcels are already dedicated as permanent open space. Similar to the project site, the HARD parcels are also seasonal wetlands with high existing wildlife values. Improvement of habitat values on these parcels (totaling 90 acres) will not adequately offset the direct loss of 90 acres of valuable seasonal wetland on the project site and the indirect effects of the project on adjacent wetlands. We also question the value of the applicant's proposal to pump storm water runoff from the project site business center to the 35-acre HARD parcel. Stormwater from developed areas, roads and parking are frequently high in heavy metals and hydrocarbons which are toxic to fish and wildlife.

Both the project site and the HARD parcels may be habitat for the endangered salt marsh harvest mouse. We recommend, therefore, that you initiate a Section 7 endangered species consultation with our Sacramento Endangered Species Office by contacting Mr. Ralph Swanson at (916) 440-2791.

Because the proposed project represents a nonwater dependent fill in biologically productive wetlands, our preliminary recommendation is that no Corps permit be issued for the work described in the public notice. Considering the high value of the project site to migratory birds and other wildlife, we recommend that the Environmental Impact Statement (EIS) prepared for the project consider alternatives such as upland sites for industrial development and development of only upland portions of the project site to avoid habitat losses associated with the project. Our final recommendations on the project will be formulated after review of the EIS.

The above views and recommendations constitute the preliminary report of the Department of the Interior on this public notice.

If you have any questions on these comments, please contact Peggie Kohl at (916) 484-4108

Sincerely,

James D. Canaan

for James J. McKevitt
Field Supervisor
(for) U.S. Department of the Interior
Coordinator

cc: RD (AHR), FWS, Portland, OR
Dir., CDFG, Sacramento, CA
Reg. Mgr., CDFG, Reg. III, Yountville
NMFS, Tiburon
CA Waterfowl Association
Save San Francisco
PCCF, Attn: Emily Renzel, Palo Alto
RWQCB, Oakland
HARD, Hayward
SESO, Sacramento
Applicant

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
300 South Ferry Street
Terminal Island, CA 90731

June 28, 1984 F/SWR33:TGY

Lt Colonel Edward M. Lee, Jr.
District Engineer
San Francisco District
Corps of Engineer
211 Main Street
San Francisco, CA 94105

Dear Colonel Lee:

We have reviewed Public Notice No. 15483E49 (Marathon U.S. Realties, Inc., 6/7/84) to fill a 134-acre site for the development of an industrial-commercial business center and to develop two nearby sites as seasonal wetlands. We have inspected the project site and the sites proposed for mitigation. Inasmuch as the proposed mitigation sites are already functioning as valuable seasonal wetlands, we do not believe that they could be enhanced to offset the loss of 90 acres of wetlands at the 134-acre project site. We would oppose, therefore, a permit for this project as proposed.

We note that an Environmental Impact Statement (EIS) will be prepared for this project. This document should evaluate the need to place the proposed (non-water dependent) project in a wetland area. The EIS should also develop an adequate mitigation plan to offset any unavoidable wetland losses. The National Marine Fisheries Service will present further concerns during the EIS scoping process and will review the draft EIS when it becomes available.

If you have further questions on this matter, please direct comments to Mr. Thomas Yocom at: National Marine Fisheries Service, 3150 Paradise Drive, Tiburon, CA 94920; telephone (415) 556-0565.

Sincerely yours,

E. C. Fullerton
Regional Director

cc: CDFG, D. Lelleck
FWS, J. McKevitt
EPA, L. Wong
BCDC, B. Hickman

U.S. Department of Transportation
United States Coast Guard

Commander
Twelfth Coast Guard District

Government Island
Alameda, CA 94501
Staff Symbol: (dpl)
Phone: 415-437-3196

16591
7 July 1964

District Engineer
U.S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Sir:

I have reviewed Public Notice 16463E49 regarding the proposal of Marathon U.S. Realties, Inc. to fill a 134-acre site for the development of an industrial-commercial business center, and to develop two nearby sites as seasonal wetlands. These plans may require construction of bridges over Bairman Canal and/or Sulphur Creek. No formal Coast Guard permit will be required for bridges over these two waterways provided they are built high enough to pass the 100 year flood criterion. Such bridges are authorized under 33 CFR 116.70.

A copy of Coast Guard Public Notice 19-141a has been sent to the applicant explaining the advance approval of bridges crossing minor waterways. Questions concerning bridge approvals may be referred to Wayne Hill of the Coast Guard Bridge Section at (415) 437-3514.

Sincerely,

/s/ David SPARKS
Commander, U.S. Coast Guard
Twelfth District Planning Officer
By direction of the District Commander

Copy: Marathon U.S. Realties Inc. w/copy of USCG PN 19-141a

Resources Building
1416 Ninth Street
95814

(916) 445-5656

of Conservation
of Fish and Game
of Forestry
of Boating and Waterways
of Parks and Recreation
of Water Resources

GEORGE DEUKMEJIAN
GOVERNOR OF
CALIFORNIA

THE RESOURCES AGENCY OF CALIFORNIA
SACRAMENTO, CALIFORNIA

Air Resources Board
California Coastal Commission
California Conservation Corps
Colorado River Board
Energy Resources Conservation
and Development Commission
Regional Water Quality
Control Boards
San Francisco Bay Conservation
and Development Commission
Solid Waste Management Board
State Coastal Conservancy
State Lands Commission
State Reclamation Board
State Water Resources Control
Board

1C1

AUG 14 RECD

Colonel Edward M. Lee, Jr.
Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

July 19, 1984

Public Notice 15483-E49 (Marathon U.S. Realties)
Fill 134 acres and create 90-acre wetland, Alameda County.

Dear Colonel Lee:

The State agencies listed below have reviewed the subject public notice and have provided comments used in writing this response. The Resources Agency concurs in these findings.

We understand that the Corps does not intend to issue a permit for this project until an EIR/EIS has been prepared and circulated for review and the concerns expressed in the public meeting of July 18, 1984, have been resolved. The comments received from the Department of Fish and Game (DFG) and the San Francisco Bay Regional Water Quality Control Board support such an intention on the Corps's part, especially since the mitigation proposed in the Corps public notice has been criticized as inadequate by Federal, State, and local agencies and groups.

The comments of DFG are attached for your consideration in the preparation of the project's EIR/EIS. The main points of these comments are that the proposed project would result in a permanent reduction in migratory shorebird and waterfowl populations in San Francisco Bay, and that the proposed 90-acre mitigation area is already a good seasonal wetland that needs no modifications.

The San Francisco Bay Regional Water Quality Control Board supports DFG's position, and further comments that it cannot determine the need for water quality certification until the EIR/EIS and its specific mitigation measures to offset the loss of significant wetlands is completed and circulated for review. The Board is quite concerned, however, with the cumulative loss of this important habitat due to projects of this type. Use of Bay waters for wildlife habitat is a significant beneficial use in the Board's Basin Plan.

Sincerely,

Gordon F. Snow, Ph.D
Assistant Secretary for Resources

e of California — The Resources Agency

emorandum

: Honorable Gordon K. Van Vleck
Secretary for Resources
1416 9th. Street
Sacramento, California 95814

Date: June 29, 1984

Attention: Dr. Gordon F. Snow
Projects Coordinator

: Department of Fish and Game

ect: U. S. Corps of Engineers, Public Notice No. 15483E49 by Marathon U. S. Realties, Inc. for development in Hayward and San Lorenzo, Alameda County

Our personnel have reviewed Corps Public Notice No. 15483E49 and we have the following comments. This proposal would fill about 100 acres of wetland (or about 80%) of a 134 acre property, for industrial development, on the Hayward Shoreline north of Sulphur Creek, Alameda County.

We learned of this proposal about 3½ years ago when we met with the City of Hayward, U. S. Fish and Wildlife Service, Marathon and the San Francisco District Corps staff. At that time this Department and the USFWS informed Marathon representatives that we opposed the destruction of these wetlands. In the fall of 1983 Marathon presented plans to the interagency meeting at the Corps San Francisco District office including a proposal to fill all wetlands on the project site. The reaction from the agencies represented including this Department was uniformly negative. Marathon is currently developing a 65 acre parcel of adjoining upland south of Sulphur Creek.

We have found over the past four years that the Marathon property and adjoining East Bay Regional Park District lands are the finest remaining examples of seasonal wetlands on the east bay shoreline (north of the San Mateo Bridge). This land is flooded or ponds water for about 7 months of the year. It contains a desirable mix of vegetated and open water areas and supports a diverse assemblage of wetland indicator plant species.

Such seasonal wetlands are an integral component of the bay ecosystem supporting large numbers and many species of migrating waterbirds. Our evaluation of this property is consistent with that of Harvey and Stanley Associates who reported to the applicant in May 1983 that "Wildlife use is seasonally high". We have collected wildlife use data for the Marathon property since 1981 and for the EBRPD properties since 1983 and will make this information available to the preparers of the DEIR/EIS.

Many shorebirds must move between tidal and non-tidal seasonal wetlands to fulfill their food requirements and other species such as greater yellowlegs, snipe, and cinnamon teal use seasonal wetlands predominately or exclusively. We believe therefore, the loss of these wetlands would result in a permanent reduction in migratory shorebird and waterfowl populations in San Francisco Bay and California. For additional information on the values and status of seasonal wetlands on the east bay shoreline refer to the USFWS letter of April 17, 1984 addressed to all concerned agencies.

During the past year we have closely studied the two nearby wetland sites (totaling about 90 acres) which the applicant proposes to enhance to mitigate the loss of about 100 acres of seasonal wetland described above. These public lands owned by the Hayward Area Recreation Department possess good existing seasonal wetland values and no modifications are necessary to sustain significant existing wildlife use. Our staff and those of other agencies, for example, regularly observed over 1000 dabbling ducks on the outer HARD 55 acre parcel this spring.

Given the circumstances described above we believe the applicants proposal and mitigation plan will result in significant losses of wetlands and wetland values. We recommend that the DEIR/EIS consider project alternatives which would protect wetland resources on site. A successful development in Fremont, the Warm Springs Project, is such an example. In this case wetland portions of the property were designated for protection. Earth was removed from the wetland for enhancement and utilized as fill in the developed upland.

Department of Fish and Game personnel are available to discuss our concerns in more detail. To arrange a meeting, the project sponsor or applicant should contact Paul Kelly, telephone (415) 376-8892; or Mr. Theodore W. Wooster, Environmental Services Supervisor, Region 3, Department of Fish and Game, P.O. Box 47, Yountville, California 94599, telephone (707) 944-2011.

Robert C Fox
for Jack C. Parnell
Director

cc: BCDC
City of Hayward Planning Dept.
U.S. Fish & Wildlife Service, Sacramento
East Bay Regional Park District, Oakland

STATE OF CALIFORNIA-STATE LANDS COMMISSION GEORGE DEUKMEJIAN, Governor

STATE LANDS COMMISSION
1807 13TH STREET
SACRAMENTO, CALIFORNIA 95814

June 27, 1984

File Ref.: W 23043

Marathon U.S. Realties, Inc.
595 Market Street, Suite 1330
San Francisco, CA 94105

Attn: Mr. James E. Christian

Gentlemen:

Subject: U.S.C.E. Public Notice No.15483 E49, Dated 7 June 1984, Fill 134 Acres, and Develop 90 Acres as Seasonal Wetlands, Hayward, Alameda County

The staff of the State Lands Commission has reviewed the proposed project, and interposes no objection to the fill on 134 acres, nor to the construction of industrial-commercial buildings at that location.

The mitigation parcels, approximately 90 acres in total, appear to include historic sloughs. Since the work would return that property to wetland status, the Commission Staff concludes that no permit on lease is needed for the mitigation element.

Thank you for your past cooperation. If further information is needed, please feel free to call me at telephone No. (916) 322-7822.

Sincerely,

HERBERT A. MARICLE
Land Agent

HAM:bj

cc: U.S. Army Corps of Engineers
attn: Ken Maynard

Resources Agency
attn: Gordon F. Snow
Project Coordinator

Fred Sledd

bcc: Dave Plummer

E OF HISTORIC PRESERVATION
MENT OF PARKS AND RECREATION
[illegible]
[illegible], CALIFORNIA 9[illegible]
[illegible]-6006

DATE: July 18, 1984
REPLY TO: COE840703A

Mr. Les Tong
US Army Corp of Engineers
211 Main Street
San Francisco, CA 94105

RE: 134 Acre Industrial-Commerical Business Center/Marathon DS Realties

Thank you for requesting our comments on the NOP cited above.

The DEIR should:

(1) Describe actions taken to identify historic, archeological, architectural or other cultural resources located in the project area, and should present results obtained. Only those resources likely to be affected by the project need be identified.

(2) Include a physical description of identified cultural resources and their setting supplemented by clear photographs.

(3) Contain a documented evaluation of the importance of any cultural resources identified, indicating what standards or criteria were used, how they were applied and by whom, and what conclusions were reached and why.

(4) Describe and analyze as precisely as possible any adverse impacts to important cultural resources using the definition of effect contained in Sections 15002 and 15126 (a) of the EIR Guidelines. The focus should be on how and to what extent those qualities that make these resources important may be adversely affected by the project.

(5) Discuss reasonable alternatives that would avoid any adverse effects to the qualities that make these resources important. Familiarity with current preservation techniques in architecture, land use planning, public policy development, preservation law and cultural resource management should be clearly evident in the choice and discussion of alternatives.

(6) Propose reasonable mitigation measures to minimize adverse effects to the important qualities of those resources in accordance with Section 15126 (c) of the EIR Guidelines. Familiarity with current preservation techniques in architecture, land use planning, public policy development, preservation law and cultural resource management should be clearly evident in the choice and discussion of mitigation measures.

(7) Conform to the requirements of Sections 15126 (b), (c), (f) and (g) of the EIR Guidelines, if applicable.

As part of the data gathering effort, it is generally advisable for

(1) Consult one of the Regional Archeological Information Centers listed on the back of this letter for current archeological resource data.

(2) Refrain from dealing with sites, buildings, structures or objects less than fifty years of age unless they appear to be of exceptional importance.

(3) Consult with historical societies, archeological societies, preservation organizations, qualified consultants, boards, county or city planning departments and redevelopment agencies, any of whom may have information about cultural resources in a particular project area.

(6) Consult with particular cultural or ethnic groups if there is any reasonable possibility that a resource of interest to them might be affected by the project.

Please note that if any federal agency, board or commission is involved in this project, compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, is required. The DEIR should be drafted to reflect compliance with the requirements of this Act.

If you have any questions, please call Dwight Dutschke of this office at (916) 322-8624.

Sincerely,

K Miller

Dr. Knox Mellon
State Historic Preservation Officer

cc: State Clearinghouse

INFORMATION CENTERS	COUNTIES	INFORMATION CENTERS	COUNTIES
Ronald A. Presidente, Coordinator [illegible] Information Center [illegible] of Anthropology [illegible] State University [illegible] Park, CA 94928 Dr. Allen Brandstein (707) [illegible] ATSS [illegible]	Alameda, Colusa, Contra Costa, Del Norte, Humboldt, Lake, Marin, Mendocino, Napa, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, Yolo	Dr. Michael A. Glassow, Coordinator Central Coastal Information Center Department of Anthropology University of California, Santa Barbara Santa Barbara, CA 93106 Attn: Larry Wilcoxon (805) 961-3874 ATSS [illegible]	San Luis Obispo, Santa Barbara
[illegible], Coordinator [illegible] Information Center [illegible] of Anthropology [illegible] State University, Chico [illegible], CA 95929 [illegible], William Breen (916) [illegible] ATSS [illegible]	Butte, Glenn, Lassen, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama, Trinity	Dr. Larry L. Leach, Coordinator South Coastal Information Center Department of Anthropology San Diego State University San Diego, CA 92182 Attn: Fred Hibler (619) 265-5975 ATSS [illegible]	San Diego
[illegible] L. Johnson, Coordinator [illegible] Coastal Information Center [illegible] of Anthropology [illegible] State University, Sacramento Library [illegible], CA 95819 [illegible], Marianne Russo (916) [illegible] ATSS [illegible]	Amador, Alpine, Calaveras, Inyo, Mono, Sacramento, Sutter, Yolo	Dr. Ronald A. Smith, Coordinator San Bernardino Information Center San Bernardino County Museum 2024 Orange Tree Lane Redlands, CA 92373 Attn: Heather Lenz (714) 796-8560	San Bernardino
[illegible] Coordinator [illegible] California Information Center [illegible] State College, Stanislaus [illegible], CA 95380 Dr. [illegible], Director (209) [illegible] ATSS [illegible]	Alpine, Calaveras, Mariposa, Mono, San Joaquin, Stanislaus, Tuolumne	Dr. Phillip J. Wilke, Coordinator Eastern Information Center Archaeological Research Unit University of California, Riverside Riverside, CA 92521 Attn: Diane McCarthy (714) [illegible] ATSS [illegible]	Inyo, Mono, Riverside
[illegible], Coordinator [illegible] San Joaquin Valley [illegible] Center [illegible] of Sociology, Anthropology [illegible] State College, Stanislaus [illegible] Highway Turlock, CA 95380 [illegible] California Level (209) 667-3307	Fresno, Kings, Madera,	Dr. Jan Van Wormer, Coordinator Southeast Information Center Imperial Valley College Museum Drawer K El Centro, CA 92243 Attn: C. Edward Carlson (619) 352-6681 [illegible] Archaeological Data Recovery	Imperial
[illegible] Coordinator [illegible] Information Center [illegible] College [illegible] Library Chico, CA 95929 (916) 895-[illegible] or 895-[illegible]	Kern, Tulare	Ms. Susan Cochs Archaeological Survey Institute of Archaeology University of California, Los Angeles Los Angeles, CA 90024 (213) 825-[illegible] ATSS [illegible]	Los Angeles, Orange, [illegible]

ABAG
ASSOCIATION OF BAY AREA GOVERNMENTS

MetroCenter
Eighth & Oak Streets
Oakland
(415) 464-7900

Mailing Address
PO Box 2050
Oakland CA 94604

Ken

July 25, 1984

Colonel Edward M. Lee, Jr.
District Engineer
Regulatory Functions Branch
U.S. Army Corps of Engineers
San Francisco District
211 Main St.
San Francisco, CA. 94105

Re: Public Notice No. 15483849
Public Notice No. 13199-75
Public Notice No. 15510841

Dear Colonel Lee:

Thank you for the opportunity to review these documents. The following staff comments reflect general concerns expressed by many locally elected Bay Area officials as embodied in ABAG's Regional Plan 1980. ABAG's Executive Board has not taken a position on these documents, nor on the proposed projects.

ABAG's Regional Plan 1980 contains policies on preserving and enhancing the wetlands and marshes in the region and on controlling surface run-off pollution problems. These three projects all contain filling of natural or diked wetland areas. The following policies and actions are pertiment to projects that impact this valuable regional resource.

Critical areas policies recommend preserving lands with valuable resources including:

- Land areas associated with fish and wildlife having key roles in a regional scale ecosystem
- Habitats of rare or endangered fish and wildlife that contribute to diversity of species
- Lands containing vegetative resources that are elements of an ecological zone of recognized importance or uniqueness.

Water quality policies in the Regional Plan recommend establishing programs of surface runoff controls that emphasize low cost measures such as wetlands to reduce the pollutant loads from this source.

Finally, ABAG's Environmental Management Plan as amended in 1980 and ongoing work in water quality have produced these policies and actions on wetland enhancement and their use as urban runoff control measures, which are pertinent to the above three projects:

- Wetlands are important for water quality protection among other ecological benefits, and should be preserved and enhanced: new wetlands should be created for urban runoff control as appropriate and feasible.

- Implement wetland treatment systems for polluted waters, where appropriate and economically justified.

- Consider wetlands enhancement or creation projects as alternative mitigation measures offsetting negative environmental impacts of development projects.

Based on these regional concerns, ABAG staff recommends that all efforts be made in these three projects to ensure that there is no net loss of wetland acreage. The Mayhews Landing Association project, in particular, does not have adequate mitigation for loss of wetlands. Also, the alternative of using wetlands for surface runoff treatment should be considered where appropriate.

If you have any questions regarding these comments or need information on wetlands creation or treatment criteria, please contact Linda Morse of our staff at (415)464-7932.

Sincerely,

Yoram Ben Dale

Yoram Ben Dale
Budget and Planning Officer

Save San Francisco Bay Association

P.O. Box 925 • Berkeley, California 94701 • (415) 849-3053 • 849-3044

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July 6, 1984

Lt. Col. Andrew Perkins
District Engineer, San Francisco District
U.S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

Subject: Public Notice 15483E49 (Marathon U.S. Realties)

Dear Col. Perkins:

Thank you for the opportunity to review the above Public Notice. The Association will participate in the scoping session for the Environmental Impact Statement on July 18. We would appreciate receiving a copy of the Draft EIS when it is available. In addition, we have the following general comments.

The Association does not believe that a non-water dependent project should be authorized for a marsh site at the edge of the Bay. Since the vast majority of the Bay's historic marshes have already been lost, it is important to fully consider the consequences of any further losses before any permit is issued. Of particular importance are those ares which could be restored to tidal action through future mitigation requirements.

Any mitigation for the loss of marsh should consist of restoration so that additional wetlands are created. Existing marshes are already protected, so mitigation should insure that when the project is complete there is not a net loss of marsh around the Bay. Such losses are not acceptable under the mandates of the Clean Water Act or the National Environmental Policy Act.

We request that a public hearing be held when the application is finalized. Please keep us informed about the status of the application.

Sincerely,

William E. Siri

William E. Siri
President

cc: Roger James, RWQCB
Peninsula Conservation Center
EPA Region IX

STATE OF CALIFORNIA — GEORGE DEUKMEJIAN, Governor

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION
30 VAN NESS AVENUE
SAN FRANCISCO, CALIFORNIA 94102-6080
TELEPHONE (415) 557-3686

Department of Water Resources
1416 Ninth Street
Sacramento, CA 95814

Attn: Mr. C. K. Fellows

Gentlemen:

This is in response to your request for comments on Corps of Engineer's Public Notice No. 15483E49.

☐ The Commission has issued BCDC Permit No. _____ for the project described in the Public Notice.

☐ The Commission is in the process of reviewing Application No. _____ for a BCDC permit for the project described in the Public Notice and requests the Corps not to issue a permit until BCDC has taken action on the application.

☒ The Commission may have jurisdiction over portions of the project described in the Public Notice but has not yet received a permit application for the proposed work. The Commission requests the Corps not to issue a permit until a BCDC permit has been issued.

☐ The Commission has issued BCDC Permit No. _____ for a project similar to that described in the Public Notice; however, it appears that there is a conflict between the project as it is described in the Public Notice and the project as it is authorized in the BCDC permit. Therefore, the Commission requests that the Corps not issue a permit for the project until this conflict has been resolved.

Thank you for this opportunity to comment on the Public Notice.

Sincerely,

Nancy Wakeman

NANCY WAKEMAN
Chief of Permits

East Bay
Regional Park District

11500 SKYLINE BOULEVARD OAKLAND CALIFORNIA 94619 TELEPHONE (415) 531-9300

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General Manager

July 2, 1984

Col. Edward M. Lee
U. S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

Subject: PN 15483E49, Marathon U. S. Realties, Inc., proposed Industrial Park in San Lorenzo

Dear Col. Lee:

The EBRPD has reviewed the subject Notice and concurs with the general scope of the EIS outline therein. As a downstream property owner, the District requests that the Corps' EIS specifically address the issue of potential adverse impacts upon water quality. A clear description of the proposed drainage system both for the project site and the wetland enhancement sites will be needed to understand the potential for adverse water quality impacts. Such impacts could originate either as a result of a spill of a toxic liquid in the proposed industrial park, or as a result of leachate from the garbage landfill which is adjacent to the wetland enhancement sites.

The traffic implications of the project may require the construction of an additional access road in the transportation corridor between the project site and the EBRPD's property in the area. The District anticipates a marsh enhancement project on its holdings north of Sulphur Creek; this may involve the reintroduction of tidal action there. Road construction in the transportation corridor will have to be protected by a levee which is capable of withstanding the effects of wind and tide action. If the project includes any road construction in the transportation corridor adjacent to EBRPD property, such a levee should be part of the road's design.

The District will be pleased to cooperate with the Corps of Engineers in the preparation of this EIS. If you have any questions, please contact the undersigned on Ext. 263.

Very truly yours,

T. H. Lindenmeyer
Environmental Coordinator
Planning and Design

TL:lm

cc: R. C. Trudeau
L. Crutcher
H. Hornbeck
P. Koos
R. Doyle
HASPA

BOARD OF TRUSTEES
[illegible]

Alameda County
Mosquito Abatement District

FRED C. ROBERTS
MANAGER
2504 EAST SEVENTH STREET
OAKLAND, CALIFORNIA 94601
(415) 533-7321

July 5, 1984

Col. Edward M. Lee, Jr.
District Engineer
U.S. Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, CA 94105

Attention: Regulating Functions Branch

Re: Public Notice No. 15483E49

The above mentioned notice indicates that two sites (90 acres) will be enhanced as seasonal wetlands to mitigate for the loss of seasonal wetlands. The enhancement of these sites may also enhance the production of pest and vector mosquitoes. The sites in question have required considerable expenditures of effort to control five species of mosquitoes produced in the recent past. We feel that the wildlife enhancement efforts could be designed to reduce mosquito production.

We would greatly appreciate the opportunity to provide our point of view to those planning the wildlife enhancement project.

Sincerely,

Fred C. Roberts

Fred C. Roberts
Manager

FCR:roa

COUNTY OF ALAMEDA
PUBLIC WORKS AGENCY
ALAMEDA COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
399 Elmhurst Street • Hayward, CA 94544-1395 • (415) 881-6470

July 5, 1984

Col. Edward M. Lee Jr.
District Engineer
US Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, CA 94105

Attention: Regulatory Function Branch

Gentlemen:

Subject: Public Notice No. 15483E49, dated June 7, 1984, Marathon U.S. Realties

We have the following comments regarding the proposed project:

1. A new levee and associated channel improvements are required along Sulphur Creek adjacent to the southern portion of the project.

2. The Bockman Canal levee may need to be reconstructed.

3. The proposed pumping stations shown on the vicinity map should be labeled as follows:

   (a) the westerly station is a storm water lift station;
   (b) the easterly station is a sanitary lift station.

4. The storm water lift station is currently under construction and will be operated by this District. At this time no provision has been made in the design of the plant to accommodate pumping of water to the proposed mitigation sites.

Very truly yours,

SHINJI MOMONO
ACTING ENGINEER-MANAGER

By Ralph Johnson
RALPH JOHNSON
INTER-AGENCY COORDINATION SECTION

RJ:ba

cc: Marathan U.S. Realties

June 28, 1984

Col. Edward N. Lee, Jr., District Engineer
U.S. Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, CA 94105

Re: Public Notice NO. 15483E49 Date 7 June 1984
Marathon U.S. Realties, Inc.

Attention: Regulatory Functions Branch

Dear Col. Lee:

I received the PUBLIC NOTICE for the Marathon U.S. Realties, Inc. Application No. 15283E49.

The Public Notice No. 15483E49 describes the applicant's proposal for a permit to fill a 13½-acre site for the development of an industrial-commercial business center, and to develop two nearby sites (a total of 90 acres) as seasonal wetlands. The sites are located in the city of Hayward and in San Lorenzo, Alameda County, California.

One of the most significant long-term impacts is the loss of wetland over 80% of the project site. This is a problem which deserves careful consideration in view of the public efforts through comprehensive planning and monitary commitment for over a decade to preserve and conserve historic marshlands along the Hayward Shoreline.

There are important questions to be answered about the mitigation proposal which calls for "enhancement" of the habitat value of two sites owned by the Hayward Area Recreation and Park District. Another concern is the proposed pumping and disposal of urban runoff from the proposed business center and an adjoining 65 acre existing industrial tract. Runoff would be pumped into the 35-acre mitigation site.

A public hearing would provide a means for local citizens to learn about and consider these serious questions before decisions are made on the proposal.

Very truly yours,

Barbara G. Shockley
1890 Bockman Road
San Lorenzo, CA 94580
415-276-7272

cc. Hayward Area Shoreline Planning Agency
City of Hayward Planning Department

SAN LORENZO UNIFIED SCHOOL DISTRICT

1040 Lorenzo Street • San Lorenzo, California 94580-1083 • Telephone 276-5000

Superintendent
Alden W. Babal

June 27, 1984

Col. Edward M. Lee, Jr., District Engineer
U. S. Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, CA 94105

Re: Public Notice No. 15483E40 Date: 7 June 1984
Marathon U. S. Realties, Inc.

Attention: Regulatory Functions Branch

Dear Col. Lee:

Recently the Hayward Area Shoreline Planning Agency (HASPA) received a copy of the U. S. Army Corps of Engineers' Public Notice regarding the proposed Marathon U. S. Realties, Inc. development project which is planned for the Hayward-San Lorenzo shoreline area. The proposed project came to the attention of the San Lorenzo Unified School District since our District is a member of the HASPA organization.

Our District requests that we be placed on your mailing list to receive any Environmental Impact Studies and other related reports pertaining to this project. Also, we would request that we be provided with information on any public hearings or other meetings relating to this project. We would further request that the response time to comment on the project be extended 30 days since our District has yet to receive the formal notice and only became aware of it through the attendance of two of our Board members who were present at the last HASPA meeting held on June 26, 1984.

Thank you for your attention to and consideration of these requests.

Sincerely,

Dorothy J. Partridge

Dorothy J. Partridge
President
Board of Education

DJP:ph

cc: HASPA
Board of Education
Environmental Branch, U. S. Army Corps of Engineers

BOARD OF EDUCATION

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Southern Pacific Transportation Company

[redacted]

June 21, 1984

924102/349

Colonel Edward M. Lee, Jr., District Engineer
Regulatory Functions Branch
U. S. Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, California 94105

Dear Colonel Lee:

We are responding to Public Notice No. 15483B49, dated June 7, 1984, pertaining to Marathon U. S. Realties, Inc., 595 Market Street, San Francisco, California 94105, request for permit to fill a 134-acre site for development of an industrial-commercial business center, etc.

1. It is noted a fill surcharge is to be placed over existing mud flats up to the Southern Pacific Company main line track fill on Section A-A of second page of PN 15483B49. Our concern is that proper soil studies have been made that such a fill surcharge will not create an upward or side movement of our main line track. Should such an event occur there are certain liabilities involved.

2. We are also concerned with the Bockman Creek and Sulphur Creek connection as to possible backup of flow to our main line structures and proper drainage of railroad main line embankment which has several culverts between the two creeks.

3. Prior to any fill entering the Southern Pacific property, proper agreements of parties involved will be required.

If you have any further questions, please feel free to contact Mr. K. B. Derr, Asst. Regional Engineer on (415) 891-7459 or Mr. J. C. Bolla on (415) 891-7468.

Yours truly,

J. T. Hall
Regional Engineer

By K B Derr
K. B. Derr
Asst. Regional Engineer

Ken

CITIZENS FOR URBAN WILDERNESS AREAS
1052 MERCED, BERKELEY, CALIFORNIA 94707

Re: 1528354.9 & 1546354.9

July 7, 1984

Lt. Col. Andrew M. Perkins, Jr.
U.S. Army Corps of Engineers
211 Main Street
San Francisco, CA. 94105

Dear Lt. Col. Perkins:

In a recent letter to you (July 5) Citizens for Urban Wilderness Areas expressed concern about Cullinan Ranch (1477357). Our attention has been called to two other situations with additional information: the Baumberg Tract (1528354.9) and bay shoreline property known as Marathon Realties (1546354.9).

In the case of the Baumberg Tract it seems that Title settlement with the State Lands Commission is still pending. However, we would appreciate a copy of the DEIS when it is completed. Preliminary mitigation proposals seem very inadequate and, among other things, there should be much more restoration of the snowy plover habitat. We feel these problems should be fully addressed in the DEIS.

Likewise, we would appreciate a copy of the DEIS for the Marathon proposal. It appears that this project likewise should have better mitigation. Some of our members may be able to attend the July 18, 7 PM meeting at the Hayward City Center. Essentially, we are supporting the Wetlands Coalition position.

We hope you will agree with our position.

Sincerely,

Roger Reeve

Roger Reeve, Jr. Sec.

CALIFORNIA WATERFOWL ASSOCIATION
[illegible]
1862 Las Ramblas, Concord CA 94521 (415) 672-7525

June 22, 1984

Col. Edward M. Lee
Corps of Engineers
211 Main Street
San Francisco CA 94105

Attn: Regulatory Functions Branch

Dear Col. Lee,

The California Waterfowl Association feels that the application (PN15483E49) by Marathon U.S. Realties, inc. to develop a 134 acre site containing 90 acres of wetlands should be denied without even going through the EIS process. This project will destroy valuable, high use wetland habitat unnecessarily. Since the project is not water dependant there is no need to put in this location.

The mitigation sites that Marathon proposes to develop are already valuable, high use seasonal wetlands. Marathon cannot appreciably enhance them. In fact, the proposal could destroy them. Run-off water from industrial/commercial areas can be contaminated by oil, fuel, chemical spills, etc. to put water of questionable quality on a productive site does not seem reasonable.

If the Corps goes ahead with the EIS we would like to be placed on the list to receive a copy of the draft. Thank you.

Sincerely,

Mike Corker

MIKE CORKER
Resources Committee

CC: Dan Chapin CWA
USFWS
CDFG

MC/dic

SANTA CLARA VALLEY AUDUBON SOCIETY, Inc.

2253 Park Blvd.
Palo Alto, CA 94306
(415) 329-1811

June 26, 1984

Colonel Edward M. Lee, Jr.
District Engineer
ATTN: Regulatory Functions Branch
U.S. Corps of Engineers
211 Main Street
San Francisco, CA 94105

Re: Public Notice No. 15483E49, 7 June 1984
Marathon U.S. Realties, Inc.

Dear Colonel Lee,

This project is another in a series where valuable and scarce wetland, in this case approximately 90 acres of it, is threatened with development that is not water-dependent, and does not need to be on wetland. And, once again, inadequate mitigation is proposed.

The area under question provides significant habitat for wildlife, particularly waterfowl, which would be permanently eliminated. We feel that this type of habitat is very rare in the Bay Area, and should be protected. Available resources for wildlife are fast dwindling in the Bay Area.

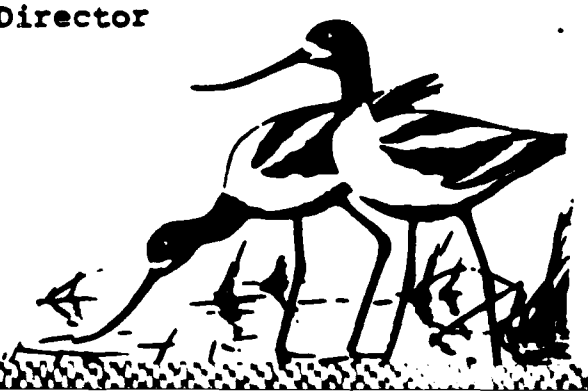
The proposed mitigation does not replace the loss of any wetland. Instead, it is just trading wetland for already established wetland. Appropriate mitigation would involve recreating historical wetlands, or creating new wetland habitat. There is no way the two nearby sites can be improved to replace the wetland values lost. Even if the mitigation was adequate, this location is not appropriate for non-water-dependent uses.

We hope that the Corps will note the inadequacy of the proposed mitigation, and the value of the present wetland, and will move to protect this wetland from development.

Sincerely,

Lynn Tennefoss

Lynn Tennefoss
Managing Director



16077 Ashland Avenue, #255
San Lorenzo, CA 94580
20 June 1984

Col. Edward M. Lee Jr.
ATTN: Regulatory Functions Branch
U.S. Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, CA 94105

Dear Sir:

I am writing in regard to Public Notice Number 15483E49, dated June 7, 1984. This notice is an application to fill and develop a 134-acre site and develop two other sites totaling 90 acres as seasonal wetlands.

First, I would like to address the fact that approximately 90 acres of the 134-acre site are wetlands, a commodity of which very little remains in the Bay area. Wetlands provide a valuable home to many species of wildlife, yet each year these areas are drastically reduced. Wetlands also serve a practical function as filters and flood control areas. They help prevent erosion and reduce silt build up in the Bay. Wetlands are not only a tangible benefit to ourselves and to wildlife, they also serve an aesthetic need in our society. Wetlands serve the need for open space in our often crowded society.

Due to increased vehicle traffic during and after construction of the site, air quality would be greatly decreased, putting even more pressure on our already decreasing air quality. Noise levels would increase in an area that is not currently inhabited. This, along with decreasing air quality, may adversely affect the wildlife of the area, not only at the site, but also in nearby areas.

Approximately 80% of the site is wetland that will be permanently lost. In exchange for this the developer proposes to develop two nearby sites as seasonal wetlands. How they plan to do this is not entirely clear at this time, but part of this involves pumping runoff from the proposed site and a nearby industrial site into part of the mitigation site. This idea is totally unacceptable. This runoff would contain high levels of pollutants, not only from vehicles (such as oil and gas), but industrial pollutants as well. It may also contain trash and other debris. This not only affects the wetland and associated animal and plant life, it also ultimately enters the bay, adding to its increasing load of pollutants. (This does not

enhance the value of this area, but greatly subtracts from it.) Finally, an excessive amount of water pumped into this area could increase erosion and bay sedimentation.

I don't believe that a permit should be issued for this site. Too much valuable wetland will be lost and the disadvantages outweigh the advantages proposed by Marathon U.S. Realities. I appreciate this opportunity for input.

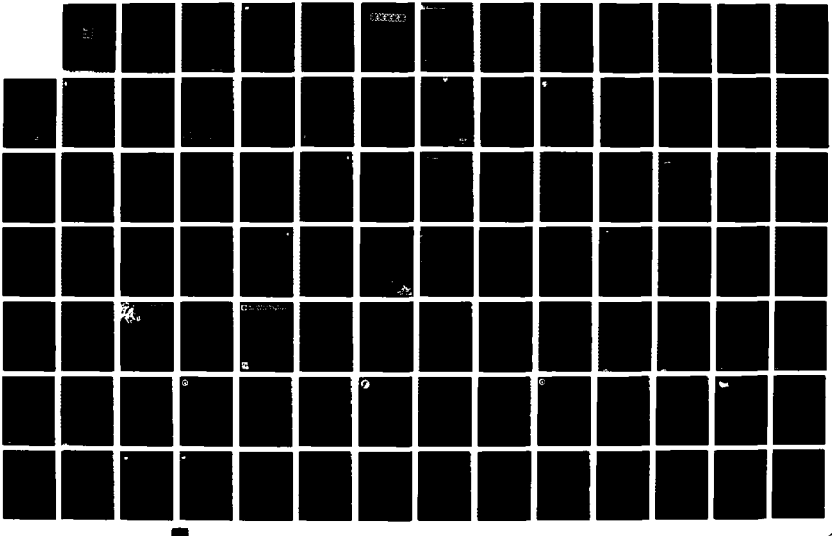
Sincerely yours,

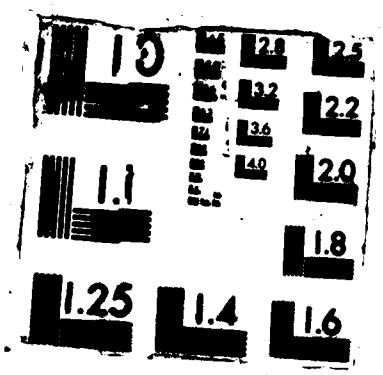
James A. Wallis
Chairman, Conservation Committee
Ohlone Audubon Society

JAW:mw

AD-A182 939 ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT FOR THE PROPOS..(U) EARTH METRICS INC BURLINGAME CA JUN 87 3/6

UNCLASSIFIED F/G 13/2 NL

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1548 East Ave.
Hayward, CA 94541
5 July 1984

Col.Edward M.Lee,jr.,District Engineer
U.S.Army Corps of Engineers
San Francisco District Office
211 Main Street
San Francisco, CA 94105

Attn: Regulatory Functions Branch
Re: Public notice No. 15483E49

Dear Sir:

With regard to my background of involvement with ecology of the Hayward area shoreline and vicinity, see the paragraph in my letter of this same date written to your office regarding public notice 15283E49 for a summary. Another type of study which I carried out from 1968-72 around San Francisco Bay was that of the relationship of solid waste disposal and bird hazard to aircraft. The two old land fills adjacent on the south and southwest to the site of the Marathon U.S.Realties project referenced above were then active or just closed. It is now of great interest that lands adjacent are being: 1) proposed for development, or 2) proposed as sites for mitigation of impacts of such development on the ecological values of remaining wetlands.

The Marathon proposal briefly described in the 15483E49 notice is entirely within the area designated on the October 1976 HASPA plan (in turn adopted by the City of Hayward, East Bay Regional Park District, and County of Alameda) as "urban/industrial." Two significant features of the HASPA Plan in this immediate area (margins of the parcel on the south and west) are not even mentioned in the public notice, however, and are of considerable concern to me and others interested in seeing the completion of that Plan accomplished. These are: 1) on the west, a multipurpose transportation corridor connecting Grant Ave.in San Lorenzo to route 92 in Hayward, with an improved bicycle trail along the bayward side; and 2) a bicycle trail connecting this (presumably under or over the expressway) at Sulphur Creek and across the S.P.railroad to San Lorenzo Community Park. The concept of the HASPA Plan was that the lands westward of the multipurpose corridor could then be restored as tidal marsh, if so desired, since the fill for the corridor would constitute a new major levee against inundation by high tides and the one at the present "bayshore" could be breached or allowed to breach. Presumably the levee indicated in the Marathon proposal is the same levee as that for the transportation corridor (although it is shown with 2 right-angle jogs instead of a sweeping curve at the north). Without such an arterial street being built, there would be no access to the development unless via local streets now being developed from W.Winton Avenue. Both Winton and Grant are already heavily overburdened with truck traffic seeking to get to and from route 92, so this corridor is desperately needed. It is not desirable to have a freeway in this area as was originally planned by CalTrans. Whether Marathon is required to contribute to the construction of the arterial road, provision for the space it would require should be made, and for the trails mentioned, as planning is approved.

Another aspect mentioned in the public notice indicates that "runoff [from the developed site,presumably] would be pumped into the 35-acre mitigation site." The use of diked wetlands for this purpose of temporary disposal of storm waters may be of environmental value if suitable controls over water quality are maintained; but knowledge is scanty with regard to the results around San Francisco Bay. Hence I would like to see that issue fully addressed in the EIS/EIR. An alternative to keeping the mitigation area as diked wetlands (present condition) would be to open it to tide action, or the western area (presently at the bay shore) could be so opened and the eastern one not.

Please place my name on the mailing list for receiving public notices of development proposals within the Corps' jurisdiction in the San Leandro through Fremont area.

Sincerely yours,

Howard L. Cogswell

Howard L. Cogswell

1548 East Avenue
Hayward, CA 94541
5 July 1984

U.S.Army Corps of Engineers
San Francisco District, Regulatory Functions Branch
211 Main St.
San Francisco,CA 94105

Re: Public Notice No. 15283E49 Attn: Col.Edward M.Lee,Jr.

Dear Sirs:

Although time for response to the above-referenced public notice has passed by a few days, I trust you will allow a few additional comments. Most of my concerns with regard to this proposal (by the Shorelands Corporation) were expressed in a lengthy letter which I addressed to Mr.Richard Sheridan, chairman of the Hayward Area Shoreline Planning Agency, on 17 June. I understand from Mr.Sheridan and staff of the Hayward Area Recreation and Park District (one of the 5 member agencies of HASPA) that a copy of that letter was forwarded to you before the 1 July deadline, and furthermore the HASPA Board has sent a letter to you essentially endorsing the concerns which I expressed in the letter.

At this time, therefore, I would just like to say that I have known the conditions in the project area quite thoroughly since my arrival in Hayward as a new member of the faculty of Calif.State University,Hayward, in 1964. With the cooperation of the land owner, Leslie Salt Co., I have over the years conducted a variety of studies -- mostly censuses and short-term behavior of birds -- in the area and particularly throughout the salt evaporators to the west and southwest. I am an ornithologist and ecologist, taught both these subjects and others at CSUH from 1964 to 1982, but am now retired. I am also the author of one popular book on birds (Water Birds of California, 1977, U.C.Press) and have another in preparation. In addition to this background as a professional biologist, I served 12 years as a director of the East Bay Regional Park District (1980-82) and was involved heavily through them with the establishment of several parks along the San Francisco Bay shores, including the present Hayward Regional Shoreline with its newly created tidal lagoons and forthcoming fresh- and brackish-marsh project. During my term as director of EBRPD I was also their representative on the HASPA Board.

In addition to the comments in my letter of 17 June to Mr.Sheridan, I would like to add now that the proposed development (except for its northwesternmost part) is within the area designated on the adopted HASPA plan for development or"Developed with Uses that are Compatible with Adjacent Areas and Suited to Environmental Conditions." The same plan (Oct.1976) calls for retention of existing freshwater habitats in the gunclub area to the east of the south part of the proposed development -- an area I suggest is a possible area where mitigation for destruction of seasonal wetlands values in the developed area might be accomplished. I also here re-emphasize the first point made in my letter of 17 June, namely that the establishing of a regional trail system from near (even at) route 92 to the new Alameda Creek levee, along with suitable staging area and preservation of the large tidal marshes near the Bay shore by deeding all of this to the EBRPD is a most worthwhile aspect of the proposal from the environmental standpoint. Although <u>some</u> other mitigation should be sought also, I do not believe it should be as far reaching as some have been claiming. However, a full EIS/EIR report will, if properly done, provide this balance. Please place me on the mailing list for notices of any future projects within Corps jurisdiction along the San Leandro--Fremont shore.

Sincerely,

Howard L. Cogswell

Howard L. Cogswell

Philip Williams & Associates
Consultants in Hydrology

Pier 33 North, The Embarcadero
San Francisco, CA 94111
Phone: (415) 981-8363

5 July 1984

Col. Edward M. Lee, Jr.
District Engineer
Regulatory Functions Branch SPNCO-R
Department of the Army
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, CA 94105

RE: YOUR FILE NO. 145E49

Dear Col. Lee:

I understand from our client James Christian of Marathon U.S. Realties, Inc. that the Hayward Area Recreation and Park District (HARD) and the Hayward Area Shoreline Planning Agency (HASPA) have expressed concern about the source of water for Marathon's proposed wetland enhancement project on the Hayward shoreline. Our evaluation of water sources for a brackish marsh has included consideration of both reclaimed wastewater and urban runoff.

The East Bay Regional Park District (EBRPD) is presently creating a marsh on the Hayward shoreline that will use reclaimed wastewater. Informal conversations with personnel of the Regional Water Quality Control Board, the California Department of Fish and Game, and the Department of Public Health indicated that no further permits are likely to be granted for such a use of reclaimed wastewater until several years of data and experience have been gained from the EBRPD marsh. For this reason, we have focused on the use of urban runoff.

We estimate that under conditions of full development, available storm runoff would amount to about 20 acre-feet in a 1 in 10 dry year, 164 acre-feet in a median year, and 341 acre-feet in a 1 in 10 wet year. A monthly salt and water balance for the parcels indicates that in a median to dry year, inflow of bay water from Sulphur Creek would be necesary to maintain water in channels through the summer, and to prevent the water from becoming hypersaline.

Urban runoff is often contaminated with oil and grease, heavy metals, BOD and suspended solids. Some of the oil will be removed at a pumping station before the water enters the marsh. We anticipate additional improvement in the quality of water as a result of routing stormflow through the wetland. Without the proposed wetland enhancement project, stormflow from the Marathon site and adjacent wrecking yards would flow directly into the Bay via Sulphur Creek.

Please feel free to contact me if you have additional questions or concerns.

Very sincerely yours,

Robert Coats
Senior Associate

/rk

cc: James Christian
Bud Critzer, HARD
Jo McLellan, HASPA

AUG 14 RECD

July 26, 1984

U. S Army Corps of Engineers
211 Main Street
San Francisco, Ca. 94105

Attn: — Lee Jay - Environmental Branch.
and Kim Nygard - permit section

Thank you for your study on the 134 acre development owned by Operation - permit # 15 # 85279.

Our question on this — Why is it necessary to develop this acreage when it will only cause problem of contamination, noise, and a congestion of population when this is unnecessary.

We would like to see this land stay just as it now is. We hope you will see this will stay. We hope you will have the slope to this development stopped and the site designated as a park - free of any building

Thank you.

Mrs Mrs Harold Trimble
Emeryville Cal
San Diego, Calif -

San Lorenzo Village Homes Association
LARGEST HOMES ASSOCIATION IN THE NATION
377 PASEO GRANDE SAN LORENZO, CA. 94580
276-4884
351-2731

JUL 26 RECD

July 24, 1984

TO: City of Hayward Planning Dept.
22300 Foothill Boulevard
Hayward, CA 94541

FROM: Bernie Chalifoux, Administrator
San Lorenzo Village Homes Assoc.

SUBJECT: Marathon Development

Major concerns of the San Lorenzo Village Homes Association and the residents it represents are the following:

NOISE - Property owners directly adjacent will be impacted by traffic and manufacturing noise. Great care should be taken to be certain that the distance between adjacent homes and the development boundaries is sufficient. No buildings requiring outside generators or refrigeration compressors should be allowed in that section of the development. All buildings in the impact area should have loading docks and delivery entrances on the opposite side of the resident area.

ODOR - Plants using odor and fume producing chemicals should not be allowed in close proximity to adjacent homeowners.

PROPERTY VALUES - Great care should be given to all issues that might be harmful to the property value of the homes adjacent to the development. The purchase of a home is a major investment for most people and allowing intrusion by commercial developers that would harm property values of individuals would be a great injustice.

The Homes Association believes that special attention to the concerns of the individual homeowners directly adjacent to the northeasterly boundary of the development is necessary and justified.

Sincerely,

Bernie Chalifoux
Administrator

cc: U. S. Army Corps of Engineers
Shapiro and Associates, Inc.

Concerns previously identified by Public Notice and Consultant for the City

SIGNIFICANT ISSUES

1. AIR QUALITY/TRAFFIC
2. WILDLIFE HABITAT/WETLANDS
3. NOISE
4. PUBLIC SERVICES
5. EMPLOYMENT
6. BUSINESS
7. LOCAL GOVERNMENT FINANCES
8. LAND USE
9. CULTURAL RESOURCES

RECD JUL 26

DISCUSSION

a. Based on the description of the proposed action, indicate your most important concern. This could be important to you personally, or to your agency responsibility, or to an environmental component with which you are most familar.

The adjacent homeowners at the northeasterly boundary of the development

b. Relate the context of this concern geographically. Is your concern local, regional, or national? Local

c. Discuss your concern's uniqueness, special characteristics, or relationship to the proposed action. The Homes Association represents and supports individual homeowner members whose property values and quality of life are threatened.

d. Briefly describe, as possible, the extent of potential impact of the proposed action on your concern. Most detrimental would be property value and negative impacts on individual rights to clean air, lack of noise and enjoyment of view and backyard use.

OTHERS

APPENDIX B

COMMENTS RECEIVED ON THE OCTOBER, 1985 DRAFT EIR/EIS

COMMENTS BY Howard Cogswell on THE DRAFT EIR-EIS for MARATHON DEVELOPMENT/ Tract 5167.
prepared Dec. 11, 1985

In general this document is a reasonably thorough one for many features related to the proposed development and its impact on the socio-economic environment -- or so it seems to me. However, that is not my area of knowledge so I cannot truly judge its completeness with respect to such things as Economic "Need" for the project, on Soils and Seismicity, on Water Quality (especially of storm runoff), Traffic Circulation, Air Quality, Noise (except as it affects me personally), Streets & Utilities, etc. Therefore I have noted only a few items under such headings, where the document should be made clearer to the reader who must make a judgment on it--such as those persons on the Board or Council of the permitting agencies.

In the area of Biological Environmental relationships, however, I feel more competent to judge the document, having spent 28 years in teaching and research in Ecology and Ornithology at the College-University level as well as some 25 years of intermittent but frequent study of birds and their habitats and use of them about San Francisco Bay. Hence most of the detailed comments below pertain to these subject areas; but for ease of reference to the Draft EIR-EIS, I am arranging comments in page sequence from it.

Page 8: Under alternative 1, 2a, and 2b, it is stated that under Alternative 1 the overall loss of habitat value would be about 20%, and the reader is referred to Appendix B. Yet Appendix B shows a loss of 27% [not "about 20" in my opinion] and this on a basis that has many faults as will be detailed below.

Page 9 (in Summary) and pp.45-46. The "Regional Context" sections are a valuable item to have in an EIR-EIS for a particular parcel, since it enables a judgment to be made on the severity of loss of that portion, only, and also indicates something of the precedent-making nature of individual parcel decisions and their cumulative impact. This is true even though individual items in the Regional Context listings referred to on pp.45-6 & presented in Table 1 might engender considerable disagreement among persons working for wetland preservation as well as among those who would destroy them for economic gain.

Page 11, Alternative 3: Is the statement that 30-35 acres of wetlands would be restored to tidal action indeed correct? Does it not depend upon whether EBRPD makes such a decision regarding their property just to the west?

Page 30: Alternative Sites. The tenor of the text here seems to imply that all one has to do to demonstrate that there is no other "practicable" site available is to show that such other locations as exist are either too expensive or outside the area of interest of the developer and the political jurisdiction that have launched the project here under consideration. If that reasoning is carried to its logical conclusion, then no wetland area is really protected by any requirement for an alternative sites analysis. I just do not believe that is the intent of the USCE ruling on this matter.

Page 35, 9th line from bottom: Grand Avenue should read "Grant Avenue"; and
5th line from bottom: Skyway Golf Club should read "Skywest Golf Course"
--unless the name has been recently changed.

Page 37: Under Alternative 1, the "regrading" , providing "drainage ditches", and "discharging water" into the HARD Parcels may be intended to improve water flows and "enhance them as wetland habitats", but the next sentence includes the conclusion that the "biological characteristics of the parcels" would be improved--a statement that I believe is not justified by data presented elsewhere in the EIR-EIS.

Page 38: The last 2 lines refer, I believe, only to Alternatives 4 and 5; but it is not clear since they are entered at the left margin (in the same position as the whole section head "Environmental Consequences" on the preceding page).

Page 40: In the central, longest paragraph statements regarding the duration and variability of inundation of the on-site wetlands do not agree with the values used in Appendix B for calculalting Habitat Values. The summary statements here (p.40) are much better, with suitable stress on the wetness for up to 7 months (in wet years).

Page 41: My impression, based upon a number of casual visits and upon examination of several aerial photos I have taken of the area (including in 1984-85) is that a number of larger mostly barren areas exist. These are barren because of long-lasting inundation during wet seasons. Perhaps there is sparse Salicornia or other salt- to brackish-marsh vegetation in many of them. A small pond exists in the northwest corner of the largest Tz block in MARUP but is not shown.

Pages 42-43: It would be of much greater help if the dates (not just a 3-month range) and times relative to the tide cycle were given for the bird counts listed as examples of wildlife use. The actual calculations (in Appendix B) purport to be based on duration of use; but maximum numbers of shorebirds are normally present only during high-tide periods while dabbling ducks are likely to stay throughout the tide cycle unless disturbed by persons or predators moving through the area. Certain species mentioned on these pages as "primary" are conspicuous by their absence from the list of species selected for the Habitat Evaluation (Appendix B). WHY??.

Page 43: Mitigation Parcel HARD B: Note the "homogeneous stand of perennial pickleweed" here. This is closer to the real situation than the "mostly barren" characterization that appears somewhere else in the document [ ].

Pages 44-45: The section headed "City of Hayward" includes paragraphs dealing with the functions relative to the shoreline area under study that are carried out by HASPA (of which Hayward is only 1 of 5 member agencies), EBRPD, and BCDC. The section heading should reflect the content.

Page 47: end of top paragraph--the quote or citation from Shellhammer 1984 should be updated in light of the recent capture of the RbHMouse nearly adjacent to the project site. It is a very rare event for any such mouse to be "observed" during routine daytime field work, even in optimum habitat. Hence the statement that none were observed is perhaps true, but should not be used to indicate in any way that the species is absent. Many parts of the EBRPD lands, and some of the HARD parcels have pickleweed as dense as where the species has been found in other diked-off marshes. Obviously an effort should be made to find out (by suitable trapping at the best time of year) whether there is a significant population of this endangered species here.

" " : end of paragraph on Alternative 1-- the same "approximately 20%" statement as commented on above; disagrees with value given in Appendix B.

" " : Whole section on Environmental Consequences -- should have some real quantification. It is very disappointing to read about proposed "enhancement" of value of existing wetlands and have absolutely NO statement as to what species would be favored and to what extent. There is, of course, no mention whatever of other species for which existing conditions are better [see my comments on Appendix B, below].

Pages 48-51: Cumulative Wetland Losses -- an admirable inclusion. Some sites listed in the table have, however, already been shifted to other uses or are being considered for other types of futures than those given; e.g., not all the areas indicated for "restore tidal action" may have that happen if recommendations of Fish & Game officials are followed. Additional parcels (seasonally wet at least) that could have been included are the several remaining duck clubs in the Hayward to west Fremont area, including Lattig & Oliver sites southeast of the Baumberg tract, two in Union City, etc.

Page 52: Paragraph just preceding "Alternative 1" is an excellent statement of principles. My comments on specifics of the proposed mitigation which follow are intended to provide further guidance in arriving at the "no net loss of habitat value."

" : Alternative 1 -- HARD parcel A -- the water depth of 0-1 feet sounds good, if allowed to be of gradually changing depth in both space and time. Islands however, should include at least one sizeable one that is prepared with a surface that dis-coourag vegetation and is not much higher than the high-water mark. This will be attractive to shorebirds throughout the winter season whereas a vegetated island would

not. Low marsh-type vegetation (or possibly even grass) would be attractive to certain species of ducks or to Stilts for nesting, however. Maintaining the "enhanced" value of such a system is not a well-established procedure in brackish water areas near the bay (except for deliberately flooded duck-shooting ponds). I doubt that the HARD staff will want to undertake manipulation of the vegetation and water levels that would be necessary. If they do not, then any enhanced shorebird use, and any enhanced waterfowl nesting will diminish with time as the vegetation changes through natural succession or fluctuates due to overlong flooding or drying sequences. Certain species are adapted to such fluctuating conditions; but those are the ones that now occupy the Mitigation Areas in good numbers when conditions are good for them.

With respect to the HARD parcel B, the proposed "constant level of 2 to 3 feet" of water in that area will certainly kill off the Salicornia that now grows there and thus reduce any value the area has for the Saltmarsh Harvest Mouse and the even more endangered Black Rail, which is a possibility here. Water of 2 feet and greater depth is also too deep for dabbling ducks to feed, although they may do some around the edges. If there was sufficient exchange of water to provide nutrients and/or detritus for a good supply of invertebrates to develop and avoid anaerobic conditions in the bottom mud, such deep water might well be attractive to diving ducks and to Eared & Pied-billed grebes if there were fish. However, such species-by-species "enhancements" must be balanced against the reductions that would occur in other species -- which I do not find adequately done anywhere in this Draft EIR-EIS.

In general, the greatest needs to make this section adquate are:

1) quantitites -- both pro- and con- for the effect of each aspect of the proposed mitigation, as well as for the existing conditions both on the tract proposed for development and on the parcels where mitigation would be done.

2) some drawings or sketches of the physical layout of the proposed mitigation elements.

Page 59, last paragraph: Skyway Golf Course should read "Skywest Golf Course".

Page 61, 3rd paragraph: Again, my comments as above, regarding water depths proposed for HARD parcels A & B. The brief description provided here regarding water management still leaves me doubtful of how it would be accomplished. I also wonder how the islands in parcel A would be maintained with a "sand or gravel" cover rather than vegetated. Normal plant succession will cover even gravel in not very many years if no other measures are taken.

Pages 67-8, regarding Water Quality in HARD Parcels A & B: What chemicals are seeping from the adjacent landfill at present, and how would the flooding of these parcels by runoff from the Marathon tracts improve water quality finally reaching the Bay? The second "value" claimed, of natural marsh treatment for the runoff, would not apply if water 2-3 feet deep is constantly maintained in parcel B. Yet the third "value" "benefit", of sealing or partial sealing of the slopes of the old dump (it closed in 1966, by the way) is probably true <u>if</u> any serious pollution is occurring from the seepage. This document leaves me in doubt. If such sealing is needed, shouldn't the former dump operators and/or the present land owners (County, & K-101?) be required to provide it or participate in it? I do not see that the cost of doing such sealing should be credited as any part of the mitigation for destruction of wetlands elsewhere.

Page 76, 2nd paragraph: The "Cogswell, 1984" referenced here has been explained to me as referring to another Cogswell (not me). However, the use of author-year cues in the text of this EIR-EIS <u>should</u> lead a reader who wishes to check a reference directly to an alphabetical list of author-year entries in the REFERENCES, p.99 & following. For the personal communications there, no dates are given, and most references are from agencies, with the person providing the communication following. If this is standard procedure in EIR's, then at least the "cue" in the text should be altered to avoid confusion.

Page 76, 3rd paragraph: The traffic pattern on the bayward side of the Hayward Air Terminal is designated as 650 ft. above mean sea level (not the 800 to 1500 feet here cited). The lower level is to avoid conflict with overlying approaches to runway 29 at Oakland Airport, on which the jets do fly here at the levels cited (about 1500 feet at the Winton Ave. position to 800 feet or so by the Oro Loma Sanitary District plant). The way the paragraph now reads, the noise at all altitudes is attributed to planes from the the Hayward Airport, which is just not true.

APPENDIX B: HABITAT EVALUATION of the Marathon --tract 5167 Site and Adjacent properties.

General Comments: As noted in the final paragraph of this appendix (page B-16) the level of information available for wildlife usage of the various habitats involved in the study area does not justify the "level of precision pursued in this analysis." Yet the analysis was carried out, and various tables presented in a way that the reader who may be unacquainted with the species used (as well as with the much larger number of species also occurring in the project area but not used) will be likely to conclude that it is a truly quantitative study. There are indeed some numbers, and these are combined by some simple arithmetic so that a numerical answer is obtained. But the whole procedure is based upon several assumptions that are each very SUBJECTIVE IN NATURE. Without some regular study of these sites or others quite similar to them in the general area, with actual census data and habitat usage data, the numbers appearing such an "analysis" are really just opinions based upon general field experience of the persons who collaborated in the sessions that led to these numbers. I therefore recommend that much more stock be placed in the validity of the final paragraph than in all the pages that go before it. It may be pertinent to know, as I have been told just last week at an ornithological meeting in San Francisco by representatives of the U.S. Fish and Wildlife Service, that there are profound differences of opinion on the worth of the full Habitat Evaluation Procedure (HEP) which some branches of that agency are using. A staff member from the Patuxent Research Center of the USFWS in Laurel, Maryland, told me that most researchers there do not consider it a reliable procedure -- and that is the procedure (HEP) indicated on page B-1 as being much more quantified than the one used for the analysis resulting in this appendix. A number of specifics follow:

1). The selection of just 10 (sometimes fewer) species, each to represent a group of species which are assumed to have similar feeding behavior & habitat requirements is the first step. But this is a step fraught with great danger of introducing bias. In the present analysis, the most glaring example is the inclusion of the Greater Scaup to represent all diving ducks, when it is a species found primarily on open bay waters in the winter. Although it is common there (well offshore usually), it is much less likeley to occur on the shallow waters of seasonal wetlands (or even narrow channels & lagoons) than the still more abundant Lesser Scaup. And that species, in my experience, is less likely to appear on seasonal wetlands than is, e.g., the Bufflehead or the Common Goldeneye. The Shoveler, as a representative of the dabbling ducks, is the most extreme in bill shape and feeding habits of any in that subgroup of ducks, being enabled by the very wide bill to "skim" plankton from the water much more efficiently than most members. Although the other species included are all quite appropriate, I would have been more comfortable with the Long-billed Dowitcher or Least Sandpiper to represent some of the smaller shorebirds. But the basic trouble is that no 10 species can fairly represent the whole complex of vertebrate animals that occupy a tract of land and water where 140 species occur and at least 50 of them are regular and numerous. The ecological niches of even fairly close relatives among this number of species just differ too much to make it valid.

2). All habitats were rated for the species chosen by only a 4-step procedure: 0, 1, 2, or 3. But these are really only ordinal numbers, since none is based on any actual number of animals of that species per unit area or for the whole area per unit of time. That is, they are subjective judgments of which habitats are better than others—but WITHOUT STATING HOW MUCH BETTER. Yet these numbers are incorporated into composite indices by multiplying them by acreages of habitat and by a fraction of the year which that habitat (in case of flooded or saturated ones) is presumed to be wet during a typical year! The explanation (bottom of page B-3) of how the ratings were applied does not

indicate any minimum level of use in any one of the 3 categories mentioned that was considered as a threshhold. E.g., does the occurrence of one nest of a species that is common in habitats not found in the study area constitute enough use of a habitat in the study area to warrant a "3" if the species also rests and feeds in the area while it is nesting there? The last lines on page B-3 introduce still other uncertainties: all species analyzed had "equal resource value" [of course no endangered species, and no superabundant "pest" species was analyzed]; and "all species used all habitats at some time during their life cycle" [which words, if taken at face value, are patently untrue]. These assumptions, it is claimed, were made "to simplify the analysis". But all they do, in my opinion, is make a scarcely quantitative start into a completely non-quantitative operation.

3). Duration of wet and dry periods, and corresponding "weighting" of the indices. This is briefly described on page B-5. Only one rating was made for the "wet" season, apparently; and one for the "dry" season. No accounting made for the peak use period by fish-eaters when fish-bearing waters are drying up (far more advantageous to them than the period early in the wet season when water is appearing newly in an area). Nor is any evaluation made of uses at different times of the tide cycle attempted (which would affect the outcome for many species of shorebirds by virtue of their preference for feeding on the intertidal mudflats when these are available). Most of all, I feel that the estimates of periods of inundation and saturation (table 4, page B-9) are far too low for all but the MARDRY (also frequently called MARUP in the report) area. Hence all of the values obtained, even if we consider the whole process as worthwhile, are further biased toward lowering the habitat value of the wetlands on the MARWET area (and thus the value which would have to be mitigated) as well as the present value of the existing seasonal wetlands on the two HARD parcels (and thus allowing a greater "enhancement" to be claimed for the proposed mitigation effort). Above table 4 on page B-9 it is stated that a set of aerial photographs of the area was used to develop the listed durations of inundation and saturation. Yet table 3 (page B-10) which lists the photograph dates and inundation characteristics includes no mention of any photo in the December through March period except in the severe drought years of 1976-77-78. On January 18, 1980, the situation was very different, as photos I have would attest. [Incidentally, two references to "Table 6" at the top of page B-11 apparently should be to Table 5, instead].

4). Lack of a Habitat Suitability Rating for Existing Conditions for each Species of the selected 10. Although table 6 (page before B-14) gives such ratings for the "post-development habitat", nowhere does there seem to be a comparable species-by-species table for existing conditions. Thus, the reader is unable to check whether calculations that produced table 7 -- the over-all habitat values under various development scenarios -- have any basis in even what little "reality" the original ratings applied may have held.

5). Even if one accepts the whole procedure(which I have criticized so negatively above)as being better than the mere assembly of generalized statements or tallying of numbers of birds found on irregularly arranged casual visits to the area, the team which used this modified HEP came out with a calculated 27% reduction in the habitat value of the whole area after the proposed development and mitigation reached completion. I believe this value is far too lenient, for the several reasons I have detailed, and I would expect that a full quantitative study of all the habitats involved would show at least double that reduction in over-all numbers of vertebrates found. There is no escaping that the project as proposed would eliminate some 90 or so acres of seasonal wetland and would only alter another 90 acres of seasonal wetland to a condition about which there seem to be many factors yet unknown. Personally I do not object to the enhancement of habitat values (if indeed such are carried out) on public lands by private citizens or corporations. Every instance of the planting of trees where such are desirable in public parks, and of the raising of money from private citizens to aid in the expansion of any wild land or water park or refuge, or wildlife refuge are commonly acquired by the Federal and State governments through taxes or fees levied on hunters (private citizens). But in the Marathon proposal, what has been offered does not, in my opinion, come close to compensating for the loss of habitat the project would cause. Hence, the mitigation as proposed is only to be judged as INADEQUATE.

H.L. Cogswell

East Bay
Regional Park District

11500 SKYLINE BOULEVARD OAKLAND, CALIFORNIA 94619 TELEPHONE (415) 531-9300

BOARD OF DIRECTORS
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General Manager

December 12, 1985

Mr. Ron Gushue
Hayward Planning Department
22300 Foothill Blvd.
Hayward, CA 94541

Subject: DEIR/EIS - Marathon Industrial Development

Dear Ron:

The EBRPD has reviewed the subject document and offers the following comments.

On page 32, the alternative of the payment of an in-lieu fee for a "mitigation land bank" is discussed and the EBRPD is mentioned as an agency which might help carry this out. That discussion should be augmented to indicate the following. The HASPA plan may be amended to show the EBRPD land north of Sulphur Creek remaining as a seasonal wetland. If this happens, the District will not own any location in Alameda County to carry out a wetlands enhancement project for off-site mitigation.

The discussion of impacts on vegetation and wildlife (pp. 45-46) needs augmentation. The habitat evaluation (Appendix B) predicts a significant adverse impact upon the habitat value of EBRPD lands westerly of the site, however, no reason for this is given and no discussion of it occurs in the main body of the EIR/EIS.

The discussion of rare and endangered species (pp. 51-52) needs substantial revision based upon a Section 7 consultation with the U.S. Fish and Wildlife Service. This is needed because the Calif. Department of Fish and Game has demonstrated the presence of a salt marsh harvest mouse population on the project site and on the portions of EBRPD property immediately adjacent to the project site (the area which would be adversely affected according to Appendix B).

This discussion of impacts on flooding characteristics (p. 65) needs augmentation. The project would discharge some of its stormwater runoff into Sulphur Creek, thereby potentially increasing the possibility of

overtopping the levee which protects EBRPD lands north of the creek. Since the EBRPD has no method of draining this land, a number of adverse impacts may follow, including the loss of salt marsh harvest mouse habitat, wave damage to the inboard portion of the dikes surrounding that property, and wave damage to the proposed new dike which is supposed to protect the project site. This discussion should also include an evaluation of the impacts on the project of a breach of the EBRPD dike which protects it from tidal action. This dike was not constructed to the standards which would be appropriate to protect an industrial development and has failed in the recent past.

The discussion of police services (p. 80) should be augmented to recognize that the EBRPD police also serve the project area. This discussion should specifically address increases in ORV intrusion and illegal hunting on adjacent EBRPD lands due to increased vehicular access via the developed project site. The EBRPD police are already responding to an increase in this kind of activity as a result of Marathon's industrial development south of Sulphur Creek. The construction of fencing along the property line may reduce this kind of impact.

In Appendix B, Table 7 includes a footnote to the effect that the water regime would not be affected on EBRPD lands. The project would have the effect of removing about 90 acres of land from the watershed draining into EBRPD lands, thus seriously reducing the existing water supply to the seasonal wetlands at the Hayward Regional Shoreline.

The responses to the above comments will contain significant new information (e.g., a Section 7 consultation). Therefore, the District urges the Corps and the City to revise the subject document and recirculate it for additional comment.

Very truly yours,

T. H. Lindenmeyer
Environmental Coordinator
Planning and Design

TL:lm

cc: D. E. Pesonen
J. Kent
L. Crutcher
P. Koos
M. Taylor

HAYWARD AREA SHORELINE CITIZENS ADVISORY COMMITTEE
22300 Foothill Boulevard
Hayward, CA 94541

RECEIVED
DEC 23 1985
PLANNING DEPT.

December 12, 1985

Hayward Area Shoreline Planning Agency
22300 Foothill Blvd.
Hayward, CA 94541

Ladies and Gentlemen:

We have reviewed Marathon Industrial Development Environmental Impact Statement and Report and have the following comments and concerns regarding conditions described on the properties to be used to mitigate adverse project effects and on properties on the project site:

The Mitigation

We find the mitigation measures on the HARD parcels A and B for the loss of the 90 acres, or 80% of the Marathon seasonal wetlands, are unacceptable. On page 2 of the Philip Williams & Associates "Marsh Restoration Design For Two Parcels on the Hayward Shoreline," there is reference to the Palo Alto marsh/flood basin project as a pattern for marsh improvement. The Palo Alto site is a 600-acre basin which has been fraught with problems. Tide basin flap gates/flashboard became encrusted with mussels and barnacles and would not operate properly. Vandalism is a problem. The control and maintenance systems have to be monitored carefully, especially during the nesting season. The last nesting season was lost due to computerized controls which had to be manually operated. Is this the type of system that HARD can monitor and maintain? What will the cost be to HARD after the system is completed by Marathon?

The 35-acre HARD parcel A is probably too small a site for three islands covered with sand and fine gravel. If the islands are to be used for wildlife nesting or resting, this concept should be examined for its maintenance potential. There is concern for human safety with the 30-foot-wide ditches which would route storm water around the islands and around the parcel.

On page 7 of the Philip Williams & Associates' "Marsh Restoration Design For HARD Parcel B," it is stated that Parcel B is presently a relatively barren basin. We disagree with this statement as we see ample vegetation— pickleweed, in particular— in this parcel. It serves as a prime habitat for wintering waterfowl. The report states that in March 1985 over 1,000 ducks used Parcel B.

On the last page of the Environmental Draft EIS/EIR, Dr. Howard Shellhammer states that after visiting the two HARD-proposed mitigation sites on May 2, 1985, there is no need to trap for salt marsh harvest mice because of the condition of the pickleweed.

We disagree with his conclusion. Trapping should be done to determine if there are salt marsh harvest mice in the HARD parcels.

We are also concerned about the proposed removal of vegetation and earth from both HARD parcels to build ditches, islands, and cover the sides of the old landfill (the old dump now owned by Alameda County Flood Control District). Current California State Regulation, Sub-chapter 15, requires owners of old landfill sites to seal and close these sites. Isn't it wrong to take valuable marsh soil to cover the old dump?

On page 8 of the Philip Williams report, it is stated that about 62,500 yards of excavated material will be removed from Parcel B. Besides doing the above "enhancement," some of the excavated material could be used to increase the elevation of the Sulphur Creek dike.

Has HARD found it necessary to improve parcels A & B in the past? There are funding sources: Proposition 19 Funds, Environmental License Fund, Endangered Species State Income Tax Check Off Money, Coastal Conservancy, and Regional Water Quality Control Board Funds.

We conclude that the HARD parcels are already in public ownership and considered adequate wildlife habitats. They should not be used for mitigation by Marathon for the loss of 90 acres of seasonal wetlands in Marathon's 134 acres. The "enhancement" proposal by Marathon is not necessary; it is too complex, and too costly for HARD to operate.

The Project Site

We question the accuracy of the map, Figure 7, Habitat Types, page 41, and the Habitat Evaluation map, Figure 1, Page B-4, in Habitat Evaluation, Appendix B.

On page 41 there is no indication that a freshwater habitat exists along the eastern boundary of the Marathon property from the culvert under the Southern Pacific railroad tracks. Fresh water drains from the San Lorenzo Community Park and from other sources under the railroad tracks to the Marathon property, then north to a point where a fence and the waterway turn west to a point where the waterway flows northwest in the direction of Bockman Canal where it is discharged. This has been a long-established fresh water way and habitat. Early in November before the rains came, we observed ducks using this habitat, including a wintering Lapland Longspur. No indication was made of this freshwater habitat on map Figure 1, page B-4, either.

Also, there was no indication on either map of the pickleweed which is lush in some sites in the upper northeast portion of the Marathon property. For instance, there is a diagonal ditch through this section which has pickleweed. The ditch starts near the railroad tracks and Bockman Canal. Other pickleweed sites are to be seen throughout this section of Marathon's property listed as "Upland Grasses."

On page 15, Figure 4, Corps Jurisdiction Section 404 map: This map shows a dash-dot (_._._._.) line to indicate streams within 404 jurisdiction. The stream shown on the map is not complete since there is no indication as to the source of the water. The stream is the same one mentioned in the first paragraph on this page; however, the map shows the stream starting where the water flows west. Marathon owns all of this freshwater habitat starting from Southern Pacific's right of way, west side of the tracks, where there is an offset in the Marathon fence.

On page 4, Figure 2, Alternative 1, Sanitary Lift Station is in the wrong location.

On July 21, and 22, 1985, one male salt marsh harvest mouse was trapped on the boundary (fence line) between East Bay Regional Park District and the Marathon property north of Sulphur Creek. We recommend that more trapping should be done in the Marathon salt marsh.

On page 5, under Alternative 1, it is stated that the land uses expected at the site would be industrial and commercial, oriented toward rail service. There is no indication in the plan, as proposed by the applicant (Figure 2, page 4), of a rail system plan to serve the 134 acres. The only rail system plan is seen on a site plan dated October 16, 1981 used by Harding Lawson Associates, Appendix D., "Soils Investigation."

Presently in Marathon's development south of Sulphur Creek, there is no extension of the Southern Pacific spur track. In a communication with a Southern Pacific Representative, he indicated there was possibly one building to be served by rail, but to date there was no tenant in need of rail service. The Southern Pacific representative said the Southern Pacific plan for spur service to Marathon's 134 acres north of Sulphur Creek would be from the present spur near West Winton through the present Marathon development and then across Sulphur Creek.

With this information in mind, we question the rail-oriented service need to serve a nonwater-dependent development which is proposed for one of the most valuable seasonal wetlands area in Hayward. We also, therefore, question its adequacy of the Alternative Site Analysis (Appendix G) that was in part predicated upon the assumption that a viable alternative project must have rail access.

In addressing the traffic question in connection with the proposed Marathon Development, it is estimated that an additional 8,000, plus, weekday trips could be added to the current road system. And even though the traffic study suggests several measures to mitigate traffic impacts, this would result in a decreased level of service on roadways.

Home owners in San Lorenzo adjacent to the proposed development have concerns about noise from machinery, loading docks, and traffic. There is also a question of odors and fumes coming from certain types of industry. A buffer zone should be placed between them and the development.

The issue of a negative impact on the property value of homes close to this area should be considered.

Lastly, there is a need for a critical review of monetary costs associated with the loss of wetlands, a cost/benefit analysis for the public.

We hope we have been of service.

Very truly yours,

Barbara H Shockley

Barbara Shockley
Chairperson

1101r/er

ADDRESS ALL COMMUNICATIONS
TO THE COMMISSION
CALIFORNIA STATE BUILDING
SAN FRANCISCO, CA 94102
TELEPHONE (415) 557-9884

Tack Joe

Public Utilities Commission

STATE OF CALIFORNIA

December 17, 1985

FILE NO. 183-1/E.I.R.

Price Walker
Office of Planning and Research
1400 Tenth Street - Room 121
Sacramento, CA 95814

Dear Mr. Walker:

This is in response to the City of Hayward's draft Environmental Impact Report/Statement (E.I.R./E.I.S.) covering the Marathon Industrial Development, SCH #85110511.

Based on a review of the project proposal, it appears that the Commission will be a responsible agency. The basis for this is the fact that the Commission has permit/decision authority over any change, improvement or alteration of any existing railroad-highway crossing and for any new railroad-highway crossing required. In this regard, the staff would call the City's attention to Section 1201 et seq, Chapter 6, Division 1 of the California Public Utilities Code. Any work done at the crossing (s) will also require compliance with the Commission's General Orders 26,72,75,88, and 118.

Appendix E: Traffic/circulation study contains several reference numbers, such as on page 2, last paragraph, "Hesperian Boulevard (1)", and on page 10, first line, "considered (5)", however, no explanation or further reference is given. If these reference numbers are to remain in the report then they should be explained, removing any confusion as to their meaning.

The staff is of the opinion that the mitigation measures given for the traffic impacts on the street system will give only temporary relief. This is based on the report indicating that critical intersections and roadways are now at capacity nearing the failure point. It further implies that improvements can only relieve this congestion temporarily. Should development continue or traffic (vehicular and/or train) increase then the present conditions will return and become a problem. It should be pointed out that should the merger between the Southern Pacific Transportation Company and The Atchison, Topeka and Santa Fe Railway Company which is presently pending before the Interstate Commerce Commission be authorized and become a reality then train movements over this line will probably increase. Because of the above, the staff recommends that the City commence [illegible] the eventual separation of grades between the rail[illegible]

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Means or methods of obtaining funds/capital to finance these separations should also be commenced. Fees or assessments for development rights may be a means for obtaining some or all of these funds. We do not believe the City should look upon or depend on the Commission's Railroad-Highway Grade Separation Priority List for funds solely.

Very truly yours,

Donald R. Chew

DONALD R. CHEW, Supervisor
Transportation Projects Section
Railroad Operations and Safety Branch
Transportation Division

cc: Ron Gushue
City of Hayward
22300 Foothill Blvd, Room 803
Hayward, CA 94541

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
PACIFIC SOUTHWEST REGION
BOX 36098 • 450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102
(415) 556-8200

December 18, 1985

ER-85/1670

Colonel Andrew M. Perkins, Jr.
District Engineer, San Francisco District
U.S. Army Corps of Engineers
211 Main Street
San Francisco, California 94105-1905

Dear Colonel Perkins:

The Department of the Interior has reviewed the Draft Environmental Impact Statement (EIS), Marathon Industrial Development, Section 10/404 permit, Alameda County, California. The following comments are provided for your consideration when preparing the final document.

General Comments

Water Resources

The Final EIS should indicate specific plans and responsibilities for emergency action and mitigation in the event of a release of a hazardous material into either ground water or surface water. Both current and anticipated post-development water quality in the shallow unconfined aquifer should be discussed, including the possibility of changes resulting from reduced recharge to shallow ground water. Excavations for some industrial/commercial facilities are expected to extend below the water table; the statement should address the potential either for unplanned release of pressure from the uppermost confined aquifer(s) in the upper zone described on page 62 or for increased infiltration of pollutants into deeper zones through the backfill around structures placed in the excavations.

Fish and Wildlife Resources

The proposed Marathon Industrial Development project involves development of a 134 acre site in the City of Hayward, California of which 90 acres are seasonal wetlands of considerable value to migratory shorebirds and waterfowl. We do not believe that the Draft EIS adequately evaluates the impact of the

proposed action on migratory birds or endangered species and that it proposes inappropriate and inadequate mitigation to offset wetland losses. In addition, we do not believe that the document demonstrates compliance with the 404(b)(1) guidelines which assume that there are practicable alternatives to the discharge of material into wetlands and other sensitive habitats unless it is clearly shown that none exist.

The Fish and Wildlife Service (Service) provided comments on the Notice of Preparation for the Draft EIS (letter, dated May 10, 1984, to the City of Hayward) regarding the value of wildlife resources on the project site and the inadequacy of proposed offsite mitigation. Wetlands on the project site have been placed in Resource Category 2 of the Service's Mitigation Policy (Federal Register Vol. 46, No. 15, Jan. 23, 1981). The mitigation goal under this category is to prevent any net loss of in-kind habitat value. The Service, acting for the Department of the Interior, also provided similar comments to the Corps of Engineers during the public notice review process (letter, dated June 26, 1984, responding to Public Notice 15483E49). In addition, because the extent of wetland loss in California is almost unparalleled when viewed from a National perspective, the Fish and Wildlife Service's Portland Regional Office has established a policy not only requiring the replacement of habitat losses to compensate for filling wetlands for projects it could otherwise support, but also directing its Field Offices in California to seek replacement for the acreage loss. Because the proposed development is not water-dependent, the Service cannot support this project.

The Service's Sacramento Endangered Species Office (SESO) also provided a list of threatened and endangered and candidate species to the Corps of Engineers (letter dated Aug. 27, 1984).

Specific Comments

Page 32, Alternative 2 - Proposed Project with Alternative Mitigation. This section discusses the mitigation alternative of providing funds to a mitigation land bank for purchase and enhancement of wetlands elsewhere in the San Francisco Bay area. Recent attempts to mitigate losses on privately-owned property in the Bay area through cash payments for establishment of a land bank have been completely unsuccessful for the reason stated in the Draft EIS; i.e., there are no mitigation lands available for purchase. As a result, over $250,000, representing the loss of over 200 acres of wetland habitat, currently resides idly in trust funds. Because experience has proven this concept of mitigation to be unworkable in the San Francisco Bay area, we believe this mitigation alternative should be dropped from consideration.

Page 46, Rare and Endangered Species. The implication that the project site lies within the distributional range of soft bird's-beak (Cordylanthus mollis subsp. mollis) is incorrect. Rather, it lies within the historic range of Point Reyes bird's-beak (Cordylanthus maritimus subsp. palustris). This error suggests that any field work that may have been conducted was inadequate. The discussion on habitat requirements of the bird's-beak is also in error. Point Reyes bird's-beak and related taxa (C. m. subsp. maritimus and C. m. subsp. mollis) typically do not grow in areas of frequent tidal action; rather, they occur in transitional, peripheral halophyte zones, subject only to extreme tidal action. In fact, related taxa are known to thrive in nontidal habitats (C. m. subsp. maritimus at Point Mugu and C. palmatus in the Central Valley), indicating that C. maritimus subsp. palustris could occur on the proposed development and mitigation sites. Thus, properly designed botanical surveys would be necessary to determine whether Point Reyes bird's-beak may be affected by the project.

Although historically known from Palo Alto, stream channelization and upland development eliminated the Delta tule pea from the South Bay. Thus, we agree that Lathyrus jepsonii subsp. jepsonii does not occur in the area.

The presence of the endangered salt marsh harvest mouse was documented in 1985 (California Department of Fish and Game, unpublished data) on the adjacent East Bay Regional Park District (EBRPD) parcel, close to the Marathon U.S. property line. This finding invalidates the presumption made in the Draft EIS that the potential for occurrence of the mouse in the project area "... is slight..." The implication that harvest mice are absent from the project area because none were observed during incidental field work belies the fact that harvest mice cannot be studied without employing laborious live-trapping techniques. The known presence of harvest mice on the EBRPD parcel and the presence of potentially suitable habitat on the proposed development and mitigation sites raises the likelihood that harvest mice occur within the project site.

Even if harvest mice do not "normally" inhabit the development site in large numbers this does not mean that the site would be unimportant. During periods of high water, such as in December 1983 when virtually all of the EBRPD property was inundated, higher elevations on the project site provided the only significant amount of escape cover available to the harvest mouse population on the EBRPD property. The proposed project would not only eliminate whatever resident mouse population that occurs on-site, but would also adversely affect the known mouse population on adjacent lands. Therefore, we suggest that the Final EIS discuss these potential impacts in more detail and identify acceptable mitigation.

Page 47, Environmental Consequences. This section of the Final EIS should also discuss that development of the site, as proposed, could increase the need for the Nimitz-Doolittle Transportation Corridor. If constructed, this corridor would significantly increase the loss of seasonal wetlands in the East Bay.

Page 48, Cumulative Wetland Losses - Local and Regional. The Draft EIS states that seasonal wetlands on the project site represent approximately 20 percent of all seasonal salt marshes in Hayward's shoreline. We believe that the seasonal wetlands on the project site are uniquely different from other seasonal salt marshes within the City of Hayward. A dominant fresh water influence on the project site has promoted greater diversity of annual and perennial wetland vegetation and, in turn, greater diversity of wildlife than other seasonal wetlands in Hayward. Filling these unique wetlands on the project site would represent a 100 percent loss of this wetland type from the Hayward shoreline.

Page 49, Table 1 - Wetlands in Southeastern San Francisco Bay. Information contained in Table 1 for several project areas is out of date. The Port of Oakland currently proposes to fill 435 acres of wetlands at Oakland International Airport. The Oliver Brothers property in Hayward is no longer under consideration for wetland restoration. The Final EIS should update this information.

Page 52, Recommended Mitigation. The proposed mitigation design for the two Hayward Area Recreation District (HARD) parcels would significantly reduce habitat values for salt marsh harvest mice. The brackish marsh objective for Parcel A, which would presumably result in stands of alkali bulrush, along with the extensive ditching and island creation, would be generally incompatible with harvest mice. The excavation and flooding proposed for parcel B would obviously destroy all harvest mouse values on-site. Because these sites are designated as essential to the survival and recovery of the mouse in the Salt Marsh Harvest Mouse and California Clapper Rail Recovery Plan, such habitat alteration would likely jeopardize the survival and recovery of the species, unless the adverse effects of such alterations were somehow compensated.

We also have reservations about the value of the proposed mitigation plan to shorebirds and waterfowl. Both HARD parcels already receive heavy use by migratory shorebirds and waterfowl as pointed out on page 44 of the Draft EIS. We believe that proposed mitigation work would reduce, rather than increase, the existing value of these parcels to migratory birds. Increasing the depth and duration of flooding in HARD parcel B would reduce over time the productivity of food resources used by migratory waterfowl and completely eliminate shorebird use. Introduction of limited tidal action to HARD parcel A may, as stated previously, encourage

proliferation of alkali bulrush. Alkali bulrush has been shown to be of limited value to water birds both directly as a food plant and indirectly as habitat for the growth of aquatic invertebrates (Peterson and Peterson 1983).

Regarding nesting benefits, cover around the perimeter of both parcels is unlikely to improve waterfowl nesting success. Narrow vegetated corridors are heavily used as travel lanes by predators of nesting birds.

Unvegetated islands in other San Francisco Bay wetland restoration areas, such as the Hayward Marsh Restoration Area, have not proven to be of significant value to resting or nesting shorebirds.

The proposed mitigation plan appears to focus more on water quality and aesthetic issues than on wildlife habitat losses. Although wetlands are efficient filters of water pollutants, we do not believe that it is appropriate to design a wildlife mitigation area to receive runoff from the proposed industrial park or to solve existing pollution problems that could be controlled through other means. Heavy metals and other pollutants absorbed by pickleweed and other aquatic vegetation may also be biologically accumulated in organisms higher in the food chain. Removal or burial of old refuse currently exposed adjacent to the HARD parcels is of no significant value to the wildlife of concern.

Appendix B, Habitat Evaluation. We believe that the "Habitat Evaluation" conducted for the proposed project significantly underestimates the value of wetland habitat on the project site and, therefore, overestimates the values to be gained by enhancing the mitigation sites. An assumption is made in the analysis that wetlands on the project site are of greater value to wildlife when wet versus dry. Aerial photographs from 1976 to 1981 of the project site wetlands were used to estimate duration of inundation and saturation. We note that 50 percent of the photographs used to interpret the duration of inundation were taken during the extreme drought years of 1976 - 1978, whereas the high rainfall years of 1982-1983 are not considered in the analysis. As a result, it appears that the estimate of the duration of inundation in an average year is very conservative. In addition, we infer from the assumption - inundation is equivalent to greater wildlife value - that feeding was the only important use identified for project site wetlands. Other important values not necessarily requiring inundation or saturation, such as protection during storms on San Francisco Bay and nesting habitat, appear to be discounted in the analysis.

Peterson, G.B. and R.L. Peterson. 1983. Feeding ecology of pintails and mallards on Lower Klamath Marshes. Humboldt State University Foundation, Humboldt State University, Arcata, CA, 89pp.

Finally, the analysis evaluates the value of project site wetlands on a year-round basis for migratory species that do not use the site for the entire year. A basic assumption of the Service's Habitat Evaluation Procedures (1980), which was used in part in the Draft EIS Habitat Evaluation, is that the value of a habitat type to an evaluation species be rated only during the time of year the species actually uses the habitat and for the uses (i.e., feeding, nesting, etc.) that are appropriate. To do otherwise, incorrectly portrays the estimated value of the habitat type to the evaluation species.

Appendix G, Summary Section of Alternative Site Analysis. We understand that the Environmental Protection Agency (EPA) has also questioned several of the underlying assumptions used in the practicable alternatives analysis, including the size criterion for the alternative sites, the need for rail service, and the geographic extent of the evaluation. The Final EIS should address EPA's concerns as outlined in their letter of April 23, 1985, and present an adequate alternatives analysis.

Summary Comments

Because of the value of seasonal wetlands to our Nation's wildlife resources, it is our policy to recommend against projects involving destruction or degradation of wetlands unless the projects are water-dependent. We do not believe that the proposed Marathon Industrial Development falls into either category or that it would be an acceptable project to be constructed in wetlands. The Department, therefore, recommends the adoption of Alternative 4 in the Final EIS, which involves acquisition of the project site by a public agency. Alternative 5, the no action alternative, is also acceptable. We must continue to recommend against authorization of the proposed Marathon Industrial Development.

We preliminarily recommended against issuance of a Corps of Engineers' permit for the Marathon Industrial Development during the public notice review process (letter dated June 26, 1984). If our concerns cannot be satisfactorily resolved and the Corps indicates an intent to issue the permit, the Department, through the Fish and Wildlife Service, will consider implementing the elevation process as outlined in our November 6, 1985, Memorandum of Agreement.

Since endangered species may occur on the project and mitigation sites, the Service has advised the Corps of the need for a Section 7 consultation. The Service's Sacramento Endangered Species Office has recently recommended that the Corps defer initiation of a Section 7 consultation until adequate surveys for endangered and candidate species have been conducted on the project site (letter dated December 6, 1985).

Thank you for the opportunity to review the Draft EIS for the Marathon Industrial Development. If you have any questions regarding the above comments, please contact Karen Miller, Fish and Wildlife Service, Division of Ecological Services, Sacramento, CA at (916)978-4613.

Sincerely,

Patricia Sanderson Port
Regional Environmental Officer

Attachments

ccs: Director, OEPR (w/orig. incoming)
Reg. Dir., FWS
Asst. Dir., GS/Reston

State of California — The Resources Agency

Memorandum

To : 1. Projects Coordinator
Resources Agency

2. Ron Gushue
Planning Department
City of Hayward
22300 Foothill Blvd.
Hayward, CA 94541

Date : December 23, 1985

From : Department of Fish and Game

Subject: Draft EIR for Marathon Industrial Development, City of Hayward, Alameda County, SCH 85110511

The Department of Fish and Game has reviewed the Draft EIR/EIS for the Marathon Industrial Development, and we have the following comments.

The proposal would fill 90 acres of wetlands on a 134-acre Hayward shoreline site. The document proceeds from the assumption that the project "would eliminate less than 1% of the south and east bay wetlands" (page 9). This may be true if all salt ponds, salt marshes, and other wetland habitat types are considered. However, this perspective does not consider the regional scarcity and special values of seasonal wetlands and, particularly, meadow wetland habitat. Rather than "eliminating about 1% of all of Hayward's shoreline wetlands" (page 8), we have calculated that this project would eliminate 100% of the meadow wetland habitat in the City of Hayward. This site is preferred or required by a variety of waterbirds including, snipe, cinnamon teal, yellow-legs, curlews, dowitchers, and black-bellied plovers. Page 42 of the document adequately describes the thousands of shorebirds and hundreds of waterfowl utilizing the property during the wet season.

Small shorebirds must move daily between this site and tidal mudflats to fulfill their feeding requirements. In addition, this property may be inhabited by an endangered species, the salt marsh harvest mouse. This conclusion is based on the discovery of this species on adjacent Regional Park lands in July, 1985.

The document's assumption that seasonal wetlands are less valuable than "wetter" wetlands is not documented. The migratory behavior of shorebirds and waterfowl has evolved over thousands of years in response to California's Mediterranean climate, and their presence corresponds to our rainy season. In other words, seasonal wetlands are generally wet when they are needed by our wintering waterbirds, which represent the vast majority of California's waterbird population.

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Although the Marathon property was formerly tidal, seasonal non-tidal wetlands formerly occurred in the vicinity including the backwater area known as Crystal Lake. Undoubtedly, wildlife use has shifted from the historic seasonal wetlands to the artificial seasonal wetlands such as those involved on the subject property.

The document implies that deeper water is "better" than shallow water. This is incorrect. The important values that seasonal wetlands offer shorebirds and dabbling ducks are contingent upon shallow waters ranging from a fraction of an inch to a few inches in depth. Deeper waters would make such habitat unusable for the species which currently utilize the project site.

The realization of these special values, and the crisis facing seasonal wetlands, has resulted in the need to insure that future projects do not result in any further loss of either acreage or value of these seasonal wetlands.

We believe that the proposed mitigation on Hayward Area Recreation and Parks District (HARD) parcels A and B would result in additional adverse impacts upon a valuable wetland habitat type which is in short supply on the east bay shoreline north of the San Mateo Bridge. The document states (page 7, Appendix C) that "during the 1983-84 winter, the HARD parcels were heavily used by wintering and migrating waterbirds. As seasonal wetland habitats, they provide both waterfowl and shorebirds with feeding and resting sites." On page 44 it states, "Over 1,000 shovelers were observed using the ponded waters on HARD B during the wet season of 1984." In light of these significant resource values, resource agencies have reported that both HARD parcels already function as valuable seasonal wetlands. (Appendix A).

The HARD "restoration" plan (page 1, Appendix C) asserts three objectives. The first, "to create a productive and biologically diverse wetland that provides wildlife habitat," is unnecessary given the observations cited above. The second and third objectives, for water quality enhancement and flood control, are directed towards mitigating additional project impacts and have no bearing on wildlife habitat losses on the project site.

We have reviewed the Habitat Evaluation Procedure (HEP) in Appendix B which claims wildlife benefits from the proposed mitigation plan. We believe that this analysis contains a number of critical errors. The document indicates (page B-14) that the seasonal values were summed and weighed for the duration of inundation resulting in an average annual habitat suitability index. To rank the sites low during the summer months for migratory species which summer in Canada or Alaska, is biologically incorrect. Of the representative species considered, four are migratory, two are partially migratory, and four are resident. Although small shorebirds and dabbling ducks make up the majority of wildlife use on the project site and the HARD

parcels, no members of these groups were considered. Tables 3 and 4, which have a major influence on the results, are based on incomplete information which emphasizes dry winters in the 1976-1978 period. No winter photos after 1978 were examined. The information presented (page 42), "Flocks of over 2,000 dowitchers, over 400 black-bellied plovers, and nearly 3,000 other small shorebirds were observed in one day in April" illustrates the significant value of the subject wetlands to these shorebirds. It should also be noted that the procedures and assumptions utilized in the HEP are not those utilized by the U.S. Fish and Wildlife Service.

Mitigation Alternatives 2a, 2b, and 3 have already been proven infeasible. A number of such monetary mitigation payments, intended to replace wetland losses, have been held for years by regulatory agencies. The only way contribution of funds will lessen the adverse environmental effects of this project is if they result in the purchase and creation of new, similar seasonal wetlands from areas that are not now wetlands.

In summary, as the state agency entrusted with the protection of fish and wildlife resources, we have determined that this document is incomplete and inadequate as it does not fully describe project impacts on scarce wetland resources. This project would result in significant adverse environmental effects which have not been mitigated to a level of insignificance as required by CEQA. We recommend that this project not be approved as proposed and that the subject EIR not be certified until all adverse environmental effects have been reduced to levels of insignificance.

If you have further questions on this project, please contact Paul Kelly, Wildlife Biologist, P.O. Box 47, Yountville, CA 94599, telephone number (415) 376-8892; or Theodore Wooster, Environmental Services Supervisor, telephone number (707) 944-2011.

For Robert C. Fletcher

Jack C. Parnell
Director

STATE OF CALIFORNIA—BUSINESS AND TRANSPORTATION AGENCY GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF TRANSPORTATION
BOX 7310
SAN FRANCISCO CA 94120
(415) 923 4444

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December 18, 1985

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SCH 85110511
AL 880077

Ronald Gushue
City of Hayward
22300 Foothill Boulevard, Room 803
Hayward, CA 94541

Subject: Draft EIR for Marathon Industrial Development, Tract 5167

Dear Mr. Gushue:

Caltrans has reviewed the above-referenced document and forwards the following comments:

1. Existing freeway system in the area is experiencing delay, congestion and accidents. The traffic generated from this proposed project will add to the cumulative growth traffic, thus further aggravating the existing conditions. The Alameda Industrial Transportation Corridor proposal will provide some needed relief and should be given serious consideration for immediate implementation.

2. The proposed project will contribute to increasing traffic congestion on I-880, Route 92, and the West Winton Avenue/ I-880, Clawiter-Eden Landing/Route 92 and Industrial Boulevard/ Route 92 interchanges.

3. Appendix E, page 18, Clawiter Road: This DEIR briefly discussed improvements at the Clawiter Road/Route 92 interchange which would improve the system. These are apparently suggested as mitigation measures which would offset the adverse impacts generated by project-generated and cumulative growth traffic. We have several questions:

   a) Will these improvements provide adequate mitigation?

   b) Will these improvements be provided before the above-noted adverse impacts occur?

   c) How will these improvements be funded? Since the Marathon project will contribute to the adverse impacts noted above, it should contribute funds to a construction program which would provide the necessary mitigations.

4. Appendix E, page 11, line 2: Shouldn't this be Table 1?

5. The Clawiter-Eden Landing/Route 92 interchange is currently operating at near capacity. This project may increase the need to construct Route 61 southward to Route 92.

Should you have any questions regarding these comments, please contact Peter Estacio of my staff at (415)557-2483.

Sincerely yours,

BURCH C. BACHTOLD
District Director

By

for Peter C. Estacio
WALLACE J. ROTHBART
District CEQA Coordinator

MARATHON
U.S. REALTIES, INC.

December 30, 1985

Mr. Ron Gushue
CITY OF HAYWARD PLANNING DEPT.
22300 Foothill Blvd.
Hayward, CA 94541

Mr. Les Tong, Environmental Branch
U.S. ARMY CORPS OF ENGINEERS
211 Main Street
San Francisco, CA 94105

Re: Comments on Draft EIR/EIS - Marathon Industrial Development

Dear Sirs,

We have reviewed the document and wish to make the following general and specific comments.

A. General Comments

1. The EIR does not clearly summarize the positive impacts of the project on the human population (4,040 jobs created), the financial affairs of the locality (a large revenue surplus), and the traffic circulation (better service if the mitigation measures for "A" Street and Cabot Blvd. are implemented). Also, is not the proposed project consistent with the General Plans of the County, City, HASPA, and HARPD?

2. The summary should be edited for brevity, and list in table form the various positive, negative, and mitigateable impacts of the development as proposed. Decision-makers will need to clearly see the tradeoffs, if any, between positive impacts for society and mitigateable impacts for non-human "habitat units."

3. It should be emphasized that the proposal to mitigate habitat losses off-site but in the local area is not a legal requirement but a voluntary initiative.

4. The layman is confused by the HEP and needs a description of its state-of-the-art, the lack of USFWS and CDFG guidelines or weighting criteria, the purpose the HEP is to serve in such a document, and the lack of a better means by which to serve these

purposes. Also, what is its confidence measure or statistical standard deviation, i.e., at what level are results "significant" in the EIR?

The HEP excludes the Flood Control and Pacific F.M. lands which should clearly be included in the micro-ecosystem. Finally, the tables and summary discussion should relate any positive or negative impact findings to the entire "South Bay Wetlands" ecosystem which are of such concern to certain agencies. With respect to even this local ecosystem, are the effects significant?

5. In the HEP, the conclusion must be subjective. Does the proposal have positive impacts on vegetation and wildlife that offset the negative impacts, i.e., does it hurt or help anything singularly or in the aggregate that is "significant"?

6. It should be emphasized that the proposal mitigates for the variety of species currently utilizing the sites, rather than some species over others. Decision-making agencies may benefit from a discussion on the merits of this approach relative to any more focused mitigations that others may seek.

B. Specific Comments

1. Please specify the "wetlands" definition used and the method of quantifying our amount. I have a Harvey-Stanley report entitled "Wildlife and Wetlands at Lands of Marathon" dated March 13, 1984 which may be useful to you.

2. For the "reduced project" or "no project" alternatives, please present the lost positive or mitigateable impacts of full development, i.e., what cost in jobs, tax base, traffic flow, etc. does such a reduction carry?

3. The fiscal impact section should quantify revenues and expenses. There should be some reasonable calculation to support the stated conclusion that the project would "more than pay its way."

4. An overlooked positive impact is that the westerly levee serves not simply as flood protection for the project, but also i) contributes at no cost to EBRPD an inboard levee for their marsh restoration project, and ii) constitutes, at no cost, a significant portion of the roadbed for the future Shoreline Corridor (State Route 61).

5. The HEP premise, and the persentation of Table 8, should bifurcate MARUP and MARWET to reflect Corps and City jurisdictions and the decisions at hand. The Corps has no jurisdiction on MARUP and their proper concern is the net effect of the filling of MARWET and the enhancement on HARDE and HARDW. The City may also feel that development on MARUP would not, of itself, have a significant impact, and may also prefer to see MARUP

deleted or treated separately. So, the baseline for the HEP should be, at least for the EIS if not for the EIR as well, the presumption that MARUP is developed, with corresponding adjustments for the other habitats. It appears that the proposal has no net impact as follows:

a.	Existing HU's	4,732
b.	Less MARUP	< 877>
		3,855
c.	Less 10% loss in HU's to others if MARUP developed	< 386>
d.	Beginning HU's assumed	3,469
e.	HU's after project is developed as proposed	3,467
f.	Difference	2 HU's

This is the more realistic portrayal of the marginal effects of the proposed wetland fill and the wetland mitigation.

6. There appears to be some mistakes in the HEP where MARUP is called MARDRY, where 76-acre MARUP is called 86-acres, and where the 58-acre MARWET is called 69-acres. Please check the acerages.

7. As variations on alternative 1, please analyze the effect of a) enhancing strictly for the SMHM on both HARD properties, and b) capping the dump line on HARDW and returning it strictly to tidal marsh while enhancing HARDE as proposed.

8. In addition to the proposal, please add "HARDS", which is the 87-acre HARD parcel northwest of the Interpretive Center and north of Oliver Salt lands. We wish to expand our proposal to include construction of a tide channel, gates, and replacement of the 130' fresh water well and pump. This additional enhancement will increase HU's there and possibly HU's (certainly add increased freshwater/saltwater variations) at the EBRPD marsh restoration adjacent.

9. Project street patterns may shift. In the extreme, Cabot Blvd. may shift west to the property line. A discussion of this possibility will be required.

10. Alternatives 2A discusses payment-in-leiu. Specific programs and precedents should be addressed. Hayward is seeking to establish a Corps-approved mitigation bank utilizing the Oliver Bros. Salt Co. lands of 188-acres, which we could underwrite in

lieu of enhancing the HARD properties. CFG has acquired thousands of acres in the "Butte Sink" in establishing the "Graylodge Migratory Waterfowl Refuge" and has set precedents for non-local area like-for-like perpetual reserves (e.g., Port Oakland's dedication of 475 acres in Napa County's American Canyon as mitigation for a 170 acre fill). The EIR should address our funding a similar-ratio expansion of Graylodge. Finally USFWS, also in the Butte Sink, has established a very large plan for the "Butte Sink Waterfowl Habitat Preserve." The funding of an expansion of either of these Pacific Flyway reserves is mitigation. Privately, we could also buy land in the Mokelumme or Cosumnes River sinks near Galt and dedicate it (similar to Port Oakland's approach).

In summary, the proposal has far more positive or fully mitigated impacts than are apparent to the reader of the EIR. The marginal effect of filling the Corps-jurisdiction lands is overstated, and is, in fact, nil. The HEP, though controversial, is the best method available. Finally, there are existing programs operated or endorsed by our critics that should be considered for payment-in-lieu of local mitigation.

Those who must make permit decisions will benefit from the document addressing all of the above.

Sincerely,

James E. Christian
Assistant General Manager

JEC/dt

United States
Environmental Protection
Agency

Regional Administrator
215 Fremont Street
San Francisco CA 94105

Region 9
Arizona, California
Hawaii, Nevada
Pacific Islands

EPA

January 2, 1986

Colonel Andrew M. Perkins, Jr.
District Engineer
U.S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Colonel Perkins:

The Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement/Impact Report (DEIS/R) for the proposed MARATHON INDUSTRIAL DEVELOPMENT, CITY OF HAYWARD. Our comments are provided in accordance with EPA's responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act. We have the enclosed comments regarding this DEIS/R.

We have classified this DEIS/R as Category EU-2, Environmentally Unsatisfactory-Insufficient Information (see the enclosed "Summary of Rating Definitions and Follow-up Actions"). This DEIS/R is rated EU because of: 1) the potential for significant degradation to wetlands due to direct project impacts and cumulative impacts, and 2) the inadequacy of the proposed mitigation. The 2 rating is based on an inadequate analysis of: 1) practicable alternatives, 2) endangered species, and 3) air quality.

If these issues are not adequately resolved prior to the Final EIS/R (FEIS/R), the proposal could be a candidate for referral to the Council on Environmental Quality. We are available to meet with you to discuss our concerns. For further information, please contact Ms. Roberta Blank, Federal Activities Branch, at (415) 974-8187 or FTS 454-8187.

The classification and date of EPA's comments will be published in the Federal Register in accordance with our public disclosure responsibilities under Section 309 of the Clean Air

Act. Please send three copies of the FEIS/R to this office at the same time it is officially filed with our Washington, D.C. office.

Sincerely,

Karl R. Monthole

for JUDITH E. AYRES
Regional Administrator

Enclosures (2)

cc: Ron Gushue, City of Hayward, Planning Department
Jennifer Joy Manson, Assistant Administrator for External Affairs, EPA
Allan Hirsch, Office of Federal Activities, EPA
Paul A. Schuette, Office of Public Affairs, EPA
A. Alan Hill, Council on Environmental Quality

DETAILED COMMENTS

Clean Water Act, Section 404

The proposed project has been reviewed for compliance with the 404(b)(1) Guidelines at 40 CFR 230. Based on the information contained in the DEIS/R, the project as proposed does not comply with the guidelines at 40 CFR 230.10, as outlined below. As such, EPA would recommend that the permit for the proposed project be denied.

1. Significant Degradation: 40 CFR 230.10(c)

The regulations at 40 CFR 230.10(c) require that no discharge be permitted which will cause or contribute to significant degradation of the waters of the United States. The degradation or destruction of special aquatic sites, including wetlands, is considered to be among the most severe environmental impacts covered by the guidelines.

The project site contains seasonal wetlands which provide important feeding, resting, refuge and nesting habitat for resident and migratory shorebirds and waterfowl. During the winter migration when food resources are critical to supporting the higher number of birds, these seasonal wetlands are heavily used. The proposed project will result in the destruction of 90 acres of valuable seasonal wetlands.

Regionally, California has experienced a significant loss of its wetland resources. During the past century, over 90% of the historic wetlands have been destroyed or eliminated. The remaining wetlands, including this site, represent a diminishing resource. Their destruction or degradation could represent an irreversible loss of a valuable aquatic resource. The cumulative effect of each additional wetland parcel destroyed weighs heavily in the determination of significant degradation.

These losses, from a project specitic standpoint, as well as considering the cumulative effects, will result in significant degradation of the waters of the United States.

2. Inadequate Mitigation: 40 CFR 230.10(d)

The regulations at 40 CFR 230.10(d) require that no discharge be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem. The applicant proposes to compensate for the loss of these 90 acres of valuable seasonal wetlands by the "enhancement" of two parcels of existing seasonal wetlands, the Hayward Area Recreation and Park District parcels A and B (HARD A and B). We have a number of concerns regarding the adequacy of this proposal, as follows:

a. The Habitat Evaluation conducted for this project concluded that Alternative 1 will result in a 20% net loss of habitat values. The U.S. Fish and Wildlife Service and California Department of Fish and Game have raised several concerns regarding this evaluation, concluding that it may be an underestimation of habitat values lost. Issues of concern include: 1) the use of an average annual suitablity rating for the site, 2) the use of dry years to evaluate the extent of inundation, 3) the assumption that inundation is the main criteria for habitat value, and 4) the lack of a comparative evaluation from one site to another for each specific species.

b. The DEIS/R does not fully assess the existing values of the two mitigation parcels (HARD A and B). The proposed mitigation will result in the retention of water on site for a significantly longer duration. This will result in a change in habitat type. The DEIS/R does not evaluate the effect of this change, e.g., the change in type and density of vegetation, and the change in wildlife use. These mitigation proposals could actually degrade rather than improve existing habitat conditions for these parcels.

c. The mitigation parcels HARD A & B are adjacent to an abandoned landfill and receive leachate from the landfill. The mitigation proposal includes increasing the duration of inundation in HARD A & B. This proposal may affect the flow of leachate from the landfill, and could result in adverse impacts to water quality.

d. The proposal to channel stormwater runoff from the business park to the mitigation parcels could impact fish and wildlife habitat due to contaminants contained in the runoff, such as petrochemicals, heavy metals, pesticides, etc.

Finally, for Alternatives 2a & b, mitigation would consist of payment of funds to a land bank. Alternatives 2a & b do not provide adequate assurance that the impacts resulting from the proposed project would be minimized. Securing proper mitigation sites and designing appropriate mitigation plans are integral to the process of minimizing unavoidable adverse effects. Alternatives 2a & b do not address these issues. Recent studies have indicated that finding land available for wetland acquisition in the south Bay Area may not be possible.

3. <u>Practicable Alternatives: 40 CFR 230.10(a) and (a)(3)</u>

The regulations at 40 CFR 230.10(a) require that no discharge of dredged or fill material be permitted if there is a practicable alternative to the discharge which would have less adverse effect on the aquatic ecosystem. In addition, non-water dependent projects proposed for special aquatic sites (e.g., wetlands)

are presumed to have practicable alternatives which would not involve discharge of fill, unless there is a clear demonstration which rebuts this presumption. Based on the information in the DEIS/R (and in the Feb. '85 Alternative Site Study), we do not believe that this presumption has been adequately rebutted.

The geographic extent of the practicable alternatives evaluation should be less restrictive. The target market area was described as the corridor between the Oakland Airport and Union City. It should not be assumed that the Hayward area is the only home base of prospective buyers and tenants in this practicable alternatives analysis. The Corps generally evaluates such projects on a Bay Area-wide basis. Other neighboring geographical areas should also be considered.

4. Endangered Species: 40 CFR 230.10(b)(3)

The proposed project site as well as the mitigation parcels (HARD A & B) may provide habitat for the endangered salt marsh harvest mouse (SMHM), Reithrodontomys raviventris ssp. raviventris. During the past year, the SMHM has been found on other wetland parcels in San Francisco Bay where it was believed to be absent. We understand that the SMHM has been found on the East Bay Regional Park District parcel located immediately west of the project site.

There is insufficient information in the DEIS/R to determine the impacts of the proposed project on the SMHM. Impacts to the SMHM from development of the project site and enhancement of sites HARD A & B must be fully assessed. Increasing the duration of inundation at sites A & B could have a significant adverse effect on the SMHM.

If the U.S Fish and Wildlife Service determines that the proposed project: 1) jeopardizes the continued existence of the SMHM, or 2) is likely to result in the destruction or adverse modification of a habitat which is critical for the SMHM, this determination would also be the basis for a finding of non-compliance with the regulations at 40 CFR 230.10(b)(3).

Air Quality

The DEIS/R states that Federal and State standards for carbon monoxide (CO) are probably violated in the project area, but does not provide data on existing violations. Also, the DEIS/R does not address the impacts of the proposed action on CO levels. The FEIS/R must assess whether emissions associated with the project would: 1) cause new violations of standards, or 2) exacerbate existing violations. If violations are predicted, appropriate mitigation measures to avoid such violations must be described and committed to in the FEIS/R. The following

guidance regarding CO analysis was provided in our scoping comments of 9/24/84, which stated that the DEIS/R should perform:

> An evaluation of the potential for violation of CO National Ambient Air Quality Standards (NAAQS) using techniques given in Carbon Monoxide Hot Spot Guidelines EPA-450/3-78-033, -034, -035, -036, -037, -040 (August, 1978). Where these procedures are inappropriate or where futher analysis is warranted, use Guidelines For Air Quality Maintenance Planning and Analysis Volume 9 (Revised): Evaluating Indirect Sources EPA-450/4-28-001 (September, 1978). In most cases the 8-hour standard is the controlling factor.

General Comments

1. A more detailed discussion of the upgraded sewer system should be provided, including how the upgrading would be financed.

2. The source of fill material for the site and potential contaminants in the fill should be addressed.

SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP ACTION*

Environmental Impact of the Action

LO—Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC—Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO—Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU—Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1—Adequate
EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2—Insufficient Information
The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3—Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640 Policy and Procedures for the Review of

STATE OF CALIFORNIA
GEORGE DEUKMEJIAN, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
1111 JACKSON STREET, ROOM 6040
OAKLAND 94607

Phone: Area Code 415
464-1255

January 2, 1985

File No. 2198.09(TGR)

Ronald Gushue
Planning Department
City of Hayward
22300 Foothill Blvd.
Hayward, CA 94541

RECEIVED
JAN 7 1986
PLANNING DEPT.

Dear Mr. Gushue:

Subject: DEIR for Marathon Industrial Development, Tract 5167 - SCH No. 85110511

We have reviewed the subject DEIR and have several major water quality concerns as discussed below.

1. The continued elimination of wetland habitat is of great concern to this Regional Board (Basin Plan, page 2-7). The subject DEIR notes that there will be a 20 percent net decrease in seasonal and salt marsh habitat value if Tract 5167 is developed as proposed despite the recommended offsite mitigation on two existing seasonal wetlands parcels. We are concerned that mitigation on existing wetlands considered by the California Department of Fish and Game (DFG) and the U.S. Fish and Wildlife Services (USFWS) to be very valuable now may not be an appropriate application of the concept of offsite mitigation. We are particularly concerned since the proposed final habitat value for the project is a net reduction.

   Additionally, the DEIR provides no numerical or other quantitative means for reviewing and comparing the wetland habitat values on Tract 5167 with the existing and proposed mitigation areas (Parcels A and B). Furthermore, the DEIR provides no reference to review of the consultant's habitat evaluation by DFG or USFWS nor to whether or not the mitigation plans satisfy these agencies' concerns. The EIR should provide this information.

2. We are hesitant to allow disturbances or changes in the existing seasonal wetlands areas (Parcels A and B), the old landfill area, or surrounding land and water uses prior to technical study of the resultant effects on the landfill, particularly since the boundaries of the old landfill are not well known. The proposed increase in year-round standing water and the drainage plans in both Parcels A and B may lead to increased leachate production, to erosion of landfill slopes abutting the Parcels and the flood control channel, and to overtopping of dikes. Appropriate landfill closure measures in accordance with Subchapter 15 of the California Water Code may be necessary to alleviate problems as noted above unless further geotechnical and flood protection studies indicate otherwise.

3. The EIR should discuss where ground waters from dewatering activities (i.e. from excavation of Parcels A and B and from trenching for stormwater drainage channels in these Parcels). Waste discharge requirements issued by this office for discharge of dewatering liquid may be necessary to assure protection of surface waters. If the dewatered liquid is found to be unacceptable for direct discharge, treatment prior to discharge or disposal to a legal disposal site may e necessary. A Report of Waste Discharge must be filed with this Board at least 120 days prior to any discharge.

4. Old refuse removed from the old landfill margins must be disposed of to a legal disposal site.

5. We concur with the recommended installation of sediment and oil/grease traps in the drainage system for Tract 5167 and routine sweeping in public areas (page 68 of the DEIR). These measures should be made conditions of the use/building permit for the project.

6. We request that the applicant be required by the City of Hayward to develop, implement and assure proper implementation of a hazardous materials spill contingency plan for Tract 5167 if storm runoff will be diverted to mitigation Parcels A and B.

7. A Report of Waste Discharge for storm runoff discharge from Tract 5167 must be filed by the applicant if runoff will diverted to the mitigation parcels and not to a municipally-owned storm drainage system.

Based on our above review, we cannot agree with the proposed mitigation plans for wetland habitat nor can we recommend action on a water quality certification for the proposed project until our above concerns have been adequately addressed.

If you have any questions, please call Theresa Rumjahn at (415) 464-0379 or Gloria Fulton at (415) 464-0903.

Sincerely,

Roger B. James
Executive Officer

cc: Department of Fish and Game, Region III
U.S. Fish and Wildlife Service, Sacramento
State Clearinghouse

SANTA CLARA VALLEY AUDUBON SOCIETY, Inc.
2253 Park Blvd.
Palo Alto, CA 94306
(415) 329-1811

January 2,1986

RECEIVED

JAN 7 1986

PLANNING DEPT.

Ron Gushue
City of Hayward, Planning Dept.
22300 Foothill Blvd.
Hayward, CA 94541

Re: Marathon Industrial Development, Draft Environmental Impact Statement/Report

Dear Mr. Gushue,

The Santa Clara Valley Audubon Society finds the DEIS/EIR for Marathon Industrial Development inadequate on the following points. We feel the document should be revised and recirculated. Because of environmental damage that would result if such a project was to be approved, we urge denial.

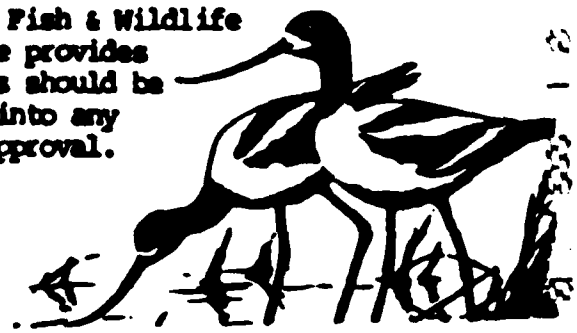
1. Transportation Cooridor. This cooridor will have profound effects on wetlands on, north and south of the project. These effects need to be described. Growth inducing aspects of the Marathon project, which stimulate the need for such an environmentally damaging roadway, were not discussed. Will any net traffic relief result if the roadway and project are built, particularly if the roadway cannot be completed?

2. Alternative Analysis. Marathon's development south of Sulfur Creek was built to be served by rail, but businesses currently there are not rail dependent. This brings into question the need for and probability of use of rail in the proposed project. Additionally, the alternative analysis did not consider all possible local sites for rail-oriented services.

3. Natural Resources. The inherent value of seasonal wetlands is not recognized. Seasonal wetlands are essential for completion of the life cycle of migrating waterfowl and shorebirds. Obviously this value is highest and most essential during the winter when the birds are here. The lack of use in summer by these species is expected, and does not lessen the value of the habitat. The document's estimate of wetland values does not adequately consider the biology of the species involved, but rather penalizes the site for lower use in summer.

4. Mitigation. In the appendix are a number of letters from various resource agencies and groups stating that "the proposed 90 acre mitigation area is already a good seasonal wetland that needs no mitigation". The project's marsh restoration plan does not disprove this statement, or show that the habitat as it currently exists is improved by the mitigation design. Essentially the design is unwarrented modification, exchanging shallow water for deep. Before the project is certified, adequate, acceptable mitigation that replaces lost values needs to be provided.

5. Salt Marsh Harvest Mouse. Apparently, Fish & Game and Fish & Wildlife Service biologists now believe that the Marathon site provides habitat for Salt Marsh Harvest Mice. Trapping studies should be completed, and incorporated into the Final EIS/EIR, into any mitigation plans, and into any decision on project approval.



In summary, the proposed site comprises most of the meadow wetland habitat left in Hayward. All around the Bay, this habitat type is threatened with destruction by development. Until the EIR/EIS adequately documents the values of the site, shows that development is necessary and without alternative sites, and provides complete mitigation for lost acres and values, neither the doucment nor the project should be certified or approved.

Sincerely,

Lynn Tennefoss

Lynn Tennefoss
Managing Director

cc: EPA
Corps of Engineers
US Fish & Wildlife Service
Dept. of Fish & Game
HARD
HASPA

HAYWARD AREA SHORELINE PLANNING AGENCY
City Center Building
22300 Foothill Boulevard
Hayward, California 94541

January 3, 1986

Andrew M. Perkins, Jr.
Lieutenant Colonel, CE
District Engineer
U.S. Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, California 94105

RECEIVED
JAN 3 1986
PLANNING DEPT.

Mr. Ronald E. Dubrue
Civil Engineering Senior
City of Hayward Planning
Department
22300 Foothill Boulevard
Hayward, California 94541

Gentlemen:

On December 12, 1985, the Hayward Area Shoreline Planning Agency (HASPA) considered the draft Environmental Impact Statement and Report for Regulatory Permit Application No. 15483E49 and Tentative Tract Map 5167 (Marathon U.S. Realties, Inc.) and decided to recommend that that document be revised and recirculated in response to concerns raised by the State Department of Fish and Game, East Bay Regional Park District (letter dated Dec. 12, 1985, and signed by T. H. Lindenmeyer), Dr. Howard Cogswell (letter dated Dec. 11, 1985, and attached to this correspondence), and this agency's Citizens Advisory Committee (letter dated Dec. 12, 1985, and also attached).

In the discussion that led up to HASPA's recommendation, the agency expressed concerns that the environmental document did not present adequate information for it to judge the acceptability of the project and, that given the scope of the deficiencies, the preparation of a Final EIS/EIR would be premature and too lacking in coherence to be a meaningful document.

Also, as a personal observation, the EIS/EIR needs to consistently address the interrelationship of Route 61 and the adjacent Marathon project. Alternative alignments for the expressway will increase or decrease the amount of land available for the industrial development to the east or, conversely, the dimensions of the Marathon project will determine the location of the expressway. In short, the alternatives discussed should in part be determined by the alternative alignments for the expressway that are consistent with federal and state standards, and the "no project" option (or options that do not provide for a continuation of the expressway into San Leandro) could likewise

Andrew M. Perkins, Jr.
Lieutenant Colonel, CE
U.S. Army Corps of Engineers

Mr. Ronald E. Tushue
Civil Engineering Senior
City of Hayward Planning Department

preclude the development of that regional route.

Thank you for referring the draft EIS/EIR to HASPA.

Yours sincerely,

for Michael Sweeney
Chairperson

MS:ds

Attch.

US Department
of Transportation
**Federal Aviation
Administration**

Western Pacific Region

P.O. Box 92007
Worldway Postal Center
Los Angeles, CA 90009

03 JUL 1986

CITY OF HAYWARD
Planning Department, 8th Floor
22300 Foothill Boulevard
Hayward, California 94551
ATTN: Ron Gushue, Civil Engineering Senior

Dear Mr. Gushue:

Thank you for the opportunity to review the Draft Environmental Impact Statement/Impact Report (DEIS/EIR) for the proposed Marathon Business Center, Hayward, California.

The Federal Aviation Administration (FAA) is concerned about development, and any other land use, which may jeopardize the safe and efficient use of the Hayward Municipal Airport and the proposed new Fremont Airport.

The EIS/EIR for the proposed Marathon Business Center should:

(1) Provide a more detailed discussion of noise impacts and the interrelationship of the proposed project with the Hayward Airport.

(2) Discuss the loss of wetlands in the context of the interrelationship of the proposed project with the proposed new Fremont Airport, and the impact of the proposed action on the total loss of wetlands of the San Francisco Bay.

The proposed 134-acre project will destroy wetlands. Concerning wetlands impact of the proposed new Fremont Airport, the U.S. Fish and Wild Life Service, and the California Department of Fish and Game, advised FAA that, "Enhancement of existing wetlands is not an acceptable mitigation for the loss of wetlands" ..."Any loss of wetlands should be considered in the context of the impact on the total wetlands of the San Francisco Bay."

In order for this Region to carry out its responsibility for conducting aeronautical studies on proposed construction or alterations which may impact the safe and efficient use of navigable airspace, please have the following statement incorporated into the final EIR/EIS for the proposed Marathon Business Center, Hayward, California:

A Notice of Proposed Construction or Alteration (FAA Form 7460-1) must be furnished to the Federal Aviation Administration for any

permanent or temporary construction or alteration which exceeds the heights specified in Part 77 of Federal Aviation Regulations. The notice must be submitted at least 30 days before the earlier of:
(1) the date the proposed construction or alteration is to begin, or
(2) the date an application for a construction permit is to be filed.
The notice should be mailed to the Airspace Branch, AWP-530, Air Traffic Division, Western-Pacific Region, Federal Aviation Administration, Post Office Box 92007, Worldway Postal Center, Los Angeles, CA 90009. Forms and filing information may be obtained by telephoning the Airspace Branch at (213) 297-1183.

A copy of Part 77 of the Federal Aviation Regulations is furnished for your information and use in determining whether any permanent or temporary alteration and/or construction exceeds the heights which require notice to the FAA.

Sincerely,

for Duane R. Bullard
Manager, Planning, Appraisal
and Int'l. Aviation Staff

Enclosure

STATE OF CALIFORNIA GEORGE DEUKMEJIAN, Governor

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION
30 VAN NESS AVENUE, SUITE 2011
SAN FRANCISCO, CA 94102-6080
PHONE (415) 557 3686

January 3, 1986

RECEIVED
JAN 6 1986
PLANNING DEPT.

Ron Gushue
City of Hayward Planning Department
22300 Foothill Boulevard
Hayward, California 94541

SUBJECT: MARATHON INDUSTRIAL DEVELOPMENT DRAFT ENVIRONMENTAL DOCUMENT; BCDC INQUIRY FILE NO. AL.HY. 6801.1

Dear Mr. Gushue:

Thank you for requesting our comments on the Draft Environmental Impact Statement/Impact Report (DEIS/EIR) for the proposed Marathon Industrial Development. The proposed development would fill 134 acres of diked historic baylands, 90 acres of which are seasonal salt marsh, for the development of an industrial/commercial business center. The project also includes the enhancement of two seasonal wetland sites totalling 89 acres, owned by the Hayward Area Recreation and Parks District (HARD). While the Commission has not had the opportunity to review the DEIS/EIR, the following comments are based on the Commission's law, the McAteer-Petris Act, the policies of the Commission's San Francisco Bay Plan, and the Commission's adopted advisory findings and policies regarding diked historic baylands. Mitigation site B is within the Commission's permit jurisdiction and the remainder of the project lies in the diked historic baylands.

Alternative upland location

The staff believes that the DEIS/EIR does not contain sufficient information to support the conclusion that there is no alternative upland location for the proposed project. By restricting the "purpose" of the project so narrowly, the analysis effectively excludes all alternative upland sites. The federal Clean Water Act 230.10(a)(2) defines alternative upland sites as those that can fulfill the "basic purpose of the proposed activity" not as alternative sites that are precisely equivalent to the proposed site. From the analysis in the DEIS/EIR, the staff cannot determine whether alternative upland sites exist that would fulfill the basic purpose of the project.

Furthermore, we see no reason why the geographic location of an alternate location need be limited to the immediate real estate market as defined in the DEIS/EIR. No reason has been provided by the developers as to why their project could not be built elsewhere in the Bay Area. Therefore, in limiting its analysis to the immediate real estate market, the DEIS/EIR presents insufficient data to support a finding that no alternative practicable upland location exists.

Finally, the analysis , in appendix G, page 3, adds over $1,000,000 in development costs, already spent on the proposed site, to the cost of alternative sites. Although we realize that pre-development cost of land development can be substantial, we do not believe that this form of speculative investment in advance of securing authorization to develop can be used to help justify granting necessary permits. To do so would frustrate the very purpose of environmental and project review, by encouraging developers to make alternative sites economically infeasible thru incurring significant expenses prior to analyzing the environmental impacts of a project.

Therefore, the alternative site analysis should be amended to consider other available sites in the Bay Area that would serve the basic purposes of the project and that are practicable in terms of cost, technical, and logistic factors. This analysis should exclude any investment costs that have been spent on the proposed site.

Proposed Mitigation for Alternative 1

Mitigation proposed in alternative 1 would involve the enhancement of two wetland sites totalling 89 acres of seasonal salt marsh owned by HARD. This mitigation would not fully offset the proposed filling and development of 134 acres of diked historic baylands, consisting of 89 acres of wetland and 45 acres of upland.

Seasonal salt marsh is a limited resource that is important to maintaining many of the beneficial uses of the Bay, principle among which are preserving the Bay's wildlife values and its ability to neutralize pollutants. Increasing pressures for development are threatening the Bay's remaining wetlands. As stated in the DEIS/EIR, development projects are presently proposed for virtually all the South Bay's wetlands. The proposed project itself would eliminate 20 percent of Hayward's seasonal salt marsh. Further, information in the DEIS/EIR states that the proposed mitigation areas already possess significant wildlife values. For these reasons, we cannot support a finding that enhancement of 89 acres of existing salt marsh that have already been acquired and preserved could offset the complete loss of 134 acres of diked historic baylands.

The DEIS/EIR should, therefore, be amended to include an alternative mitigation plan that would acquire, restore, preserve, and dedicate wetlands or non-wetlands that can feasibly be restored to provide wetland values. In order to fully offset the loss of diked historic baylands, the area to be acquired should be equal to, or greater in acreage than, the area to be filled and developed.

Toxicants in Mitigation Sites

The DEIS/EIR identifies the presence of toxic pollutants on the proposed mitigation sites due, in part, to run-off from adjacent wrecking yards and leachate from an adjacent, closed landfill that has been improperly sealed. The presence of toxicants on these areas compromises their suitability as mitigation sites, unless the mitigation plan includes removal of toxicants and their input onto the site.

The DEIR/EIR concludes that the levels of an observed class of toxicants (total organic halides) is "appreciable" and further states that without analysis of specific compounds "...there is no way to assess their significance (appendix C, page 6)." The staff agrees with this analysis; therefore, further testing and analysis of toxicants on the proposed mitigation sites should be performed and included in the DEIS/EIR. Toxicant testing should include priority pollutants, as recommended by the Regional Water Quality Control Board (Regional Board) and/or the U. S. Environmental Protection Agency. The DEIS/EIR should include analysis of the effects of these pollutants on organisms using the sites, and the resultant effects on the sites suitability for mitigation use. Finally, the DEIS/EIR should consider removal of these pollutants and their inputs as a part of any alternative using polluted mitigation sites.

Alternatives using mitigation sites A and B would route runoff from the project site onto the mitigation sites. While the Commission favors the biological processing of runoff pollutants prior to their release into the Bay, the mitigation sites may themselves be degraded by these pollutants. The DEIS/EIR should consider possible degradation of these sites due to runoff pollution, effects on their viability as mitigation sites, and ways of mitigating any pollution effects.

Proposed In-Lieu Mitigation Payments

Mitigation proposed for alternatives 2a and 2b involve in-lieu payment into land bank funds. The estimated in-lieu fee of approximately $5,000 per acre (page 32) is based on the cost of enhancing the mitigation sites as defined in alternative 1. Since, as stated above, the enhancement of sites that have already been acquired and preserved does not fully mitigate the proposed loss of diked historic baylands, any in-lieu payment based only on the costs of this enhancement plan would not constitute sufficient mitigation for the proposed project. The in-lieu payment alternatives in the DEIS/EIR should, therefore, be changed to reflect the cost of acquiring and preserving areas sufficient to mitigate the proposed loss. As currently presented, we believe these alternatives are inconsistent with the Commission's adopted findings and policies on diked historic baylands.

Due to the present high value of wetland areas in the south and east bay, sites suitable for acquisition for mitigation are difficult to locate and costly to purchase. For example, the Regional Water Quality Control Board has significant mitigation funds set aside for the purchase of wetlands which it has, so far, been unable to spend. Thus, in-lieu mitigation may not be feasible unless an existing in-lieu proposal, which will fully offset the proposed loss in diked historic baylands, can be indentified as a part of the mitigation proposal. Any permit issued by the City of Hayward or the U. S. Army Corps of Engineers should be conditioned to require the acquisition of mitigation lands prior to the effective date of project commencement.

Conclusion

While the DEIS/EIR is correct and complete in many areas and correctly identifies the Bay Commission's applicable laws and adopted policies, we believe the DEIS/EIR should be revised to respond to our comments above. Additionally, when we receive the final EIR and have the opportunity to review the information requested by this letter, we may forward further comments to you.

Respectfully,

WILLIAM TRAVIS
Deputy Director

WT/lt

cc: Calvin Fong, U. S. Army Corps of Engineers

Ohlone Audubon Society, Inc.

A Chapter of the National Audubon Society

Southern Alameda County, California

January 4, 1986
From: Elsie Richey
Conservation Committee
1610 142nd Ave.
San Leandro, CA 94578

To: Col. Andrew M. Perkins Jr.
District Engineer
Attention: Regulatory Functions Branch
Ken Maynard and Les Tong

City of Hayward Planning Department
Attention: Ron Gushue

RECEIVED
JAN 7 1986
PLANNING DEPT.

Re: P.N. 15483 E 49

Ohlone's Copy of the Draft Environmental Impact Statement and Report was delivered originally to a former Conservation Committee chairperson who has since moved out of the area. Unfortunately, the Post Office does not forward this type of mail. It was through the good offices of Mr. Gushue that I eventually received a copy of this document, after December 1, 1985.

It has been impossible for me to complete an in-depth evaluation of the material contained in the statement. However, I do wish to make two main points, resulting from the brief review that I was able to complete.

1) This document reads so as to give the impression that there is some compelling reason to develop this land. I quote from page 38:

"...therefore, if it were not developed, increased development pressure on the remaining undeveloped acres in the study area and perhaps other undeveloped parcels within the City could result."

Is there a strong need for developing land in Hayward?

Casual observationof the industrial developments in the West Winton area reveal that less than 50% of the buildings already there are occupied. It seems evident that there is *no* compelling need to provide more empty buildings at the expense of the environment and the wildlife, unless the whole project is being planned to be a loser, such as would provide a tax loss. In this case, the IRS might be interested in the possible perpetration of a tax fraud.

I contend that this whole attitude is false and has no place in the EIR - EIS, which should be an unbiased, objective document. In actual fact, there is nO development pressure being exerted.

c) My review of the comments submitted by HASPA, written by Janice Delfino, indicates that most of the other points I would make are covered in that review

a) The proposed mitigation actually does not mitigate anything. The wetlands involved are already public property; the eco-systems are operating in beneficial fashion without enhancement. The suggested enhancement would destroy more than it would improve.

Mitigation accomplishes nothing if it is not a part of the eco-system that is suffering the loss. Mitigation in other parts of the Bay could not satisfy this criterion, nor could the payment of monies into a fund for future use. Since there is no mitigation, there should be no project.

b) Serious gaps in the biological investigations need to be filled before the assessment can be adequately evaluated:

1) Trapping for the harvest mouse, an endangered species, in a systematic way, in all habitat even remotely resembly areas it is usually found in, is necessary.

2) The extent of the salt marsh area needs to be re-evaluated, and the freshwater marsh Mrs. Delfino "discovered" must be observed and included.
It seems evident from the areas designated on Map Figure 7 (page 41) as salt marsh that most of the project will be on wetlands. It would be most desirable to have another Corps determination.

3) The presence of rail transportation as a necessary part of the project seems to be a "red herring". As stated in Mrs. Delfino's comments, no rail-dependent industries have agreed to locate there, up to the present time. Availability of rail serviceappears not to be an integral part of the project, only a side attraction. Since S.P. would have to extend its service even to serve this location, there should certainly be other sites in Hayward that are not wetlands. It was this consideration that led the Army Corps of Engineers to accept the alternate sites review. I feel that this was not proper.
The Army should re-evaluate their alternate sits decision for this non-water related project.

Ohlone Audubon does not feel that this project should be located on these wetlands. The reasons stated above portray our general concerns. Further study of the area and of the document to enlarge and detail this position is not possible within the dead-line. At present, we consider the excellent evaluation made by Janice Delfino, a member of Ohlone Audubon as well as HASPA-CAC, as a reasonable statement of our concerns.

Sincerely,

E. A. Pinkerton

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

City of Hayward
Planning Department
22300 Foothill Blvd.
Hayward, CA 94541

January 7, 1986

RECEIVED
JAN 9 1986
PLANNING DEPT.

Attention: Ron Gushue
Civil Engineering Senior

Dear Mr. Gushue:

We have reviewed the Draft EIR/EIS for the Marathon Industrial Development. The proposed project would subdivide 134 acres of land into 65 industrial and commercial lots and would convert two nearby sites, totaling about 90 acres, into seasonal wetlands. The project requires approval from the City of Hayward for the subdividing of land and from the U.S. Army Corp of Engineers for filling wetlands. The project site is located west of Southern Pacific Railroad tracks and south of the Bockman Canal.

We have several comments on the Draft EIR/EIS and suggestions for the Final EIR/EIS.

1. Table C on page 12 of Appendix H shows potential 1-hour carbon monoxide (CO) concentrations at several intersections that would be affected by project-generated traffic. The estimated concentrations at the intersection of Hesperian Boulevard and West Winton Avenue are 18.8 parts per million (ppm) in 1985, 24.5 ppm in 1992 for the No Project alternative, and 26.7 ppm in 1992 for the proposed alternative. Estimates for all other intersections were 10.9 ppm or lower. These values reflect only the locally-generated concentrations, without adding a background concentration.

The very high concentrations predicted for Hesperian/West Winton and the considerably lower concentrations estimated for all the other intersections cause us to wonder about the assumptions of the modeling. Please provide a table of modeling inputs in the Final EIR, including average speeds and traffic volumes for each roadway link.

Table C also shows "trends" in 8-hour carbon monoxide concentrations due to increasing traffic and emission controls. While the trend analysis is interesting, we recommend that 8-hour CO concentrations also be estimated using CALINE3 for the intersections analyzed in the 1-hour modeling.

The notes to Table C state that in the consultant's judgment estimates of background CO levels could not be made reliably for this modeling, so no background values were added to the

BAY AREA AIR QUALITY MANAGEMENT DISTRICT 30 YEARS OF PROGRESS 1955-1985

estimates of local concentrations. Caltrans monitored neighborhood scale CO levels in 1985 in the vicinity of the project site. Based on the Caltrans data, we recommend that the Final EIR/EIS use CO background values of 7 ppm and 5.5 ppm for 1-hour and 8-hour averages, respectively, for 1985 and 1992.

The notes also state that the 1-hour CO estimates should be used only to compare alternatives, not to compare with State and national standards. We do not agree. Recognizing that modeling provides estimates and not actual values, we believe that CALINE3, the model used, can provide useful estimates of future conditions. We recommend that the Final EIR/EIS show total 1-hour and 8-hour concentrations, i.e. locally-generated plus background, and compare them to the State and national standards.

The estimated locally-generated 1-hour CO concentrations for the Project and No Project alternatives in 1992 exceed the State standard of 20 ppm. When the background concentration is added, the total concentration exceeds the standard by an even greater margin. We recommend that CO modeling be conducted assuming confirmed traffic mitigation measures are in place. If exceedances of the standard are still predicted, additional mitigation measures would be warranted. If the impacts cannot be mitigated to the point where exceedances are not predicted, the Final EIR/EIS should list air quality impacts as a significant adverse impact that cannot be avoided if the project is implemented.

2. The DEIR/EIS includes emissions of existing facilities in the project vicinity, but does not include estimates of emissions from industries that would locate at the project site. We recommend that the Final EIR/EIS include estimates of stationary source emissions based on the most likely scenario for development of the site. The enclosed table, "Generalized Emission Factors for Selected Industry Groups," may be helpful.

If you have any questions, please contact Jean Roggenkamp, the Planner in our office.

Sincerely,

Milton Feldstein
Air Pollution Control Officer

MF:ey

Enclosure

GENERALIZED EMISSION FACTORS FOR SELECTED INDUSTRY GROUPS

Based on U.S. Standard Industrial Classification (S.I.C.) Code* Groupings

Industry Group (Sub-groups)	Average Emissions per Facility (lbs/acre/day)				
	Part	TOG	NO_x	SO_2	CO
Manufacturing					
Food Canning (2032,2033)	.3	.5	19.	22.	2.2
Paper Products (2643,2647,2649,2653,2654)	.2	4.4	2.8	.01	.6
Printing & Publishing (2700-2771)	3.5	31.	42.	.2	6.0
Inorganic Chemicals (2812,2813,2816,2819)	1.6	.6	4.9	2.6	5.9
Paints, Varnishes, etc. (2851)	.2	20.	.5	.00	.1
Organic Chemicals (2861,2865,2869)	1.4	8.5	3.0	.5	1.6
Petroleum Refining (2911)	1.4	18.	26.	16.	1.3
Paving & Roofing (2951,2952)	17.	1.9	11.	.7	5.3
Plastic Products, Misc. (3079)	1.1	51.	.6	.00	.1
Stone, Clay, Glass & Concrete Products (3200-3299)	14.	2.4	17.	4.6	3.0
Iron & Steel Foundries (3321,3324,3325)	11.	44.	5.0	2.8	23.
Metal Containers (3411,3412)	.5	90.	5.5	.03	.8
Heating Equipment (3433)	.1	2.7	.2	.00	.03
Metal Work (3443,3444,3448,3449)	5.3	11.	1.3	.01	.2
Metal Coating (3471,3479)	.3	13.	.8	.00	.1
Machinery, except electrical (3500-3599)	72.	23.	.5	.02	.1
Semiconductors, etc. (3674)	.1	32.	.3	.01	.1
Electronic Components (3679)	.1	5.6	.1	.00	.02
Instruments (3800-3873)	.3	23.	1.4	.01	.2
Other					
Electric Utility plus Other Services (4931)	17.	12.	410.	78.	32.
Petroleum Bulk Stations & Terminals (5171)	.01	150.	.1	.02	.01
Dry Cleaning Plants (7216)	.00	6.6	.1	.00	.01
General Hospitals (8062)	2.9	2.3	30.	.2	6.0
National Security (9711)	2.8	2.5	22.	.01	5.5

*As compiled by the Statistical Policy Division, Office of Management and Budget.

SAN FRANCISCO BAY CHAPTER • SIERRA CLUB

ALAMEDA • CONTRA COSTA • MARIN • SAN FRANCISCO 6014 COLLEGE AVENUE, OAKLAND, CA 94618
BOOKSTORE (415) 658-7470 OFFICE (415) 653-6127 CONSERVATION (415) 653-6127

RECEIVED

JAN 8 1986

PLANNING DEPT.

January 6, 1985

Mr. Ron Gushue
Planning Department
City of Hayward
22300 Foothill Boulevard
Hayward, CA 94541

RE: Draft EIR/EIS on proposed Marathon Industrial/Commercial Business Center, Tract 5167, Hayward, CA

Dear Mr. Gushue:

Thank you for the opportunity to comment on the proposal by Marathon U.S. Realties, Inc. to develop a business industrial park on approximately 134 acres of land in the city of Hayward, Alameda County, California.

The San Francisco Bay Chapter of the Sierra Club represents 33,000 members in the Bay area who live in Marin, San Francisco, Alameda, and Contra Costa counties. The Chapter is a member of the North Bay Wetlands coalition and our comments on this project reflect the policies of that organization as enumuerated in their "Wetlands Resolution", dated June 1984.

Our principal concern regarding the proposed development is that the planned uses (industrial/commercial) are not water-dependent uses and under section 404 (b) (1) of the Clean Water Act, such projects may not be permitted in wetlands unless no practicable alternatives to the discharge are available. In view of the crisis situation that exists in the Bay area with regards to our diminishing seasonal wetland resources, we feel the restrictive criteria used in the Mills-Carneghi Bautovich, Inc. alternative site analysis which limited the search for an alternative site to the industrial districts of Union City, Hayward, San Leandro, the Oakland Airport area, and the unincorporated community of San Lorenzo is inappropriate, and we do not accept the finding that there is no practicable alternative site.

The discussion of the potential wetland loss in terms of its significance to the region has been severely understated. The

wetlands found on Tract 5167 are of the rare variety called meadow wetlands, a type of seasonal wetland. The meadow wetlands found on Tract 5167 represent the only remaining in the City of Hayward, and as such would represent a loss of 100% of this type of wetland to the city. Therefore, the regional significance of the proposal is much greater than stated in the DEIR/DEIS.

Trapping studies for the endangered Salt Marsh Harvest Mouse must be performed to conclusively determine that the mouse does not exist on the site. The reasons for not initiating a Section 7 consultation with the U.S. Fish & Wildlife Service and the trapping study are inadequate, as they are based on conjecture.

The mitigation proposed is not acceptable. It has been noted by several state and federal agencies in correspondence to the Army Corps of Engineers in response to the Public Notice for this project that the parcels proposed for enhancement are already functioning as suitable seasonal wetland habitat. Therefore, the project as proposed in Alternative 1 as well as the accompanying plan for mitigating the effects of that project would result in a loss of wetlands values. Our organization is committed to a policy of no net loss of wetland size and resource value. Alternatives 2 (a) and 2 (b) as well as Alternative 3 are also unacceptable since may involve payment in-lieu to a land bank, and this would result in net loss of wetlands as well.

This summarizes our primary concerns at this time. We hope they will be adequately addressed in the Final Environmental Impact Report/Statement.

Sincerely,

Dana Kokubun

Dana Kokubun
Conservation Associate

APPENDIX C

SUMMARY SECTION OF 404(B)(1) ALTERNATIVE SITE ANALYSIS

Alternative Site Study - Marathon Industrial Park-Hayward, Ca.

I. ASSIGNMENT AND SUMMARY OF CONCLUSIONS

A. Assignment

This report presents an Alternative Site Study for Phase II of the International Commerce Center in Hayward, California conducted in January, 1985. The International Commerce Center is a 182 acre planned industrial park with rail service. The development site for Phase II contains approximately 132 acres. The U. S. Army Corps of Engineers has advised the project owner, Marathon U.S. Realties, that it believes the site contains 90 acres of wetlands. If so, it is required by Federal law that the project owner demonstrate that there are no practicable alternative sites available for the proposed development before wetland fill operations are permitted. The purpose of this study is to demonstrate the availability or non-availability of suitable sites which could accommodate the subject development in order to fulfill this requirement.

Mills-Carneghi-Bautovich, Inc. is a real estate consulting firm which provides services in the areas of real estate appraisal, market and feasibility analysis, urban land use economics and public land use policy. Our qualifications to prepare this Alternative Site Study include extensive market research experience in the Bay Area and a strong familiarity with the industrial land market in Alameda County. The company has completed a number of appraisals, market studies and land use studies in the market area in recent years for public and private clients.

B. Study Criteria and Methodology

1. Study Criteria

The study analyzes potential alternative sites on the basis of several criteria developed by the project owner and TRS Consultants, the project EIR consultants, and confirmed with the Army Corps of Engineers and the Environmental Protection Agency.

Alternative Site Study - Marathon Industrial Park-Hayward, Ca.

The term practicable as used in the legislation is defined as "available and capable of being done after taking into consideration costs, existing technology and logistics in light of overall project purposes." The criteria for practicable alternative sites have been divided into three sections: a.) a definition of the project purposes, b.) a property's physical characteristics and logistics as defined by the subject site and development requirements, and c.) availability. These criteria are summarized below, and discussed in detail in Chapter II of this report.

a. Project Purposes

The purpose of the proposed development project is to provide a master planned light industrial park for a mixture of tenants in accordance with the highest and best use of the subject property. The park is to be rail served. The defined market area of the development includes the Oakland Airport area, the cities of San Leandro, Hayward and Union City, and the unincorporated community of San Lorenzo. The development will provide finished sites at cost competitive in the market area, currently within the range of $3.50 to $4.50 per square foot.

This type of planned development should also be the highest and best use of any suitable alternative site.

b. Physical Characteristics and Logistics

1. Land Use Designations

The subject is designated under the Hayward General Plan and zoning code for industrial uses. A suitable alternative site should also be designated for industrial uses under local land use plans.

Alternative Site Study - Marathon Industrial Park-Hayward, Ca.

2. Size

The subject is approximately 132 acres. The established size range for alternative sites is 100 to 150 acres.

3. Rail Service

The proposed development requires rail service.

4. Traffic and Access

A suitable alternative must provide equally quick access to both north/south and east/west freeways, as the subject property benefits from proximity to HW 17 and SR 92.

5. Utilities

The subject property offers adequate sewer capacity and adjacent utility services. Alternatives must offer comparable capacity and rights-of-use.

6. Soils

An alternative site should have stable underlying soils, as does the subject property.

7. Slope

The proposed development requires a slope of three percent or less for rail served tenants and larger industrial buildings. An alternative site must meet this requirement.

8. Development Costs

The property owner has been required to construct sewer and pump stations at a cost to Phase II of the development exceeding $1,000,000. To the

extent that these improvements do not benefit another development site, this sunken cost adds to the cost of any alternative site.

c. Ownership and Availability

In the case where a suitable alternative site is identified, it must be available for fee simple purchase by Marathon U.S. Realties. A comprehensive definition of available for purchase would include a marketable fee title free and clear of unusual liens, encumbrances and special assessments other than those normally expected for off-site improvements in the market area. Finally, the property must have a willing seller so that an arm's length, fair market transaction can occur.

2. Survey Methodology

The survey methodology involved contacting the City and County Planning Departments to determine what areas were designated for industrial growth. These districts were then surveyed through extensive field work. Real estate brokers, developers and land development companies were interviewed to determine the status of each potential alternative site.

C. Industrial Land Inventory

The subject market area includes the industrial districts of Union City, Hayward, San Leandro and the Oakland Airport area, and the unincorporated community of San Lorenzo. Within this market area, there are 9,731 acres designated for industrial use by local General Plans and zoning codes. Over 8,200 acres, or 84 percent of this land has been developed or is committed for development either by proposed plans or current purchase agreements. An estimated inventory of 1,529 acres of vacant industrial land remains in the market area.

Of the total 9,731 acres of industrial land, 2,726 acres are contained in 39 industrial parks. Based upon the market survey, 66 percent of this land is developed or committed for development either by proposed plans or current purchase agreements. An inventory of approximately 900 acres, or 59 percent of the total 1,529 vacant industrial acreage is located in the industrial parks. Our market research shows that the majority of this land is for sale as finished development sites ranging in size from one to over fifty acres. The largest parcels which could potentially be considered as alternative sites were evaluated on an individual basis.

The remaining 7,005 acres of land designated for industrial uses is located outside of established industrial parks. A total of 6,379 acres of this land is developed or proposed for development; this leaves 626 acres vacant and potentially available for development outside of existing industrial parks. The study identifies the largest parcels which might be considered as alternative sites for the subject and evaluates them on the basis of the specified criteria.

D. Potential Alternative Sites

A total of 15 relevant sites were identified in the market area both in and outside of existing industrial parks. These properties were selected because they met one or more of the basic alternative site criteria. The 15 sites were located throughout the market area and varied considerably as to size, condition, development status and availability.

Each of the relevant properties was investigated and evaluated on the basis of the established criteria.

E. Conclusions

The alternative site search was conducted on the basis of first identifying vacant land designated for industrial development. Of the 15 sites evaluated, ten are currently designated for industrial uses under local General Plans and zoning

codes. These ten properties ranged from 24 to 100 acres in size. The largest site of 100 acres is owned by the Port of Oakland and is not available for purchase. It is not practicable as an alternative site for the subject development due to the lack of availability as well as highest and best use considerations.

The remaining nine industrially zoned sites were also found to be unsuitable as alternatives due to size restrictions, existing site improvements or location characteristics which dictate a highest and best use other than industrial park development. Many of these sites are not available for purchase by Marathon.

Five of the properties studied were zoned for residential or other nonindustrial uses. They were included in the study because they are either designated for industrial uses under a local General Plan or proposed for some type industrial development. One of the properties, approximately 1,200 acres in size, is currently under option for a major recreational, mixed use development. It is not considered to be a suitable alternative as it far exceeds the subject property in size, and has received preliminary approval for a mixed use development. Two other sites, 150 and 300 acres in size, are planned for residential development, which eliminates their potential status as alternatives. The final two industrially zoned properties are below 50 acres in size, maintain considerable commercial potential, and are not comparable to the subject.

It is a conclusion of this report that based upon the established criteria, no suitable alternative sites for the subject development exist within the market area.

APPENDIX D

LETTER, DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS,

SEPTEMBER 27, 1985, REGARDING ALTERNATE SITE ANALYSIS APPROVAL

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
211 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94105

Regulatory Functions Branch
No. 15483E49

SEP 27 1985

RECEIVED
SEP 30 1985
MARATHON

Mr. Jim Christian, Land Manager
Marathon U.S. Realties, Inc.
595 Market Street, Suite 1330
San Francisco, California 94105

Dear Mr. Christian:

Our letter of June 26, 1985, requested expansion of your justification of the limited market area delineated in the Alternate Site Analysis for the Marathon Industrial Park, Hayward, California (PN 15483E49).

Your response, dated July 25, 1985, expresses the opinion that the consideration of a wider market area is unreasonable in light of your stated overall project purposes. Your attention is directed to 40 CFR 230.10(a)(2) which directs that those overall project purposes are to be considered in light of cost, existing technology, and logistics. Based on your apparent intention to provide no further factual information on these factors, we have completed our review and made a determination on the existing documents.

We have determined that your alternative analysis meets the requirements of 40 CFR 230.10(a)(3) in that there are no practicable alternatives to your proposed fill. Our determination is based on assumptions you developed regarding the market area. These assumptions are, "An industrial market area is defined as that geographic area within which industrial parks compete for the same prospective buyers and tenants. From the point of view of industrial firms, the market is that area within which the firm will search for an acceptable building site or leasable space. The subject project's market area is defined as the Oakland airport area south through Union City." To support this definition you state that 90 percent of the real estate activity in a given community involves firms relocating or expanding within the community, and it is relatively infrequent that a firm moves 30 miles away from the same urban area.

To summarize, your initial analysis, based on the above definitions and assumptions, limited the market area to the Hayward area. Because your project's purpose is to develop raw land into developable industrial lots, the Corps requested you expand your market area to include the entire bay area. Your response to this request included the followings assumptions: You eliminated the area south of Hayward because of the concentration of high tech industries, which commands higher rents than light industrial sites, and therefore forces upward land prices above what light industrial can afford. San Francisco, San Mateo, and Marin Counties are considered more expensive than the Hayward area, and expense dictates real estate location. The Interstate 680 corridor from Pleasanton to Martinez is dominated by office

construction which also commands higher rents, and forces out light industrial development. The area north of Oakland Airport is an unattractive area dominated by prewar II inefficient industrial buildings, and there is a traffic barrier at the San Francisco - Bay Bridge area that hinders north-south traffic. The Livermore area is not part of the Hayward market area because Interstate 580 and 680 form a traffic barrier, and the area is concentrating on office space development serving eastern Contra Costa County. We relied on these assumptions in deciding that your market area was limited to the area between the Oakland Airport and Union City. If during our Public Interest review of your application any of these assumptions should prove to be inaccurate, we may reconsider the acceptability of your alternative analysis.

The evaluation of alternatives in the Environmental Impact/Environmental Impact State (EIR/EIS) will be based, in part, on the information provided by your Alternative Site Analysis, as suggested by 40 CFR 230.10(a)(4).

Should you have any questions concerning processing of your permit application please contact Mr. Ken Maynard of our office (415-974-0421). Questions regarding the EIR/EIS process should be directed to Mr. Les Tong, EIS coordinator at (415-974-0439).

Sincerely,

Andrew M. Perkins, Jr.
Lieutenant Colonel, Corps of Engineers
District Engineer

APPENDIX E

LETTER, HARVEY AND STANLEY ASSOCIATES, JANUARY 21, 1986 CONCERNING POSSIBLE ON SITE HABITAT FOR THE SALT MARSH HARVEST MOUSE

HARVEY AND STANLEY ASSOCIATES, INC.

ECOLOGICAL CONSULTANTS • ENVIRONMENTAL PLANNERS • RESOURCE MANAGERS

January 21, 1986

Mr. James Christian
Marathon Lands
595 Market Street, Suite 1330
San Francisco, CA 94105

Dear Jim,

We revisited the Marathon Site on January 14, 1986 and both evaluated it and compared it with the East Bay Regional Park lands to the west. The Marathon Site still supports very sparse salt marsh vegetation. One 2-3 acre area of pickleweed had perhaps 40 percent cover and only 10 to 20 cm deep pickleweed. Two drainage ditches, one at the north end and one running into the site from the west at about the middle of the site, supported thin strips of pickleweed that were a bit more dense than the estimated 40 percent cover of the flat areas. In most of the site grass was prominent and the pickleweed was very sparse.

In contrast some of the East Bay Regional Parks land had moderate quality coverage by pickleweed, especially in the southern third of the site. Much of this area had pickleweed 30 to 40 cm deep and 90 percent+ cover. One deeper drainage ditch had even better characteristics of deep interwoven pickleweed. It was in this ditch and about a third of the way into the EBRP property that a trapper captured a salt marsh harvest mouse (SMHM) in the summer of 1985. Not all of the EBRP site was salt marsh harvest mouse habitat and much of the better habitat deteriorates as we moved towards the Marathon Site.

The Marathon site is planned for development as a mixed business park of light industry, warehouse and office use. The only place in which there is any corridor of possible habitat between the Marathon site and the EBRP property is along the drainage ditch described above. The quality of its vegetation decreases as it runs eastward and by the time it crosses into the Marathon Site it is poor. In addition it does not drain any area of SMHM habitat in the Marathon Site to which it might serve as a corridor.

A great number of marginal, diked areas in the South Bay were trapped in the summer of 1985 either for private organizations or via Shellhammer for the California Department of Fish and Game.

[illegible] Elizabeth Street • P.O. Drawer E • Alviso, California 95002 • (408) 263-1814

We have found mice in much more marginal conditions than we would have predicted before this year. We did not, however, find any animals in conditions as poor as those at the Marathon Site as it is at present. The site is at slightly higher elevations (1-2 feet) than the EBRP site and has had long term cattle grazing. The cattle appear to have damaged the pickleweed primarily by trampling. They have been removed from the site for over a year but little new growth seems to have occurred. It is possible that the pickleweed areas of the site might become thicker in a few years, but the presence of as much grass as there is there now, leads us to doubt that the site would become appropriate salt marsh harvest mouse habitat. We do not think extensive trapping of the site during the coming summer would reveal any salt marsh harvest mice and hence do not recommend it at that time.

If the Marathon site is filled and the surface water drained to a control structure at the southern edge of the site the potential exists to use that control structure to provide Bay water to the EBRP parcel. A management plan involving EBRP, and financed by a district like that for levee maintenance, could be developed and implemented that would not only sustain the SMHM habitat on the EBRP parcel but might enhance it.

Sincerely,

Howard S. Shellhammer (3/7/84)

Dr. Howard S. Shellhammer

H. Thomas Harvey

Dr. H. Thomas Harvey

APPENDIX F

LETTER, DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS, JUNE 12, 1986, CONCERNING ENDANGERED SPECIES

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
211 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94105

June 12, 1986

Construction Operations
Regulatory Permit No. 15483E49

Mr. Jeffrey W. Johnson
Ellman, Burke & Cassidy
One Ecker Building, Suite 200
San Francisco, CA 94105

Dear Mr. Johnson:

We are writing in reply to your May 5, 1986 letter, reference: Marathon-Hayward Property. Based on the information you have provided and with the likelihood of providing mitigation other than on the proposed Hayward Area Recreation and Park District ("HARPD") parcels, we agree with the determination that endangered species issues would be related to Tract No. 5167.

At this time, based on the information available to us, we agree with the conclusion made by your consultants that trapping Tract No. 5167 is unnecessary. With the information provided by Dr. H. T. Harvey and Dr. H. S. Shellhammer on the available habitat of Tract No. 5167, we have concluded that the proposed development would not affect the endangered salt marsh harvest mouse (Reithrodontomys raviventris raviventris). The biological assessment prepared for the Marathon development and proposed mitigation on the HARPD parcels will be revised to reflect the latest information.

While our determination of no adverse effect will be described in our revised biological assessment, we should point out that the U. S. Fish and Wildlife Service may disagree with our findings and request that formal consultation be initiated. In accordance with the intent of the Endangered Species Act as amended, we will provide the U. S. Fish and Wildlife Service with a copy of our revised biological assessment (50 CFR 402.04). We, therefore, have determined not to initiate formal consultation, unless requested to do so by the U. S. Fish and Wildlife Service, for this permit action.

As you may be aware, several comments were received during the review of the March 1985 Draft EIR/EIS. The City of Hayward may independently determine that trapping Tract No. 5167 is

required to effectively respond to the comments. We have provided a copy of this letter to Mr. Ron Gushue, Planning Department, City of Hayward, to keep them informed on this subject. We hope this adequately answers your May 5, 1986 letter.

Sincerely,

Jack E. Farless

Jack E. Farless
Chief, Construction-Operations Division

Copy Furnished:

Mr. Ron Gushue, Planning Department, 22300 Foothill Blvd., Hayward, CA 94541

APPENDIX G

LETTER, COUNTY OF ALAMEDA PUBLIC WORKS AGENCY,

DECEMBER 18, 1986, REGARDING UNAVAILABILITY OF FLOOD CONTROL PROPERTY

FOR MITIGATION PURPOSES

COUNTY OF ALAMEDA
PUBLIC WORKS AGENCY
399 Elmhurst Street • Hayward, CA 94544-1395
(415) 881-6470

ROUTE TO	DATE	INITIAL
1	DIR. PUBLIC WORKS	
2	CITY ENGR.	
3	Ron Gushue	
	FILE	

RECEIVED
DEC 23 1986
Dept. of Public Works

December 18, 1986

Zone 2, Winton
Silt Disp. Site

RECEIVED
JAN 2 1987
PLANNING DEPT.

Mr. James F. Christian
General Manager, Land Division
Marathon U. S. Realties Inc.
595 Market Street, Suite 1400
San Francisco, CA 94105

Re: Marathon Industrial Park, Hayward

Dear Mr. Christian:

The mitigation plans for your company's proposed development in the City of Hayward, which you had transmitted to Mr. Johnson of this office by letter dated November 25, 1986, have been thoroughly reviewed. The mitigation plans clearly imply that Alameda County Flood Control and Water Conservation District has acquiesced to making a part of its silt disposal facility at the westerly terminus of West Winton Avenue in Hayward available for mitigation required for you to develop wetlands portions of your proposed industrial park.

Please be advised that the mitigation plan has been developed on faulty premises. The District lands are not available for your use to mitigate your project. Representatives from the Alameda County Public Works Agency have attended several meetings concerning your mitigation plans and have expressed the District position that none of the Winton silt disposal site is available. This letter will serve to further state this position.

More detailed comments on the mitigation plans are as follows:

SECTION I.B. RATIONALE

Objective 1. - From the District's perspective this is an incorrect statement. The site is a silt disposal facility and the District has current and long term needs for the site. We do not consider it available.

Objective 5. - This assertion is unsubstantiated. The site is reserved for open space uses in the future when the District can no longer use it or no longer has a need for it. It seems quite likely that one of the agencies involved in the development of

recreational and/or wetlands facilities would be interested in improving the site at that time.

SECTION II.

Last Paragraph - The assertion that the pollution threat is high is unsubstantiated. Leachate from the site has been sampled by the East Bay Regional Park District and no significant contamination was found. While this does not conclusively rule out a pollution threat, neither does it support a conclusion that the threat is high.

SECTION III.

First Paragraph, benefit (2) - The Flood Control site is already in the EBRPD trail system.

Second Paragraph, last sentence - The pump station is not designed to pump to the landfill, nor is the District inclined to take on the responsibility for operating it for that purpose.

APPENDIX A. - MARATHON MITIGATION PROGRAM SUMMARY

Two unsubstantiated assumptions are made in this report which affect this District: first, that the District-owned portion of the landfill is available as a mitigation site, and second, that the District's pump station is available to support the operation of the mitigation site. From the District's perspective, neither assumption is warranted.

As noted previously, the District needs the landfill site for silt disposal, and the District is not inclined to accept responsibility for operation of the station for mitigation site maintenance, nor is the pump station designed for such a function. The report also describes an operational mode for the pump station in which salt water is pumped from the Sulphur Creek channel to the landfill site. This is a reversal of flow direction for which the pump station is not designed and, further, pumping salt water would adversely affect the life and reliability of the pump station. This would be another reason for the District to resist such uses of the pump station.

I thank you for your cooperation in this matter, and should you have any questions, please feel free to contact Mr. Johnson.

Very truly yours,

ROBERT C. BITTEN
DEPUTY DIRECTOR
OF PUBLIC WORKS

JWF:pat
cc: U. S. Environmental Protection Agency
U. S. Army Corps of Engineers
U. S. Fish and Wildlife Service
Martin Storm
HASPA
California Department of Fish and Game

APPENDIX H

MARSH RESTORATION DESIGN FOR TWO PARCELS OF THE HAYWARD SHORELINE

Philip Williams & Associates
Consultants in Hydrology

Pier 33 North, The Embarcadero
San Francisco, CA 94111
Phone: (415) 981-8363

MARSH RESTORATION DESIGN

FOR TWO PARCELS ON THE HAYWARD SHORELINE

By

Robert N. Coats, Ph.D.
Senior Associate

With Contribution From
H. Thomas Harvey, Ph.D.
Harvey & Stanley Associates, Inc.

25 June 1984

Philip Williams & Associates
Consultants in Hydrology

Pier 33 North, The Embarcadero
San Francisco, CA 94111
Phone: (415) 981-8363

MARSH RESTORATION DESIGN

FOR TWO PARCELS ON THE HAYWARD SHORELINE

Introduction

The proposed Marathon development (Phase II) in Hayward could eliminate about 90 acres areas of seasonal wetland. In order to provide mitigation, Marathon Development California, Inc. proposes to restore or enhance wetlands on two parcels on the south side of Sulphur Creek that are owned by the Hayward Area Recreation and Park District. The purpose of this report is to describe the preliminary design for wetland restoration at the site.

Objectives of wetland restoration

There are three primary objectives for this marsh reclamation project. These are 1) to create a productive and biologically diverse wetland that provides wildlife habitat; 2) to enhance quality of surface runoff 3) to maintain or enhance flood control opportunities. In this (as in all marsh restoration projects) there are budgetary constraints. Keeping costs within the limits of economic feasibility for the Marathon corporation is also an important project objective.

1. Biological productivity

The benefits to wildlife of wetland restoration are highly variable, depending on the vegetation, water chemistry and hydrology. The endangered salt marsh harvest mouse, for example, depends on pickleweed with infrequent innundation; protected open water areas provide resting areas for waterfowl; salt marsh estuaries are favored as feeding sites for wading birds.

Along the Hayward shoreline, protected open water areas have been shown to provide important resting and feeding areas during winter months for shorebirds and waterfowl. These open areas are provided by salt evaporation ponds and seasonal wetlands (McKevitt, 1984). The primary goal of this project will be to enhance the value of the HARD parcels as open water and seasonal wetland.

2. Water quality

Improvement of urban storm runoff quality is another objective of this project. Typical quality problems of urban stormwater runoff include oil and grease, sediment, heavy metals, Biochemical Oxygen Demand (BOD), nutrients, fecal coliform bacteria and trash (ABAG, 1983). A marsh basin at Palo Alto was found to be effective in reducing BOD, suspended sediment and volatile suspended solids; the pickleweed in the marsh was found to accumulate heavy metals (ABAG, 1979). Several water quality problems presently exist at the site (see below). A secondary objective of this project is to provide natural marsh treatment of urban runoff, improve the quality of ponded water during

summer months, and clean up exposed garbage on the margins of an adjacent landill.

3. Flood control and shoreline erosion

The flood control objective in this project is to maintain or improve channel capacity of Sulphur Creek, protect the adjacent filled lands from wave erosion, and ensure that water elevations in the eastern parcel do not threaten adjacent property values.

Description of the site

1. Physical environment

Figure 1 is a map showing the location of the two parcels. Numbered locations on the map refer to the discussion below. Prior to diking, a portion of the site was covered by natural salt ponds, isolated from the Bay by beaches and interfingering with pickleweed marsh (Nichols and Wright, 1971). Part of the area, especially parcel A, was covered by commercial salt ponds in the early 1900s. Some of the underlying soils may therefore be high in salt. Soils on the site have not yet been sampled, but they are no doubt clay-rich and poorly drained.

Figure 2 shows the range of elevations of parcels A and B, along with the tidal descriptors and percent of time a given elevation is equalled or exceeded by the tide level. The range of elevations in both parcels is favorable for marsh enhancement and restoration.

During the 1950s and '60s, adjacent lands (now owned by the Alameda County Flood Control District and by Pacific F.M.) were

used as a garbage dump. The dump was abandoned in the late 1960s or early 1970s, prior to the Regional Water Quality Control Board's Resolution 77-7, which established standards for closing and sealing Class II solid waste disposal sites. The dump was never properly capped and sealed, although fill was graded over the surface. Water infiltrates the surface and leachate emerges in several spots along the sideslopes, adjacent to the HARD parcels. Where the sideslopes are eroding (especially at 9), trash and debris are exposed and wash onto the HARD parcels.

At present, surface and shallow groundwater enter the parcels from several sources. A 86.5 acre area bounded by Sulphur Creek on the north, the S. P. railroad tracks on the east, and a line roughly parallel to and 200 ft. north of Winton Ave. on the south drains to the Marathon site on the south side of Sulphur Creek (Liskamm, 1982). Some of this runoff may seep through the low dike that separates the HARD parcel A from the Marathon site (at 6). Second, Parcel A receives surface runoff at 7 from a ditch on the north side of Winton Ave and at 8 from a ditch on the west side of the parcel. Runoff to this ditch comes from the wrecking yards, the Santucci cattle feedlot on the south side of Winton, and from an undetermined area along Winton Avenue. This runoff is supposed to flow south rather than entering parcel A (Angelo Isquierdo, Alameda Co. Flood Control District, personal communication).

Following completion of the Marathon Phase II development, the 86.5 acre area will be served by a pump station that will discharge into Sulphur Creek. The total contributing area for the pump station (including the development on the north side of

Sulphur Creek) will be about 200 (M& M Engineering). This runoff is designed to discharge to Sulphur Creek but could be diverted to Parcel A at 6 for seasonal wetland or brackish marsh. Surface runoff and shallow groundwater also enter both parcels from the adjacent filled areas of the A.C.F.C.D. and Pacific F.M. Water also enters Parcel B from the Bay during extreme high tides, when the levee on the west side of the parcel is overtopped by waves. This apparently happened during the Dec. 3, 1983 storm.

The two parcels are connected by a ditch just inside of the levee on the south side of Sulphur Creek. At its western end, the ditch enters a culvert beneath an access road (at 2).

There are three significant water quality problems at the site. First, leachate from the garbage dump is discolored and contains oil and grease. Second, surface runoff from the wrecking yards on Winton Ave. is heavily contaminated with oil and grease; grass along the roadside ditch is killed when the water level rises. Third, cattle grazing on site and runoff from the Santucci feedlot both contribute animal wastes.

Because of concerns about the quality of leachate that enters the parcels from the old landfill, water samples were collected at 10 locations around the parcels. Sampling locations are indicated on Figure 1 by Roman numerals. Samples were collected on February 10, 1984, placed on ice and delivered to Brown and Caldwell Analytical Services Division. The samples were analyzed for pH, specific conductance, total organic carbon (TOC), total organic halides (TOX), lead, arsenic, cadmium, chromium, copper, mercury, and zinc. Table 1 shows the results.

The symbol "<" (less than) indicates that the concentration was below the level of detection.

The values for pH, specific conductance and TOC indicate that the samples are brackish, contain significant concentrations of dissolved organic matter, and are not contaminated with strong acids. None of the heavy metal concentrations are high enough to be cause for concern. The TOX concentrations, however, are appreciable, but without analysis of specific compounds there is no way to assess their significance. The concentrations are reported as chloroform. TOX and TOC are highly correlated for the dump leachate samples (r^2 = .92); in other words, where dissolved organic carbon is high, organic halides are also high. A relatively consistent fraction of the dissolved organic carbon is halogenated, but the source of the material is an open question.

In order to estimate the water elevations and salinity under existing conditions for wet, median and dry years, a water balance was developed for the site. In a median year with no outflow from the parcels, the water surface can be expected to reach a maximum elevation of only +2.6 ft NGVD, assuming no inflow from the bay, and it will drop to an elevation of 1.0 ft NGVD by July. This suggests that the high water on the site during the 1983-84 winter resulted from unusual December runoff combined with the overtopping of the bayward level during the second high tide of December 3, 1983.

Color IR photos taken on May 17, 1980, substantiate that the area is not inundated for long. The photos show that almost all of surface area of parcel A is drained, and water on parcel B is

ponded only on the east, west and south sides. Elevation of the water surface at the time of the photo was only about +1.5 ft NGVD. This is especially significant since 1980 was an usually wet year.

2. Present wildlife uses

During the 1983-84 winter, the HARD parcels were heavily used by wintering and migratory water birds. As seasonal wetland habitats they provide both waterfowl and shorebirds with feeding and resting sites. During March 1983, 33 different species were observed using parcel A (see Appendix A). Approximately 500 individuals were counted during the observation time. Parcel A is covered primarily by pickleweed over about 15 acres. It is, however, both widely spaced and short pickleweed, so that it is highly unlikely that salt marsh harvest mice are present (Dr. H.S. Shellhammer, pers. comm.).

Parcel B is presently a relatively barren basin (reputably mechanically cleared) that holds water to varying depths during the rainy season. Last winter (1983-84) served as a prime habitat for waterfowl (Paul Kelly, pers. comm.). During a visit in March, we also observed over 1,000 ducks on the water. If the unusual conditions of 1983-84 fail to occur for a few years it is likely that pickleweed will re-invade the area in a manner similar to the situation on parcel A.

Grading plans

To meet the objectives stated above, Parcel A will be treated as a brackish marsh with shallow water (0-1 ft deep).

Channels will be dug to a bottom elevation of 0.0 ft NGVD. A 30-ft wide channel will route stormwater from the northeastern corner of the triangle to the apex at the south end, and thence to the outlet at the northwestern corner. There also will be a network of interconnecting 10-ft wide ditches to drain the interior of the parcel. In addition to raised areas along the EBDA line, three new islands will be built and covered with sand or fine gravel. Margins of the old landfill will be covered with new fill and graded to a slope of 10:1.

Parcel B will be maintained as open water area through the summer. This will entail excavating about 15 acres to an elevation of 0.0 feet. (NGVD) Margins of the old landfill will be covered and graded to a maximum slope of 10:1. This slope will merge gradually with a gently sloping shelf (about0.3%) 150 ft wide at an elevation of 2.75 to 3.25. Once this shelf is vegetated, it will dissipate wave energy and prevent further erosion of the landfill margins. One island will be built in the ponded area, with an area of about 0.4 acres.

The total amount of material excavated will be about 62,500 yds^3. This will provide enough material to build the shelf around the east and south sides of Parcel B, and cover the margins of the old landfill to a depth of 2 to 6 feet, and build 6-7 islands of 440 yds^3 each. By building 10:1 slopes on the margins of the landfill to a lesser elevation (nine feet instead of a maximum of 14 feet), additional material could be made available for fill elsewhere. Some of this fill can be used to increase the elevation of the Sulphur Creek dike to 9.0 feet NGVD as additional protection against overtopping.

Control Structures and Water Management

During winter months, stormwater will be pumped from the pump station on the south side of Sulphur Creek. Flashboards will maintain the water surface elevation at 3.0 ft NGVD. This will inundate 20.6 acres of channel and pond to a depth of 3.0 ft NGVD, 29.3 acres to a depth of 1.0-2.0 ft NGVD, and 20.5 acres to a depth of 0.0-1.0ft NGVD.

During summer and fall of most years, inflow of water from Sulphur Creek will be needed to maintain water levels. The flow of water from the northeast corner of parcel A to the outflow at the mouth of Sulphur Creek will be maintained by the difference in elevation of the wiers and culverts, and by tide gates. Water will flow into parcel A for a short period each day, during the higher high tide, and will flow out when the tide drops below 3.0 ft NGVD. This will allow about 22.5 hours each day (on the average) during which the parcels may drain.

Three inlet-outlet structures will be needed. These are:

1. An inlet structure at the northeast corner of parcel A, opening into Sulphur Creek. Inflow will be controlled by a screwgate and flashboards. When there is sufficient pumpstation inflow to maintain water surface elevations above 2.0 ft NGVD, the screwgate will be closed. Between late winter and fall, the screwgate will remain open, allowing control of inflow by a variable weir. Elevation of the weir will be around 3.5 ft, allowing inflow to occur on the average about on hour per day.

Additional modifications could also include an automatic shut-off valve to prevent inflow above 3.0 ft NGVD, and an inlet pipe sized to restrict the inflow rate.

2. A 48" culvert with slide-flapgate at the upper end of the ditch that connects Parcels A and B. This will stay open most of the time, but allow either parcel to be drained without affecting the other.
3. A 48" box culvert, with drop-box, flashboards and flapgate at the northwest corner of Parcel B. Top of the flashboards will be at 3.0 feet; the culvert invert will be at 0.0 feet. The outlet will drain into Sulphur Creek; this will help protect the structure from wave erosion.

To determine when inflow of water from Sulphur Creek will be needed, a water balance for the parcels was calculated, for the 1 in 10 dry year, 1 in 10 wet year and the median year. Precipitation was based on long-term records for Oakland, adjusted to an annual mean of 16 inches at the site (Rantz, undated). The runoff coefficients were based on the assumption of full development of the Marathon site, from Crippen and Waananen, 1969). Runoff for the old landfill area was taken from Rantz's (1974) map of natural runoff for the San Francisco Bay Area. Runoff coefficient for the marsh area was taken to be 1.0. Evaporation was taken from class A evaporation pan data for Burlingame. Results of the water balance are shown in the Appendix.

The water balances show that in a 1 in 10 dry year, evaporation would exceed runoff even during the winter, and throughflow from Sulphur Creek would be necessary year-round to maintain the water level of 3.0 ft. During a median year, there would be discharge from the area in December, January February, and March, and salinity would remain below that of bay water through May. Throughflow from Sulphur Creek in the median year could start in May and continue into the following October. During the 1 in 10 wet year, throughflow would not be needed until June to maintain water levels.

The salt balances for the parcels were calculated along with the water balances. Initial salt concentration was taken to be that of bay water (30 parts per thousand). Salt concentration of runoff was assumed to be 500 parts per million in fall and spring, and 250 parts per million in winter. Without throughflow, salinity would exceed that of Bay water year round in a dry year, and during summer months in a median year. In a wet year, however, salinity would drop to about one-tenth that of Bay water. The low salinities would be favorable for survival of ducklings. It might be better in a wet year to delay introduction of water from Sulphur Creek and allow the water level to drop to 2.5 or 2.0 ft NGVD.

A number of tasks in the design of the marsh system remain. First, the elevation and size of the inlet structure need to be calculated. If the pipe (or weir) is too low or too large, the parcels could flood above +3.0 ft; if too small or too high there would not be enough inflow to maintain circulation. Second, the

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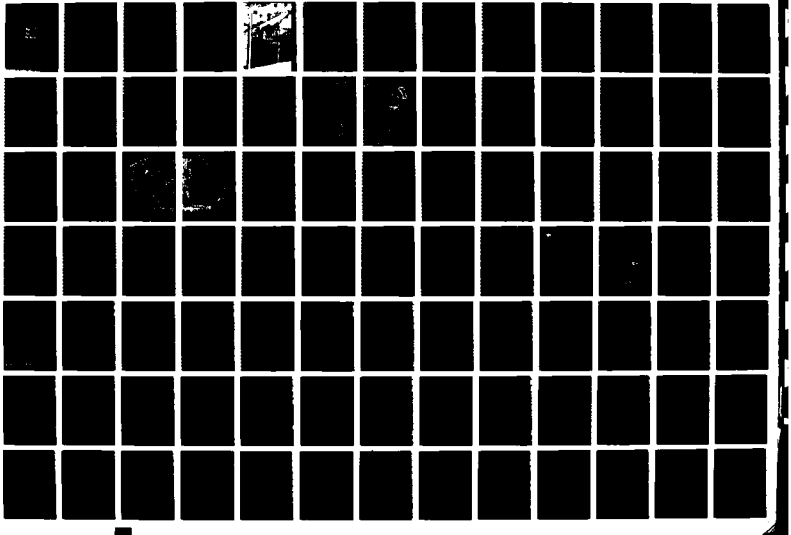

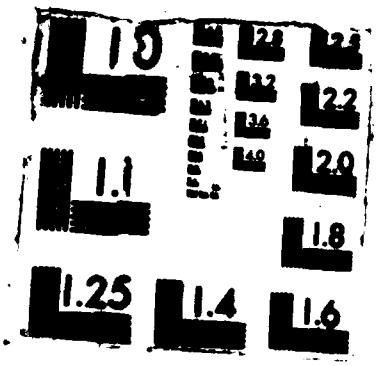
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sedimentation rate on the parcels needs to be calculated. This will depend on water velocities, and the suspended sediment concentration of incoming water. These calculations may in turn suggest some more slight modifications in design. Third, more detailed grading calculations need to be done for parcel B. The present map at a scale of 1'=200' for parcel B does not have sufficient detail to permit accurate balancing of cuts and fills. Fourth, the impact of the design on flood levels needs to be evaluated.

Vegetation

Islands and margins of both parcels would be rapidly invaded by pickleweed; due to evaporation at the soil surface, soil salinities would soon be too high for non-halophytes. Flooded areas would not become vegetated.

Enhancement benefits

The proposed design would provide the following benefits:

1) Enhanced shorebird habitat in parcel A. Most of the area would have water depths of about 0.5 ft NGVD throughout the year. Under present conditions (in a median year), there is barely enough runoff to cover parcel A during February and March, and the area quickly dries.
2) Enhanced nesting success for waterfowl, due to protection provided by islands and (in wet and normal years) reduced salinity in the spring.
3) Increased duration of open water for ducks in parcel B.
4) Increased vegetative cover around the perimeter and on

islands.

5) Increased diversity of habitats, including deep water, shallow water, islands and vegetated slopes.

6) Increased water circulation and dilution of summertime seepage from the adjacent landfill.

7) Biological filtering of urban runoff during the storm season.

8) Removal or burial of old refuse presently exposed on the surface around the margins of the parcels.

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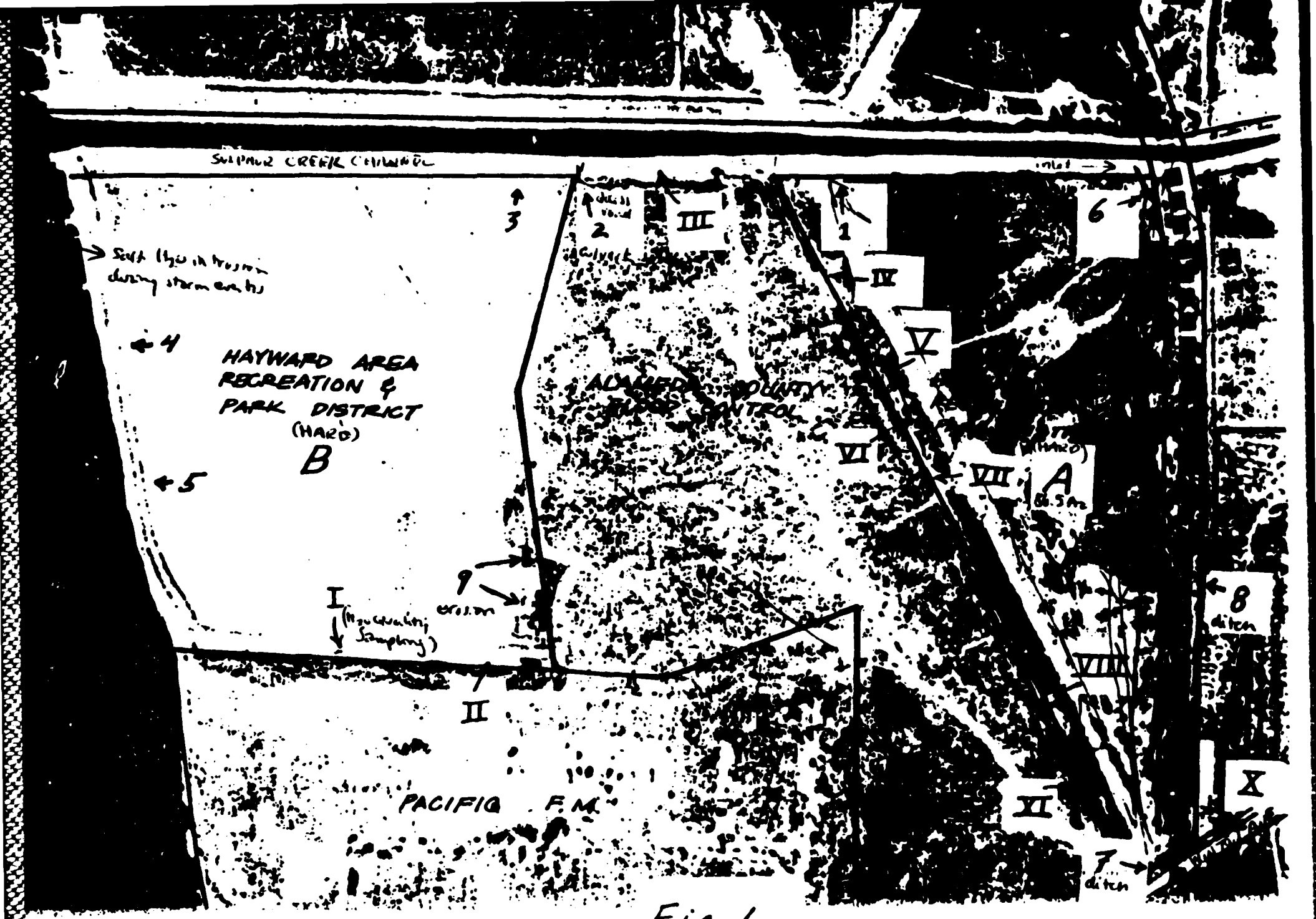
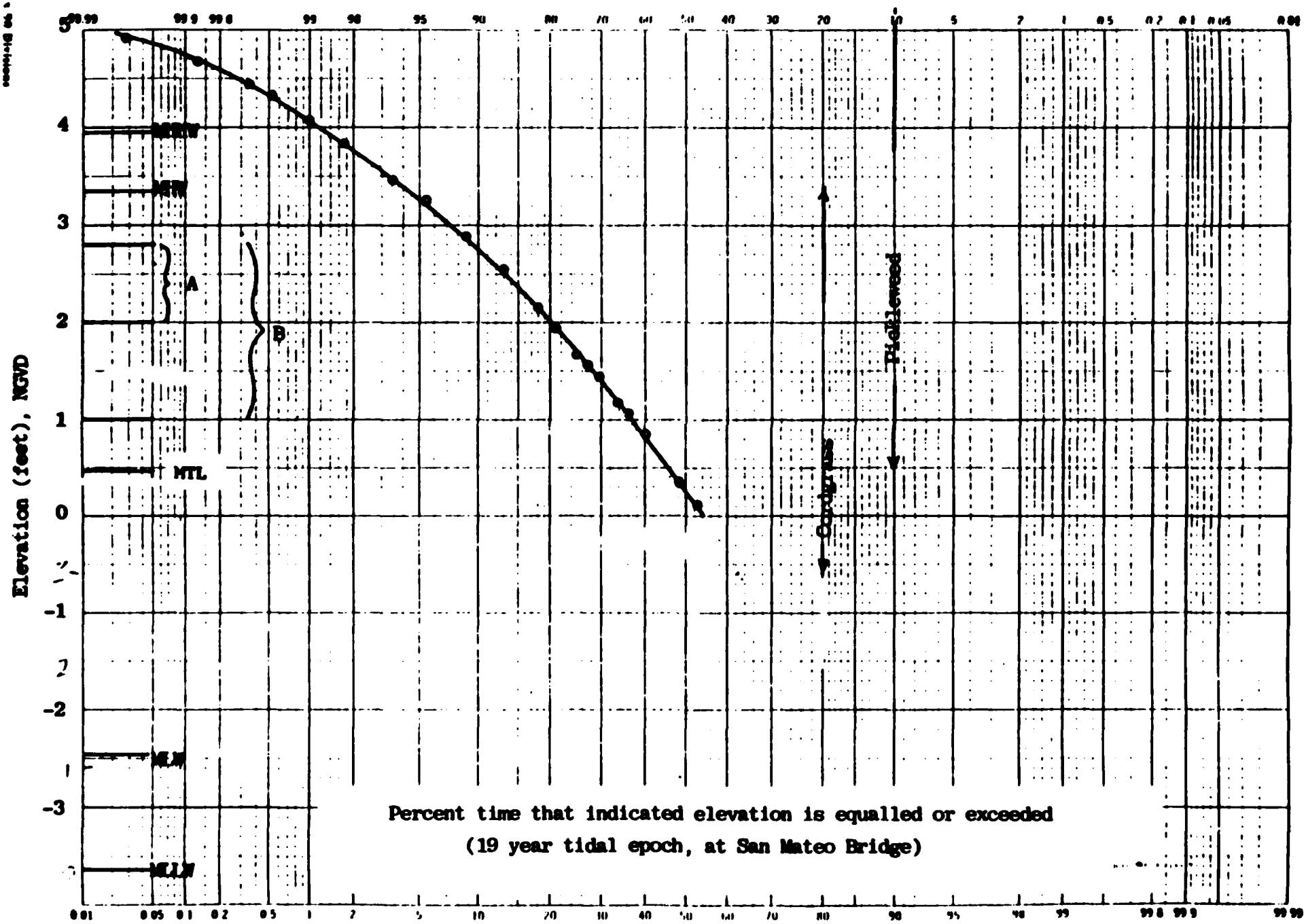

SULPHUR CREEK CHANNEL
3
2
III
1
6
4
HAYWARD AREA
RECREATION &
PARK DISTRICT
(HARD)
B
IV
V
VI
VII
A
5
8
I
9
II
PACIFIC F.M.
X
7

Fig. 1

Fig. 2

Revised 3/6/84 B.C.



APPENDIX

BROWN AND CALDWELL
CONSULTING ENGINEERS
ANALYTICAL SERVICES DIVISION
1286 POWELL STREET
EMERYVILLE, CA 94608
PHONE (415) 428-2300

Log No. E84-2-126

Date Sampled 2/10/84
Date Received 2/10/84
Date Reported 3/03/84

Reported To: Mr. Robert Coats
Philip Williams and Associates
Pier 33 North, Embarcadero
San Francisco, California 94111

cc.

Laboratory Director

Log No.	Sample Description
-126-1	# 1
2-126-2	# 2
-126-3	# 3
-126-4	# 4.
2-126-5	# 5
-126-6	# 6

Concentration: mg/L; unless otherwise indicated

	2-126-1	2-126-2	2-126-3	2-126-4	2-126-5	2-12
H	6.9	7.4	8.2	7.0	7.0	7
pecific Conductance (umhos/cm @ 25° C)	6470	8020	11,600	8180	7670	6
otal Organic Carbon	230	190	110	130	150	
Arsenic	0.028	0.016	< 0.001	< 0.001	< 0.001	< 0.0
admium	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0
hromium	0.07	0.06	0.04	0.05	0.05	0
opper	0.05	0.02	0.02	0.02	< 0.01	0
ead	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<
Mercury	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.00
inc	0.22	0.21	0.14	0.10	0.05	0
otal Organic Halides	1.1	0.84	0.54	0.41	0.68	0

BROWN AND CALDWELL
CONSULTING ENGINEERS
ANALYTICAL SERVICES DIVISION
1255 POWELL STREET
EMERYVILLE, CA 94608
PHONE (415) 428-2300

Log No. E84-2-126
Date Sampled 2/10/84
Date Received 2/10/84
Date Reported 3/03/84

Reported To: Mr. Robert Coats
Philip Williams and Associates

cc.

Laboratory Director

Lab No.	Sample Description
2-126-7	#7
2-126-8	#8
2-126-9	#9
2-126-10	#10

Concentration: mg/L; unless otherwise indicated

	2-126-7	2-126-8	2-126-9	2-126-10
	7.7	7.4	6.9	6.9
ecific Conductance umhos/cm @ 25° C)	5570	4430	4950	7190
al Organic Carbon	160	120	150	90
senic	0.051	0.030	< 0.001	< 0.001
mium	< 0.01	< 0.01	< 0.01	< 0.01
omium	0.10	0.08	0.04	0.04
pper	0.05	0.02	< 0.01	< 0.01
d	< 0.1	< 0.1	< 0.1	< 0.1
rcury	0.0002	0.0005	< 0.0002	< 0.0002
c	0.20	0.13	0.11	0.07
al Organic Halides	0.54	0.50	0.43	0.19

BIRDS OBSERVED ON PARCEL A

	March 11, 1983	March 18, 1983
Western Grebe	4	-
Pied-billed	2	3
Great Blue Heron	2	1
Great Egret	15	18
Snowy Egret	23	27
Bl-cr Night Heron	6	3
American Bittern	-	1
Mallard	8	4
Gadwall	2	2
Pintail	14	18
Green-winged Teal	2	4
Cinnamon Teal	5	7
American Widgeon	11	10
Canvasback	3	3
Lesser Scaup	9	10
Ruddy Duck	8	8
Turkey Vulture	1	1
Black-shouldered Kite	2	2
Red-tailed Hawk	1	-
Marsh Hawk	3	2
Ring-necked Pheasant	2	1
American Coot	47	65
Killdeer	9	14
Black-bellied Plover	31	40
Long-billed Curlew	4	11
Willet	8	2
Lesser Yellowlegs	5	3
Western Sandpiper	125	125

Marbled Godwit	3	3
American Avocet	27	30
Black-necked Stilt	31	25
California Gull	12	15
Ring-billed Gull	25	10
Forster's Tern	4	5

Output for MARATHON/HARD POSTPROJECT WATER BALANCE FOR 1 IN 10 WET YEAR

Month	runoff	e. loss	discharge	volume
Oct	20.80	18.30	2.50	161.70
Nov	40.70	9.15	31.55	161.70
Dec	60.90	6.34	54.56	161.70
Jan	70.60	6.34	64.26	161.70
Feb	58.30	9.15	49.15	161.70
Mar	44.70	16.90	27.80	161.70
Apr	27.70	24.64	3.06	161.70
May	9.60	32.38	0.00	138.92
Jun	3.00	34.43	0.00	107.49
Jul	0.50	32.18	0.00	75.81
Aug	0.80	24.45	0.00	52.15
Sep	3.50	14.33	0.00	41.32

Month	stage	area	salinity
Oct	3.00	70.40	17114.1
Nov	3.00	70.40	13825.7
Dec	3.00	70.40	9222.76
Jan	3.00	70.40	5623.14
Feb	3.00	70.40	3976.73
Mar	3.00	70.40	3350.16
Apr	3.00	70.40	3328.76
May	2.74	64.96	3891.99
Jun	2.38	57.46	5037.05
Jul	2.02	49.90	7143.63
Aug	1.59	37.71	10387.2
Sep	1.39	31.84	13131.0

initial stage = 3.00 max. stage = 3.00
initial volume = 161.70 max. volume = 161.70
initial area = 70.40 max. area = 70.40
initial salinity = 30000.0

utput for MARATHON/HARD POSTPROJECT WATER BALANCE FOR 1 IN 10 DRY YEAR

onth	runoff	e. loss	discharge	volume
Oct	0.00	18.30	0.00	143.40
Nov	0.60	8.58	0.00	135.41
Dec	5.20	5.77	0.00	134.84
Jan	7.10	5.76	0.00	136.18
Feb	2.70	8.36	0.00	130.52
Mar	4.40	15.11	0.00	119.81
Apr	0.20	21.14	0.00	98.87
May	0.00	25.49	0.00	73.38
Jun	0.00	26.09	0.00	47.29
Jul	0.00	19.64	0.00	27.65
Aug	0.00	11.97	0.00	15.68
Sep	0.00	5.96	0.00	9.72

onth	stage	area	salinity
Oct	2.79	66.03	33829.4
Nov	2.70	64.13	35826.3
Dec	2.69	63.99	35987.7
Jan	2.71	64.31	35646.4
Feb	2.65	62.96	37197.5
Mar	2.52	60.40	40531.9
Apr	2.29	55.41	49117.8
May	1.99	49.23	66177.2
Jun	1.50	35.08	102687.
Jul	1.13	24.42	175641.
Aug	0.76	15.68	309682.
Sep	0.47	9.72	499487.

nitial stage = 3.00 max. stage = 3.00
nitial volume = 161.70 max. volume = 161.70
initial area = 70.40 max. area = 70.40
nitial salinity = 30000.0

Output for MARATHON/HARD POSTPROJECT WATER BALANCE FOR MEDIAN YEAR

month	runoff	e. loss	discharge	volume
Oct	6.50	18.30	0.00	149.90
Nov	19.40	8.79	0.00	160.51
Dec	31.10	6.31	23.60	161.70
Jan	37.90	6.34	31.56	161.70
Feb	30.00	9.15	20.85	161.70
Mar	24.30	16.90	7.40	161.70
Apr	11.50	24.64	0.00	148.56
May	2.70	30.94	0.00	120.32
Jun	0.30	32.08	0.00	88.54
Jul	0.00	29.65	0.00	58.89
Aug	0.00	20.27	0.00	38.62
Sep	0.00	11.54	0.00	27.08

month	stage	area	salinity
Oct	2.87	67.58	32419.1
Nov	2.99	70.12	30305.5
Dec	3.00	70.40	25733.1
Jan	3.00	70.40	20757.1
Feb	3.00	70.40	18121.3
Mar	3.00	70.40	17327.4
Apr	2.85	67.26	18879.3
May	2.53	60.52	23316.4
Jun	2.17	52.94	31686.6
Jul	1.72	41.37	47637.9
Aug	1.34	30.37	72640.6
Sep	1.12	24.11	103603.

initial stage = 3.00 max. stage = 3.00
initial volume = 161.70 max. volume = 161.70
initial area = 70.40 max. area = 70.40
initial salinity = 30000.0

APPENDIX I

MITIGATION PLANS, MARATHON INDUSTRIAL PARK, OCTOBER, 1986

MITIGATION PLANS

MARATHON INDUSTRIAL PARK

HAYWARD, CALIFORNIA

OCTOBER 1986

INDEX

Section I	Overview and Rationale	
Section II	Existing Conditions	
Section III	Proposal	
Section IV	Mitigation Alternatives Considered	
Section V	Technical Data	
	Appendix A	Report by LSA Associates
	Appendix B	Report by Greiner Engineering
	Appendix C	Report by Judd Hull & Assoc.

SECTION I

OVERVIEW AND RATIONALE

A. OVERVIEW

In 1975, none of the Hayward shoreline north of Highway 92 was in public ownership but today over 80% of the shoreline acreage has been purchased by local public agencies. The single largest purchase occured when the Fluor Corporation sold 900 acres of shorelands in 1976 to E.B.R.P.D., H.A.R.P.D., A.C.F.C.W.C.D., and the City of Hayward. Fluor retained the most inboard 172 acres which was and is zoned for industrial development and was later sold to Marathon.

The division between lands targeted for public uses and those zoned for industrial development was based in large part on shoreline planning decisions done under the auspices of the City of Hayward in 1974-1976. Numerous local, state, and federal agencies were invited to, and attended, these meetings.

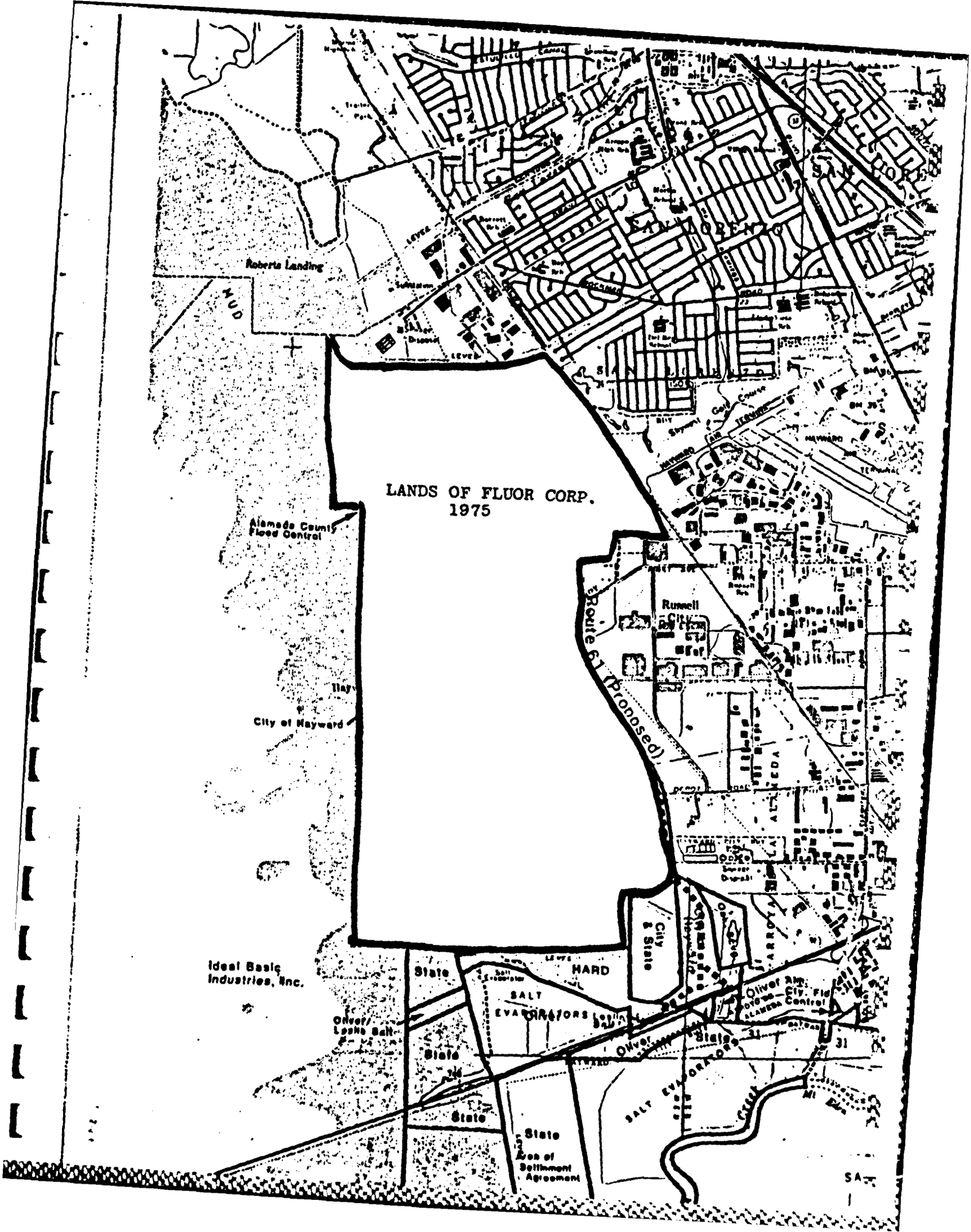
Of the public agency acreage, most has been restored to tidal action, or is proposed for habitat enhancement projects. These projects are consistent with the Hayward Area Shoreline Planning Association (HASPA) policy plan prepared in 1976 and Haywards General Plan. The Marathon industrial park of 134 acres was designated in these plans for industrial uses, but must mitigate the proposed filling of its $\pm$ 88 acres of seasonal wetlands before it can be so developed.

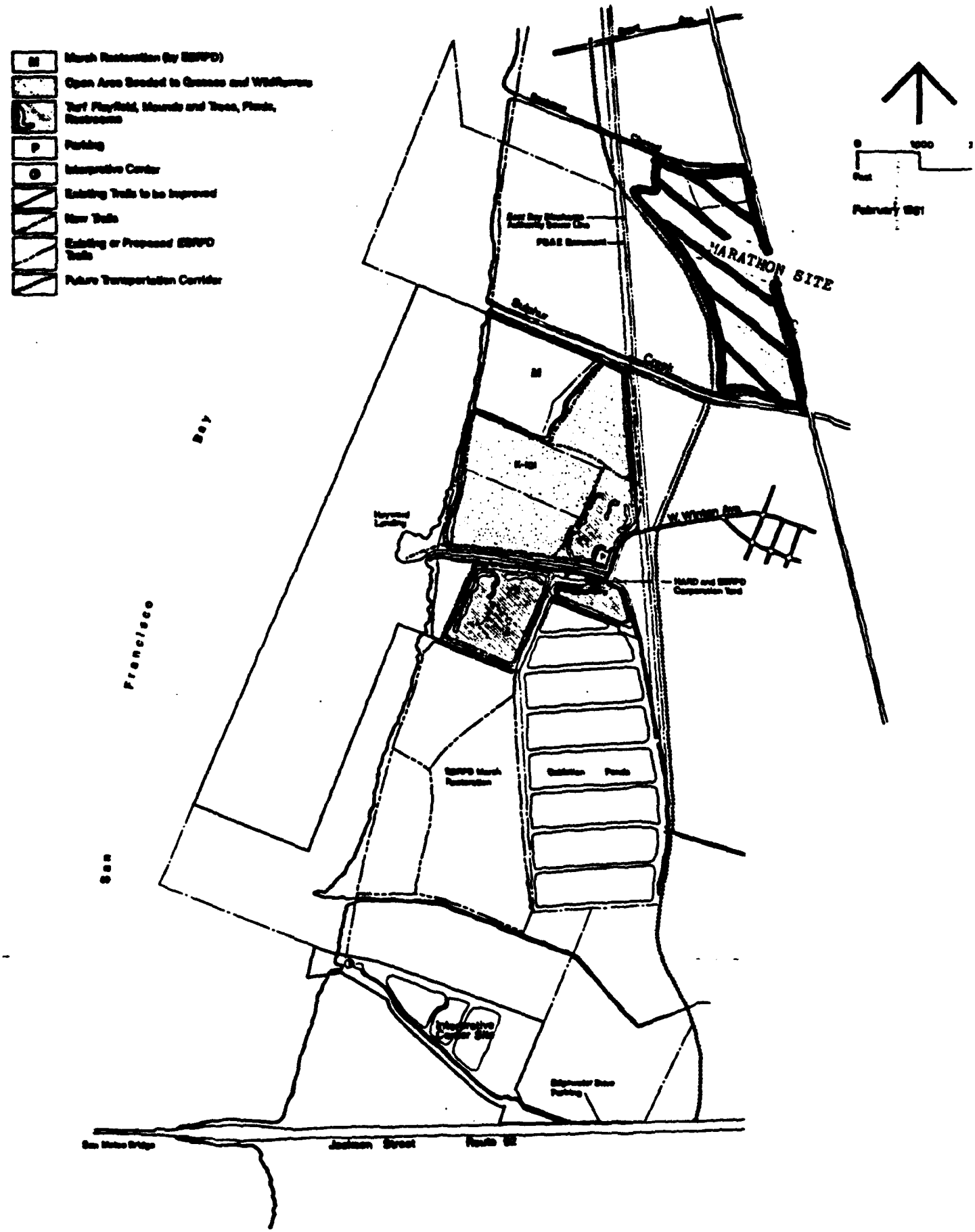
Marathon has sought, and hereby proposes, to mitigate this loss by either (1) The funding of the acquisition of lands restorable to wetland(s) acceptable to permitting agencies, or (2) creation of new seasonal wetlands of equal acreage but greater habitat value along the Hayward shoreline on parcels presently owned by the Alameda County Flood Control District and by Pacific F.M. This new seasonal wetland park could be traversed by the trail system that runs from the East Bay Regional Park lands north and south of the parcels if so desired, thereby also enhancing recreational uses.

This report will deal almost exclusively with the second option, the creation of new seasonal wetlands. The alternative, i.e. funding a restorable property's acquisition, is discussed in detail in the Draft EIR/EIS. This report is seperate from the Draft EIR/EIS which is in-process, and so this report is meant to focus attention on the creation of new wetlands.

The property of the Flood Control District and Pacific F.M. were filled by the Oakland Scavengers Company in the late 1960's and have never been properly sealed. Neither of the owners, though, have any intention, plan, motivation, or capital to undertake any sort of sealing of these dumps. Marathon proposes to (1) reduce the Bay pollution hazard at these sites, and (2) create seasonal wetlands and significantly increased habitat values on these lands.

The acreage, time-lapse and balancing of habitat values, proximity, and general plan consistancy concerns of various public agencies have been a paramont concern in developing this mitigation plan, and are addressed in this proposal.


LANDS OF FLUOR CORP.
1975
Roberts Landing
MUD
Alameda County Flood Control
City of Hayward
Route 61 (Proposed)
Russell City
Ideal Basic Industries, Inc.
State
HARD
SALT EVAPORATORS
Oliver Salt
Oliver
SALT EVAPORATORS
State
Area of Settlement Agreement
City & State
Oliver Rd.
City, Flo Alameda Control
31
SAN LORENZO



LAND USE PLAN
HAYWARD AREA SHORELINE

HAYWARD AREA
RECREATION & PARK DISTR

ARBEGAST NEWTON & GRIFFITH
LANDSCAPE ARCHITECTS

B. RATIONALE

The Marathon site contains approximately 88 acres of seasonal wetlands as determined by the Corps of Engineers. Marathon has received, from the Army Corps of Engineers, formal statements of compliance with the 404 (B)(I) "Alternative Site Study" guidelines. Essentially, this means that there are no practicable alternative sites of project designs to reduce wetland fill. Marathon has also received and passed its endangered species review. This mitigation proposal is Marathon's preferred alternative for conditional approval of its project by the City and the Corps of Engineers. It satisfies the following main objectives:

1. It is available and its implementation can be guaranteed.
2. It is in close South-Bay proximity to Marathon's site.
3. It is "kind-for-kind" mitigation.
4. It is "acre-for-acre" mitigation.
5. It improves an existing dump site that would not otherwise be improved.
6. The HEP/Adamus values in the before and after conditions show significant improvement.
7. The time-lapse between seasonal wetland loss and creation is minimized.
8. It provides more days of seasonal wetland than Marathon's seasonal wetland.
9. It provides more consistent year-to-year values than Marathon's seasonal wetland.
10. The mitigation lands themselves contain no endangered species habitat.
11. It complies with the HASPA general plan.
12. It complies with the City of Hayward general plan.

SECTION II

EXISTING CONDITIONS

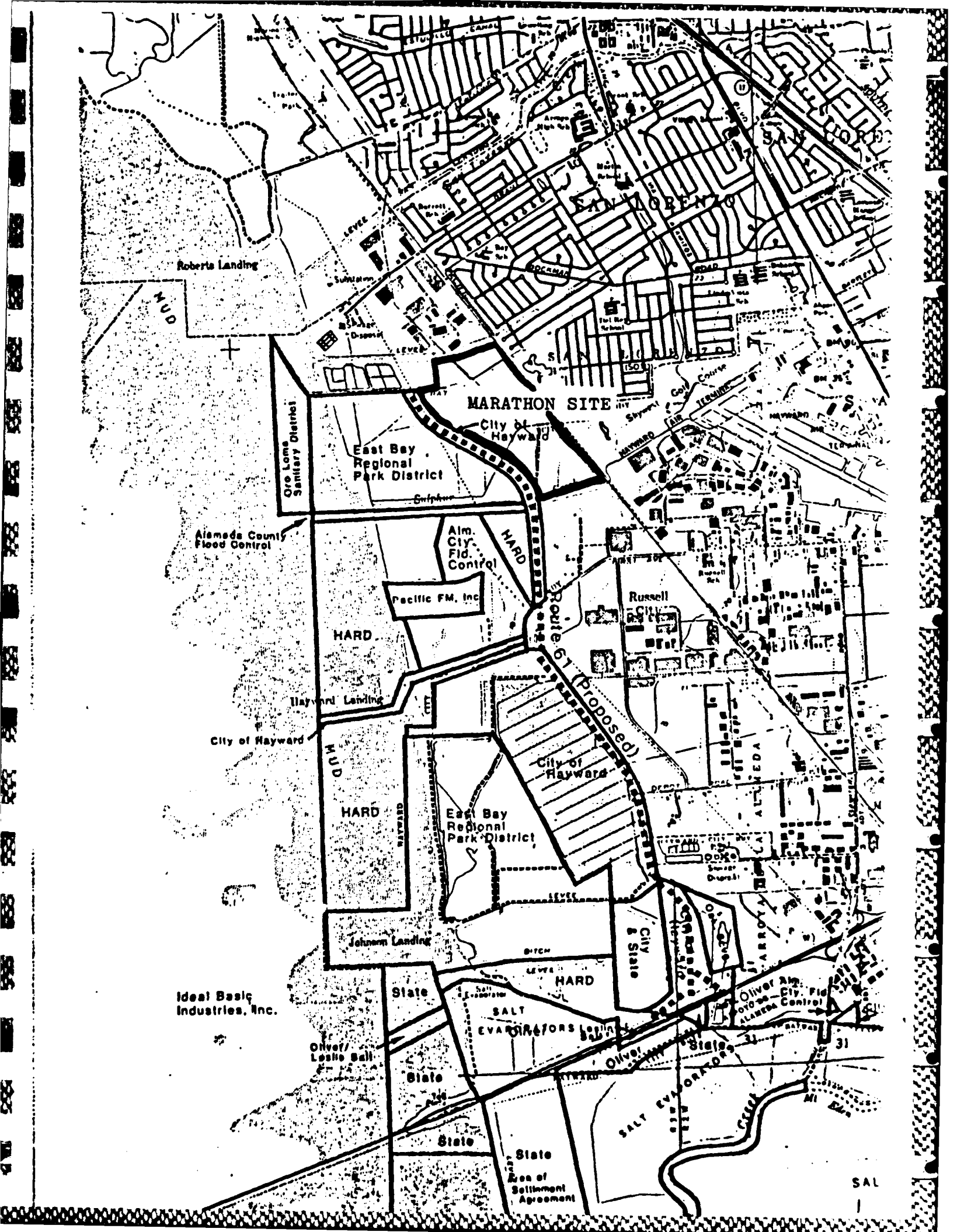
The Marathon property consists of 134 acres of land at elevations that range from +3 msl to +10 msl. The property is rail served, industrially zoned, and has clay and sand sub-soils. Thus it is very suitable for industrial development. Additionally, the land is part of the larger and almost fully developed west industrial area of the City of Hayward. Delaying development are the presence of seasonal wetlands, which have been designated Resource Catagory 2 by the U.S. Fish and Wildlife Service, (this allows off-site mitigation) and over which the U.S. Army Corps of Engineers has exercized its jurisdiction under Section 404 of the Clean Water Act.

The project requires approval from two agencies, the City of Hayward and the U.S. Army Corps of Engineers. The City of Hayward will require a certified EIR before it can consider approval. The Corps of Engineers has certain "threshold" issues that must be dealt with before it will adopt an EIS and consider approval. The project has now passed those "threshold" issues: the Corps, by formal letter, has accepted Marathon's "Alternative Site Study" and determined the property's existing conditions fail to constitute important habitat for any endangered species.

The Marathon property is served with, or Marathon has built, adequate capacity in it's neighboring tract, for storm, sewer, water, electric, telephone, underground cable TV services, etc. It is master-planned to be part of a larger infrastructure and road circulation network. The Route 61 right-of-way, adjacent to the west, has been acquired as part of the route's planned alignment. Ultimately, the County or Cal-trans will build Route 61, so that the property would then be completely surrounded with urban uses.

The Flood Control and Channel 20 parcels had been bay lands that were filled prior to the enactment of the Clean Water Act. They were filled with household garbage from residential subdivisions in an era preceeding Hayward's industrial developments. Researching those routes and their dates of collection, as well as a review of sample borings done by Judd Associates, leads to the conclusion that the property should be properly sealed and vented so as not to pose any future threat to fish and wildlife in San Francisco Bay or the shoreline.

There is no local, state, or federal law that requires any remedial work on these land sites by their owners. It is impractical for an owner to remove the garbage on the sites so development is unlikely to occur. However, the existing habitat values are very low, and the pollution threat is high.


Roberts Landing
MUD
Ora Loma Sanitary District
MARATHON SITE
City of Hayward
East Bay Regional Park District
Alameda County Flood Control
Alm. Cty. Fld. Control
HARD
Pacific FM, Inc.
Hayward Landing
City of Hayward
MUD
HARD
East Bay Regional Park District
City of Hayward
Route 61 (Proposed)
Russell City
Johnson Landing
HARD
State
Ideal Basic Industries, Inc.
Oliver/ Leslie Salt
SALT EVAPORATORS
Oliver
State
State
State
Area of Settlement Agreement
City & State
Oliver Alm. Cty. Fld. Control
SAL

SECTION III

PROPOSAL

The proposal is to offset the loss of 88 acres of seasonal wetlands on the Marathon property, which are between 1/2 and 3/4 of a mile inland from the shoreline with the creation of a new seasonal wetland of equal acreage directly on the Hayward shoreline. The secondary public benefits of this proposal are that (1) it significantly decreases the pollution risks to fish and wildlife from the improperly sealed garbage dump existing at the proposed mitigation sites, (2) public access to and awareness of seasonal wetlands will be increased by possible inclusion of the sites in a extension of the EBRPD trail system, and (3) the new seasonal wetlands are much better situated for wildlife use.

In layman terms, the existing Flood Control and Pacific FM sites would be capped in the dry season with an impermeable material. The subsurface would then be countoured by building up the perimeter in such a fashion as to retain water rather than drain the water, and to hold seasonal rainfall and pumped freshwater at approximately a 6-inch level for an extended winter season. A soil layer, imported from Marthon's seasonal wetland areas would be laid to "seed" the wetland with seeds, roots, and eggs for the growth of wetland invertebrates and vegetation. Additional rainwater may be imported from the Flood Control pump station at Sulfur Creek to increase the inundation periods.

The same shorebirds and other migratory birds and waterfowl that utilize the existing Marathon seasonal wetlands would find an equal and better seasonal wetland on the new parcel, with a longer inundation season for their use. In the late spring and summer, the site would be allowed to evaporate as the Marathon seasonal wetlands presently do. In the fall, winter and early spring, normal rain fall, plus any needed storm water run-off from the pump stations, would be utilized to extend the inundation period beyond what is presently available on the Marathon site.

Implementation would be guaranteed by a Subdivision Development Agreement between the City of Hayward and Marathon U.S. Realties Inc., the development agreement, as standard practice to assure the orderly completion of private projects, would be secured by performance and labor/materials bonds in amounts as determined by the City of Hayward. The work would be done concurrent with the development of Marathon's tract, which would be covered by the same development agreement.

An Open space easement or similar property right would be conveyed to a public agency assuring the continuation of the habitat conditions and preventing development on the mitigation site. Maintenance in perpetuity of the new wetland would be funded by a maintenance assessment district that would collect the moneys from the property within the boundaries of the Marathon subdivision as part of the regular propoerty tax collections.

SECTION IV

MITIGATION ALTERNATIVES CONSIDERED

Marathon has seriously considered and pursued numerous mitigation alternatives to the proposal described herein. We have examined every South Bay shoreland parcel in private ownership of over 40 acres, and these are the best candidates. Still, many have to be rejected or found less desirable for the reasons as cited below:

1. ON-SITE MITIGATION. This was determined to be unpracticable by the Alternative Site Analysis (CFR 404 (b)(i)). On-site mitigation is not consistent with the HASPA and City of Hayward general plans, nor, after economic benefits have been considered, is it in the public interest of local agencies who receive property tax revenue. It is also not the local plan contemplated in the parcellization and sale to public agencies for public purposes of the Fluor lands in 1976, of which this is the industrial portion.

2. HARPD PROPERTIES ADJACENT TO SULFUR CREEK. The original proposal was to develop a seasonal wetland on the inboard 35 acre parcel owned by HARPD, and to develop a salt water marsh on the outboard 55 acre parcel. Although this was consistant with every agency plan, it has been seriously challenged by the California Department of Fish and Game on the basis of inconsistancy with their "no net loss" policy as the site currently contains wetlands. this proposal has been more seriously questioned by the presence of important habitat to the endangered salt marsh harvest mouse, which habitat would be degraded as part of the proposed mitigation.

3. HARPD PARCEL ON HIGHWAY 92. The applicant had originally considered the improvement of habitat values on the 80 acre HARPD parcel by the Interpertive Center on Highway 92. However this program has been undertaken and funded by a Coastal Conservancy grant.

4. NORTH BAY LAND ACQUISITIONS. Marathon had considered optioning lands of the Sonoma Land Company southern Sonoma County along the northerly reaches of San Francisco Bay. This was considered infeasible because of agency insistance on closer proximaty between the mitigation and the impact.

5. LANDS OF JOHN WEBER/LATTIG IN HAYWARD. Marathon attempted to acquire this land for mitigation purposes but it has been rejected because of the owners unrealistic economic demands and uncertainty as to the presence of wetlands on-site.

6. LANDS OF OLIVER ESTATE, 107 ACRES ON HESPERIAN BLVD. This land was not available at a feasible price, despite its encumberance with a Williamson Act contract precluding development for 10 more years. Additionally, the City of Hayward is unwilling and unable to consider using its powers of eminent domain to effect a sale because of their

of their desire to see future industrial development on the property, and because such eminant domain action would be for a purpose inconsistent with its Industrial general plan.

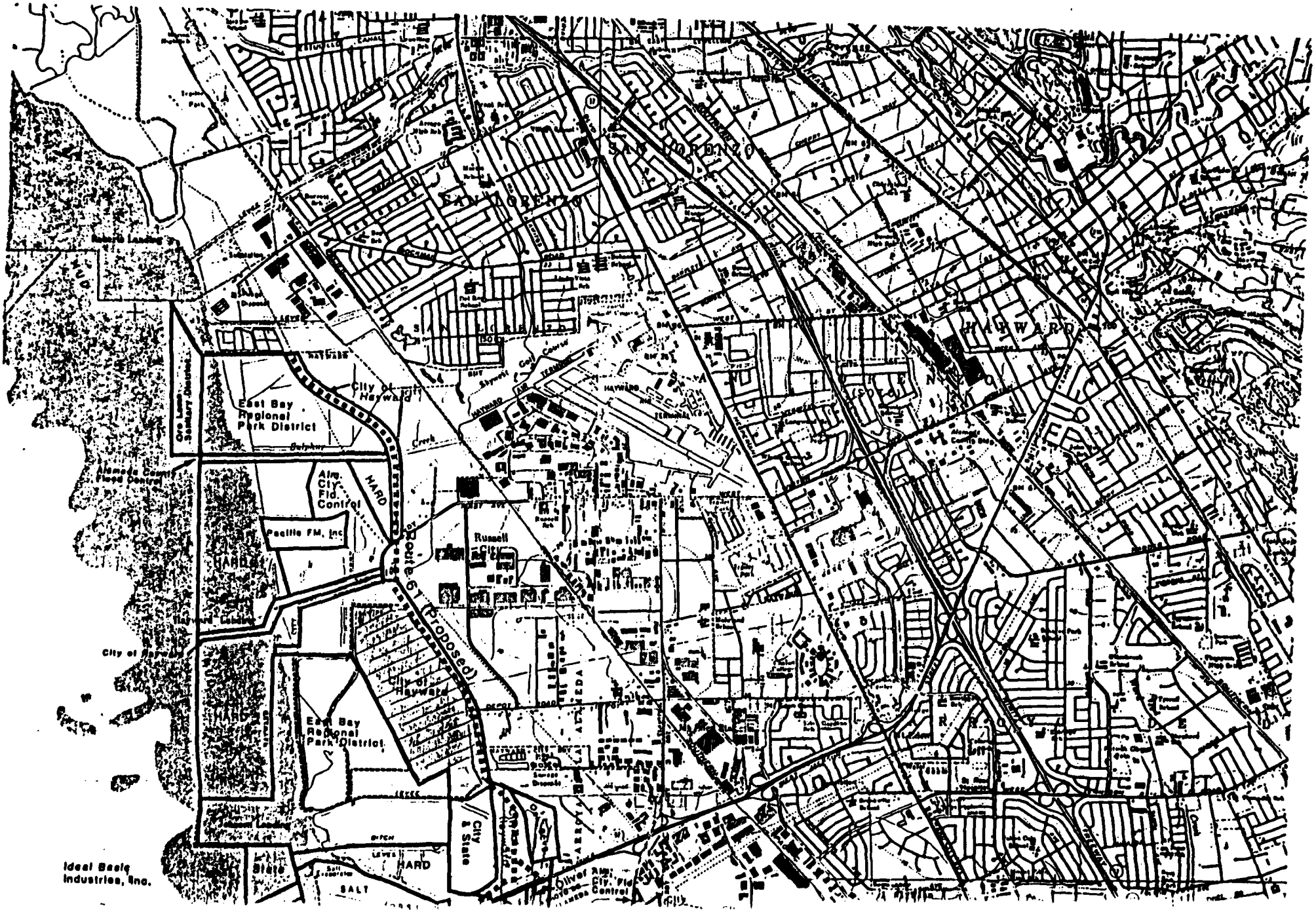
7. MENLO BUSINESS PARK LAND, 20 ACRES IN MENLO PARK. This site had been proposed by a number of agencies, however the owner of the property is vigoriously pursuing development on this property and it is simply not available.

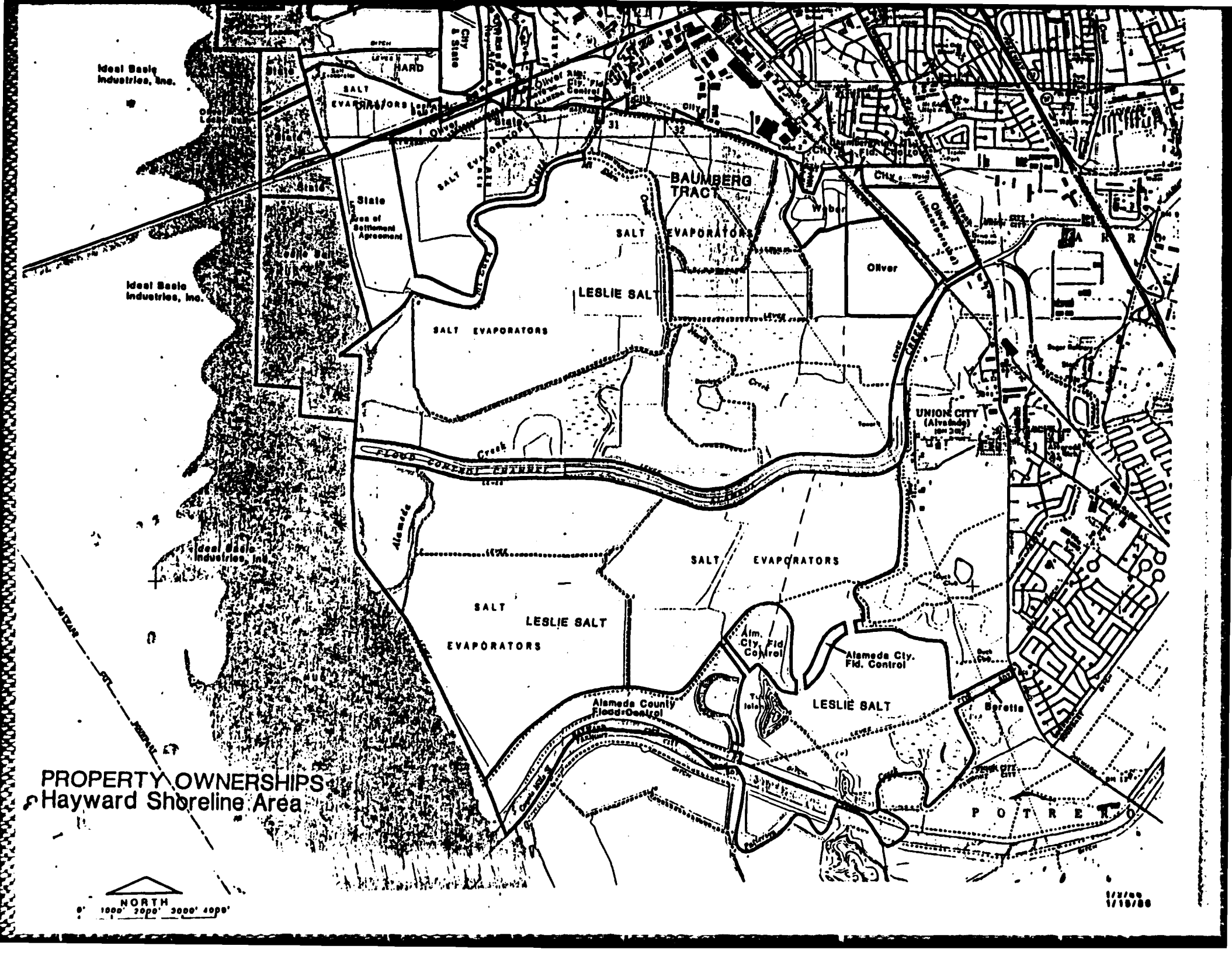
8. LANDS OF OLIVER ESTATE, 130 ACRES WEST OF SP RAILROAD LINE IN HAYWARD. This property, by its existing elevation and proximity to neighboring properties makes an acceptable wetland restoration by the ceaseing of the agricultural use and transfer of title to a public resource agency. The USFWS National Wetland Inventory Map shows this as comprised of a managed duck club and plustrine farming operation. As such, its conversion to wetland is both simple and natural. This is an excellent mitigation plan that Marathon fully supports if at a feasible cost. However, some agencies may challenge the suitability of this site for mitigation on the basis that it is already a seasonal wetland, despite it's agricultural use, and the owner is apparently unwilling to sell at a feasible price.

9. OLIVER BROTHERS SALT PONDS, HIGHWAY 92. This property, by its existing elevation and proximaty to neighboring properties would make a acceptable wetland restoration by the breaching of certain levees and transfer of title to a public resource agency. This is an excellent mitigation that Marathon fully supports, if at a feasible price. Potential problems with implementing this as mitigation would be that Marathon feels it would require an eminent domain action by the City of Hayward to acquire the property at a fair market value. Also, some agencies have challenged the suitability of this site for mitigation on the basis that is already a seasonal wetland, despite it's agricultural use.

10. OTHER SITES. The EIS is considering the aquisition and dedication, as mitigation plans, of any of three additional sites, two in the City of Fremont and one in Redwood City. The two in Fremont are a portion of the Patterson Ranch and the Ponderosa Homes site. Acquisition of either of these sites is highly questionable at this point, although the ceasing of the agricultural operations and transfer of title to a public resource agency of these would be appear to be adequate mitigation. Acquisition must be accomplished privately, and these sites will not be dealt with further until such deliverability can be assured.

In Redwood City, the Cumbustion Engineering Company has proposed to develop a portion of the former Ideal Basic Industries site at the south easterly end of Seaport Blvd. They have a remainder of 68 acres, 34 acres of which have been filled with dredge spoils, and 34 acres of which are a natural wetland. Again, deliverabilty is questionable and further investigation of this site is pending.


SAN LORENZO
HAYWARD
East Bay Regional Park District
City of Hayward
Alameda County Flood Control
Alm. Cty. Fld. Control
HARD
Pacific FM, Inc
Russell City
Route 61 (Proposed)
City of Hayward
East Bay Regional Park District
City & State
Ideal Basic Industries, Inc.
SALT
Oliver Alm. Cty. Fld. Control



PROPERTY OWNERSHIPS
Hayward Shoreline Area

1/17/86
1/18/86

SECTION V

TECHNICAL DATA

APPENDIX A

REPORT BY

LSA ASSOCIATES

Zentner and Zentner
785 Market Street, 16th Floor
San Francisco, California 94103
(415) 495-4570

MARATHON MITIGATION PROGRAM SUMMARY

The goal of the Marathon mitigation program is to provide equal or greater wetland acreages and habitat values than those lost through fill on the Marathon project site. This goal was established in accordance with wildlife agency policies (cf. Bontadelli, 1985).

The Corps of Engineers has determined that there are 88 acres of wetlands on the fill site./1/ The habitat values of the fill site have been described in TRS Consultants, Inc. (1985) and Huffman (1986) and are not repeated here. To summarize their findings, the habitat is of primary use to migratory, surface-feeding waterfowl, wading birds, and shorebirds. These guilds are the target species of this restoration program.

/1/ This program does not address habitat creation for any State or Federally listed rare, threatened or endangered species. The fill site does not host any currently listed species (TRS Consultants, Inc., 1985).

The use of the fill site by these birds is largely reflective of the shallow winter ponding and substantial invertebrate biomass and algal production which occur on the fill site. Analogous values have been reported for similar areas around San Francisco Bay and the Southern California coast (cf. Niesen and Josselyn, 1981, and Dillingham Environmental Company, 1981). Other factors of importance include: proximity to San Francisco Bay; distance from frequent disturbance; associated uplands available for roosting; low growth character of the landscape which reduces predator cover; and proximity to other, similar areas (Niesen and Josselyn, 1981; Cogswell, pers. comm.).

The mitigation site consists of an abandoned sanitary landfill on San Francisco Bay. The measures to be undertaken to isolate the contents of the landfill are discussed in Appendix B of this document. For our purposes, this program assumes an essentially impermeable site of 120 acres with an elevation ranging between 8 and 20 feet mean sea level (msl) datum.

The following steps will be taken to create wetlands on the landfill.

1. The top six inches of soil will be graded from the wetland area of the fill site and spread in a uniform layer over the top of the mitigation site. These top six inches contain the vegetative matter, soil salinities, and invertebrate juvenile

forms needed to re-colonize the mitigation site. The grading will occur concurrent with fill site grading.

2. Ten acres of low islands and berms will be created on the mitigation site to provide upland roosting and loafing habitat similar to the current topography of the fill site.

3. Water will be pumped from Sulphur Creek in November and May to the mitigation site to provide depths of between 2 and 12 inches over the 88 acres of wetland area of the mitigation site. Rainwater will supplement inundation between November and May. Based upon water balance calculations completed for this area by Philip Williams and Associates and contained within TRS Consultants, Inc. (1985) the mitigation site would remain inundated from November to May except during the 1 in 10 dry year./2/ During summer and fall, the water on the site will be allowed to evaporate completely. If water levels increase beyond one foot in depth, water will be drained from the site through a low channel on the south side of the site.

The salinity levels in Sulphur Creek range from 0 parts per thousand (ppt) during winter storms to 35 ppt in late summer and

---

/2/ This program provides for an average of six months of inundation and an ideterminate but longer period fo soil saturation on the mitigation site. The fill site was determined to be inundated typically for two weeks with a maximum saturation period of two months (TRS Consultants, Inc., 1985).

fall (TRS Consultants, Inc. 1985). Between November and April, mitigation site water salinities are expected to range between 5 ppt and 50 ppt (Zentner, pers. obs.).

This program should re-create the physical conditions of the fill site. However, two issues raised by this particular site require further discussion.

A time period of one to three years will be required for the vegetative cover to stabilize. The provision of shallow water with relatively high salinities should encourage immediate use by the target species, however. A recent restoration project in Fremont provided very substantial habitat values for these guilds prior to regular tidal inundation and vegetative stabilization due to the creation of shallow saline ponds by runoff water collected in the lagoons (Zentner, pers. obs.). Additionally, it is clear that the extent of emergent, vascular vegetation is not an important factor for the target species except where it encroaches upon either loafing or foraging habitat.

No other restoration projects in the San Francisco Bay area have been elevated above the tideline to the same extent as this mitigation site. Typically, shorebirds, waterfowl and other water-related avifauna locate roosting and feeding habitats at relatively great distances and from a range of heights. Currently used and abandoned sewage oxidation ponds, which are typically three to ten feet above the surrounding plain, are well known for

their use by avifauna. Consequently, the height of this area should not detract substantially from its use by the target species.

This site should provide wetland habitat values and acreages similar to the fill site. The provision of shallow ponding and invertebrate-laden soils will provide appropriate forage. The mitigation site is closer to San Francisco Bay than the fill site and, therefore, closer to the tidal habitats also favored by some of the target species. The mitigation site is also enclosed on two of the sides away from the Bay by Park District-owned wetlands and is Bayward of the proposed East Bay industrial transit corridor (Route 61); the fill site is surrounded on three sides by existing development and is inland of the proposed Route 61 corridor. The mitigation site is more protected from sources of disturbance than the fill site, which is directly adjacent to a regional park, and will retain the same low growth character of the vegetation, thereby keeping predator cover at a minimum.

The mitigation site is at a greater elevation than the fill site but this is not expected to have a substantial impact due to the target species foraging habits. The mitigation site is also physically smaller than the fill site; the acreage of wetlands is similar but the amount of upland area has been reduced. No studies are available which detail the amount of upland required for loafing adjacent to foraging habitat for the target species but casual observation would indicate it is a very important

value. This program provides 10 acres of upland (almost 10 percent of the site) spread throughout the restoration area.

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4:d01

APPENDIX B

REPORT BY

GREINER ENGINEERING

APPENDIX B

Purpose:

The purpose of our investigation was to identify the general requirements that will likely be necessary to create seasonal wetlands on top of an existing sanitary landfill site in Hayward, California.

Official Contacts:

California Regional Water Quality Control Board
(415) 464-1255
Anders Lundgen
Ken Tyson
Gloria Fulton

Waste management units and landfills are monitored by the Regional Water Quality Control Board (RWQCB). The RWQCB also regulates the Closure and Post-closure maintenance of waste units and landfills per Title 23, Chapter 3, Subchapter 15 of the California Administrative Code.

Article 8 describes the Closure and Post-closure Maintenance requirements for Class II waste management units and Class III landfills.

Landfill Closure Requirements:

A. Final cover requirements, in sequence, from bottom to top.

1. Minimum two (2) feet thick foundation layer.
2. Minimum one (1) foot thick clay layer compacted to attain a permeability of at least 1×10^{-6} cm/sec.
3. Minimum one (1) foot thick surface soil layer (vegetation layer)

B. Grading Requirements:

1. Landfills shall be graded and maintained to minimize ponding and to provide 3% minimum slopes. Lesser slopes may be allowed if an effective system is provided for diverting surface drainage from covered wastes.

C. A groundwater monitoring program will have to be designed and implemented. The system must be capable of detecting the presence of water constituents within surface waters and groundwater. The program will have to include groundwater monitoring wells located hydraulically upgradient and downgradient of the landfill.

D. Detailed studies will likely have to be performed to characterize hydrogeologic conditions in and around the landfill.

E. Groundwater monitoring wells will have to be sampled and analyzed quarterly.

F. Numerous other conditions will also have to be investigated and mitigated, if necessary. Such additional items might include perimeter slope stability, and perimeter containment of landfill leachate.

Probable Soil Conditions:

Based upon the published soil and geologic data, it is apparent that the Hayward Landfill area was originally marshland adjacent to San Francisco Bay. At some time in the past, it was diked off from the Bay and allowed to dry. In the mid 1950's, portions of the area were used to dispose of household waste. In subsequent years, the Oakland Scavenger Company utilized the entire area as a landfill. Filling continued until the mid 1970's.

Subsurface information is limited for the area. However, test borings have been drilled by others in the northern half of the area. These borings indicate that approximately 10 to 12 feet of

refuse has been placed in the area. A thin, i.e. less than 1 foot thick, layer of clayey soil has been placed over the refuse. Based upon current topography, we judge that refuse thicknesses are greatest in the northern portion of the site. Refuse thicknesses are probably on the order of 5 to 6 feet in the southern half of the property. Beneath the refuse are clayey marsh deposits locally referred to as Bay Mud. These deposits are highly compressible and in most cases, possess relatively low permeabilities. Bay Mud thicknesses generally thicken toward the San Francisco Bay. Bay Mud thicknesses are uncertain; however, we judge that they probably are up to 20 or 30 feet thick along the outboard side of the area.

Conclusions:

We are currently uncertain of the requirements that will be imposed on the project to create seasonal wetlands on top of the Hayward landfill area. The issues that will be involved are relatively complex; we are unaware of any similar projects that would have set precedence for the regulatory agencies. The lack of past similar projects is most likely because the concept of creating seasonal wetlands on the landfill is generally contrary to regulatory agency guidelines.

We believe that any significant improvement on the landfill will likely necessitate closure of the landfill in accordance with state regulations. However, closing the landfill will by itself likely be insufficient to allow us to pond water on top of the landfill. Landfill surface closure requirements are largely

intended to simply promote runoff and minimize infiltration into the refuse. The soil cover requirements are not designed to seal a pond where standing water will exist for prolonged periods of time. We judge that is will be necessary to create an "impermeable" liner system in ponded areas, which is capable of containing the water as long as it exists. Because it will be a seasonal facility, we judge that water retention periods of 6 to 8 months will have to be incorporated in the liner design. The liner system will likely have to possess a relatively high degree of confidence with regard to failure of the liner system. Areas outside the pond area can likely be closed in accordance with the criteria specified in Title 23.

The criteria required to seal the ponded area within the landfill is somewhat uncertain at this time. The criteria will likely "evolve" through negotiations with the Regional Water Quality Control Board and other regulatory agencies. However, at this time, we suspect that it will be necessary to construct a liner system capable of:

1. Retaining all ponded and infiltrating water.
2. Maintain its integrity as differential settlement occurs within the landfill.
3. Function in the prescribed manner for a prolonged period of time.

Impermeable pond liners are generally constructed of (1) clayey soils possessing low permeabilities or (2) synthetic liners. Depending upon design requirements, seepage collection systems

are often constructed below the liners to collect and divert pond constituents that could possibly penetrate the liners. For the wetland mitigation project, we believe that the soil liner alternative possesses several inherent inadequacies. All of them deal with the fact that the area is and will continue to experience significant settlement.

Settlement is occurring in the area (1) as the Bay Mud that underlies the area consolidates or compresses under fill loads and (2) as organic components of the refuse decompose. Settlement magnitudes cannot be accurately determined until detailed studies are conducted to evaluate Bay Mud and refuse thicknesses. However, we judge that future settlement magnitudes could be on the order of several feet. Differential settlement on the order of 1 or 2 feet should also be anticipated.

Future differential settlement could cause relatively impermeable clay liners to crack and hence, lose its effectiveness. We believe that soil liners can be designed to accommodate some differential movement. However, this will likely require the seepage barrier layer to be composed of clayey materials which have been moisture conditioned to relatively high moisture contents, making it highly plastic and capable of deforming in the event of differential movement. It will also be necessary to "isolate" the barrier layer so that it does not dry out during the dry summer months, which would make it brittle and susceptible to cracking. This will likely require the liner to be covered by several feet, i.e. about 3 feet of clayey fill. We

judge that the use of a clay liner system in the pond area will result in the need to import significant quantities of clayey fill, both for the construction of the barrier layer and the overlying cover materials. The thickness of the barrier layer will depend significantly on the type of materials that are used to construct it, and the hydraulic head that will exist on the liner system, and the magnitude of anticipated differential settlements. Although many of these details are uncertain at the present time, we suspect that a clay liner acceptable to the regulatory agencies will likely have to be at least several feet thick.

Synthetic liners are available which provide extremely low permeabilities, and relatively high tensile strength and elasticity, which make them much less susceptible to damage as a result of differential movement. Liner construction will likely require a relatively smooth and unobstructed soil subgrade on which to place the synthetic liner. The liner would be rolled into placed typically available in 50 to 100 foot wide strips. Joints are typically chemically bonded in the field. At least 12 inches of soil should be placed over the liner to protect it and provide materials to support surface vegetation. We judge that the use of a synthetic liner will significantly reduce import soil requirements. At this time, we also judge that a synthetic liner system will satisfy general closure requirements for the landfill.

There are several other design concerns that warrant discussion. These include (1) the control of methane gas, and (2) the control of surface water elevations within ponded areas. Methane gas is a common by-product of organic material decomposition. Landfills typically generate significant quantities of methane gas. In the normal landfill, this gas simply percolates through the soil cover and into the atmosphere. However, where a synthetic liner has been placed over the top of the landfill, its migration upward will be obstructed. We judge that the liner will tend to concentrate methane gas discharges near the perimeter of the ponded area, where the liner ends. It will probably be necessary to collect this gas and discharge it into the atmosphere in a controlled manner, rather than allowing it to escape into the atmosphere in concentrated areas. We believe that a suitable methane gas collection system can be incorporated in pond design. It will likely involve the construction of gravel filled trenches and piping systems, and a suitable discharge vent above ground.

We anticipate that the seasonal wetlands project will essentially consist of (1) and area in which shallow ponded water will accumulate and (2) areas surrounding the pond which contributes runoff to the pond area. In this event, we believe that it will be necessary to provide some type of control on the elevation of ponded water. This control will likely be necessary to reduce the likelihood of ponded water exceeding the limits of the synthetic liner area. We judge that there are numerous ways to accomplish these controls, the simplest alternative may be to construct a relatively low channel area which discharges into the

canal along the south side of the landfill area.

The plan entitled, "Mitigation Plan, Marathon Industrial Park, Hayward, California" dated October, 1986 indicates the general layout of the proposed wetlands.

The site is divided by 2'6" high earth berms which follow the existing contour of the land. The berms are placed at roughly 2 foot intervals in order to provide both wet and dry basins across the site.

The basin depth is controlled by the elevation of an overflow weir within each basin. The overflow height has been set at 12 inches as shown on the plan. This allows a ponded depth of 12 inches adjacent to the berm and a decreasing depth toward the next uphill berm. The overflow weir system allows the drainage of the entire site to the lowest basin, which then drains to the canal.

Detailed engineering studies will have to be performed to develop appropriate design criteria and satisfy the Regional Water Quality Control Board and the Solid Waste Management Board. Based upon our past experience, we judge that the negotiation process with the involved State agencies will be relatively time consuming. If a significant groundwater contamination problem currently exists, it may be necessary to mitigate the problem prior to construction of the seasonal wetlands project. If serious deficiencies exist, significant project delays and costs could develop.

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MARATHON IND

HAYWARD,

OCTOBER, 1986

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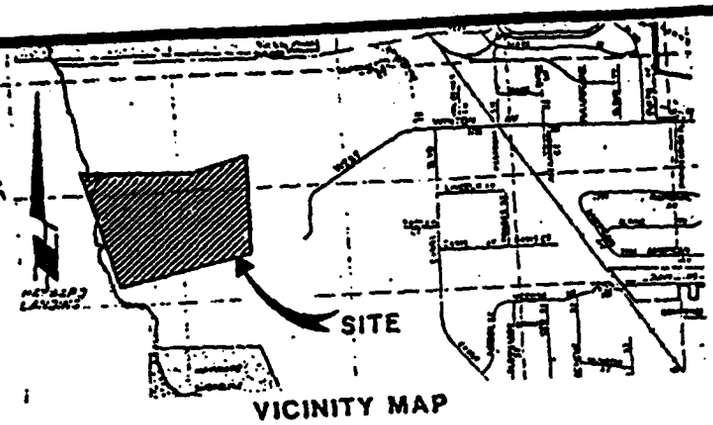
Engineering · Pla



VICINITY MAP

HAYWARD RECREATION & PARK DIST

ALAMEDA COUNTY FLOOD CONTROL & WATER CONSERVATION DIST. ACFC & WCD

1650'

650'

2150'

SAN FRANCISCO BAY

WETLANDS

DRYLANDS

A

B

C

HEIR (TYP)

2,050'

CHAN

HEIR DRA
/ RIP RAP

DRAINAGE

TOTAL SITE AREA= 94.0 ACS.

AREA WITHIN PERIMETER BERM= 83.0 ACS.

ION PLAN

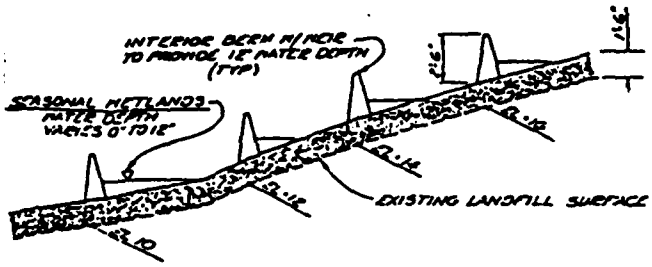
DUSTRIAL PARK

CALIFORNIA

SCALE: 1 200

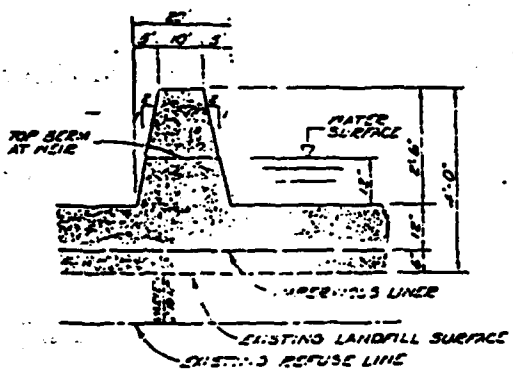
ngineering

anning · Surveying



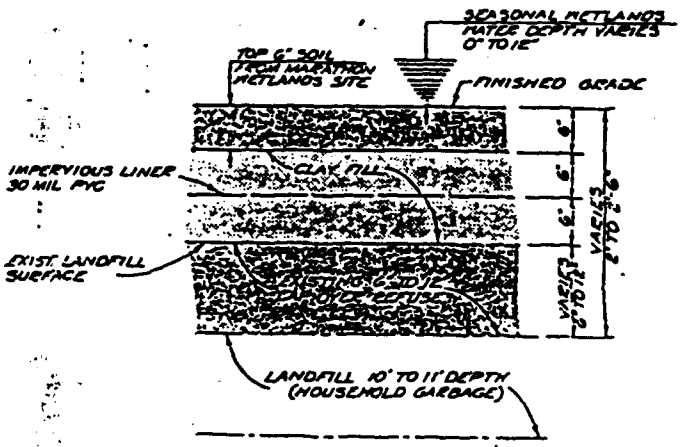
SECTION C-C

TYPICAL SECTION THRU INTERIOR BERMS



SECTION B-B

TYPICAL SECTION AT INTERIOR BERM



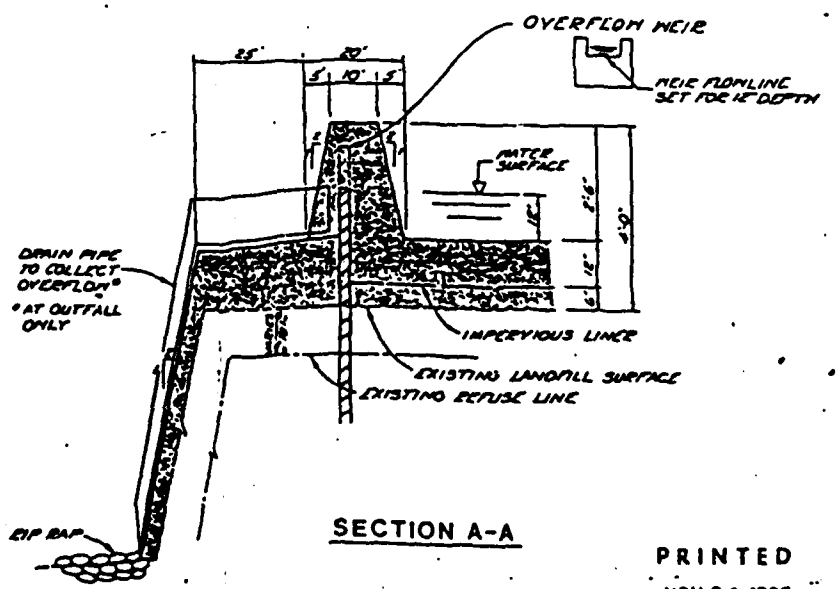
LANDFILL CAP DETAIL

ACFC & WCD

1,800'

NNEL

AIN PIPE OUTFALL



SECTION A-A

LEGEND

- PROPERTY LINE
- BERM
- DRAINAGE WEIR
- 10 EXISTING CONTOUR ELEVATION

PRINTED

NOV 2 1 1986

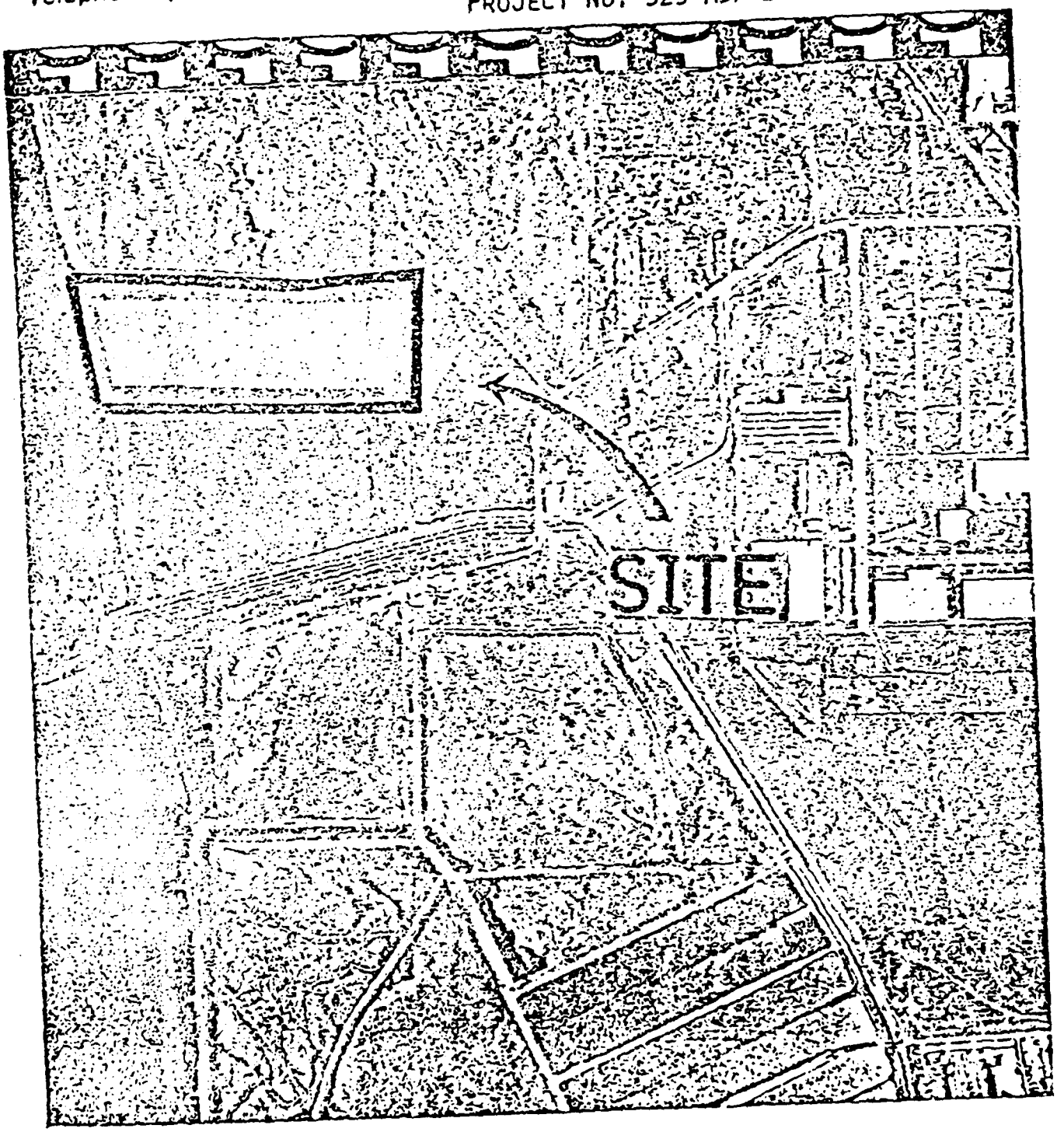
APPENDIX C

REPORT BY

JUDD HULL & ASSOCIATES

JUDD HULL and ASSOCIATES
Geotechnical Consultants
22654 Watkins St., Hayward, CA 94541
Telephone: (415) 582-1880

PROJECT NO. 929-A57-B5



SOIL INVESTIGATION - PHASE I
PRELIMINARY SITE EXPLORATION
PROPOSED RADIO TRANSMITTER FACILITIES
AND BROADCAST TOWERS
WEST END OF WINTON AVENUE
HAYWARD, CALIFORNIA

JUDD HULL and ASSOCIATES
Geotechnical Consultants
22654 Watkins St., Hayward, CA 94541
Telephone: (415) 582-1880

Project No. 929-A57-B5
24 February 1981

Radio Station KIQI
Oro Spanish Broadcasting
2601 Mission Street
San Francisco, California

Attention: Mr. Rene De La Rosa

Subject: Proposed Radio Transmitter Facilities
and Broadcast Towers
West End of Winton Avenue
Hayward, California
SOIL INVESTIGATION - PHASE I
PRELIMINARY SITE EXPLORATION

Dear Mr. De La Rosa:

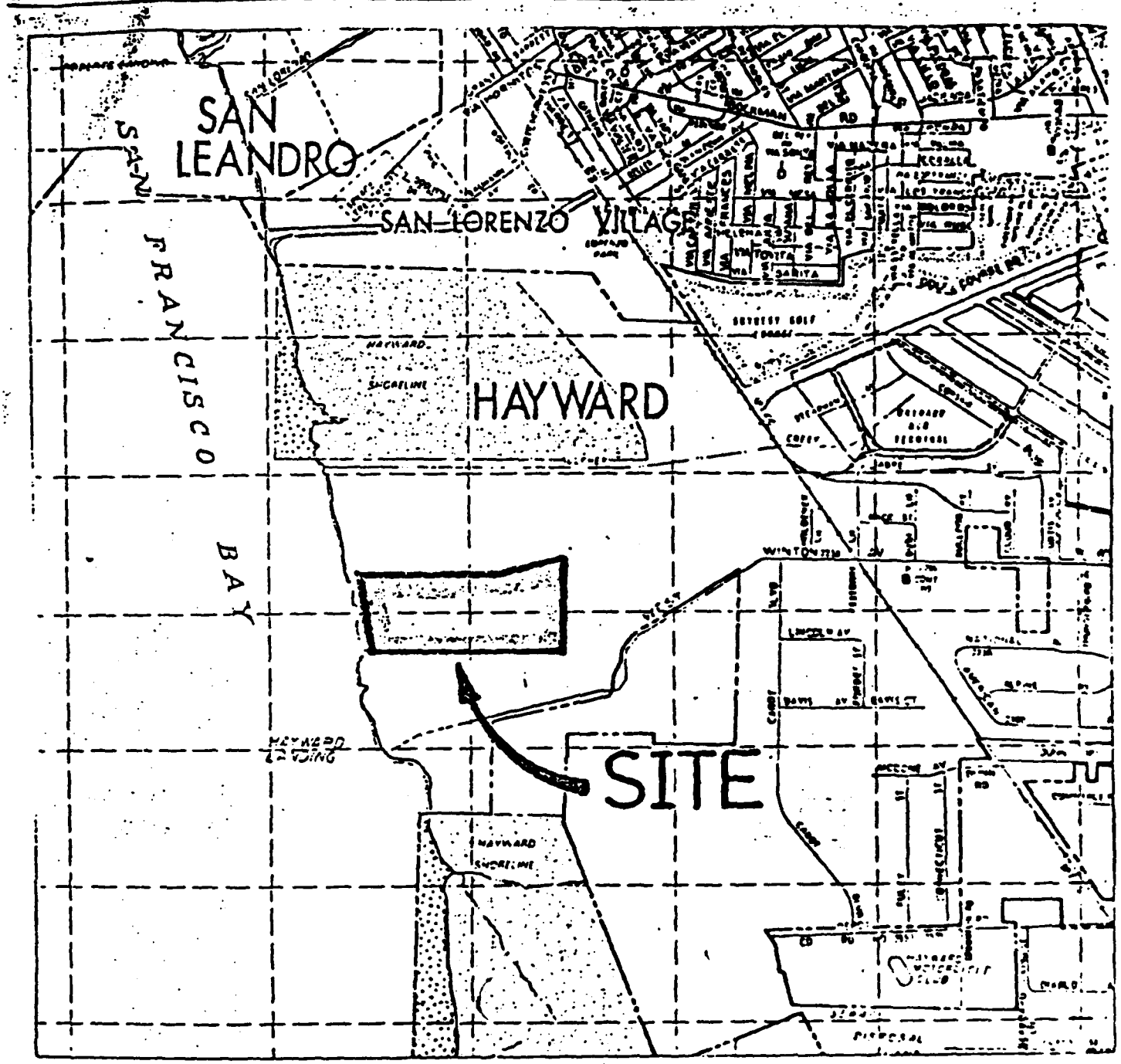
In accordance with your authorization, our firm has conducted Phase I of the Soil Investigation for the proposed radio transmitter facilities and broadcast towers. This report summarizes our field exploration and laboratory testing performed to date. We refer you to the attached report for the details of the encountered conditions, the results of the laboratory testing and our preliminary conclusions.

Very truly yours,

Michael Hansen

Judd R. Hull
C.E. 23032
SOIL ENGINEER

MH:JRH:nc
Copies: 8 to Client



VICINITY MAP

Project No. 929-A57-B5
24 February 1981

SOIL INVESTIGATION PHASE I
Preliminary Site Exploration

Purpose and Scope

The purpose of this phase of our Soil Investigation was to explore the site of the proposed radio transmitter facilities and broadcast towers and, based on the results of our exploration, offer preliminary conclusions concerning the encountered conditions and the anticipated foundation types.

The scope of our investigation consisted of site reconnaissances by the Soil Engineer and other staff personnel, the drilling of eight test borings at the approximate locations shown on Figure No. 1. Laboratory testing of selected soil samples was performed to assist in the determination of the physical and engineering properties of the foundation soils. This report was prepared to summarize our field explorations, laboratory test results and preliminary conclusions.

Site Location and Description

The site of the proposed radio transmitter facilities and broadcast towers is located near the west end of Winton Avenue in Hayward, California. Access to the property is by way of a private road (partially paved and partially unimproved) which begins at the end of Winton Avenue and extends westward toward the bay. The property is bounded on the north, east and south by lands presently being used for cattle grazing and on the west by the San Francisco Bay.

The property is relatively level and raised approximately 10 to 15 feet above sea level. Although the property appears

relatively level, in detail it is actually a multitude of small, shallow, closed depressions and small mounds. Many of the depressions were ponding water at the time of our field work.

At some time in the past the property was a disposal site for household garbage. During this period the property and other adjoining properties were filled with many thousands of yards of garbage. After the dump was closed the surface was apparently covered with a thin layer of soil and, the area was returned to agricultural use.

The location and description referred to herein are based on site reconnaissances by our personnel and maps provided by AAA Engineering Company.

Field Exploration

The field investigation consisted of site reconnaissances by the Soil Engineer and other staff personnel and the drilling of eight test borings at the approximate locations shown on Figure No. 1. The test borings were drilled in the vicinity of each proposed tower and the proposed building. The location of the towers and building were staked in the field by AAA Engineering Company. The borings extended to depths between 14.5 and 50.5 feet below the existing ground surface. The drilling was performed with a truck-mounted rig using power-driven 6-inch diameter continuous flight augers. The soils encountered were continuously logged in the field during the drilling operations. As the rig drilling proceeded, relatively undisturbed core samples were obtained by means of a 3-inch O.D. (L) or a 2-inch O.D. (T) split-tube sampler. The sampler was dynamically advanced into the in situ soil with a 140-pound hammer having a free-fall of 30 inches. The number of blows required to drive the sampler the final 12-inch distance is known as

the penetration-resistance and, these values are contained in the LOGS OF TEST BORINGS.

After field classification, selected samples were sealed and returned to our laboratory for testing. A description of the soils encountered and the locations at which samples were taken are shown on the LOGS OF TEST BORINGS.

Laboratory Testing

To assist in the determination of the physical and engineering characteristics of the foundation soils, the following tests were performed:

a. Moisture Content (ASTM D2216-71)
b. In-Place Density (ASTM D2937-71)
c. Hydrometer Analysis (Modified) (ASTM D422-63)
d. Unconfined Compression Testing (ASTM D2166-66)
e. Consolidation Testing (ASTM D2435-70)

These tests were performed to assit in the determination of the consistency, moisture variation, in-place density and, the unconfined compressive strength and consolidation properties of the foundation soils. The results of the laboratory testing are shown on the Logs of Test Borings opposite the sample tested or on other graphs at the end of this report.

Subsurface Soil Conditions

Based on the materials encountered in our test borings, the property has apparently been used as a dump site at some time in the recent past (last 25 years). There is approximately 12 feet of fill overlying the native soils. The fill is composed of approximately 10 to 11 feet of household garbage which is overlain by a thin (6 to 12 inch) layer of imported silty gravel soil. These fill materials are very loose and compressible.

The native materials below the garbage fill are primarily recent bay mud with some random layers of medium dense silty sand. The upper ten feet of bay mud is very soft and compressible (see consolidation test, Figure No. 10). Beneath this upper soft layer the bay mud becomes very stiff clayer silts with layers of silty sands as shown on the test boring logs.

These lower soils are adequate for supporting pile foundation loads. However, due to continuing consolidation of the garbage fill and upper soft bay muds, the pile foundation should be designed to include the negative friction (downdrag) imposed by the consolidation of the upper twenty feet of materials.

The free groundwater table was encountered at a depth of approximately 5 to 6 feet below the surface within the layer of imported household garbage.

PRELIMINARY CONCLUSIONS

1. The site is covered by a layer of imported fill consisting almost entirely of household garbage covered by a thin (6 to 12 inch) layer of silty gravel.

2. The upper 10 feet of Native Soils consist of very organic compressible clayey silts.

3. The proposed improvements should be supported on driven pile foundations deriving support from the soils below in depth of 20 feet.

4. Continued consolidation of the upper 20 feet of materials is anticipated and, this factor should be considered in the design of the proposed foundations.

5. Specific design criteria for the development of the foundations for the proposed radio transmitter facilities and broadcast tower will be offered in a final report after the specific requirements for the construction are known.

APPENDIX J

FUNCTIONAL VALUE ASSESSMENT OF AREAS SELECTED FOR MITIGATING WETLAND HABITAT LOSSES RESULTING FROM THE PROPOSED MARATHON BUSINESS PARK DEVELOPMENT

FUNCTIONAL VALUE ASSESSMENT OF AREAS SELECTED FOR MITIGATING WETLAND HABITAT LOSSES RESULTING FROM THE PROPOSED MARATHON BUSINESS PARK DEVELOPMENT

Hayward, California

Prepared For

EARTH METRICS, INC.
Burlingame, California

By

HUFFMAN and ASSOCIATES
San Francisco, California

February 1987

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1.0 INTRODUCTION

1.1 Background

Marathon U.S. Realties, Inc. (Applicant) proposes to develop a business park facility on 134 acres located in the City of Hayward. Land uses expected at the site are industrial and commercial, with an orientation toward rail service. It is anticipated that the industrial activities will include warehouse/distribution, light manufacturing, and research and development companies. Commercial users will include businesses that support industrial users and serve employees as well as the general public.

In order to provide flood protection on the site, approximately 34,000 cubic yards of fill material will be placed along the western site border to create a levee connected to the Bockman and Sulphur Creek levees. A storm and sewer drainage system, in combination with existing mechanical pumps, will be incorporated into project development. The road network will require approximately 98,000 cubic yards of imported fill. The site will then be re-graded to move approximately 200,000 cubic yards of the highest ground into the lowest areas to achieve site "balance."

Because the proposed action will include the placement of structural fill in approximately 90 acres of wetlands under regulatory jurisdiction of the U.S. Army Corps of Engineers (COE) a "404" permit will be required prior to development[1]. Prior to

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[1]Federal Register. 1977. Title 33 - Navigable Waters: Chapter II - Corps of Engineers, Department of the Army: Regulatory Programs of the Corps of Engineers," Vol 47, No. 41, pp. 31791-31834, 22 July 1977. U.S. Government Printing Office, Washington DC.

consideration as to the issuance or denial of the COE permit, the Fish and Wildlife Coordination Act (16USC 661-666c) requires that the COE consult with the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS) and the California Department of Fish and Game (CDFG). As part of this process, the USFWS has classified the 90 acres of diked seasonal wetlands associated with the project site under Resource Category 2. This designation means that the habitat is considered of "high value to wildlife and is relatively scarce on a national basis." The USFWS mitigation policy for Resource Category 2 habitat is to "prevent any net loss of in-kind habitat values and to compensate via mitigation for any loss of habitat by replacing it with similar habitat." The USFWS has also notified the Corps that an endangered animal species, the salt marsh harvest mouse (Reithrodontomys raviventris), and an endangered plant species, the soft bird's beak (Cordylanthus mollis ssp. mollis) may be present on the project site.

As a result of the above described agency requirements, it is incumbent on the project applicant to seek mitigation to insure that no net loss of diked seasonal wetlands results from the development of the project. The mitigation effort would require upgrading of habitat values on lands located away from the project site in a manner that Resource Category 2 values would be achieved or exceeded. This would be achieved by the purchase (private land) or a guarantee (in the case of public lands) that habitat restoration of, or improvements be maintained (e.g. transfer of lands to an appropriate government agency)."

1.2 Study Objectives

The primary objectives of this report are to:

a) provide a detailed description of existing conditions on the project site and all candidate mitigation sites;
b) perform a qualitative evaluation of the present functional habitat values of the proposed project site;
c) compare these values to the present and potential habitat values of various proposed candidates mitigation site alternatives; and
d) utilize the comparisons to assess which of the proposed sites will best satisfy the USFWS policy of no net loss of Resource Category 2 - seasonal wetlands.[2]

1.3 Regional Perspective on South San Francisco Bay Wetlands

Estuaries have long been a focus of human settlement and activity because of their wide array of living and nonliving resources. They have also been susceptible to change; their tributary rivers have been dammed and diverted, shorelines modified, fish populations reduced or eliminated, and water quality altered by wastes. The San Francisco Bay estuary is no exception.

San Francisco Bay is located at the mouth of the Sacramento-San Joaquin river system, which carries runoff from 40 percent

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[2]No attempt is made by this study to determine exact habitat acreage exchange/replacement requirements. Habitat value is determined on the basis of site functional value similarity and potential for similarity as compared to that of the proposed Marathon Business Park site.

(153,000 km^2) of California's land surface area. Spanish soldiers and missionaries, first arriving in 1769, found a complex of bays and marshes where an estimated 10,000 to 20,000 aboriginals lived and harvested food. The Spanish settlement (now San Francisco) remained an isolated trading outpost until gold was discovered in the Sierra Nevada foothills in 1848. Within 2 years, San Francisco's population grew from 400 to 25,000, beginning the California boom (Nichols et al 1986).

The San Francisco Bay is the largest estuarine ecosystem in California. The Bay ecosystem supports a very diverse and productive biota. Prior to the mid-nineteenth century there were an estimated 734 square kilometers of tidal marshlands around the Bay. Only 152 square kilometers of tidal marsh remain today, most of which have been extensively and adversely modified (USFWS 1984).

Hydraulic mining during the Gold Rush period in the Sierra Nevada had dramatic effects on the bay. Literally, cubic miles of Sierran soils were washed down the rivers to form shoals in the Suisun and San Pablo Bay. The effects of over three feet of sediments deposited during that time can never be completely known, as the first studies on the benthic fauna did not take place until 1912. Undoubtedly, the increased sedimentation caused many changes in the biota of the bay wetlands.

1.3.1 Tidal Saltmarshes

The marshes of the Delta and the Bay began to be diked off for salt-evaporation ponds as early as 1860. By 1959, 581 square kilometers of marshlands and tidelands had been diked off or filled. Diking was relatively easy to accomplish because much of the Bay, especially South San Francisco Bay was shallow. At one time an estimated 1,471 square

kilometers of the original Bay were considered "available for reclamation", and filling proceeded unabated until the San Francisco Bay Conservation and Development Commission (BCDC) was established in 1965. Since the establishment of the Commission, filling and diking of marshlands has slowed considerably (USFWS 1984).

Central San Francisco Bay originally had approximately 13 square kilometers of tidal marsh, while Suisun Bay had 289 square kilometers. South San Francisco and San Pablo Bays had intermediate amounts, 175 and 258 square kilometers, respectively (USFWS 1984).

The tidal marshes of today are fragments of the original marshes. Some are narrow strips along outboard dikes. Only 21 percent of the Bay's original tidal marshland still exists, and approximately 32 percent of that is now diked. Many have been back-filled so that various types of marsh vegetation have been eliminated. Others have dikes at their upper limits and these upper marsh zones have been reduced to narrow strips bordering the dikes. Shallow, strip-like marshes typically lack secondary tide channel networks, thus reducing their value for many birds (USFWS 1984).

Many marshes around South San Francisco Bay have undergone vegetational changes as a result of land subsidence and increased tidal submergence. Land subsidence of up to ten feet, caused by groundwater pumping, has occurred from Palo Alto to Alviso over the last one hundred years. Many marshes have changed from predominantly pickleweed to cordgrass as a result.

Outflows of major sewage treatment plants, like the San Jose - Santa Clara Water Treatment Plant near Alviso, have

changed the plant and animal communities of the marshes in South San Francisco Bay. The input of "freshwater" from these treatment plants has shifted the salt balance in portions of the Bay from a salt to a brackish condition. The 380-450 million liters (100-120 million gallons) produced each day by the San Jose - Santa Clara Water Treatment Control Plant maintain the nearby marshes in a brackish condition of only 0.5 parts per thousand (PPT) of salt while the water a few kilometers into the Bay is about 30 PPT salt. The marshes along that outflow have changed from diverse salt marshes to brackish water marshes dominated by alkali bulrush, a species of low value to many salt marsh animals, including the salt marsh harvest mouse and the California clapper rail, both state and federally listed (endangered) species (USFWS 1985).

The proposed project site is located adjacent to the eastern periphery of the historic Alviso saltmarshes, as mapped by Nichols and Wright (1971). At one time, the Alviso marshes constituted one of the three largest tidal marsh systems of San Francisco Bay (the other two are the Napa and Suisun Marshes). Ranging from seven miles to a quarter mile in width, the eastern San Francisco Bay marshes formed a corridor beginning with Alviso Marsh at the south end, and extending northward to Richmond.

The Alviso marshes were formed by the major drainages of Coyote, Alviso, and Guadalupe Sloughs, and the lesser drainages of Mud and Mowry Sloughs. The vast majority of these formerly tidal wetlands were diked and converted to salt ponds. Some portions have been diked and either cultivated for agriculture, filled and developed, used as landfills, or left in an undeveloped condition.

On the periphery of the historic Alviso tidal marshes were large expanses of fresh or brackish marshes, formed by the runoff from the surrounding flat, alluvial plain that merges gradually with the tidal plain. Because the transition of alluvial plain to tidal plain is subtle, and because the peripheral lands, both within and outside the historic marsh margin, have been modified in their long history of mixed agricultural, salt production, and other uses, residual wetlands characteristics are highly varied and dictated largely by topography (shallow depressions hold seasonal water), soil, permeability, and proximity to bay plant an. animal populations.

The only large marshes left in this area are scattered from Dumbarton Point to the headquarters of the San Francisco Bay National Wildlife Refuge in Newark, along Mowry Slough, in the triangular marsh near Alviso (near the Palo Alto Nature Center), and on Greco Island. Although other marshes can be found in South San Francisco Bay, most are narrow, interrupted strips along sloughs and bayside dikes, or highly saline, diked-off marshes with areas of sparse pickleweed (USFWS 1985).

1.3.2 Seasonal Wetlands

Historically, the San Francisco Bay area contained vast freshwater and tidal wetlands. As mentioned above, these wetlands were significantly reduced in size when they were reclaimed for salt production, agriculture and urban development and when freshwater inflow was reduced. Depressions in areas behind dikes, caused either by the remnants of old sloughs or from differential settlement, collect rainwater and runoff during the winter rainy season in sufficient quantity to support wetland vegetation. This

vegetation ranges from freshwater to salt tolerant plants, depending on the soil characteristics. These areas are frequently dry during the summer months. Because of their location and ephemeral character they are called seasonal wetlands.

According to the California Department of Fish and Game and the USFWS, diked seasonal wetlands in Alameda and Santa Clara Counties are in extremely short supply. Much of this type of habitat which is previously owned has been removed or is currently proposed for residential, commercial or industrial development. This habitat type has become so scarce in the project area that it is now considered unique. The USFWS estimates that approximately 4,155 acres of privately owned seasonal wetlands in the form of diked salt marsh, duck clubs, inactive salt ponds, and seasonal ponds characterized by combined wetlands, transitional and upland vegetation remain in Alameda and Santa Clara Counties.

Freshwater seasonal wetlands and surrounding grasslands provide waterfowl nesting habitat which is not available in the surrounding areas, such as tidal zones. Seasonal wetlands are also an important refuge for waterfowl and shorebirds when storm or high tides inundate tidal mudflats and marshes and prohibit their use by these species. They are valuable as buffer ares between existing development and Bay marshes, salt ponds and open water (USFWS 1985).

Migratory waterfowl (e.g., ducks and geese) and shorebirds (e.g., sandpipers and plovers) frequently move between tidal marshes and adjacent seasonal wetlands; together, these wetlands provide critical habitat for shorebirds migrating along the Pacific Flyway to and from their breeding grounds in the north.

Seasonal wetlands are now under greater pressure from development around San Francisco Bay than are tidal wetlands. Similarly, these same seasonal wetlands demand by wildlife is significant, if not critical, their scarcity to wildlife utilizes these acres for foraging and resting when high tides cover the mud and sand flats on the Bay.

1.3.3 Function Values Associated With South San Francisco Bay Wetlands

The following provides a general summary of functional values typically found associated with South San Francisco Bay wetlands.

a) Groundwater Recharge and Discharge

Groundwater recharge and discharge in South Bay wetlands is generally restricted to a very narrow vertical range near wetland surfaces. The limited vertical dimension can be compensated over a large surface area by horizontal expanse such that substantial volumes of water intercepted by the surface as rainfall or high tides enters into subterranean storage. The amount of recharge is dependent upon soil permeability and moisture content, as well as hydraulic head.

b) Flood Storage and Desynchronization

Since estuarine marshes exist near the downstream terminus of riverine flood routes, they have little importance in regulating discharges that originate upstream of tidal waters especially in

the case of diked wetlands. Marshes can provide protection to surrounding lowlands by acting as storage basins for tidal storm surges. In contrast, seasonal wetlands typically provide a more valuable function. Flood waters tend to pond in seasonal wetlands. Water is gradually dissipated by evaporation and groundwater recharge.

c) Shoreline Anchoring and Dissipation of Erosive Forces

The South Bay's tidal saltmarsh vegetation (pickleweed, cordgrass) is very effective in binding soil with extensive root systems that protect shorelines and outboard dikes from erosion. Pickleweed and cordgrass stands in tidal saltmarshes also reduce wave and current velocities providing protection for areas inland. Tidal marsh mudflats play a significant role in dissipating the erosive forces of tidal and wind-generated waves. Mudflats reduce the amplitude and mass of short period wind-chop generation. The value of diked seasonal wetlands is limited to protection of its surrounding dikes, thus on an overall scale this value is considered limited.

d) Sediment Trapping

The ability of tidal wetlands to trap sediments is well documented in the Bay Area (National Wetlands Technical Council 1988). Entrapment results from diverse processes. Marsh vegetation tends to dampen wave action thereby promoting settlement

and discouraging resuspension. Some plant species create chemical environments that promote clay flocculation. Filter feeding organisms, such as mussels, entrap large amounts of suspended material. Tidal marsh filtering varies according to the second hydrologic regime. Ponding in diked wetlands also results in the settling out of sediment particles. If the diked area is not isolated from inflow of flood or tidal waters they can contribute significantly to trapping sediments.

Suspended sediment loads are typically highest in winter when erosion upstream and bay sediment are resuspended. However, the vegetation component is generally more efficient in spring and summer when most plant species attain maximum biomass.

e) Nutrient Retention and Removal

South Bay wetland plant systems enhance food chain support by converting solar energy to carbon, gaseous nitrogen to nitrate, and inorganic nutrients to useful organic compounds. Through this process, rapid cycling and dispersal is accomplished. The organic content or ratio of peat to clay tends to increase with distance away from tidal channels, where clays and silts predominate. The maximum amount of peat often depends on marsh successional stage or degree of perturbation. Young tidal wetlands typically contain soils that are low in organic material. In young marshes of the South Bay, organic carbon comprises only about 18% of soil weight (Pestoring

1972). Older marshes generally contain soils that are peat-rich; nearly 50% organic carbon by dry weight (Collins et al. in press).

f) Food Chain Support

Wetlands support a wide variety of minute aquatic organisms that form the first link of food chains that incorporate the larger fish, birds, and mammals that reside and feed along Bay margins. Tidal waters, seasonally ponded waters and bay muds are inhabited by large numbers of small, relatively simple forms of life. Single-celled bluegreen algae, and multicellular red and green algae (Ulva sp.) may abound in surface waters. The principal photosynthetic organisms are benthic diatoms, found within the upper centimeter of tidal muds. Seasonally flooded wetlands provide a food chain support function similar to tidal but for only limited periods of time. This period of time ranges from a few days to several months.

g) Habitat for Fisheries

Approximately 125 species of fish have been reported in the San Francisco Bay. Although diversity of fish species decreases in the South Bay, at least 20 fish species can be considered common. Tidal and diked salt marshes do not provide significant fisheries habitat in themselves but tidal areas do support invertebrates that serve as prey for fish.

h) Habitat for Wildlife.

South Bay shoreline ecosystems support huge populations of resident and migratory waterfowl. Since December 1982, the Fish and Wildlife Service has conducted aerial and ground surveys in the Fremont area, south of the project site.

Bird species observed during this period include waterfowl, shorebirds, waterbirds, raptors, game birds and passerine birds. Observed waterfowl were of both dabbling and diving varieties and included mallard, northern pintail, northern shoveler, lesser and greater scaup, cinnamon teal, gadwall, American wigeon, and ruddy duck. shorebirds included willet, black-necked stilt, blackbellied plover, yellowlegs spp., American avocet, dowitcher spp., dunlin, western and least sandpipers, long-billed curlew, marbled godwit, common snipe, Wilson's phalarope, and killdeer. Other waterbirds observed included the Federally listed (endangered) California least tern and great blue heron, great egret, snowy egret, cattle egret, Bonaparte's gull, and American coot. Raptors include northern harrier, rough-legged hawk, turkey vulture; game birds include ring-necked pheasant. Passerine birds observed in this area include red-winged blackbird, house finch, barn swallow, tree swallow, cliff swallow, violet-green swallow, Brewer's blackbirds, loggerhead shrike, western meadowlark, horned lark, savannah sparrow, song sparrow, and starling (USFWS 1985).

Nesting broods of pintail, cinnamon teal and mallard were observed during February through May 1983 ground surveys. Between December 17, 1982, and April 25, 1983, Fish and Wildlife Service aerial surveys revealed almost 280,000 waterbird use-days on a site near Fremont. Between December 28, 1983, and April 3, 1984, the aerial surveys revealed 175,000 waterbird use-days. On March 14, 1983, approximately 6,046 waterbirds were estimated for this area. According to the U.S. Fish and Wildlife Service, this high count is likely to be a conservative estimate of bird use in the area because of the difficulty of seeing all bird species from the air (USFWS 1985).

According to the California Department of Fish and Game and the USWFW, diked seasonal wetlands in Alameda and Santa Clara counties are in extremely short supply. Much of this habitat is privately owned, has been removed or is currently proposed for residential, commercial or industrial development. This habitat type has become so scarce in the project that it is now considered unique. Estimates of USFWS are that approximately 4,186 acres of privately owned seasonal wetlands in the form of diked salt marsh, duck clubs, inactive salt ponds, and seasonal ponds characterized by combined wetlands, transitional and upland vegetation remain in Alameda and Santa Clara counties. Herbaceous vegetation and ponded water allow water birds access to food sources

Seasonal wetlands are unique due to the following factors their vegetative characteristics, the

extremely high numbers and diversity of birds supported, the fact that they represent the last remaining sizeable acreage of open space seasonal wetland habitat in the South Bay area, and because they provide nesting habitat for waterbirds. Freshwater seasonal wetlands and surrounding grasslands provide waterfowl nesting habitat which is not available in the surrounding areas, such as tidal zones. Seasonal wetlands are also an important refuge for waterfowl and shorebirds when storms or high tides inundate tidal mudflats and marshes and prohibit their use by these species. In addition they are valuable as buffer areas between existing development and Bay marshes, salt ponds and open water (USFWS 1985).

1) Passive Recreation and Heritage Value

South Bay wetland habitats provide opportunities for nature study, education, scientific research and preservation of special status species, as evidenced by the San Francisco Bay National Wildlife Refuge, located near Fremont, which receives extensive recreational use. The refuge presently provides between 130,000 and 150,000 visitor days annually.

South bay wetlands provide habitat for the following state and federally listed species: salt marsh harvest mouse (Reithrodontomys raviventris), California clapper rail, and the soft bird's beak (Cordylanthus mollis ssp. mollis).

Only a small percentage of the original wetland acreage remains in the South Bay, making wetland habitat valuable from a heritage standpoint. The USFWS has classified this vegetation type in Resource Category 2, with a resource goal of no net loss of habitat value.

2.0 METHODS.

2.1 Background

Given the study objective of evaluating the similarity/ dissimilarity of various habitat sites' functional values, the Adamus assessment technique was selected for this analysis. This technique is noteworthy in the context that it is the first systematic application of science to wetland functional assessment. The Adamus approach uses the USFWS wetland classification scheme (Cowardin et al. 1979) which is highly sensitive to differences among wetland sites. Unlike the USFWS Habitat Evaluation (HEP) and the COE's Habitat Evaluation System (HES) which provide for qualitative wildlife habitat value assessment, the Adamus method is more comprehensive in that it incorporates all of the wetland functions presently recognized as being significant. However, the Adamus technique does not provide a detailed qualitative habitat evaluation system that is species specific (e.g. the site offers high or low habitat value for the salt marsh harvest mouse). For this reason it was determined that no attempt could be made to estimate the amount of mitigation habitat acreage necessary to support species of agency or public concern. By using the Adamus technique, habitat value was assessed in terms of site functional value similarity, dissimilarity, and potential for similarity (if habitat values could be developed (via management) similar to the Category 2 - seasonal wetland values of the proposed Marathon Business Park site.

As part of the decision process to select an appropriate assessment method or methods a scoping meeting was held with representatives from the CDFG, COE, EPA and USFWS. The purpose of this meeting was fourfold:

a. to clarify the relevant agencies' current mitigation policies;
b. to determine what techniques would be acceptable to determine current and potential functional values of proposed mitigation sites;
c. to identify potential mitigation sites; and
d. to seek the assistance of various agencies in making value determinations.

The following provides a general summary of discussions (that took place at the scoping meeting) related to the aforementioned topics.

Each agency representative expressed a desire to support the USFWS policy of no net loss of Category 2 - seasonal wetland habitat. Only the CDFG[3] and USFWS[4] have officially established policies and implementation guidelines. Exceptions to this policy are made when it is determined to be in the public interest to accept a lesser standard.

With regard to assessment methodology the USFWS explained that they relied in large part on the HEP procedure but felt that it was inappropriate for areas where adequate species specific models have not been developed. Both COE and EPA representatives explained that they relied on the USFWS for guidance in making decisions regarding habitat values as their agencies have no established procedures for the Pacific coast. The representative from the CDFG explained that CDFG utilizes the HEP procedure where appropriate.

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[3]CDFG has recently established a wetlands resources policy, dated January 9, 1987 that is similar to the USFWS policy.

[4]Federal Register. 1981. "Mitigation Policy of the U.S. Fish & Wildlife Service." Federal Register, January 23, 1981.

All agency representatives expressed interest in the Adamus approach, but none had worked with the approach. No interest was expressed in the HES technique as it was developed primarily for use in southeastern bottomland hardwood forests. It was agreed that both approaches need further development and testing before they can be utilized with any technical reliability in California coastal areas and that acceptance of their results would ultimately rely on professional judgement.

The following were considered in the discussion of potential mitigation sites:

a) HARD Parcel "A"
b) HARD Parcel "B"
c) HARD Parcel "C"
d) Oliver Salt Property (Oliver West)
e) Ideal Cement/Combustion Engineering site
f) Proposed Menlo Business Park Site
g) Weber Property
h) Oliver Hay Farm A & B (Oliver East)
i) Patterson Ranch (Parcels A, B, C, and D)
j) Proposed Ponderosa Homes site
k) Sonoma Land Company site

All agency representatives except the COE, due to workload limitations, expressed interest in seeing and possibly participating in the field assessment of the application of both the Adamus and HEP techniques to assess the above listed sites. The only exception was the Sonoma Land Company site. The Sonoma Land Company site was eliminated from consideration due to its obvious inability to potentially provide Category 2 values.

comparable to that proposed to be lost upon project construction, given the sites distant location from the project area[5].

It was also during this discussion that EPA representatives voiced concern over why any value assessments should be conducted given the fact that their agency had found the 404(b)(1) Project Alternatives Analysis conducted as part of the Corp permit application process for the project as inadequate. The analysis was judged to be inadequate because it failed to clearly demonstrate that there were no practicable alternatives to building the project in wetlands. Thus, EPA considered the proposed project not to be viable. The USFWS and CDFG representative expressed a similar concern. In contrast, the COE indicated they had accepted the analysis as satisfying their regulatory requirements. However, the Corps went on to say that they would have to change their position if it could be clearly demonstrated that the 404(b)(1) analysis was inadequate.

After the meeting, several months were spent gathering field data and pertinent information to prepare specific assesment criteria for both the HEP and Adamus habitat assessment procedures. It was also at the close of this period that personnel from the participating agencies (USEPA, USFWS, CDFG) determined officially that they would be unable to participate in the field evaluations of sites until their respective agencies officially[6] recognized the proposed Marathon Business Park project as viable. This uniform position was in response to EPA's unresolved concern that

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[5]The proposed site is located in the Butte Sink area of central California, some 70 miles away from the proposed Marathon Business Park Site.

[6]Official positions confirmed; personal communication from Mr. Tom Morrison, November 1986, Earth Metrics, Inc.

the proposed project did not satisfy 404(b)(1) Analysis Guidelines[7] for assessment project alternatives.

As a result of the above agencies position not to participate in an Adamus or HEP evaluation of each site, it was decided that an Adamus assessment would be conducted.[8] The decision to proceed prior to resolution of the agencies' concerns regarding the project's 404(b)(1) viability was made in order to find appropriate mitigation sites to propose as part of the EIS currently being prepared. The results of the Adamus evaluation would, therefore, be used as a screening mechanism to assess specific mitigation strategies as part of the development of the proposed Marathon Business Park EIS.

2.2 Final Study Site Selection

Following the above described meeting, an availability assessment was made of the sites listed above with the exception of the Sonoma Land Company site. It was determined that the following seven sites could be potentially purchased. Sites "f" and "g" were added based on recommendations provided by the City of Hayward as a result of discussions with the project applicant.

a) HARD Parcel "A"
b) HARD Parcel "B".
c) Oliver Hay Farm (Oliver East B - West of Southern Pacific R.R.)
d) Oliver Salt Property (Oliver West)

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[7]Federal Register. 1980. Dec. "USEPA Section 404(b)(1) Guidelines", Vol 45, No. 249, pp. 85336-85356. U.S. Government Printing Office, Washington, D.C. (40 CFR 230).

[8]It is CDFG and USFWS policy to participate in HEP evaluations before accepting their results.

e) Patterson Ranch Parcels A, B, C & D.

f) Alameda Regional Flood Control District/Pacific FM.

g) PACCAR Landfill site

2.3 Baseline Data Assessment

Initial study efforts consisted of obtaining the following baseline reference materials regarding the project site and the seven mitigation sites listed above:

a) USFWS National Wetland Inventory Maps;

b) USGS 7.5° Series Topographic Quadrangles;

c) low altitude aerial photography; and

d) environmental reports and documents.

Subsequent to this, each site, including the proposed project development area, was visited in August 1986. A fixed wing aerial survey was also made in August 1986. After these reconnaissance efforts, habitat maps for each site were prepared and ground-truthed during December 1986 and January/February, 1987.

2.4 Adamus Assessment of Existing Functional Values

An analysis of the proposed project site and seven alternative sites was conducted using the wetland functional assessment techniques developed by Adamus (1983). Observations (qualitative data) made during the field reconnaissance were converted into preliminary statements regarding each site's values for the following wetland functions:

a) Ground water recharge and discharge

b) Flood storage and desynchronization

c) Shoreline anchoring and dissipation of erosion process

d) Sediment trapping
e) Nutrient retention and removal
f) Food chain support
g) Habitat for fisheries
j) Habitat for wildlife
i) Active recreation
j) Passive recreation and heritage value

The Adamus analysis consisted of following a procedure which provides an estimate of the likelihood that a single wetland is of high, moderate or low value for each of the functions listed above. Two steps are followed during this procedure.

Step One requires the evaluator to perform a predictor inventory. This involves three series of questions about various habitat conditions related to the habitat values discussed above. One series is used to evaluate site opportunity and effectiveness, a second series addresses significance, and a third reviews impact-related factors. Step Two requires the evaluator to sift through the information compiled in these three predictor inventories and arrive at a rating of functional significance for each functional value listed above. Interpretation keys are used to help translate the predictor inventory data for opportunity, effectiveness, and impact into statements regarding functional value significance.

2.5 Adamus Assessment of Potential Functional Values.

The above procedure was then repeated to determine what potential future values might result if the sites were managed to encourage Category 2 - seasonal wetland development. These values were determined based on the general mitigation management plans provided to the City of Hayward by the project applicant. The following is a summary of these plans:

a. Hard Parcels A & B Wetland Habitat Enhancements. This mitigation measure would involve the enhancement of seasonal wetland habitat values on the HARD Parcels neighboring Sulpur creek by allowing them to remain wetter longer via water management.

b. Oliver Salt Property Acquisition. The Oliver Salt Property would be purchased by Marathon and dedicated to a public resource agency. Marathon is also currently developing a mitigation plan for agency review that involves reintroducing tidal action to the property. They are also exploring the potential of raising the bottom elevation of the salt ponds to the point where seasonal habitat values, like that which exists on the proposed project site, could develop.

c. Oliver Hay Farm Wetland Creation. The mitigation measure here would be for Marathon to acquire and dedicate this property to a public resource agency, cease the agricultural operations on the property, and allow it to revert to a seasonal wetland.

d. Alameda Regional Flood Control District/Pacific FM and Paccar Land Fill Seasonal Wetland Creation. Utilizing one, or a combination of these properties, the mitigation plan would create new seasonal wetlands on top of historic garbage dumps. The plan would involve first capping the existing elevation with an impermeable material, creating borders to hold water on the top, planting appropriate vegetation, and possibly pumping water in the winter months to increase the inundation.

e. Patterson Ranch Acquisition and Seasonal Wetland Creation. This mitigation plan would involve the acquisition by Marathon, dedication to a resource agency, of a portion of the Patterson Ranch holdings in Fremont and allowing the lands to revert back to a seasonal wetland condition.

2.6 Analysis Guidelines and Assumptions.

The following guidelines and assumptions were followed during the course of this evaluation:

a. The evaluation procedure would be used as a screening or rapid assessment mechanism, to indicate from a large array of choices the general priorities for potential mitigation alternatives.

b. "Predictors", or factors which may control or be correlated with wetland processes (and ultimately with wetland functions), are to be used in the procedure to estimate functional value. The term "predictors" is roughly synonymous with the terms "descriptors," "proxy variables," indicators " "surrogate parameters," "determinants," and "correlates" used in other procedures. The predictors chosen are usually those easiest to measure or evaluate. They vary greatly in the directness and accuracy with which they actually measure the function and its processes. Accordingly, subjective estimates of the "soundness of measure" of each predictor as applied to each function are given in Chapter 3 of Volume I of the Adamus Procedural manual (Adamus and Stockwell 1983).

c. The procedure uses a relatively large number of predictors, for two reasons.

(I) the relationship of any predictor, standing alone, to its associated process and function is often highly tenuous and circumstantial. By using a large number of predictors, their cumulative weight may be sufficient to improve the overall validity of the prediction; and

(II) the procedure can be more flexible in terms of data availability, i.e., the large number of predictors allows for "fallback" measures to be used when data for preferred measures are lacking.

d. Each analysis of a function, its significance, and associated impacts in Procedure I will result in a rating of HIGH, MODERATE, OR LOW. These are not estimates of the magnitude of wetland functions and impacts, only the probability that they may exist or occur (to an unspecified degree) in a given situation. For example, use of Procedure I may indicate that in a particular wetland, the ground water recharge function may have a HIGH probability of existing. However, the overall influence of the wetland on the total amount of water that reaches an aquifer may be negligible when compared to total watershed input.

e. The probability ratings (HIGH, MODERATE, LOW) in the procedure do not have statistical correlates. In other words, a "LOW" rating has not been proven to mean that fewer than, say, 10 percent of all wetlands will satisfy the condition. Nevertheless, the ratings are not merely relative. Depending on the function,

perhaps 60-80 percent of the wetlands described in the literature as having a particular function might be assigned a rating of "HIGH" by this key. The key is usually quite rigorous in its stipulations for arriving at a HIGH or LOW rating for a function; the user may find that a large number of evaluations result in ratings of MODERATE.

f. The procedure is a construct of the available technical literature and hence, are only at best, as good as the literature base, which in many areas is deficient. Thus, while most wetlands described as being of high value in the literature would also be rated HIGH by Procedure 1, the converse is not necessarily true, i.e., areas rated HIGH by this procedure will not necessarily, upon further detailed analysis, always be found to be of high value.

g. Large wetlands which are rated LOW or MODERATE by these procedures might be just as important as small wetlands rated HIGH. However, because few wetland functions can be quantified, it is inappropriate to multiply ratings by acreage to give a total value. Thus, it is best whenever possible to compare wetlands of similar size.

h. Where several wetlands are being evaluated, they should also be of similar hydro-period and system, and located in the same eco-region.

i. The procedure is especially applicable to "strip takings" which alter only part of a wetland. Unlike existing methodologies, it differentiates the extent to which a function is ascribable to the wetland versus the basin in which it happens to be located. The

importance of this distinction to wetland function is discussed by Cowardin (1982). The procedure assumes that, if either the wetland impact area or the basin (i.e., adjacent deep waters) are rated HIGH for a particular function, the overall rating should be HIGH due to the interrelatedness of the system. The procedure is also unique in its incorporation of seasonal and tidal variation.

j. The procedure does not provide for a synthesis of individual functional values into an overall wetland value, because the weights of individual functions (e.g., whether the user should be more concerned with the wetland's value for nutrient retention or for wildlife habitat, both of MODERATE probability) varies according to the user's priorities. If an overall value must be assigned, perhaps the best guideline is for this to be synonymous with the wetland's highest functional significance rating.

3.0 EVALUATION OF PROJECT SITE

3.1 Existing Conditions

The proposed project site is situated on a 134 acre parcel located within the city limits of Hayward, California (Figure 1). Elevation on the site ranges from 2 - 10 feet MSL. The site is seasonally inundated.

3.1.1 Vegetation

a) Habitat Types

1) Diked Saltmarsh

Approximately 90 acres of the site are diked saltmarsh (Table 1) (seasonal wetlands) as determined by both a COE jurisdictional determination, an independent study by Harvey and Stanley (1984) and confirmed by this analysis (Figure 2).

Seasonal wetlands occur primarily at elevations below 4.5 feet MSL. Several small ponds are present on the site during a typical winter season (Figure 3). The period of inundation varies significantly on an annual basis. Ponding is present on the site from 2-7 months annually, depending on rainfall regime (TRS Consultants 1985). A study of the project site (TRS Consultants and Shapiro and Assoc. 1985) concluded that most habitats were inundated only during a portion of the year. Vegetative cover in these lower seasonally inundated areas is approximately

Table 1: Habitat acreages for the project site and candidate mitigation sites

SITE	HABITAT TYPES	ACREAGE
Project Site	Upland Dike	1
	Upland Pasture	41
	Diked Saltmarsh/Grass	90
HARD "A"	Diked Saltmarsh	42
	Upland Dike	<1
HARD "B"	Diked Saltmarsh	52
	Upland Dike	<1
Alameda Flood Control District/Pacific FM	Ruderal Upland Vegetation on Fill Material	154
	Upland Dike	1
	Diked Saltmarsh/Grass	6
Oliver Salt	Abandoned Salt Pond	130
	Upland Dike	[illegible]
	Diked Saltmarsh	[illegible]
Oliver Hay Farm	Agricultural	[illegible]
	Managed Duck club	[illegible]
Patterson Ranch	Agricultural	[illegible]
	Riparian	[illegible]
PACCAR	Ruderal Upland Vegetation on Fill Material	
	Diked Saltmarsh	

AD-A102 939 ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT FOR THE PROPOS..(U) EARTH METRICS INC BURLINGAME CA JUN 87 5/6

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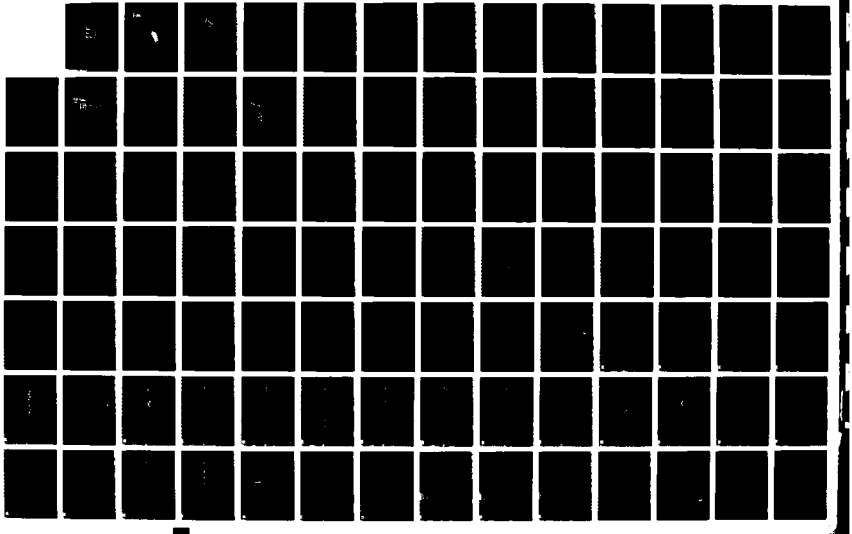

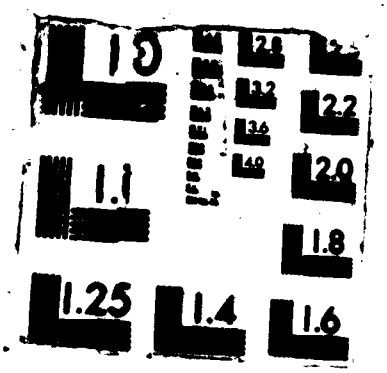
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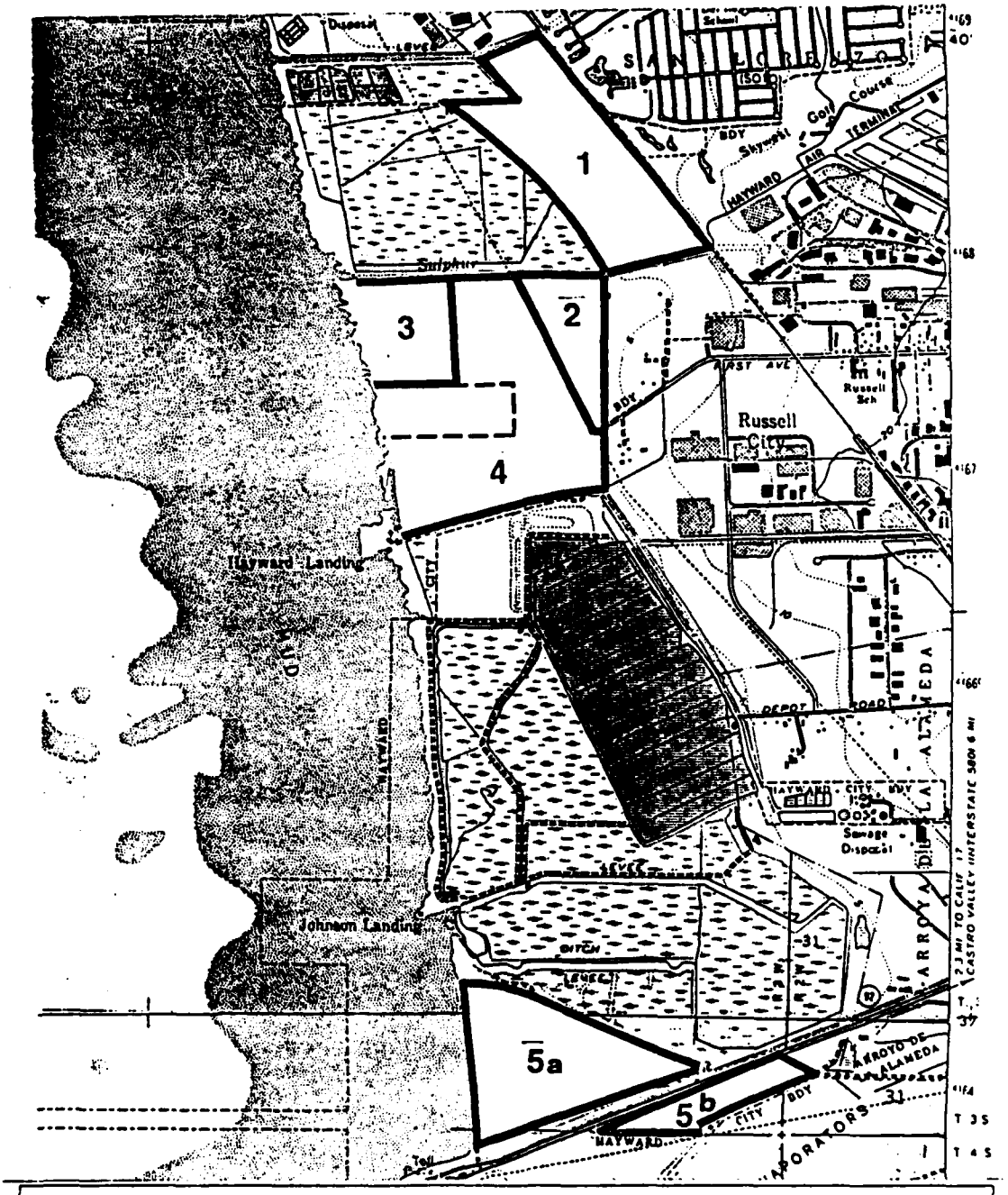

FIGURE 1

Site Locations: 1-Marathon Project (Tract 5167);
2-HARD "A"; 3-HARD "B";
4-Alameda Flood Control District/Pacific FM;
5a,b Oliver Salt

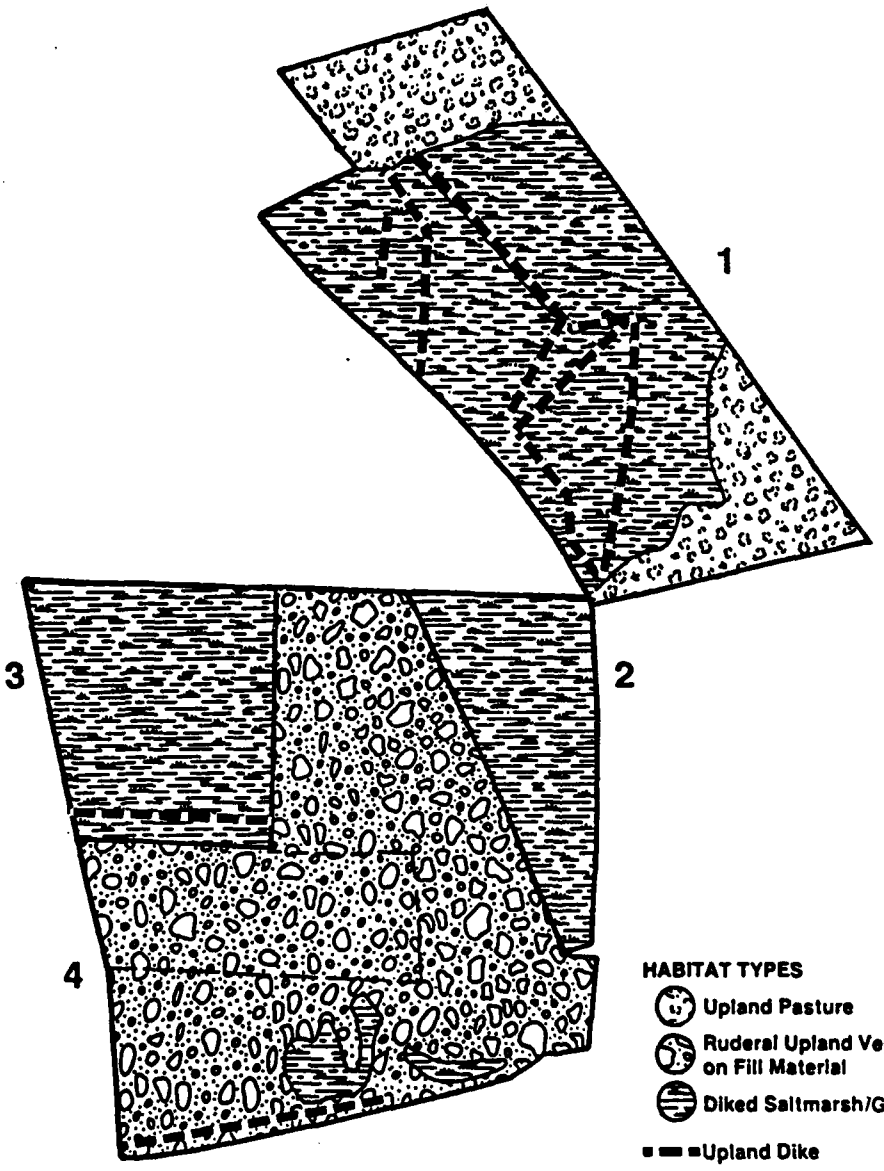

FIGURE 2

Habitat Types: 1-Marathon Project (Tract 5167); 2-HARD "A"; 3-HARD "B"; 4-Alameda Flood Control District/Pacific FM

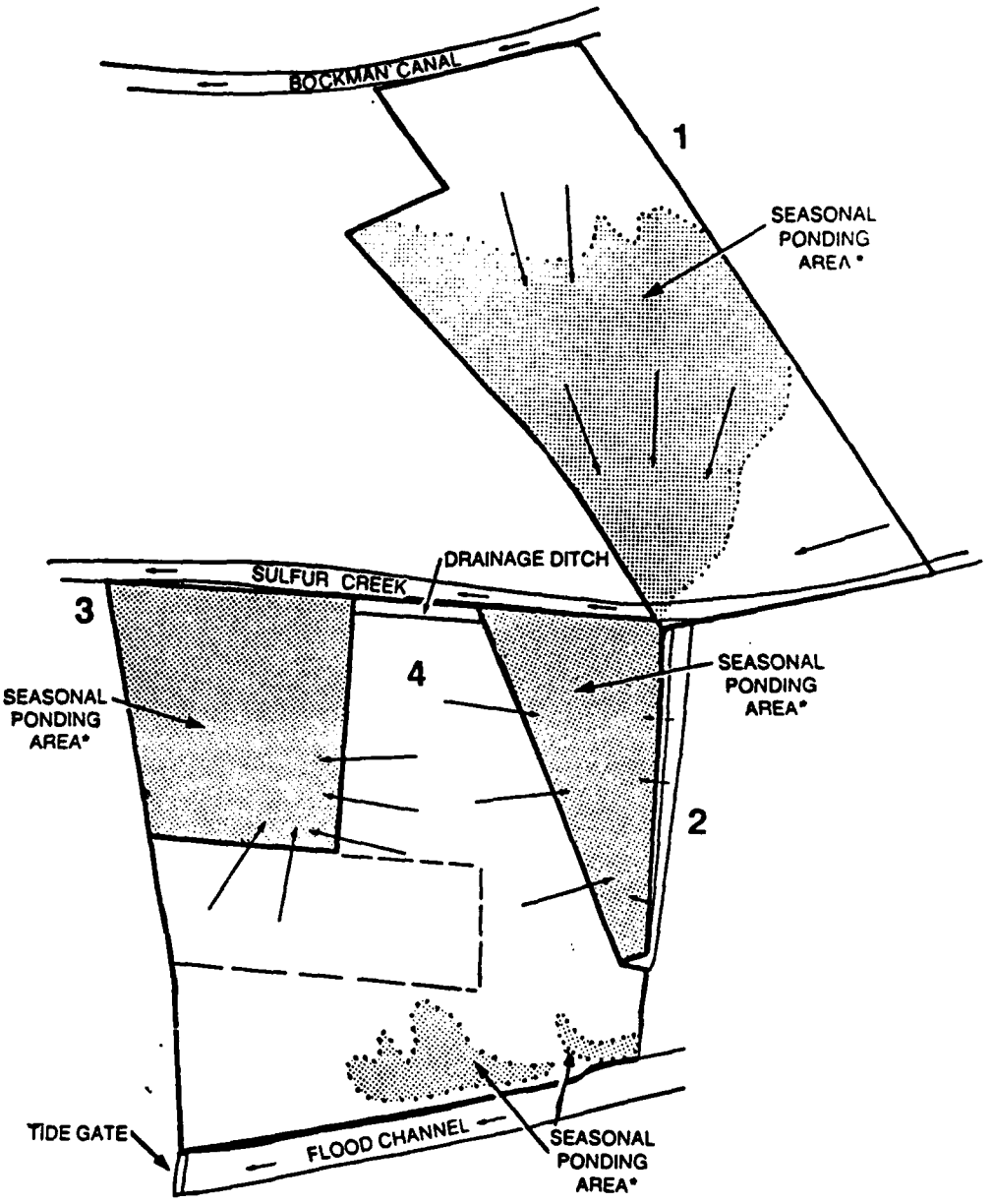

FIGURE 3

Generalized Schematic of Drainage Characteristics at Marathon, HARD "A" & "B" Alameda Flood Control District/Pacific FM

60% [40% pickleweed (Salicornia virginica, S. europaea), 20% brass buttons (Cotula.coronopifolia)] with 40% bare ground. In slightly higher areas rabbitfoot grass (Polypogon monspeliensis) and mediterranean barley (Hordeum geniculatum) occur with pickleweed

2) Upland Pasture

Upland pasture occurs on approximately 41 acres of the site (Table 1), primarily at elevations above 4.5 feet MSL. Typical perennial and annual grassland species dominate this type.

3) Upland Dike Surfaces

A network of dikes traverses the site. Upper dike surfaces are generally above 5 feet MSL. Dike surfaces are typically densely vegetated with annual grass species, thistles, mustards, and other ruderal species that provide cover throughout the year and refuge from flood waters during winter storm periods.

3.1.2 Threatened/Endangered Species

Soft bird's beak (Cordylanthus mollis sp. mollis) and the delta tule pea (Lathyrus jepsonii ssp. jepsonii) are potential listed species for the site. Neither species was observed during field surveys conducted in 1985. Potential for either species on the site is low due to history of livestock grazing and other disturbance.

3.1.3 Wildlife Use

There are three primary wildlife habitats on the project site: seasonal wetlands, upland pasture, and upland dike surfaces (Figure 2). Seasonal wetlands provide a transitional habitat between daily inundated tidal wetlands and upland habitat. Upland pasture supports numerous small mammals, reptiles species, and song birds. Upland dike surfaces are typically densely vegetated and provide cover and refuge during flood periods.

a) Seasonal Wetlands

Seasonal wetlands on the project site provide resting, feeding and breeding areas for a wide variety of migratory and resident bird species. During the winter season avian use is particularly heavy. High tide censusing was conducted from March through May in 1982 (TRS Consultants 1985). Flocks of over 2,000 dowitchers, 400 black bellied plover, and approximately 3,000 other shorebirds of various species were observed on a single day in April of 1982 (TRS Consultants, 1985). Data collected indicated regular use of the site by black-necked stilt, willet, yellowlegs, greater egret, and American avocet, although their numbers were generally less than 100 per observation. Primary duck species using the site during March-May 1982 were: pintail (7200) and cinnamon teal (>100). Observations of bird use from January to May 1983 reflected a similar pattern of high use by a variety of shorebirds and dabbling ducks. Shorebird counts, including dowitcher, willet, yellowlegs, black bellied plover, killdeer, black-

necked stilt, and American avocet, were greater than 4,000. Duck species observed included pintail (>300), shoveler (7100), and cinnamon teal (7300). Selected observations in winter 1984 revealed high use by pintail, shoveler, cinnamon teal, egret and heron. Two pair of cinnamon teal were observed nesting on the upland dike area near the railroad tracks north of Sulphur Creek. Long-billed curlews, willets, plovers and yellowlegs were also frequent users (TRS Consultants 1985).

Bird use is relatively high on the project site. In September 1984, 15 killdeer, 7 dunlin, 6 greater yellowlegs, 13 black shouldered kites, 6 snowy egrets, 2 American avocets, 10 western gulls, 2 terns, 2 great egrets and 7 long-billed curlews were observed on the site. Water in seasonally ponded areas averaged 0.5 inches in depth (TRS Consultants 1985). Egrets and herons were observed using both wetlands and adjacent upland areas for feeding. A number of raptor species including the red-tailed hawk, American kestrel, Northern harrier, black-shouldered kite, short-eared owl, burrowing owl and barn owl were observed foraging on the site in 1983 (TRS Consultants 1985).

b) Upland Pasture

Upland areas have been heavily grazed by livestock over a period of years, resulting in trampling, soil compaction, proliferation of weedy species, and absence of vegetative cover essential to many small mammals. Harvey and Stanley (1984) listed

the beechey ground squirrel, black-tailed hare, pocket gopher, field vole and field mouse as common mammals using upland portions of the site. The gopher snake and western fence lizard were also observed in upland areas. Common bird species observed on upland sites included the western meadowlark, savannah sparrow, rock dove, horned lark and water pipit.

c) Upland Dike Surfaces

Upland dike surfaces are valuable as refuge areas for various mammals, most notably the saltmarsh harvest mouse, and as resting areas for avian fauna.

3.1.4 Threatened/Endangered Species

The saltmarsh harvest mouse is known to inhabit diked saltmarsh habitat. Shellhammer surveyed the site in 1984, and again in 1986. He concluded (without trapping) that cattle grazing and trampling[9] had made pickleweed stands too sparse to support harvest mouse populations. However, in Shellhammer's most recent research, (CDFG 1986), he concludes that salt marsh harvest mice "were ubiquitous (in) many of the areas (that) had marginal cover; many of them were dominated by inappropriate species (i.e. grasses, brass buttons, ruderal species, alkali bulrush), but still contained patches of pickleweed. Many of the areas received severe environmental impacts during the last 15 years

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[9]Livestock, supposedly removed from the site, were observed by biologists on the Marathon property in August 1986, December 1986, and January 1987.

including discing, drying, flood control flooding, and major uncontrolled flooding. However, the animals persist."

In addition, the harvest mouse was trapped on the East Bay Regional Park property, directly adjacent to the Marathon property during the same study (CDFG 1985). The mouse was trapped in a marsh that extends onto the Marathon property, encompassing approximately three acres within the Marathon property. It is concluded, therefore, that the mouse is, in all probability, present on the Marathon property.

3.2 Generalized Summary of Project Impacts[10]

Full-scale development of the proposed project would result in placement of fill material and construction grading over the entire site (134 acres).

- Loss of Wetland Acreage

  Approximately 90 acres of seasonal wetlands would be lost. Wetland portions of the site have the following values:

  - high wildlife habitat value
  - high flood storage value
  - water quality enhancement
  - aesthetic value
  - educational value

[10]This section serves as a partial summary of project impacts relevant to this report. It is assumed that a complete analysis of project impacts is contained in the EIR/EIS.

- Loss of Upland Acreage

  Approximately 44 acres of upland vegetation would be lost. Although upland vegetation is not a unique resource, when situated adjacent to seasonal wetland, upland areas serve as important buffers to urban areas and can be used as areas of refuge by water fowl and shorebirds during flood episodes.

- Threatened/Endangered Species

  A recent study (CDFG 1986) found the saltmarsh harvest mouse to be present on the Alameda Regional Park land along the southwest border of the Marathon property. The saltmarsh in which the mouse was trapped, extends onto the Marathon property. It is concluded that development of the project will impact populations of the saltmarsh harvest mouse.

- Other Impacts

  - degradation of surrounding habitat due to noise, human encroachment, hydrological impacts
  - loss of existing wetland values on HARD parcels (see Section 4.0 for description of these sites).

4.0 DESCRIPTION OF POTENTIAL MITIGATION SITES

4.1 HARD Parcel "A".

Hard Parcel "A" covers 42 acres immediately south of Sulphur Creek and the project site in the City of Hayward (Figure 1). Site elevation ranges from 2-3 feet within the diked area. The site is drained by a ditch at the north end which flows to the Hard B parcel. The westerly side is bounded by a 12 foot levee formed from the landfill owned by the Alameda County Flood Control District. The entire site is classified as Diked saltmarsh habitat (Table 1). Pickleweed stands form the dominant cover on the site (Figure 2). Parcel "A" provides valuable seasonal wetland habitat for shorebirds such as the dowitcher and yellow leg, and teals. During March 1983, 33 species were observed on the site (TRS/Shapiro Consultants 1985).

4.2 HARD Parcel "B".

HARD Parcel "B" (52 acres) is located southwest of the project site, immediately adjacent to San Francisco Bay (Figure 1). Prior to diking (early 1900's) the site was covered by natural salt ponds, separated from the Bay by beaches. Pickleweed marsh was also present on the site at that time. The property was diked in the early 1900's and used for commercial salt production. Cattle were observed grazing the property in December, 1986.

The site is generally level, with elevations ranging from 1-3 feet MSL. The site is entirely diked saltmarsh (Table 1), the majority covered by pickleweed with patches of bare ground in low areas (Figure 2). At present, surface and shallow groundwater enter the parcel from the adjacent landfill (Alameda County Flood Control District/Pacific FM) and from a ditch running from Hard

Parcel "A" (Figure 3). Water also enters over the dike from the Bay during exceptionally high tides. This occurred during a storm on December 3, 1983 (Phillip Williams and Associates 1984) and was observed during high tidal periods in December of 1986. Soils on the site have not been sampled, but are assumed to be clay-rich and poorly drained (Phillips Williams and Associates, 1984). Ponding was present on the southeastern portion of the site in December, 1986 despite the relatively low amount of precipitation received during the winter of that year. Numerous shorebird species and over 1,000 ducks were observed using seasonal ponds on the site in March 1984 (Phillips Williams and Associates, 1984)

4.3 Alameda Regional Flood Control District/Pacific FM.

The 161 acre site (Alameda Flood Control District - 116; Pacific FM-45) is located on the Hayward landfill in the City of Hayward (Figure 1). The site was diked prior to 1950. In the 1950's portions of the area were used to dispose household waste. In subsequent years, the Oakland Scavenger Company utilized the entire area as a landfill. Fill activity continued until the mid 1970's. Soil tests indicate that fill depth varies from 6 feet in the southern portion of the site to 12 feet in the northern portion of the site. A thin layer of clayey soil has been placed over the fill material. Bay mud occurs beneath the fill layer.

Topography on the site is generally hummocky in the lower southern portion; level in the slightly higher portion. Elevations range from 4 feet in the south to 15 feet MSL on the northern end. Dredge spoils are piled along the southern border to the property. Several berms running north to south are located in the southeastern portion of the property in an area that is generally lower than the rest of the property. Some

ponding existed in depressions in that area in December, 1986 (Figure 3).

Vegetation on the site is largely composed of ruderal, upland species. Small areas of diked saltmarsh grass are located in the southern portion of the property (Table 1).

The majority of the site is weedy pasture land (Ruderal Vegetation on Fill Material; Figure 2) with diked saltmarsh occurring in the low-lying southeastern portion of the site.

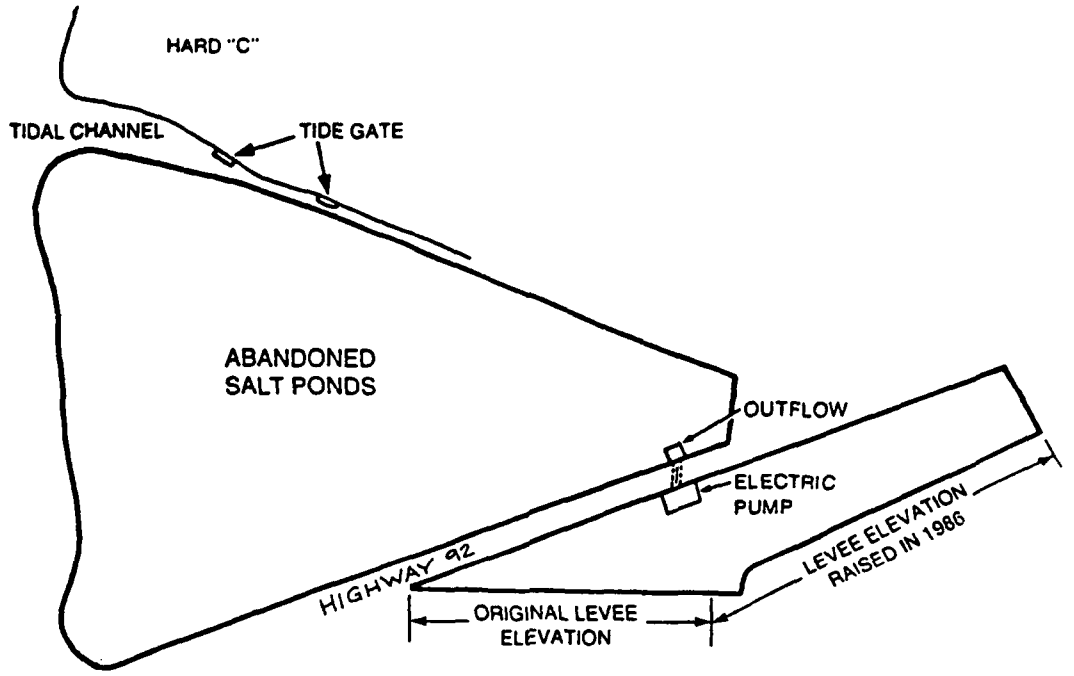
An abundance of ground squirrels were observed on the site during field reconnaissance. Several marsh hawks, a red-tailed hawk and 6 ducks (2 pintail, 4 mallards) were also sighted.

4.4 Oliver Salt Property.

Total acreage for the northern and southern sites is 144 acres. Both sites are abandoned salt ponds with a network of dikes separating them. Water enters the southern site from winter rainfall, water table and overtopping of the levee ("original levee elevation" in Figure 4). Water enters the northern portion of the property by virtue of a pumping system ((Figure 4). Water is pumped under Highway 92 to an outfall on the northern side of the property.

Soils on the majority of the site are hypersaline and therefore do not support vegetation.

Three habitat types are found on the Oliver Salt Property (Figure 5). Abandoned Salt Pond occurs on approximately 90% of the property (130 acres). Upland dike habitat occurs on approximately 9% of the property (13 acres). A narrow band of



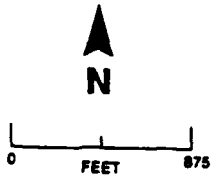
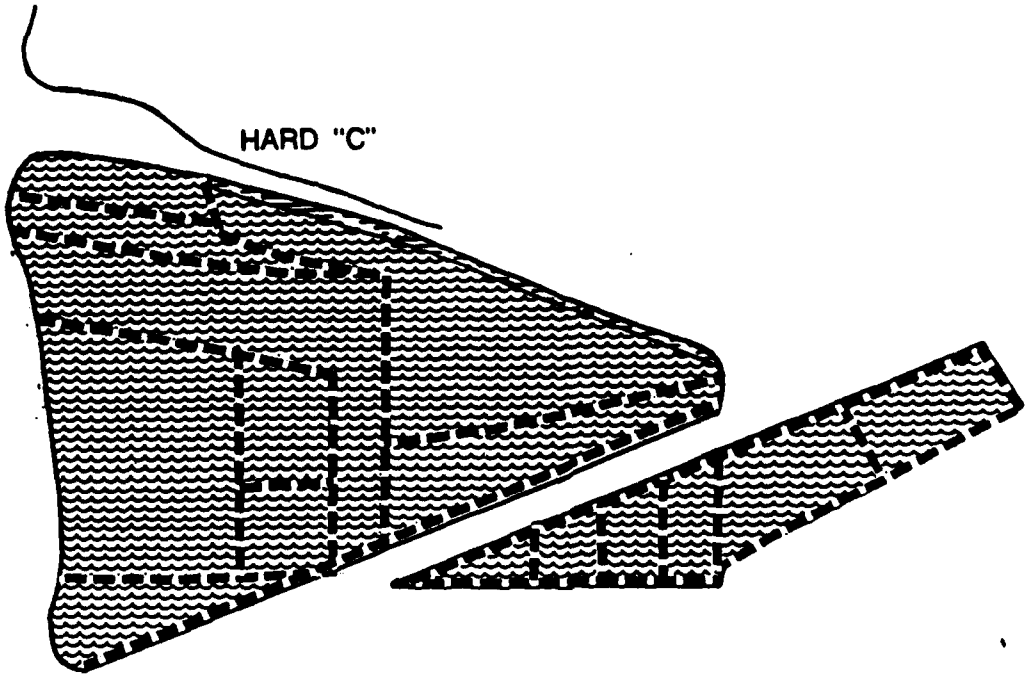


FIGURE 4

Generalized Schematic of
Hydrologic Characteristics at
at Oliver Salt Property



HABITAT TYPES

Abandoned Salt/Pond

Upland Dike

Diked Saltmarsh

N

0 FEET 875

FIGURE 5

Habitat Types: Oliver Salt

pickleweed (diked saltmarsh) that occurs along the length of one of the dikes (Figure 5) covers less than 1% of the total acreage 0.5 acres (Table 1).

4.5 Patterson Ranch Parcels A, B, C, D.

The Patterson Ranch contains four potential mitigation parcels. Parcels A, B, and C are situated adjacent to one another, encompassing approximately 600 acres (Figure 6). Parcel D, located north of the drainage channel covers approximately 125 acres. All four sites are presently under cultivation (Figure 7) but have the potential to support seasonal wetland habitat. Riparian vegetation borders a flood control channel that forms the northern border of parcels B and C and a drainage channel drains both parcels (Figure 8). Elevation on the parcels range from 5-10 feet MSL.

4.6 Oliver Hay Farm.

The Oliver Hay Farm property (130 acres) is located in the vicinity of the City of Hayward (Figure 9). The parcel is generally level, with elevation ranging from 4 - 5' MSL (Figure 9). Approximately 100 acres of the property is presently cultivated (Figure 10). The remaining 30 acres is operated as a duck club (Managed Duck Club; Figure 10). The duck club is flooded annually by pumping water from Alameda Creek via a drainage system (Figure 11).

4.7 PACCAR.

The PACCAR noise test site (38.7 acres) is located at the terminus of Mowry Avenue in the city of Fremont (Figure 12). A sanitary landfill was operated at this site in the 1960's. Elevation on the site ranges from 2 to 10 feet MSL. Fill

activities were terminated in 1964 (Harding Lawson Assoc. 1976). The noise test facility consists of an asphalt roadway with turning circles (Figure 13). Fill depth averages approximately 10 feet with between 2 and 3 feet of sandy silt and clay over the fill. Test drilling conducted by Harding Lawson (1976) revealed strong organic odors, resulting from methane leakage at boring sites. Fill debris is underlain by bay mud which varies in depth from 15-18 feet. The site is generally level, sloping down on the western perimeter.

Vegetation on the site is primarily weedy (Ruderal Vegetation on Upland Fill (Figure 13). Annual grasses, and dense stands of wild mustard (Brassica sp.) form the dominant plant cover. Scattered patches of alkali heath also occur on the property.

Two drainage ponds are located below the test track (Figure 14). Both are seasonally inundated (both held water in 2/87). Dense pickleweed vegetation (Diked Saltmarsh habitat; Table 2) occurs along the margins of both ponds, forming potential habitat for the salt marsh harvest mouse.

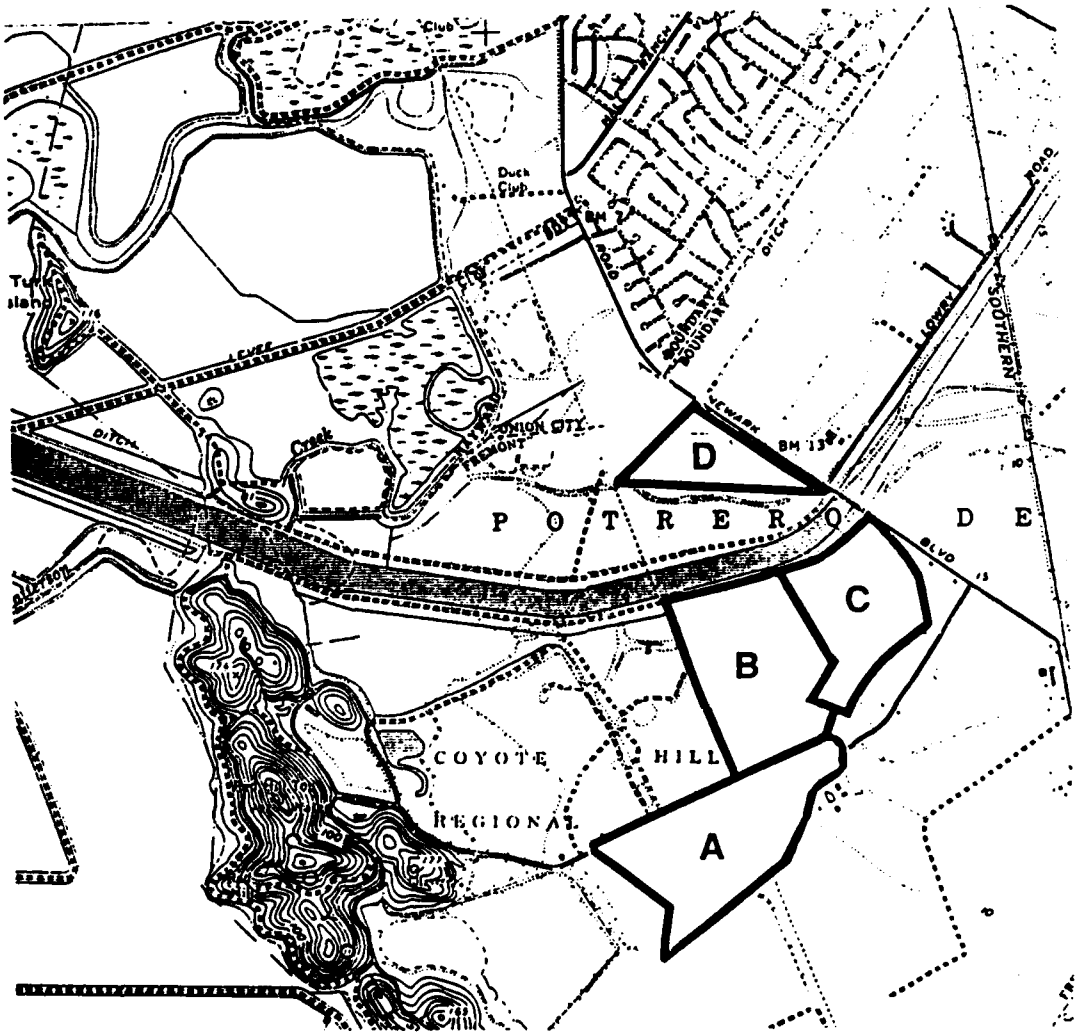


FIGURE 6
Site Location: Patterson Ranch
A, B, C, D

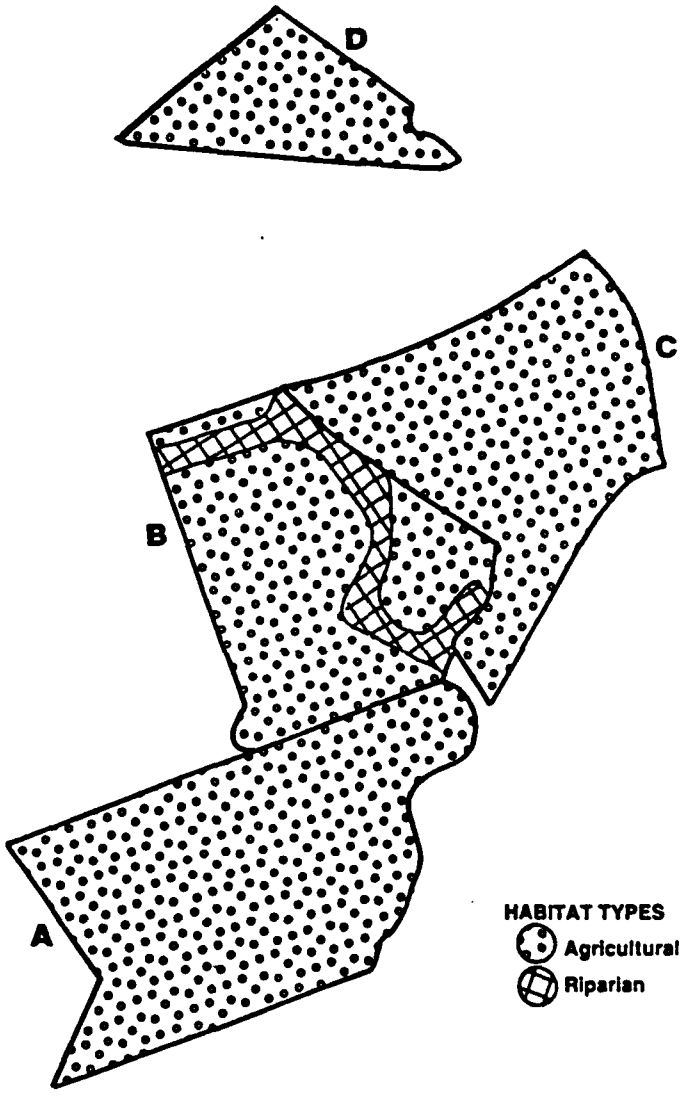
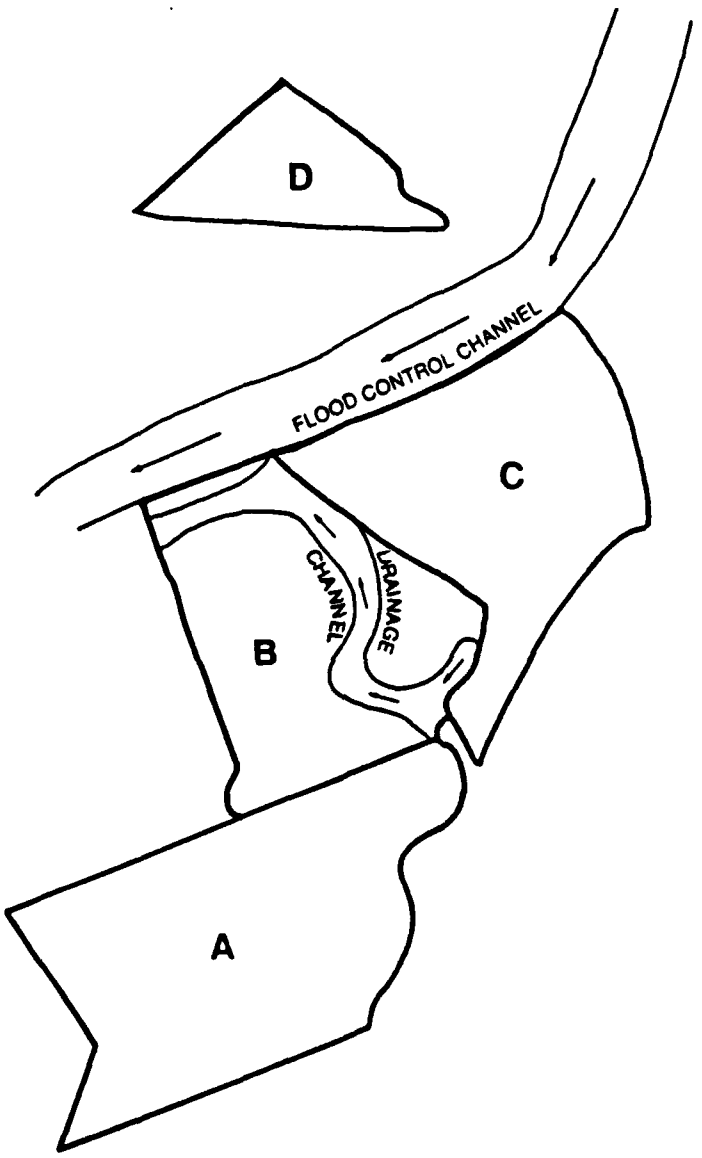


FIGURE 7
Habitat Types: Patterson Ranch
A, B, C, D,



N

0 FEET 1,000

FIGURE 8
Generalized Schematic of Drainage Characteristics at Patterson Ranch Sites

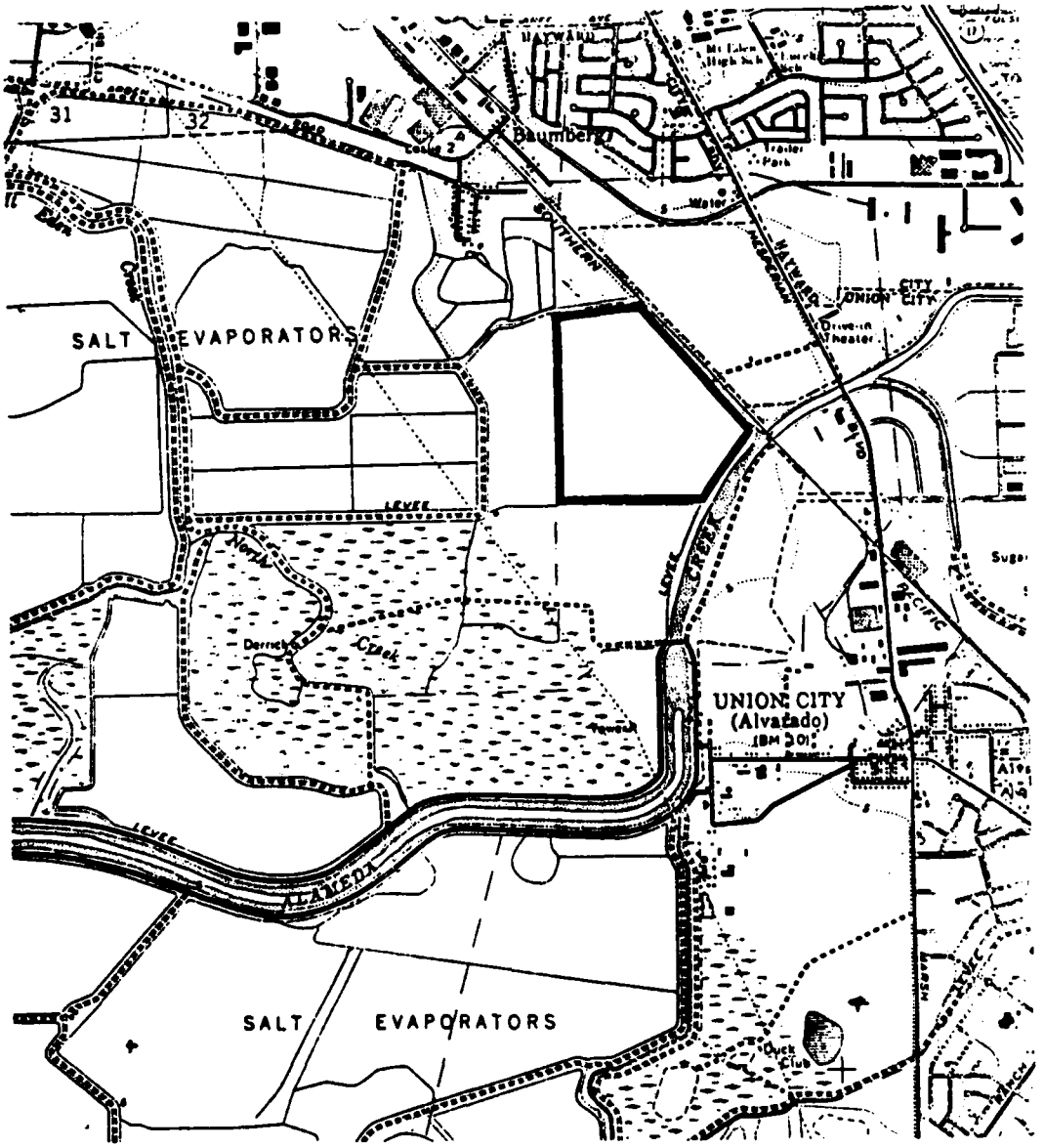
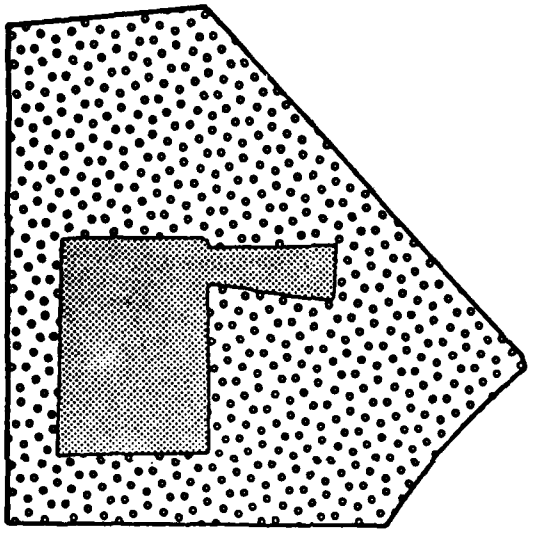


FIGURE 9

Site Location: Oliver Hay Farm

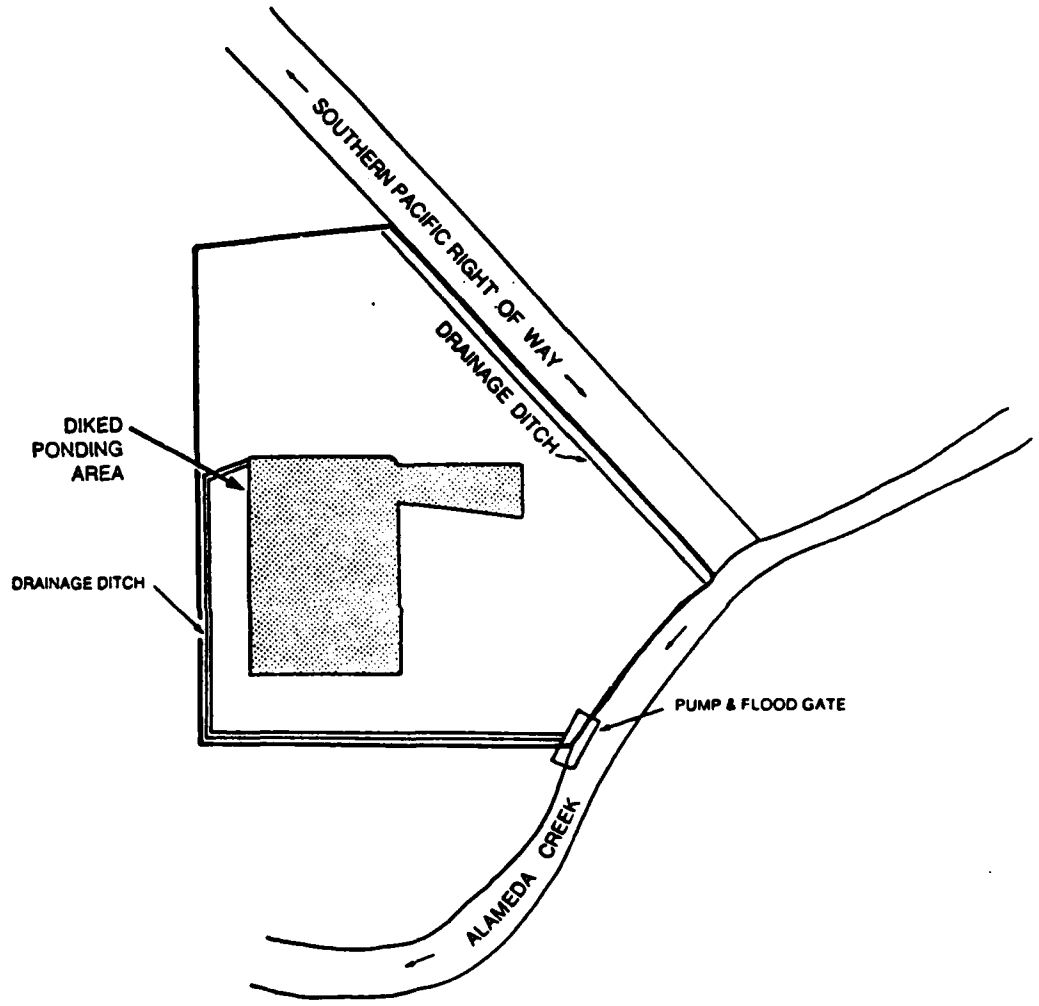


HABITAT TYPES
Agricultural
Managed Duck Club

N

0 FEET 1,000

FIGURE 10
Habitat Types: Oliver Hay Farm



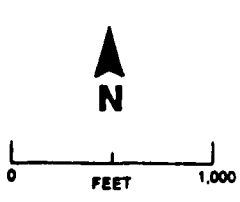


FIGURE 11

Generalized Schematic of Drainage Characteristics at Oliver Hay Farm

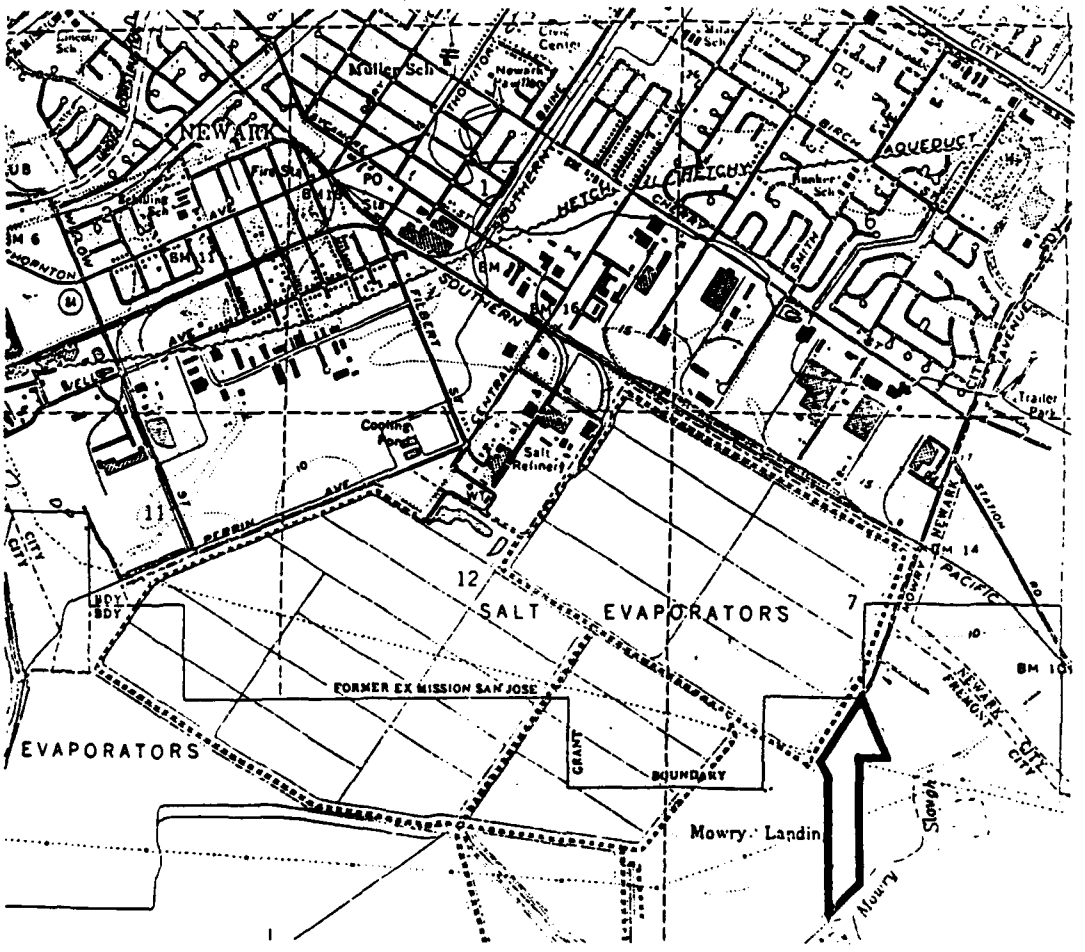
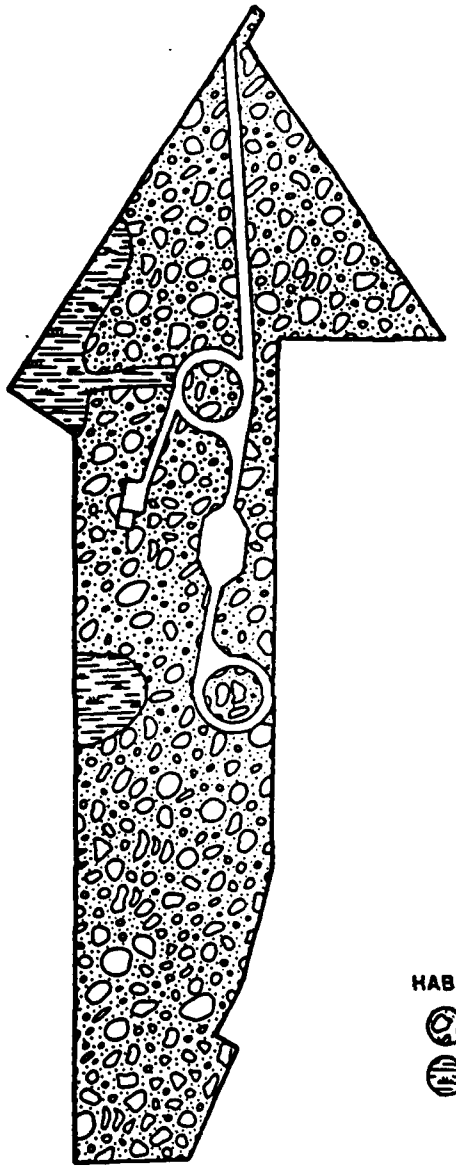


FIGURE 12
Site Location: PACCAR



HABITAT TYPES

Ruderal Upland Vegetation on Fill Material

Diked Saltmarsh

N

0 FEET 375

FIGURE 13
Habitat Types: PACCAR

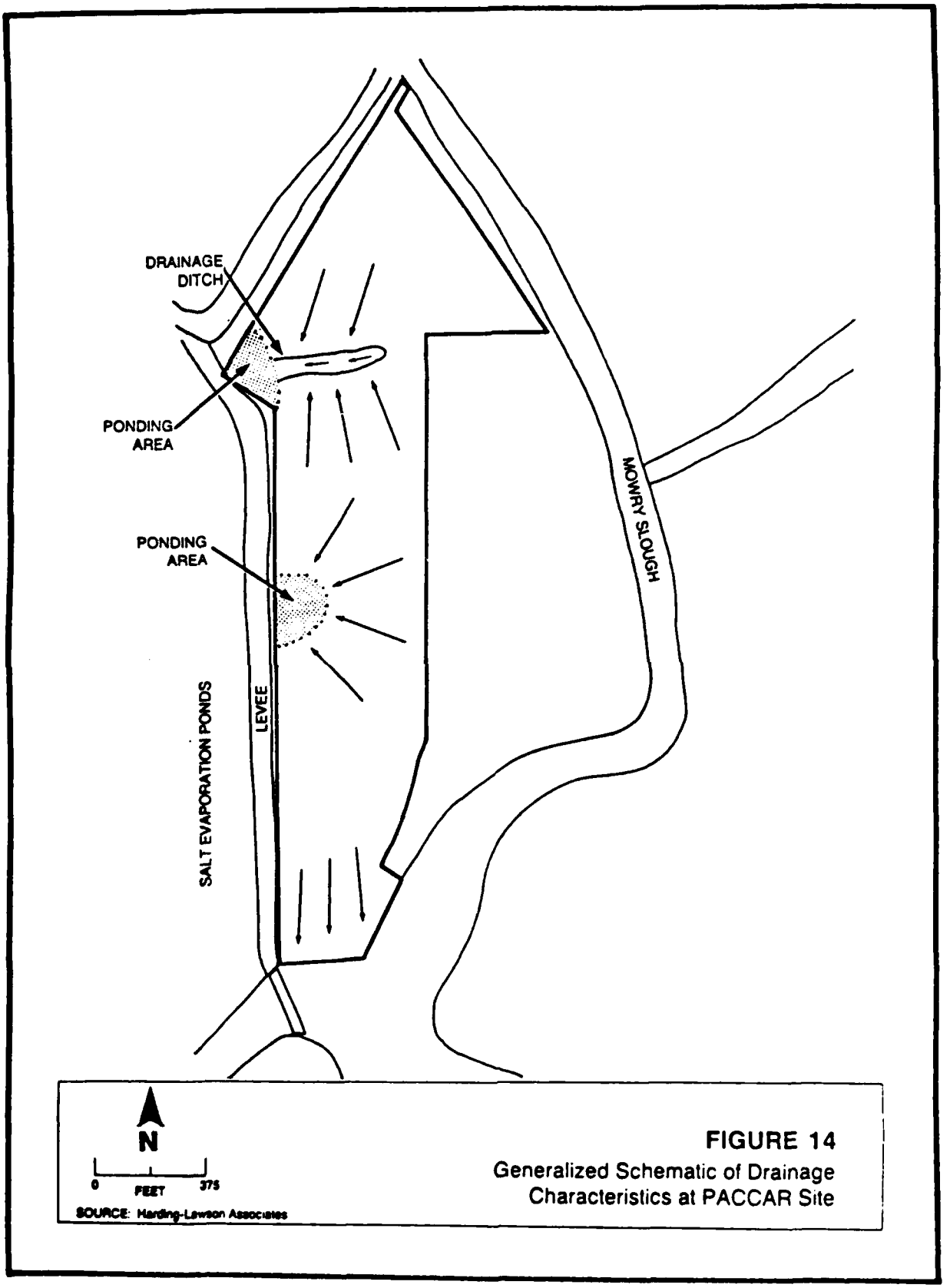


FIGURE 14
Generalized Schematic of Drainage Characteristics at PACCAR Site

Table 2. Habitat Characterization Used To Develop Site Habitat Maps.

1. Abandoned Saltponds. Shallow, ponded water and mudflats; provides excellent habitat for avian fauna, particularly during flood tides. Hypersaline soils result in little vegetative cover.

2. Upland Pasture - Dominated by annual grasses and ruderal species; habitat for small mammals (prey base for raptors); provides important resting habitat for avian species and a buffer from urban areas.

3. Ruderal Vegetation on Fill - Upland areas are typically sparsely vegetated with weedy species (mustard, cockleburr, thistle, annual grass). Minimal value to wildlife.

4. Diked Saltmarsh - Occurs at low elevations ($\geq$ 3' MSL) in diked areas. Pickleweed is the dominant plant species with rabbitfoot grass. Percent cover of pickleweed (and associated species) varies considerably primarily in relation to soil salinity. Seasonally inundated areas are typically characterized by barren, hypersaline soils. Portions of this type are commonly inundated for several months of the year. Dense pickleweed stands provide critical habitat for the salt marsh harvest mouse.

5. Diked Saltmarsh/Grass. Occurs at slightly higher elevations than Diked Saltmarsh. Both annual and perennial grasses occur with pickleweed as type grades into upland pasture.

6. Agricultural - Acreage presently under cultivation. Minimal habitat value.

7. Upland Dike - Upper elevations of dikes; seldom inundated; typically support dense vegetative cover. This habitat provides important refuge opportunities for wildlife during high-water storm periods.

8. Riparian - Margins of drainage channels; willows, cattails, rushes, and sedges are dominant in this type.

9. Managed Duck Club - Diked, seasonally flooded areas. Often flooded by mechanical means in early fall to attract waterfowl. Drained in spring; disced periodically during dry season to eliminate potential for emergent vegetation. IDominant plant species are Scirpus sp., Rumex sp., Cotula sp., Polypagon sp., Downingia sp.

Table 3: Historic Wetland Impacts on Sites Evaluated.

Site	Historic Impacts
Proposed Marathon Business Park Site	a. Diked from tidal action in early 1900's b. Recent history of livestock use has altered vegetation
HARD Parcel "A"	a. Diked from tidal action for commercial salt production in early 1900's b. Debris from adjacent landfill is periodically washed onto site
HARD Parcel "B"	a. Diked from tidal action for commercial salt production in early 1900's b. Debris from adjacent landfill is periodically washed onto site
Oliver Hay Farm	a. Diked in the early 1900's b. The majority is presently cultivated; remainder is managed intensively as a duck club c. a portion is now used as a duck club

Table 3 (Continued)

Site	Historic Impacts
Oliver Salt Property	a. Diked from tidal action in the early 1900's b. Until recently was used for commercial salt production, soils are hypersaline
Patterson Ranch Parcels A, B, C & D	a. All parcels are presently tilled and cultivated.
Alameda Regional Flood Control District/Pacific FM Landfill Site	a. Filled with household refuse in 1950's and 60's b. Evidence of recent cattle grazing
PACCAR Landfill site	a. Diked from Tidal action in early 1900's b. Filled with household refuse between 1964 and 1967 c. Asphalt test track is currently maintained on property with drainage ditches and ponds

5.0 TECHNICAL FINDINGS

5.1 Results

5.1.1 Current Value Comparison for Each Site.

The analysis determined that each of the candidate mitigation sites currently possesses wetland functional values that differ significantly from values existing on the project site. HARD parcels "A" and "B" were found to be most similar, value-wise, to the project site. In contrast, the landfill sites (Alameda Flood control/Pacific FM and PACCAR were field evaluated, but unranked, due to habitat dissimilarity with the proposed project development site.

The HARD parcels rated "High" in flood storage capacity (as did the project site) and "Moderate" in sediment trapping, nutrient retention and removal, food chain support, and wildlife habitat (as compared to "High" for the project site). In terms of wildlife habitat, the "HARD" parcels have the highest existing value of the candidate sites, but differ from the project site; both parcels are at a slightly lower elevation, have monotypic saltmarsh habitat characteristics, and provide habitat primarily for shorebirds.

The Oliver Salt property, like the project site, rated high in flood storage capacity, sediment trapping, nutrient retention and removal, food chain support, and wildlife habitat. With respect to the other values assessed, the Oliver Salt Property had equal or higher values. These differences relate primarily to the sites geographic proximity to the Bay.

The Oliver Hay Farm and Patterson Ranch parcels rated "High" in flood storage capacity, as did the project site, but was rated "Low" in sediment trapping, nutrient retention and removal, food chain support, and wildlife habitat (as compared to a "High" rating for the project site).

Subsequent to careful evaluation, the landfill sites (Alameda Flood Control/Pacific FM, and PACCAR) were not ranked with the project and other candidates. As previously explained (Methods section, 2.0), it is assumed (in the Adamus method) that sites are of the same habitat type for the sake of a meaningful comparison. The landfill sites occur largely at significantly higher elevations, have foreign parent material and surface soils, and therefore constitute an entirely different potential habitat.

5.1.2 Potential Value Comparison for Each Site.

The analysis revealed that all sites could potentially produce values approaching comparability with that of the proposed project site (Tables 4-13). The only exception to this was the Oliver Salt property mitigation plan alternative which would allow the current habitat to revert back to an intertidal condition. Evaluation of potential habitat values resulting from this plan was eliminated due to habitat dissimilarity with the proposed project development site.

The analysis indicates that the two landfill sites have a limited potential for developing values (via management) of a less that equally similar level. This result was due to the inherent artificial nature of being perched (elevated)

Table 4. Subjective ranking of mitigation sites as to their general habitat similarity to the proposed Marathon Business Park site. Ranking is from high to low.

Site	Current Habitat Status
1. Hard Parcel "A"	- Formerly a tidal/intertidal area (diked from tidal action in the early 1900's) - Currently supports seasonal wetland habitat similar to project site - Would provide smaller acreage (than project site) with lower habitat diversity
2. Hard Parcel "B"	- Formerly a tidal/intertidal area (diked from tidal action in the early 1900's - Currently supports seasonal wetland habitat similar to project site - Would provide smaller acreage (than project site) with lower habitat diversity
3. Oliver Hay Farm	- Formerly an intertidal area - Most of the site is presently cultivated - A portion of the site is diked saltmarsh - Oliver Hay Farm West (presently cultivated) has potential as seasonal wetland under proper management - Similar acreage to project site
4. Patterson Ranch Parcels A, B, C & D	- Formerly a seasonal wetland - Presently cultivated; has good habitat potential as seasonal wetland under proper management

Table 4 (Continued).

Site	Current Habitat Status
	- Sufficient acreage to mitigate for project impacts; lower potential habitat diversity.
5. Oliver Salt Property	- Formerly tidal area
	- Presently provides high value intertidal shallow bottom habitat with isolated patches of upland vegetation on dike tops
	- Sufficient acreage, but displacement of high value habitat (for seasonal wetland mitigation) would be inappropriate
6. Alameda Regional Flood Control District/Pacific FM	- Formerly a tidal/intertidal area
	- Entire site is a landfill
	- Elevation is 5-10 feet higher than project site; primarily weedy upland vegetation
	- Single similarity is acreage; in order to provide mitigation, landfill would have to be converted to seasonal wetland
7. PACCAR Landfill Site	- Formerly a tidal area
	- Presently a landfill site (elevation averages 10 feet MSL)
	- Low habitat value; in order to provide suitable mitigation landfill would need to be converted to seasonal wetland

Table 5: Existing and Potential[1] Site Condition Comparison of the Wetland Functional Value[2] "Ground Water Recharge and Discharge."

Site	Existing Functional Significance	Potential Functional Significance
Project Site	Low	Not Applicable
HARD Parcel "A"	Low	Low
HARD Parcel "B"	Low	Low
Oliver Hay Farm[3]	Low	Low
Oliver Salt Property	High	Unranked[4]/Low[5]
Patterson Ranch Parcels A, B, C & D	Low	Low
Alameda Regional Flood Control District/Pacific FM Landfill Site	Unranked[6]	Low
PACCAR Landfill Site	Unranked	Low

[1]Ability to achieve value comparable to the proposed project site through appropriate management practices.

[2]Result obtained from the Adamus Functional Value Analysis (Adamus and Stockwell 1983)

[3]Duck club habitat was not considered in evaluation, only the agricultural lands.

[4]Unranked intertidal mitigation plan (see 6 below).

[5]Value based on mitigation plan to raise bottom elevation using fill material.

[6]Unranked because the site was found after field assessment and baseline data analysis to consist of a habitat type totally different from the seasonal wetland habitat type of the proposed project site (e.g. intertidal saltpond; capped landfill). Value comparison would be like comparing apples and oranges.

Table 6: Existing and Potential[1] Site Condition Comparison of the Wetland Functional Value[2] "Flood Storage and Desynchronization".

Site	Existing Functional Significance	Potential Functional Significance
Project Site	High	Not Applicable
HARD Parcel "A"	High	Moderate
HARD Parcel "B"	High	Moderate
Oliver Hay Farm[3]	Low	Low
Oliver Salt Property	High	Unranked[4]/High[5]
Patterson Ranch Parcels A, B, C & D	High	High
Alameda Regional Flood Control District/Pacific FM Landfill Site	Unranked[6]	Low
PACCAR Landfill Site	Unranked	Low

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[1]Ability to achieve value comparable to the proposed project site through appropriate management practices.

[2]Result obtained from the Adamus Functional Value Analysis (Adamus and Stockwell 1983)

[3]Duck club habitat was not considered in evaluation, only the agricultural lands.

[4]Unranked intertidal mitigation plan (see 6 below).

[5]Value based on mitigation plan to raise bottom elevation using fill material.

[6]Unranked because the site was found after field assessment and baseline data analysis to consist of a habitat type totally different from the seasonal wetland habitat type of the proposed project site (e.g. intertidal saltpond; capped landfill). Value comparison would be like comparing apples and oranges.

Table 7: Existing and Potential[1] Site Condition Comparison of the Wetland Functional Value[2] "Shoreline Anchoring and Dissipation of Erosion Process".

Site	Existing Functional Significance	Potential Functional Significance
Project Site	Low	Not Applicable
HARD Parcel "A"	Low	Low
HARD Parcel "B"	Low	Low
Oliver Hay Farm[3]	Low	Low
Oliver Salt Property	High	Unranked[4]/High[5]
Patterson Ranch Parcels A, B, C & D	Low	Low
Alameda Regional Flood Control District/Pacific FM Landfill Site	Unranked[6]	Low
PACCAR Landfill Site	Unranked	Low

[1]Ability to achieve value comparable to the proposed project site through appropriate management practices.

[2]Result obtained from the Adamus Functional Value Analysis (Adamus and Stockwell 1983)

[3]Duck club habitat was not considered in evaluation, only the agricultural lands.

[4]Unranked intertidal mitigation plan (see 6 below).

[5]Value based on mitigation plan to raise bottom elevation using fill material.

[6]Unranked because the site was found after field assessment and baseline data analysis to consist of a habitat type totally different from the seasonal wetland habitat type of the proposed project site (e.g. intertidal saltpond; capped landfill). Value comparison would be like comparing apples and oranges.

Table 8: Existing and Potential[1] Site Condition Comparison of the Wetland Functional Value[2] "Sediment Trapping".

Site	Existing Functional Significance	Potential Functional Significance
Project Site	High	Not Applicable
HARD Parcel "A"	Moderate	High
HARD Parcel "B"	Moderate	High
Oliver Hay Farm[3]	Low	Low
Oliver Salt Property	High	Unranked[4]/High[5]
Patterson Ranch Parcels A, B, C & D	Low	High
Alameda Regional Flood Control District/Pacific FM Landfill Site	Unranked[6]	Low
PACCAR Landfill Site	Unranked	Low

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[1]Ability to achieve value comparable to the proposed project site through appropriate management practices.

[2]Result obtained from the Adamus Functional Value Analysis (Adamus and Stockwell 1983)

[3]Duck club habitat was not considered in evaluation, only the agricultural lands.

[4]Unranked intertidal mitigation plan (see 6 below).

[5]Value based on mitigation plan to raise bottom elevation using fill material.

[6]Unranked because the site was found after field assessment and baseline data analysis to consist of a habitat type totally different from the seasonal wetland habitat type of the proposed project site (e.g. intertidal saltpond; capped landfill). Value comparison would be like comparing apples and oranges.

Table 9: Existing and Potential[1] Site Condition Comparison of the Wetland Functional Value[2] "Nutrient Retention and Removal".

Site	Existing Functional Significance	Potential Functional Significance
Project Site	High	Not Applicable
HARD Parcel "A"	Moderate	High
HARD Parcel "B"	Moderate	High
Oliver Hay Farm[3]	Low	Low
Oliver Salt Property	High	Unranked[4]/High[5]
Patterson Ranch Parcels A, B, C & D	Low	High
Alameda Regional Flood Control District/Pacific FM Landfill Site	Unranked[6]	Moderate
PACCAR Landfill Site	Unranked	Moderate

[1]Ability to achieve value comparable to the proposed project site through appropriate management practices.

[2]Result obtained from the Adamus Functional Value Analysis (Adamus and Stockwell 1983)

[3]Duck club habitat was not considered in evaluation, only the agricultural lands.

[4]Unranked intertidal mitigation plan (see 6 below).

[5]Value based on mitigation plan to raise bottom elevation using fill material.

[6]Unranked because the site was found after field assessment and baseline data analysis to consist of a habitat type totally different from the seasonal wetland habitat type of the proposed project site (e.g. intertidal saltpond; capped landfill). Value comparison would be like comparing apples and oranges.

Table 10: Existing and Potential[1] Site Condition Comparison of the Wetland Functional Value[2] "Food Chain Support".

Site	Existing Functional Significance	Potential Functional Significance
Project Site	High	Not Applicable
HARD Parcel "A"	Moderate	High
HARD Parcel "B"	Moderate	High
Oliver Hay Farm[3]	Low	Low
Oliver Salt Property	High	Unranked[4]/High[5]
Patterson Ranch Parcels A, B, C & D	Low	High
Alameda Regional Flood Control District/Pacific FM Landfill Site	Unranked[6]	Moderate
PACCAR Landfill Site	Unranked	Moderate

[1]Ability to achieve value comparable to the proposed project site through appropriate management practices.

[2]Result obtained from the Adamus Functional Value Analysis (Adamus and Stockwell 1983)

[3]Duck club habitat was not considered in evaluation, only the agricultural lands.

[4]Unranked intertidal mitigation plan (see 6 below).

[5]Value based on mitigation plan to raise bottom elevation using fill material.

[6]Unranked because the site was found after field assessment and baseline data analysis to consist of a habitat type totally different from the seasonal wetland habitat type of the proposed project site (e.g. intertidal saltpond; capped landfill). Value comparison would be like comparing apples and oranges.

Table 11: Existing and Potential[1] Site Condition Comparison of the Wetland Functional Value[2] "Habitat for Fisheries".

Site	Existing Functional Significance	Potential Functional Significance
Project Site	Low	Not Applicable
HARD Parcel "A"	Low	Moderate
HARD Parcel "B"	Low	Moderate
Oliver Hay Farm[3]	Low	Low
Oliver Salt Property	Moderate	Unranked[4]/Low[5]
Patterson Ranch Parcels A, B, C & D	Low	Low
Alameda Regional Flood Control District/Pacific FM Landfill Site	Unranked[6]	Low
PACCAR Landfill Site	Unranked	Low

[1]Ability to achieve value comparable to the proposed project site through appropriate management practices.

[2]Result obtained from the Adamus Functional Value Analysis (Adamus and Stockwell 1983)

[3]Duck club habitat was not considered in evaluation, only the agricultural lands.

[4]Unranked intertidal mitigation plan (see 6 below).

[5]Value based on mitigation plan to raise bottom elevation using fill material.

[6]Unranked because the site was found after field assessment and baseline data analysis to consist of a habitat type totally different from the seasonal wetland habitat type of the proposed project site (e.g. intertidal saltpond; capped landfill). Value comparison would be like comparing apples and oranges.

Table 12: Existing and Potential[1] Site Condition Comparison of the Wetland Functional Value[2] "Habitat for Wildlife".

Site	Existing Functional Significance	Potential Functional Significance
Project Site	High	Not Applicable
HARD Parcel "A"	Moderate	High
HARD Parcel "B"	Moderate	High
Oliver Hay Farm[3]	Low	Low
Oliver Salt Property	High	Unranked[4]/High[5]
Patterson Ranch Parcels A, B, C & D	Low	High
Alameda Regional Flood Control District/Pacific FM Landfill Site	Unranked[6]	Moderate
PACCAR Landfill Site	Unranked	Moderate

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[1]Ability to achieve value comparable to the proposed project site through appropriate management practices.

[2]Result obtained from the Adamus Functional Value Analysis (Adamus and Stockwell 1983)

[3]Duck club habitat was not considered in evaluation, only the agricultural lands.

[4]Unranked intertidal mitigation plan (see 6 below).

[5]Value based on mitigation plan to raise bottom elevation using fill material.

[6]Unranked because the site was found after field assessment and baseline data analysis to consist of a habitat type totally different from the seasonal wetland habitat type of the proposed project site (e.g. intertidal saltpond; capped landfill). Value comparison would be like comparing apples and oranges.

Table 13: Existing and Potential[1] Site Condition Comparison of the Wetland Functional Value[2] "Active Recreation".

Site	Existing Functional Significance	Potential Functional Significance
Project Site	Low	Not Applicable
HARD Parcel "A"	Low	Moderate
HARD Parcel "B"	Low	Moderate
Oliver Hay Farm[3]	Low	Low
Oliver Salt Property	Low	Unranked[4]/Low[5]
Patterson Ranch Parcels A, B, C & D	Low	Moderate
Alameda Regional Flood Control District/Pacific FM Landfill Site	Unranked[6]	Moderate
PACCAR Landfill Site	Unranked	Moderate

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[1]Ability to achieve value comparable to the proposed project site through appropriate management practices.

[2]Result obtained from the Adamus Functional Value Analysis (Adamus and Stockwell 1983)

[3]Duck club habitat was not considered in evaluation, only the agricultural lands.

[4]Unranked intertidal mitigation plan (see 6 below).

[5]Value based on mitigation plan to raise bottom elevation using fill material.

[6]Unranked because the site was found after field assessment and baseline data analysis to consist of a habitat type totally different from the seasonal wetland habitat type of the proposed project site (e.g. intertidal saltpond; capped landfill). Value comparison would be like comparing apples and oranges.

Table 14: Existing and Potential[1] Site Condition Comparison of the Wetland Functional Value[2] "Passive Recreation and Heritage Value".

Site	Existing Functional Significance	Potential Functional Significance
Project Site	Low	Not Applicable
HARD Parcel "A"	Low	High
HARD Parcel "B"	Low	High
Oliver Hay Farm[3]	Low	Low
Oliver Salt Property	Low	Unranked[4]/High[5]
Patterson Ranch Parcels A, B, C & D	Low	High
Alameda Regional Flood Control District/Pacific FM Landfill Site	Unranked[6]	Moderate
PACCAR Landfill Site	Unranked	Moderate

[1]Ability to achieve value comparable to the proposed project site through appropriate management practices.

[2]Result obtained from the Adamus Functional Value Analysis (Adamus and Stockwell 1983)

[3]Duck club habitat was not considered in evaluation, only the agricultural lands.

[4]Unranked intertidal mitigation plan (see 6 below).

[5]Value based on mitigation plan to raise bottom elevation using fill material.

[6]Unranked because the site was found after field assessment and baseline data analysis to consist of a habitat type totally different from the seasonal wetland habitat type of the proposed project site (e.g. intertidal saltpond; capped landfill). Value comparison would be like comparing apples and oranges.

on top of a capped land fill area[11], therefore significantly reducing their interrelated value association with adjacent areas (e.g. association with surface and ground waters, ability to trap sediments is lost or quite low).

The data indicates that the remaining sites can be expected to provide comparable values with that of the proposed project site. However, in the case of the proposal to convert through the use of fill material, the Oliver Salt Property to a seasonal wetland habitat loss of existing values as high or higher than the proposed project site would occur. Thus, net loss of seasonal habitat would result. The two HARD Parcels, given their "existing" near comparability (Table 5-14) with the project site, would require little increase (via land management) in habitat value to achieve similar value status. Mitigation of this type would, therefore, also result in a net habitat loss. The Oliver Hay Farm and Patterson Ranch Parcels, on the other hand, would provide the greatest increases in values given their current agricultural use. These latter sites afford the greatest potential to provide "no net habitat loss" replacement of Category 2 - seasonal wetland habitat (e.g. taking permanently farmed lands back to permanent seasonal wetland conditions).

5.2 Conclusions

It is concluded that none of the candidate sites had functional values that overall rated equal to the project site. The HARD parcels and the Oliver Salt property had the most similar values as compared to the proposed project site. Use of these sites as

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[11]The technology required to convert a landfill to a "capped", functional wetland is, as yet, unproven.

mitigation would therefore not result in replacement of habitat to insure no net habitat loss. In addition, the Oliver Salt Property, regardless of the resulting similarity rating, has existing fishery and wildlife habitat values of a different kind. Mitigation efforts would therefore not result in a no net habitat loss situation[12] irrespective of creating a habitat like that of the proposed business park site.

The landfill sites' value for mitigation is questionable because of their inherently artificial nature requirement for intensive management and elevational and edaphic differences.

Both the Oliver Hay Farm and the Patterson Ranch parcels could be used to satisfy in-kind mitigation requirements. Both were rated as "High" potentially for wildlife habitat, in spite of a "Low" existing value. The Oliver Hay Farm has an existing duck club operation, complete with pumps, a drainage system, and tide gates in place. For mitigation purposes the existing system could be expanded and the hydrologic regime modified. The Patterson Ranch also has an existing drainage system that could readily be used for seasonal wetland conversion purposes.

The degree of management for each of these landfill sites varies with the level of management intensity required to achieve seasonal wetlands habitat. It is assumed that the landfill sites would require continual management and maintenance of facilities in order to allow for the continued success of the desired Category 2 habitat conditions. In contrast, the Oliver Hay Farm, Patterson Ranch, and Hard "A" and "B" parcels would require

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[12]The Oliver Salt Property, although often referred to as "seasonal wetland" differs from the project site (in terms of habitat potential) for two primary reasons: a) abandoned salt pond elevations are significantly lower, b) soils are hypersaline saltpans that cannot support emergent marsh vegetation.

minimal management once the desired seasonal wetland habitat conditions become established. Successful achievement of Category 2 habitat conditions is largely dependent on cessation of farming and grazing operations, allowing for wetlands hydrology conditions to occur, and removing the potential for the sites to be developed as industrial, commercial or residential properties. The Oliver Salt property would similarly require minimal management once fill material was placed and graded or that the area was opened to intertidal flows.

5.3 Recommendations

Based on the results of the Adamus analysis the following recommendations are made:

a) If agency mitigation requirements are to insure that no net habitat loss is achieved, then the Oliver Hay Farm, and Patterson Ranch parcels "A", "B", "C" and "D" or similar type sites should be pursued for mitigation to offset the loss of the proposed project;

b) If in contrast to stated policy it is determined by resource agencies that it is in the "public interest" to acquire more intertidal habitat via mitigation for the loss of seasonal wetland habitat then the Oliver Salt Property or similar sites should be considered; and

c) Mitigation parcels requiring potentially long term or continual intensive management or maintenance due to highly artificial conditions should be avoided.

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APPENDIX K

SOILS INVESTIGATION, 182 ACRE MARATHON DEVELOPMENT SITE

SOIL INVESTIGATION
182 ACRE MARATHON DEVELOPMENT SITE
HAYWARD, CALIFORNIA

HLA Job No. 9249,003.04

Prepared For

Marathon Development California, Inc.
595 Market Street, Suite 1330
San Francisco, California 94105

by

Gary E. Underdahl
Civil Engineer - 24255

Henry T. Taylor
Civil Engineer - 8787

Harding Lawson Associates
20 Hawthorne Street
San Francisco, California 94105
415/543-8422

November 16, 1981

INTRODUCTION

This report presents the results of our soil investigation of your 182 acre site in Hayward California. Our preliminary findings were presented to you in a letter dated October 13, 1981.

Project Description

We understand that the property will be subdivided into 42 lots ranging from 1.5 to 6 acres as shown on the Site Plan, Plate 1. The lots will be graded to about elevation 5.5 feet, which will require fills of as much as 3 feet deep near the northwest corner of the property. A feasibility study by M&M Consultants, dated August 1981, estimates that at least 350,000 cubic yards of fill will be required to achieve site grades. To provide access to the lots more than 2 miles of roadway and a bridge over Sulphur Creek will be constructed. The dikes along Sulphur Creek will be raised one or two feet, to elevations of 5 to 8 feet above Mean Sea Level. Storm drains, sanitary sewers and water mains will also be installed. Two storm drain lift stations and a sewer pump station will also be constructed in the southern portion of the site. Their exact locations have not been determined at this time.

Scope

The scope of our services, as outlined in our proposal dated September 23, 1981, was to investigate the soils and groundwater at the site, and develop conclusions and recommendations regarding the following:

1. Site preparation and grading
2. Anticipated settlement resulting from the planned fills
3. Probable foundation types for future buildings
4. Siting considerations regarding the sewer pump station, storm drain lift stations, and the Sulphur Creek crossing
5. Excavation and backfilling of utility trenches
6. Flexible asphalt pavement designs for interior roadways
7. Stability of creek embankments and dikes

FIELD EXPLORATION AND LABORATORY TESTS

We explored subsurface conditions at the site by drilling 24 test borings at the locations shown on Plate 1. The borings were drilled with truck-mounted flight auger and rotary-wash equipment. Boring depths ranged from 13 to 27 feet except for Boring 7, which extended to 50 feet. Our field engineer logged the materials encountered in each

boring and obtained undisturbed samples for visual examination and laboratory tests. The samples were obtained by driving a Sprague and Henwood split-barrel sampler with a 140-pound hammer falling 30 inches. The blow counts were converted to "Standard Penetration Test" values. The date of drilling, sample depths, blow counts, and soil classifications are presented on the Logs of Borings, Plates 2 through 22. The soils are classified in accordance with the Unified Soil Classification System which is presented on Plate 23.

In our laboratory, we performed tests on the soil samples to evaluate their engineering properties. The testing program consisted of the determination of moisture content, dry density, triaxial shear strength, Atterberg Limits, consolidation characteristics and resistance values (R-values). The results of most of the tests are presented on the boring logs in the manner described by the Key to Test Data, Plate 23. Consolidation test data, Atterberg limits, and R-value test data are presented on Plates 24 through 29.

SITE AND SOIL CONDITIONS

The site slopes gently downward to the north and west with surface elevations ranging from 3 to 7 feet above Mean Sea Level. The southern half of the site is traversed in an

east-west direction by Sulphur Creek. Sulphur Creek has been channelized for flood control into a nearly-straight alignment. The channel is about 10 feet wide. The channel depth (below top of dike) varies from about 3 to 8 feet. The top of the dike varies from about 2 to 5 feet above adjacent ground levels. Surface vegetation over the site consists of a moderate growth of grasses and weeds. Most of the southern half of the site is presently a pasture for cattle. A ranch house and several associated buildings currently occupy the southeastern corner of the site.

Firm clayey alluvial soils are predominant over the site. The soils contain some interlayered sand and gravel below the water table. Soft to medium stiff, compressible clayey soils were encountered in the northwest portion of the site. The upper 1 to 2 feet of the soft soils are desiccated and form a firm crust. In the borings, the soft soil layer is up to 6 or 7 feet deep. The approximate limits of these soft soils are shown on the attached Plate 1.

Nearly all of the clayey soils are expansive. Expansive soils tend to shrink and swell with changes in moisture content. The surface clay layer is highly expansive and extends to depths of at least 4 feet.

Stabilized groundwater levels during exploration ranged from 1-1/2 feet below the ground surface in the northwest area to 6-1/2 feet in the southeast corner of the site.

However, in most of the borings it stabilized at depths of from 2 to 4 feet.

GEOLOGY

The firm soils on the site consist of Holocene and late Pleistocene alluvial deposits. The soft clayey soils are Holocene estuarian muds.

The Hayward Fault is located about 3 miles east of the site and the San Andreas Fault is 15 miles to the west. There are no known faults or extensions of active faults passing through or near the site.

CONCLUSIONS AND RECOMMENDATIONS

General

We conclude that there are no soil or geologic conditions at the site which would preclude its development as planned. The firm soil areas are relatively uniform; therefore, siting of the sewer pump station, storm drain lift stations or the Sulphur Creek crossing should not be affected by soil conditions. Excavation for the pump or lift stations will encounter weak and/or sandy soils requiring bracing and shoring, or sloped excavations. The primary geotechnical considerations which influence site development are

summarized below and are further discussed in the subsequent sections.

1. The expansive surface soils - Where these soils remain near the ground surface after site grading in the areas of buildings and pavements, steps must be taken to limit the effects of these materials on foundations, slabs and pavements. These steps may include deepened perimeter footings and placing a layer of select fill under slab-on-grade floors and possibly pavements. Because of the low R-values of these materials, relatively thick pavement sections will be required.

2. The soft soils in the northwest area - These soils will consolidate under new fill and building loads. For example, 3 feet of new fill placed over 4 feet of these soft soils will cause 1 to 2 inches of settlement as the soft soil consolidates. Most of this settlement should be complete within 6 months of fill placement.

3. The relatively high water table - Excavations extending below the groundwater table will need to be dewatered. This is particularly true for the pump and lift stations and possibly will be necessary for some of the utilities. These

facilities should be designed to resist hydrostatic uplift. Seepage into excavations through the clayey soils will occur at relatively slow rates. In the sandy and gravelly soils, relatively large seepage quantities can be anticipated. Shoring systems for excavations extending below the groundwater table should be designed to control seepage.

Geologic Hazards

Strong ground shaking at the site is expected during large earthquakes on the Hayward or San Andreas Faults. All structures should be designed to resist the lateral loads generated by seismic shaking. The sands in Borings 7 and 20 appear to be susceptible to liquefaction; however, the thickness of the clayey soil overburden should limit any surface expression and effects of liquefaction on surface structures. The risk of soil densification or lurching during earthquake shaking is considered remote. Since there are no known faults on the site, ground rupture as a result of an earthquake is considered unlikely.

Site Preparation and Grading

The upper few inches of soil containing vegetation should be stripped from all areas to be graded. Some of the site contains no vegetation and hence, will require little or no stripping. In soft soil areas, care should be taken

during construction not to disturb the crust. Because the soils are clayey over the entire site, grading could be difficult to perform during the rainy season. In all fill areas, the upper 6 inches of soil should be scarified, moisture conditioned to 3 to 6 percent above optimum moisture and compacted to at least 90 percent relative compaction*. Approved fill should then be placed in layers 8 inches or less in loose thickness, moisture conditioned, and compacted to at least 90 percent relative compaction. Where the expansive clayey soils are used for fill, they should be conditioned to 3 to 6 percent above optimum before being compacted. Imported fill material should be of low expansion potential with a plasticity index less than 15 and liquid limit less than 40.

All cut and fill slopes should be no steeper than 2 horizontal to 1 vertical (2:1). Fill slopes should be compacted or overbuilt and cut back to expose firm compacted soil. The surfaces in all graded areas should be sloped to drain away from the tops of the slopes to minimize erosion.

* Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material as determined by the ASTM D1557-78(C) laboratory compaction procedure.

Probable Building Foundations

We believe that typical light-weight commercial or industrial buildings can be supported satisfactorily on shallow spread foundations bottomed in firm natural soil or compacted fill. The perimeter footings will likely have to be bottomed below the depth of seasonal moisture change in the expansive soils. The depth of seasonal moisture change will probably be 2 to 3 feet below the proposed final grade. Where the expansive soils are covered with at least 2 feet of fill with a low expansion potential, deepening the perimeter footings should not be necessary.

In the soft soil areas, the planned fill (about 3 feet deep) should be sufficient to provide support for spread footings. However, foundation settlement should be considered. Removal of soft soils, surcharging, relatively rigid grid-type foundation systems, or deep foundations (piles) are possible alternatives for concentrated loads or settlement sensitive structures.

Slope Stability - Creek Channel

The soils encountered in our borings near the Sulphur Creek channel are stiff clays. The stiff clays should provide adequate factors of safety against a slope failure providing slopes no steeper than 2 horizontal to 1 vertical (2:1) are used. Stream water velocities should be low;

therefore, erosion is not expected to be significant and riprap or other means of slope protection will not be needed.

Pavements

The surface soils have very low resistance values (R-values). Laboratory test results range from 10 to less than 5. Therefore, pavements will have to be relatively thick to provide stable support for roadways. Design traffic indexes will vary based on the anticipated traffic volume for each road. We have calculated alternative pavement thicknesses for several traffic indexes. Pavement thicknesses are based on the CalTrans (State of California) design method using a 20 year design life. The design R-value for the subgrade is 5. The recommended design thicknesses are summarized in the following table.

Recommended Flexible Pavement Thicknesses

Traffic Index	Alternative	Thickness, Inches		
		Asphalt Concrete	Class 2 Aggregate Base	Class 2 Aggregate Sub-base
5.5	I	9.0	--	--
	II	3.0	12.0	--
	III	3.0	6.0	7.0
6.0	I	9.5	--	--
	II	3.5	12.5	--
	III	3.5	6.0	7.5
6.5	I	11.0	--	--
	II	4.0	14.0	--
	III	4.0	6.0	9.0

If pavements are underlain by imported fill, pavements could be constructed with thinner sections because the R-value of the imported fill should be higher than that for the on-site soils. We would be pleased to evaluate other pavement designs once fill sources are identified. The upper 6 inches of subgrade soil should be scarified, moisture conditioned and compacted to at least 90 percent relative compaction for expansive soils and to at least 95 percent for imported fill with a low expansion potential. The expansive soils should be conditioned to a moisture content 3 to 6 percent above optimum before compaction. The subgrade soils should be kept moist until covered by the pavement materials.

The aggregate base and sub-base materials should conform to the quality requirements of the CalTrans specifications. The base and sub-base should be placed in layers no greater than 6 inches thick and compacted to at least 95 percent relative compaction.

The edges of pavements on expansive soils could develop cracks as the soils shrink and swell with seasonal moisture changes. Possible alternatives to limit seasonal moisture changes include: 1) a 1 to 2 foot thick blanket of imported fill of low expansion potential, 2) covering the expansive soil adjacent to the pavement with asphalt or concrete (such as curb-and-gutter plus sidewalk), 3) an impermeable moisture

cut-off wall along the edge of the pavement about 3 feet deep, or 4) landscaping with frequent watering.

Sulphur Creek Bridge

The bridge proposed near Boring 7 is in a stiff clayey soil area. We believe a relatively light bridge can be supported on shallow spread footings bottomed on the natural soils. However, if the bridge is relatively heavy, deep foundations such as drilled or driven piles may be required. Piles would gain support through skin friction in the firm natural soils. Caving sand and gravel will be encountered during cast-in-place pile drilling, making it necessary to case the holes or use drilling mud, and tremie the concrete. The length of drilled piles would depend on the diameter of the piles and the load it is designed to carry. For example, a 2-foot-diameter drilled concrete pile with 25 feet of embedment in the stiff soils should support about 50 tons dead plus live load. A 12-inch-square, precast concrete pile would need about 35 feet of embedment in the stiff soils to support a 50 ton load.

ADDITIONAL SOIL ENGINEERING SERVICES

When project plans are more complete, we should perform a supplemental investigation to develop conclusions and recommendations regarding:

1. Foundation support of the pump and lift stations, and the Sulphur Creek bridge.
2. Foundation design criteria for the recommended foundation(s)
3. Lateral earth pressures for retaining wall design

We should review plans and specifications for site grading to check for conformance with our recommendations. All site grading should be observed by our engineer and appropriate field and laboratory tests performed to check material quality and compaction.

We wish to emphasize that this report is not intended to provide formal foundation recommendations for buildings that will be constructed on the site. Site specific soil investigations should be performed to develop foundation recommendations for each building.

LIST OF ILLUSTRATIONS

Plate 1	Site Plan
Plates 2 through 22	Logs of Borings 1 through 24
Plate 23	Unified Soil Classification System and Key to Test Data
Plate 24	Plasticity Chart
Plates 25 through 26	Consolidation Test Data
Plates 27 through 29	Resistance Value Test Data

DISTRIBUTION

6 copies submitted

Marathon Development California, Inc.
595 Market Street, Suite 1330
San Francisco, California 94105

Attention: Mr. James E. Christian

2 copies submitted

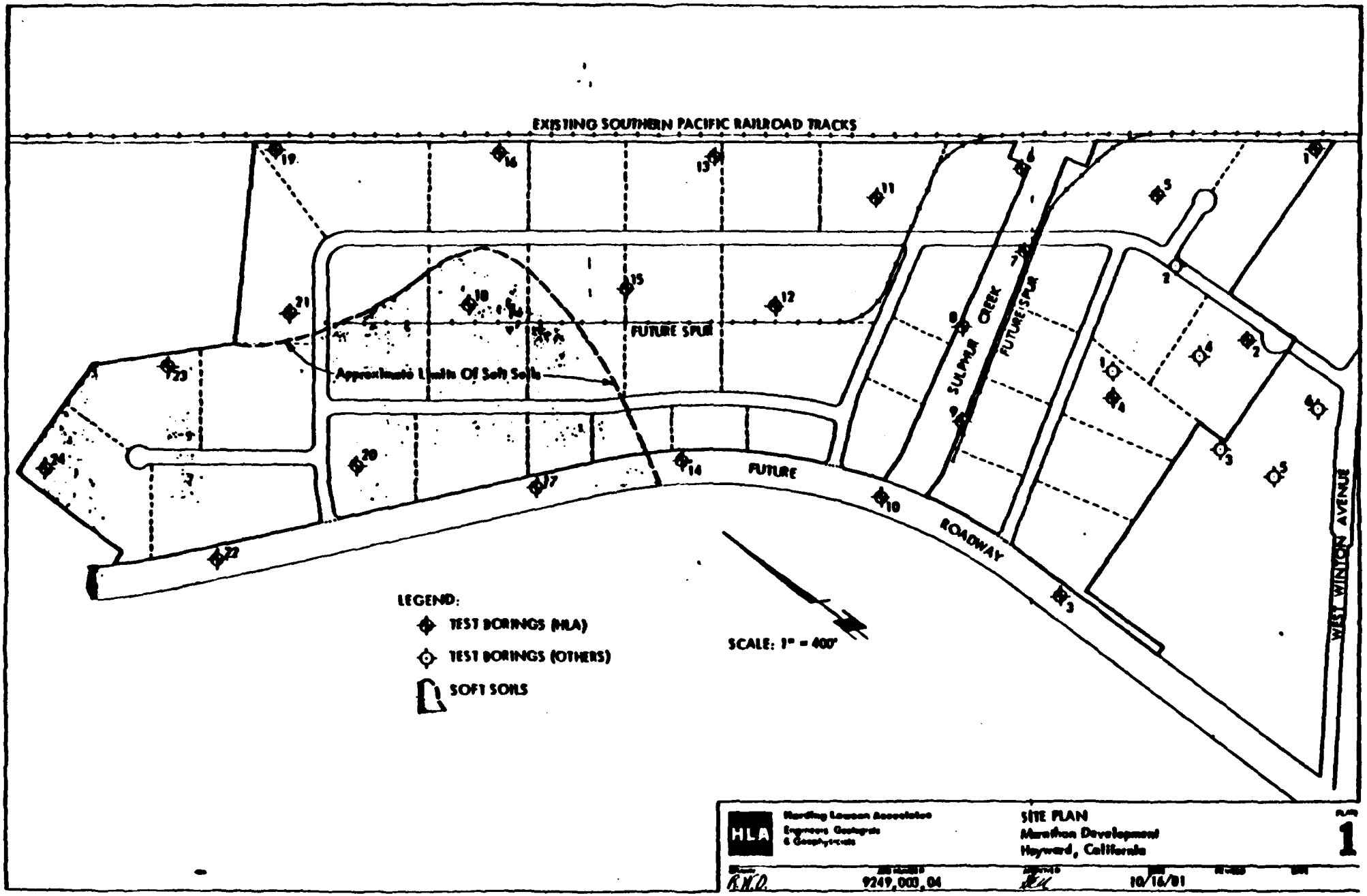
M&M Consultants
7700 Edgewater Drive
Oakland, California 94621

Attention: Mr. Paul Lang

GEU/HTT/JPB/cg

QUALITY CONTROL REVIEWER

James P. Bowers
Civil Engineer - 28962


EXISTING SOUTHERN PACIFIC RAILROAD TRACKS
FUTURE SPUR
Approximate Limit Of Soft Soils
SULPHUR CREEK
FUTURE SPUR
FUTURE
ROADWAY
WEST WINTON AVENUE
LEGEND:
TEST BORINGS (HLA)
TEST BORINGS (OTHERS)
SOFT SOILS
SCALE: 1" = 400'
HLA
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SITE PLAN
Marathon Development
Hayward, California
PLATE
1
R.W.D.
9249,000,04
10/16/81

LOG OF BORING 1

Equipment 6" Flight Auger

Elevation 11.5'** Date 10/1/81

Laboratory Tests	Blows/foot*	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample
				0
	15	26.2	93	
				5
	15			
				10
	5			
				15
	8			
				20
				25
				30
				35
				40

BROWN SANDY CLAY (CL) stiff, dry — FILL

BLACK SILTY CLAY (CH) stiff, wet

GRAY SILTY CLAY (CH) stiff, wet

▽ Water level 10/1/81

BROWN SANDY CLAY (CL) medium stiff, saturated

*Field blowcounts converted to standard penetration resistance

**Mean Sea Level Datum, Feet

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LOG OF BORING 1
Marathon Development
Hayward, California

PLATE 2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
R.W.L.	9249,003.04		10/16/81		

LOG OF BORING 2

Equipment 6" Flight Auger

Elevation 8.0' Date 9/28/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample
	16	22.9	85	0	
				5	
	17				
				10	
	13				
				15	
	14				
				20	
				25	
				30	
				35	
				40	

BLACK SILTY CLAY (CH)
stiff, dry, wet at 2'

GRAY SILTY CLAY (CH)
stiff, wet

BROWN SANDY CLAY (CL)
stiff, saturated

boring backfilled before water level stabilized

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LOG OF BORING 2
* Marathon Development
Hayward, California

PLATE 3

JOB NUMBER	APPROVED	DATE	REVISED	DATE
9249.003.04		10/16/81		

LOG OF BORING 3

Equipment 6" Flight Auger

Elevation 3.5' Date 9/28/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry , wet at 2'
						▽ Water level 9/30/81
	11	22.5	105			DARK GRAY SILTY CLAY (CH) stiff, saturated
				5		
						BROWN SANDY CLAY (CL) stiff, saturared
	9					
				10		
	18					
				15		

LOG OF BORING 4

Equipment 6" Flight Auger

Elevation 6.8 Date 9/28/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry , wet at 2'
LL = 67 PL = 20 PI = 47	11	28.9	87			GRAY SILTY CLAY (CH) stiff, wet
				5		BROWN SANDY CLAY (CH) stiff, saturated
	20					
				10		
	9					
				15		boring backfilled before water level stabilized

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LOG OF BORINGS 3 & 4
Marathon Development
Hayward, California

PLATE 4

JOB NUMBER 9249.003.04 APPROVED DATE 10/16/81 REVISED DATE

LOG OF BORING 5

Equipment 6" Flight Auger

Elevation 9.5' Date 9/28/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample
				0
	20			
				5
	18	23.8	103	
				10
	10			
				15
				20
				25
				30
				35
				40

BLACK SILTY CLAY (CH)
stiff, dry
wet at 2'

GRAY SILTY CLAY (CL)
stiff, wet

BROWN SANDY CLAY (CL)
stiff, saturated

boring backfilled before water level stabilized

LOG OF BORING 6

Equipment 6" Flight Auger

Elevation 8.0' | Date 9/28/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample
				0	
	16	20.6	104		
				5	
	15				
				10	
	14			15	
	9				
				20	
	12				
				25	
				30	
				35	
				40	

BLACK SILTY CLAY (CH)
stiff, dry, wet at 2', with caliche

GRAY SILTY CLAY (CH)
stiff, wet

BROWN CLAYEY GRAVEL (GC)
medium dense, saturated, with some clean gravel layers and sandy clay layers

boring backfilled before water level stabilized

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LOG OF BORING 6
Marathon Development
Hayward, California

PLATE 6

JOB NUMBER 9249,003,04 | APPROVED | DATE 10/16/81 | REVISED | DATE

LOG OF BORING 7

Equipment 8" Hollow Auger

Elevation 7.5' Date 9/30/81

Laboratory Tests	Blows/Foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry, wet at 2'
	18					
Tx 1200 (864)	11	18.6	111	5		▽ Water level 10/1/81 BROWN SANDY CLAY (CL) stiff, saturated
	8			10		increase in sand content with depth
Tx 2000 (994)	27	17.7	112	15		BROWN SILTY SAND (SM) medium dense, saturated
	33	10.7	115	20		BROWN CLAYEY GRAVELLY SAND (SP) medium dense, saturated
						BROWN SANDY CLAY (CL) stiff, saturated
	21			25		BLUE GRAY SANDY CLAY (CL) stiff, saturated
	11	21.0	107	30		BROWN SANDY CLAY (CL) stiff, saturated
	22	20.6	108	35		
				40		

(Continuation of Log)

Laboratory Tests	Blows/Foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
	20			40		decrease in sand content with depth
	20	21.4	108	45		
	20			50		
				55		
				60		
				65		
				70		
				75		
				80		

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LOG OF BORING 7
Marathon Development
Hayward, California

Fig. 7

RWO | 9249,003.04 | AW | 10/16/81

LOG OF BORING 8

Equipment 6" Flight Auger

Elevation 7.6' Date 9/29/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry, shrinkage cracks to 2' — DIKE FILL
LL = 70 PL = 21 PI = 49	13			5		BLACK SILTY CLAY (CH) stiff, wet
						GRAY SILTY CLAY (CH) stiff, wet
						▽ Water level 9/30/81
	11	18.9	110			BROWN SANDY CLAY (CL) stiff, saturated
				10		
	26					BROWN SANDY GRAVEL (GP) medium dense, saturated
				15		
	8					BROWN SANDY CLAY (CL) medium stiff, saturated
				20		
	8					GRAY SANDY CLAY (CL) stiff, saturated, with BROWN SAND (SP) lenses
				25		
				30		
				35		
				40		

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LOG OF BORING 8
Marathon Development
Hayward, California

PLATE 8

10/16/81

LOG OF BORING 9

Equipment 6" Flight Auger

Elevation 5.0' Date 9/28/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample
	9	29.8	90	0	
	10	27.6	98	5	
	9			10	
	8			15	
	9			20	
	12			25	
				30	
				35	
				40	

BLACK SILTY CLAY (CH)
stiff, dry, wet at 2'

GRAY SILTY CLAY (CH)
stiff, wet

BROWN SANDY CLAY (CL)
stiff, saturated

with thin sand lenses

boring backfilled before water level stabilized

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LOG OF BORING 9
Marathon Development
Hayward, California

PLATE 9

JOB NUMBER 9249.003.04

APPROVED

DATE 10/16/81

REVISED

DATE

LOG OF BORING 10

Equipment 6" Flight Auger

Elevation 3.0' Date 9/29/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry
						▽ Water level 9/30/81
*x 1000 (860)	9	27.1	96	5		DARK GRAY SILTY CLAY (CH) stiff, wet
						BROWN SANDY CLAY (CL) stiff, saturated
	14	22.9	105	10		
	7			15		
	10			20		with clayey sand lenses
	33			25		
				30		
				35		
				40		

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LOG OF BORING 10
Marathon Development
Hayward, California

PLATE 10

JOB NUMBER 4040.002.04 APPROVED DATE 10/16/81 REVISED DATE

LOG OF BORING 11

Equipment 6" Flight Auger

Elevation 6.0' Date 9/29/81

Laboratory Tests	Blows/Foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
LL = 58 PL = 21 PI = 37	12			0	BLACK SILTY CLAY (CH) stiff, dry, wet at 2'
					GRAY SILTY CLAY (CH) stiff, wet
					▽ Water level 9/30/81
				5	BROWN SANDY CLAY (CL) stiff, saturated
	10				
				10	
	23				with brown clayey sand lenses
				15	

LOG OF BORING 12

Equipment 6" Flight Auger

Elevation 3.5 Date 9/29/81

				0	BLACK SILTY CLAY (CH) stiff, dry
					GRAY SILTY CLAY (CH) stiff, wet
	18	20.4	106		
				5	BROWN SANDY CLAY (CL) stiff, wet
	21				
				10	
	6				
				15	boring backfilled before water level stabilized

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LOG OF BORINGS 11 & 12
Marathon Development
Hayward, California

PLATE 11

10/16/81

LOG OF BORING 13

Equipment 6" Flight Auger

Elevation 4.5' Date 9/29/81

oratory Tests	Blows/Foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry
	23	20.6	95			GRAY SILTY CLAY (CH) stiff, dry
						▽ Water level 9/30/81
				5		BROWN SANDY CLAY (CL) stiff, saturated
	18					
				10		BROWN CLAYEY SAND (SC) loose, saturated
	4					
				15		

LOG OF BORING 14

Equipment 6" Flight Auger

Elevation 2.5 Date 9/29/81

				0		BLACK SILTY CLAY (CH) stiff, dry, wet at 2'
	11	33.6	87			▽ Water level 9/29/81
						GRAY SILTY CLAY (CH) stiff, saturated
				5		BROWN SANDY CLAY (CL) stiff, saturated
	17					
				10		
	13					with clayey sand lenses
				15		

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LOG OF BORINGS 13 & 14
Marathon Development
Hayward, California

PLATE 12

949.000.04

10/16/81

LOG OF BORING 15

Equipment 6" Flight Auger

Elevation 3.0' Date 9/29/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample
	8	33.9	81	0	
				5	
	12				
				10	
	10				
				15	
				20	
				25	
				30	
				35	
				40	

BLACK SILTY CLAY (CH)
stiff, dry
wet at 2'
▽ Water level 9/30/81

BLUE GRAY SILTY CLAY (CH)
stiff, saturated

BROWN SANDY CLAY (CL)
stiff, saturated

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LOG OF BORING 15
Marathon Development
Hayward, California

PLATE 13

APPROVED DATE 10/16/81 REVISED DATE

LOG OF BORING 16

Equipment 6" Flight Auger

Elevation 4.4' Date 9/30/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample
				0
	6			
				5
	9	22.9	104	
				10
	12			
				15
	--			
				20
	23			
				25
				30
				35
				40

BLACK SILTY CLAY (CH)
stiff, dry
Water level 10/1/81
GRAY SILTY CLAY (CH)
stiff, saturated

BROWN SILTY CLAY (CL)
stiff, saturated

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LOG OF BORING 16
Marathon Development
Hayward, California

PLATE 14

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
KO	8249.003.04		10/16/81		

LOG OF BORING 17

Equipment 6" Flight Auger

Elevation 3.0' Date 9/29/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
= 93 = 36 = 57	2			0		DARK GRAY SILTY CLAY (CH) stiff, dry, shrinkage cracks to 2' soft and wet at 2' ▽ Water level 9/30/81 with peaty layers
				5		BLUE GRAY SILTY CLAY (CH) stiff, wet
	23	21.9	105			BROWN SANDY CLAY (CL) stiff, saturated
	11			10		with silty sand lenses
				15		
				20		
				25		
				30		
				35		
				40		

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LOG OF BORING 17
Marathon Development
Hayward, California

PLATE 15

JOB NUMBER 9249,003.04 APPROVED DATE 10/16/81 REVISED DATE

LOG OF BORING 18

Equipment 6" Flight Auger

Elevation 3.4' Date 10/1/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
				0	GRAY SILTY CLAY (CH) stiff, dry soft and wet at 1'
					▽ Water level 10/1/81
	7	41.0	78	5	
					MOTTLED LIGHT BROWN AND GRAY SILTY CLAY (CL) stiff, saturated
	19			10	
	16			15	
					BROWN SANDY GRAVEL (GP) medium dense, saturated
	--			20	
				25	
				30	
				35	
				40	

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LOG OF BORING 18
Marathon Development
Hayward, California

PLATE 16

JOB NUMBER 9249.003.04

APPROVED

DATE 10/16/81

REVISED DATE

LOG OF BORING 19

Equipment 6" Flight Auger

Elevation 4.9' Date 9/30/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample
				0	
	6			5	
	11	23.7	102	10	
	13			15	
	6			20	
				25	
				30	
				35	
				40	

BLACK SILTY CLAY (CH)
stiff, dry, wet at 2'

▽ Water level 10/1/81

BROWN SANDY CLAY (CL)
stiff, saturated

BROWN SANDY GRAVEL (GP)
medium dense, saturated

BROWN SANDY CLAY (CL)
stiff, saturated

LOG OF BORING 20

Equipment 6" Flight Auger

Elevation 3.0' Date 10/1/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
				0	BROWN SILTY CLAY (CL) stiff, dry soft and wet at 1'
	2				▽ Water level 10/1/81
				5	GRAY SILTY CLAY (CL) stiff, saturated
	15	22.0	105		
				10	BROWN SILTY SAND (SM) medium dense, saturated
	19				
				15	
	15				BROWN SANDY CLAY (CL) stiff., saturated
				20	
	15				
				25	
				30	
				35	
				40	

LOG OF BORING 21

Equipment 6" Flight Auger

Elevation 4.0' Date 9/30/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) stiff, dry wet at 2'
	7	33.9	85			
						▽ Water level 10/1/81
				5		LIGHT GRAY SILTY CLAY (CL) stiff, saturated, with volcanic ash
	12					
				10		BROWN CLAYEY SAND (SC) medium dense, saturated
	11					
				15		BROWN SANDY GRAVEL (GP) medium dense, saturated
	13					
				20		BROWN SILTY CLAY (CL) stiff, saturated
	11					
				25		
				30		
				35		
				40		

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LOG OF BORING 21
Marathon Development
Hayward, California

PLATE 19

JOB NUMBER 9249.003.04 APPROVED DATE 10/16/81 REVISED DATE

LOG OF BORING 22

Equipment 6" Flight Auger

Elevation 3.1' Date 10/1/81

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
				0	BROWN SILTY CLAY (CL) stiff, dry soft and wet at 1'
	2	50.0	65	5	▽ Water level 10/1/81 GRAY SILTY CLAY (CL) stiff, saturated
	17			10	
	8			15	BROWN SANDY CLAY (CL) stiff, saturated
	21			20	
				25	
				30	
				35	
				40	

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LOG OF BORING 22
Marathon Development
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PLATE 20

JOB NUMBER 9249,003.04 APPROVED DATE 10/16/81 REVISED DATE

LOG OF BORING 23

Equipment 6" Flight Auger

Elevation 4.1' Date 10/1/81

Laboratory Tests	Sample No.	Blows/Ft.	Dry Density (pcf)	Moisture (%)	Depth (ft)	
					0	BLUE GRAY SILTY CLAY (CH) stiff, dry, soft and wet at 2'
	1	83.4		51		▽ Water level 10/1/81
					5	
						BROWN SANDY CLAY (CL) stiff, saturated
		17			10	
						decrease in sand content with depth
		--			15	
		16			20	
					25	
					30	
					35	
					40	

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LOG OF BORING 23
Marathon Development
Hayward, California

PLATE 21

JOB NUMBER 9749.003.04 APPROVED DATE 10/16/81 REVISED DATE

LOG OF BORING 24

Equipment 6" Flight Auger

Elevation 3.3' Date 10/1/81

Laboratory Tests						
					0	BROWN SILTY CLAY (CL) stiff, dry soft and wet at 1'
	3	31.8	86			▽ Water level 10/1/81
					5	GRAY SANDY CLAY (CL) stiff, saturated
	15					
					10	BROWN SANDY CLAY (CL) stiff, saturated
	6					
					15	
	12					
					20	
	11					
					25	
					30	
					35	
					40	

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LOG OF BORING 24
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PLATE 22

JOB NUMBER 8248.003.04 APPROVED [illegible] DATE 10/16/81 REVISED DATE

MAJOR DIVISIONS					TYPICAL NAMES
COARSE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE)	GRAVELS (MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE)	CLEAN GRAVELS (LITTLE OR NO FINES)	GW		WELL GRADED GRAVELS, GRAVEL - SAND MIXTURES
			GP		POORLY GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM		SILTY GRAVELS, POORLY GRADED GRAVEL - SAND - SILT MIXTURES
			GC		CLAYEY GRAVELS, POORLY GRADED GRAVEL - SAND - CLAY MIXTURES
	SANDS (MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE)	CLEAN SANDS (LITTLE OR NO FINES)	SW		WELL GRADED SANDS, GRAVELLY SANDS
			SP		POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM		SILTY SANDS, POORLY GRADED SAND - SILT MIXTURES
			SC		CLAYEY SANDS, POORLY GRADED SAND - CLAY MIXTURES
FINE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE)	SILTS AND CLAYS (LIQUID LIMIT LESS THAN 50)		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL		ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (LIQUID LIMIT GREATER THAN 50)		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt		PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION SYSTEM

Shear Strength, psf

Confining Pressure, psf

Consol = Consolidation
LL = Liquid Limit (No %)
PL = Plastic Limit (No %)
G_s = Specific Gravity
SA = Sieve Analysis
■ "Undisturbed" Sample
■ Bulk Sample

*Tx	320	(2000)	Unconsolidated Undrained Triaxial
TxCU	320	(2000)	Consolidated Undrained Triaxial
DS	2730	(2000)	Consolidated Drained Direct Shear
FVS	470		Field Vane Shear
*UC	2000		Unconfined Compression
LVS	700		Laboratory Vane Shear

Notes: (1) All strength tests on 2.8" or 2.4" diameter samples unless otherwise indicated.

(2) * indicates 1.4" diameter sample.

KEY TO TEST DATA

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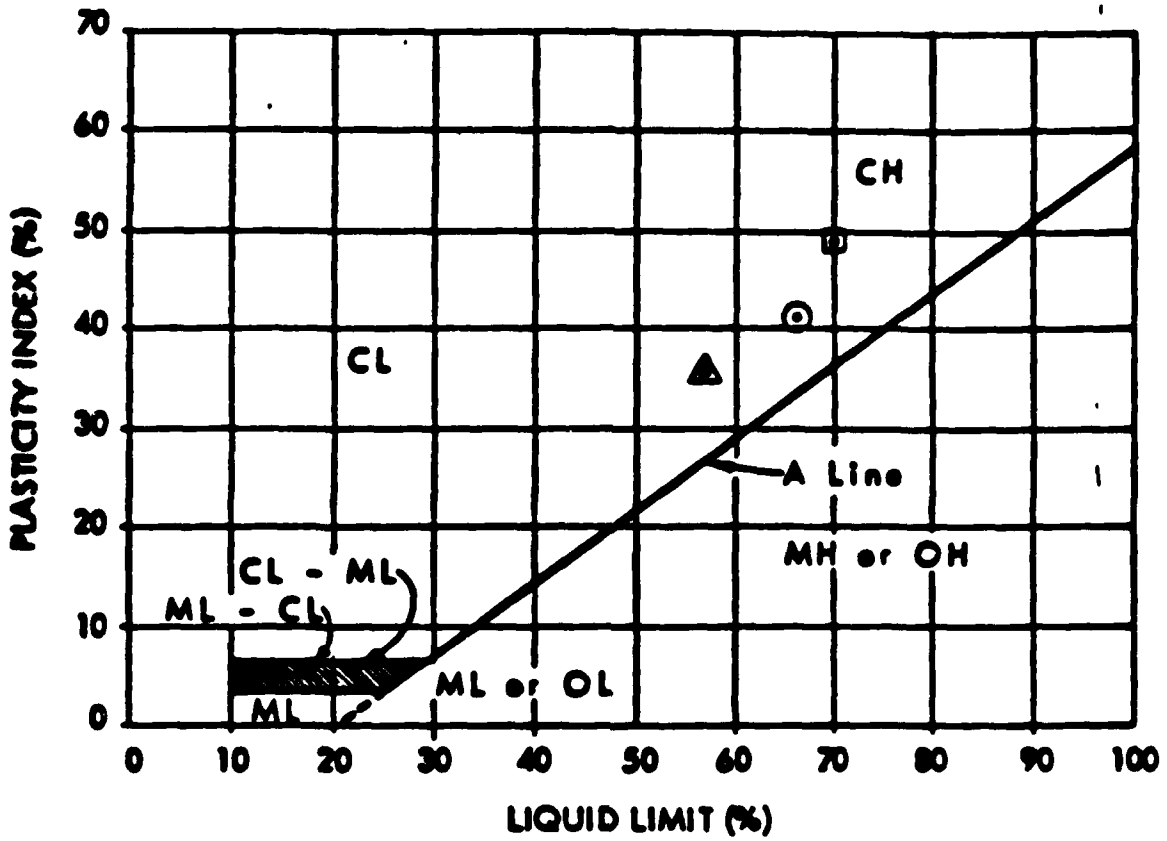
SOIL CLASSIFICATION CHART AND KEY TO TEST DATA
Marathon Development

PLATE 23

JOB NUMBER 00 12 003 01 | APPROVED MGH | DATE 10/14/81 | REVISED | DATE



Symbol	Classification and Source	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	% Passing #200 Sieve
⊙	BLACK SILTY CLAY (CH) Boring 4 at 2.5 feet	67	20	47	-
⊡	BLACK SILTY CLAY (CH) Boring 8 at 3.5 feet	70	21	49	-
▲	BLACK SILTY CLAY (CH) Boring 11 at 2.0 feet	58	21	37	-

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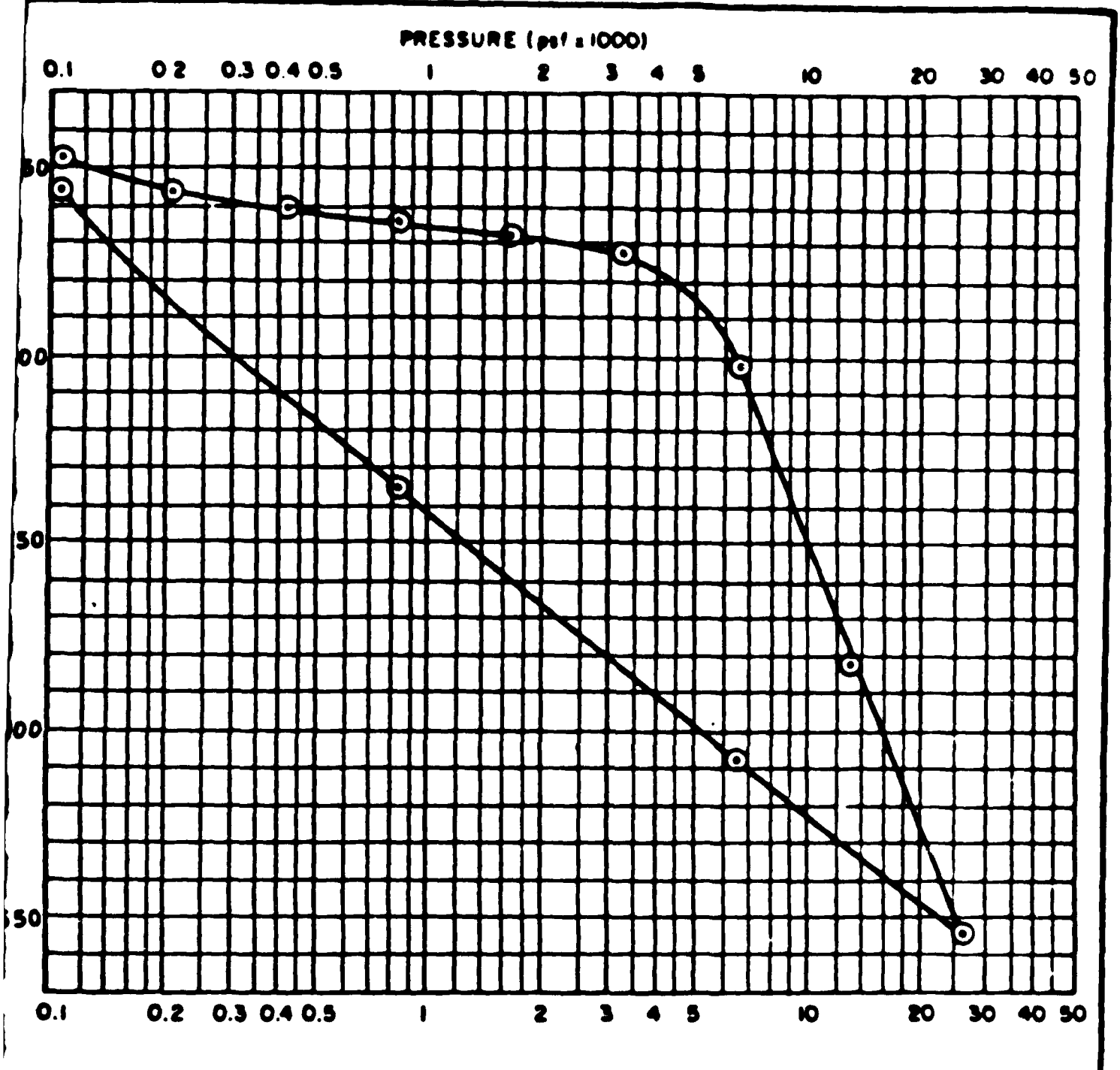
PLASTICITY CHART
Marathon Development
Hayward, California

PLATE
24

DRAWN | JOB NUMBER | APPROVED | DATE 10/24/83 | REVISED | DATE



OF SPECIMEN	UNDISTURBED		BEFORE TEST			AFTER TEST	
ETER (in.)	2.38	HEIGHT(in.) 0.80	MOISTURE CONTENT	w_o	28.8 %	w_f	30.9 %
BURDEN PRESS., P_o	psf		VOID RATIO	e_o	0.856	e_f	0.844
ONSOL. PRESS., P_c	5000 psf		SATURATION	S_o	92 %	S_f	100 %
RESSION INDEX, C_c	0.266		DRY DENSITY	γ_d	88.1 pcf	γ_d	88.7 pcf
70	PL 21		PI 49		G_s 2.73		
SIFICATION	BLACK SILTY CLAY (CH)		SOURCE Boring 8 at 3.5 feet				

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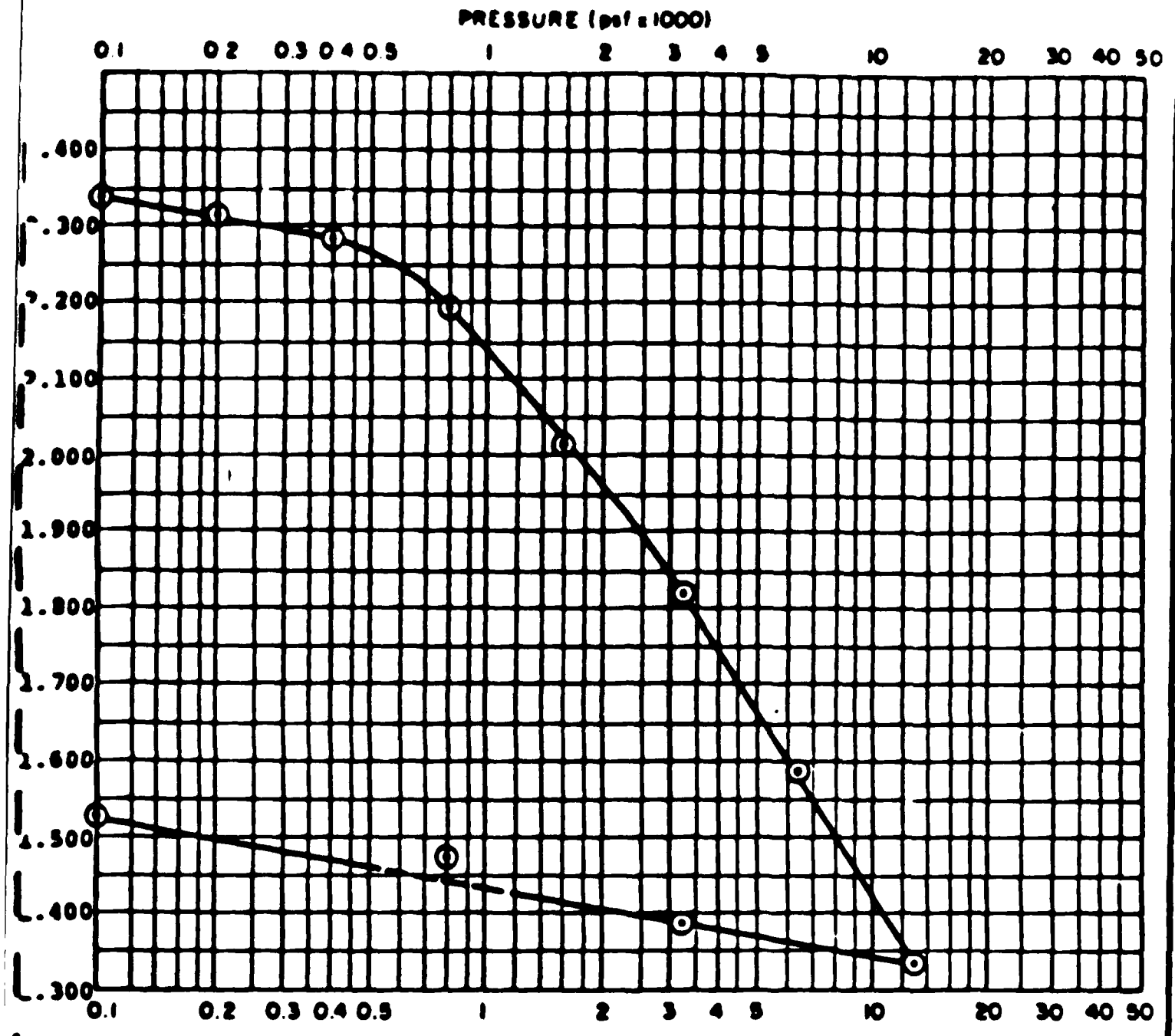
CONSOLIDATION TEST REPORT
Marathon Development
Hayward, California

PLATE 25

JOB NUMBER	APPROVED	DATE	REVISED	DATE
		12/10/91		



TYPE OF SPECIMEN	UNDISTURBED		BEFORE TEST			AFTER TEST	
DIAMETER (in.)	2.43	HEIGHT (in.) 0.80	MOISTURE CONTENT	w_o	88.6 %	w_f	55.1%
OVERBURDEN PRESS., P_o	psf		VOID RATIO	e_o	2.411	e_f	1.526
PRECONSOL. PRESS., P_c	1000 psf		SATURATION	S_o	100 %	S_f	100%
COMPRESSION INDEX, C_c	0.81		DRY DENSITY	γ_d	50.5 pcf	γ_d	68.2 pcf
LL 93	PL 36	PI 57	G_s 2.76				
CLASSIFICATION	DARK GRAY SILTY CLAY (CH) with peat		SOURCE	Boring 17 at 2.5 feet			

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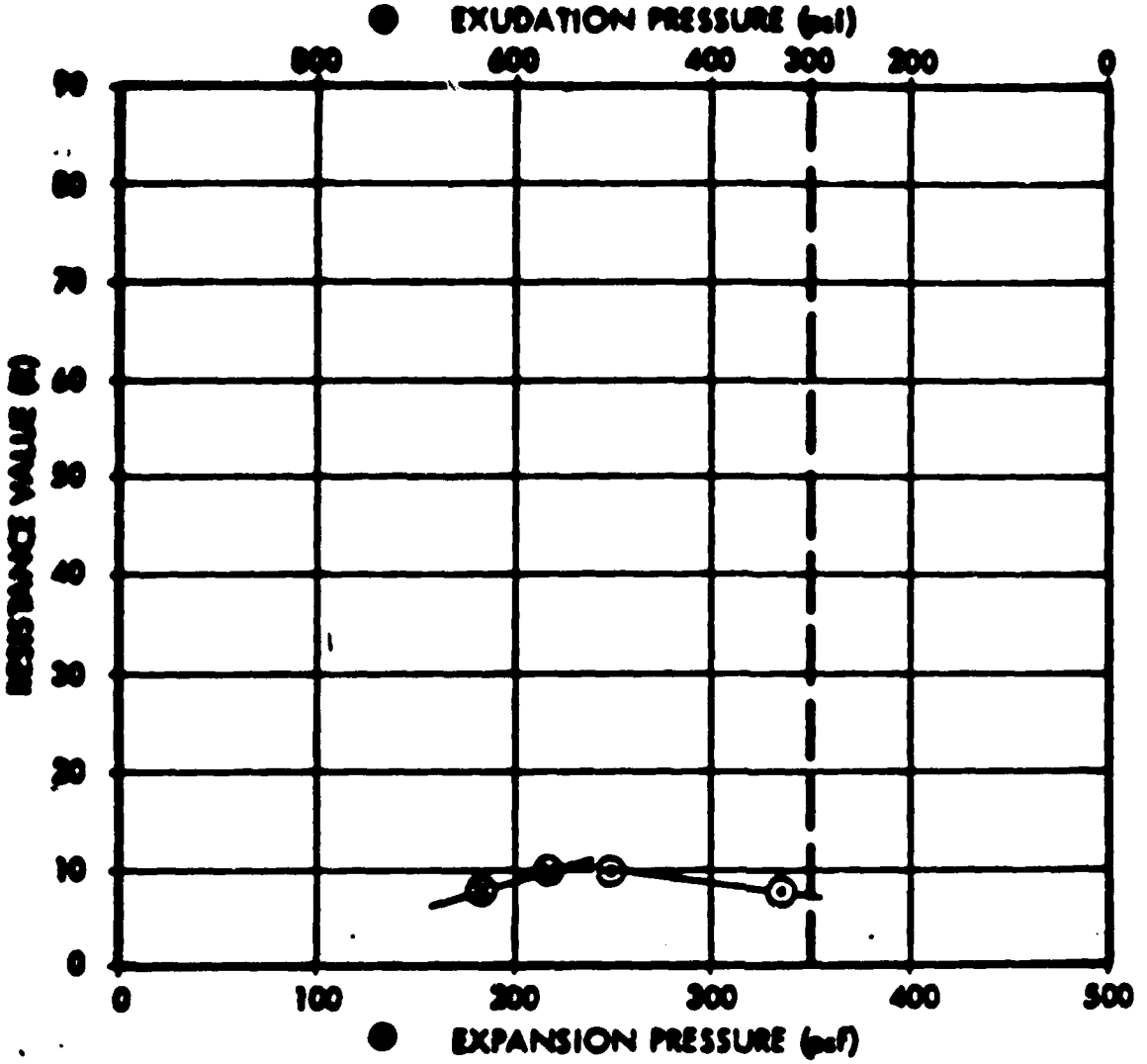
CONSOLIDATION TEST REPORT
Marathon Development
Hayward, California

PLATE 26

DRAWN | JOB NUMBER | APPROVED | DATE | REVISED | DATE



men No.	1	2		
ture Content (%)	30.7	32.9		
Density (pcf)	85.0	82.6		
ation Pressure (psi)*	300	330		
sion Pressure (psf)	218	183		
ance Value (R)	8	10		

*RUDED UNDER MOLD
PRESSURE INDICATED

TEST DATA

Sample Source	Classification	Sand Equivalent	Expansion Pressure	R value
TH END OF SITE BORING 7	DARK GRAY SANDY CLAY (CH)	16	-	< 5

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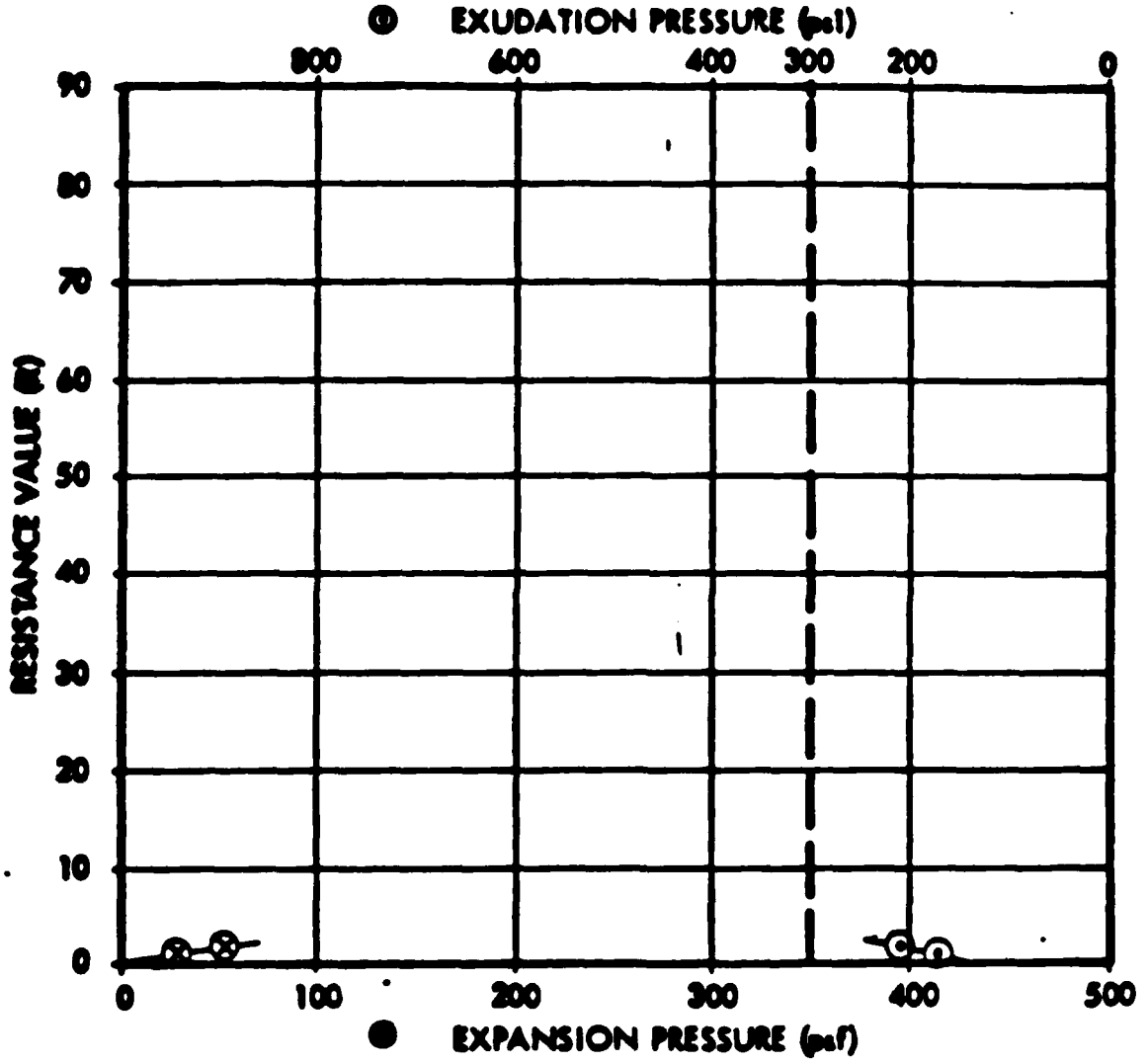
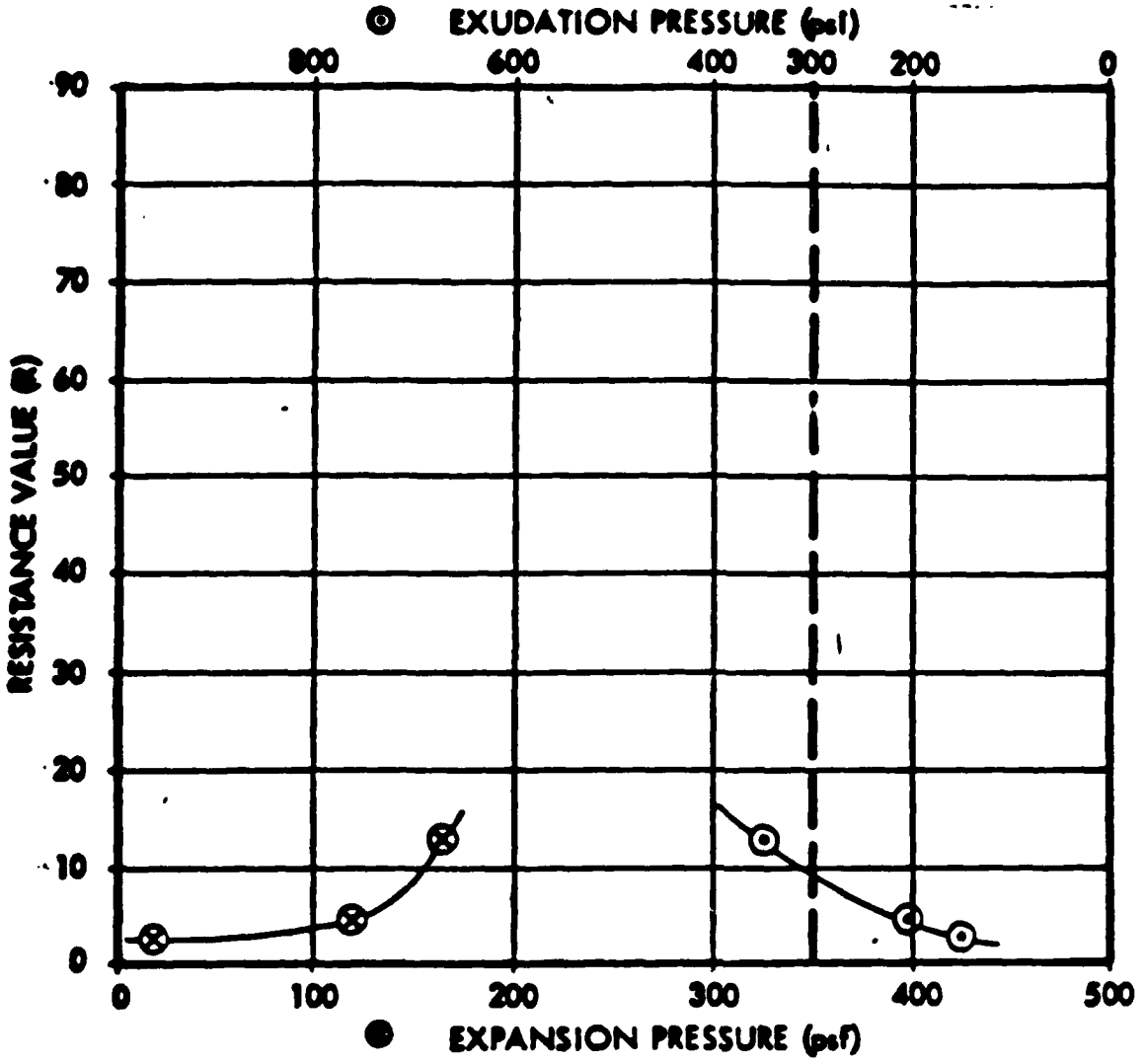
RESISTANCE VALUE TEST DATA
Marathon Development
Hayward, California

PLATE 27

JOB NUMBER 6240.002.06 APPROVED DATE 10/16/81 REVISED DATE



sign No.	1	2		
isture Content (%)	30.4	29.0		



cimen No.	1	2	3	
sture Content (%)	25.9	23.6	20.6	
Density (psf)	96.4	98.5	104.7	
dation Pressure (psi)	145	205	345	
ansion Pressure (psf)	22	122	166	
stance Value (R)	3	5	13	

TEST DATA

Sample Source	Classification	Sand Equivalent	Expansion Pressure	R value
RTHEND OF SITE BORING 24	BROWN SANDY CLAY (CH)	2	155	10

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RESISTANCE VALUE TEST DATA
Marathon Development
Hayward, California

PLATE 29

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9249.003.04		10/16/81		

APPENDIX L

SOILS INVESTIGATION, PROPOSED NOISE TEST FACILITY (PACCAR SITE)

SOIL INVESTIGATION
PROPOSED NOISE TEST FACILITY
NEWARK, CALIFORNIA

HARDING–LAWSON ASSOCIATES

Engineers, Geologists and Geophysicists

SOIL INVESTIGATION
PROPOSED NOISE TEST FACILITY
NEWARK, CALIFORNIA

HLA Job No. 8142,001.03

Prepared for

Peterbilt Motors Company
38801 Cherry Street
Newark, California 94560

by

Gary E. Uneerdank,
Civil Engineer - 24338

Cecil B. Wood,
Civil Engineer - 18671

Harding-Lawson Associates
2430 Stanwell Drive, Suite 160
Concord, California 94520
415/687-9660

December 8, 1976

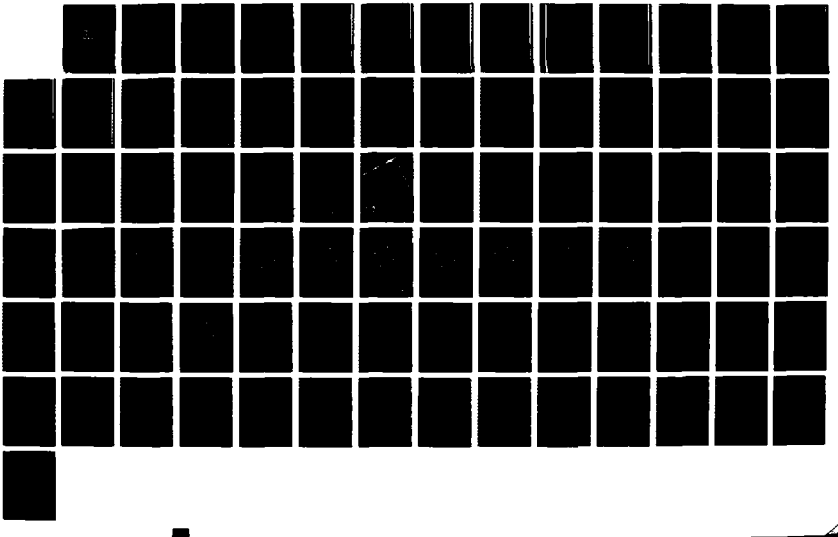
INTRODUCTION

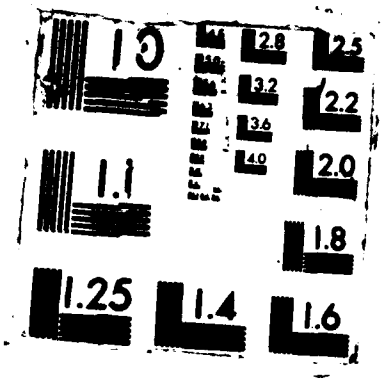
This report presents the results of the soil investigation we performed for the proposed Noise Test Facility, Newark, California. Our work was performed during the period November 8 through December 8, 1976. The facility will be used to monitor the noise levels of Peterbilt tractor and trailer equipment.

As shown on the Site Plan, Plate 1, the site is located near the end of Mowry Avenue. A sanitary landfill was operated for several years in this area; however, we understand that no new fill has been placed in the last 12 years. The planned facility, as shown on Plate 1, consists of an asphalt paved roadway with turning circles. The actual location of the facilities has not been established; however, it will be in the general area shown. The testing area will be in the central portion of the facility (near Boring 5) and will consist of an asphalt paved apron area with instruments. A small test control and instrument building and tank (approximately 5000-gallon capacity) will be constructed near the central portion. The lower portions (north end of site) of the test track area may require fill to about five feet in depth to provide for proper grade. Most of the site, however, will require only small amounts of fill to provide for site drainage.

AD-A182 939 ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT FOR THE PROPOS..(U) EARTH METRICS INC BURLINGAME CA JUN 87 6/6

UNCLASSIFIED F/G 13/2 NL




2.8
2.5
3.2
2.2
3.6
4.0
2.0
1.1
1.8
1.25
1.4
1.6

FIELD EXPLORATION AND LABORATORY TESTING

We investigated the soil conditions at the site by drilling five test borings, 29 to 39 feet deep, at the locations shown on Plate 1. The borings were drilled with truck-mounted flight auger equipment and were logged by our field engineer who obtained samples for visual classification and laboratory testing. The logs of the test borings are presented on Plates 2 through 6. The soils have been classified in accordance with the Unified Soil Classification System described on Plate 7.

The samples were reexamined in our laboratory and selected samples were tested to evaluate moisture content and dry density. Because of disturbance in sample driving, the landfill debris was not tested. The results of the moisture/density tests are presented on the boring logs. The results of a stabilometer (R-value) test, which was used for pavement design, are presented on Plate 8.

SURFACE AND SUBSURFACE CONDITIONS

Most of the planned track area is nearly level with drainage to nearby low areas and drainage ditches. The low portion at the north end of the site (in the vicinity of Boring 1) is in the area of a former drainage channel.

Our test borings indicate that the site is blanketed with about 2 to 3 feet of sandy silt and clay fill, which is clean (free of debris). The fill appears to be well compacted and serves as a

cover for the landfill debris which extends to depths of about 10 to 15 feet. The surface fill appears to be moderately expansive (shrinks and swells with changes in moisture content). The debris is loose and contains a large percentage of organic matter, mostly paper and wood. During drilling of the debris, a strong organic odor, mostly methane, could be detected near the bore hole. Except for the lower portion of the site (near Boring 1) the fill was dry or moist to a depth of 5 feet; the moisture content increased with depth. The debris fill is underlain by medium stiff to stiff silty marsh deposits locally known as bay mud. The bay mud varies from 15 to 18 feet thick and is, in turn, underlain by relatively incompressible, moderately strong sands and clays to the depth explored.

The water level at the time of our exploration varied from 3 to 10 feet below the existing ground surface. However, because of the difference in elevation at the borings, the elevation of the water surface was nearly the same in all the borings.

CONCLUSIONS AND RECOMMENDATIONS

On the basis of our investigation, we conclude that the site can be developed as planned. There are special problems that must be considered such as differential settlement and the low strength of the debris. The design of the improvements, structures and maintenance of utilities and paved areas will be affected by the problems as discussed in the following sections. The most significant consideration in the development of the site is the considerable

amount of settlement anticipated following construction. Methane gas will continue to be generated in the debris but should pose no special problem for the planned facility.

Test Track Site Preparation

The test track pavement will need to be thick enough to keep wheel loads from overstressing the soft debris fill. Any pavement, regardless of the thickness, will require maintenance because of settlement. Therefore, the best solution would be to place the minimum amount of fill (to minimize settlements) and yet provide an adequate thickness of both fill and pavement components to prevent overstressing of the soft debris fills.

The test borings indicate that the debris fill is blanketed by two to three feet of clean fill. We believe that satisfactory performance can be achieved for the test track pavement by providing at least two feet of well compacted fill beneath the pavement section. This would require excavation and replacement of some of the on-site fill and possibly additional imported fill material.

Imported select fill material, if needed, should be free of organic debris, have a low expansion potential (plasticity index less than 15 and liquid limit less than 40), and should contain no rocks or lumps over six inches in largest dimension. Fill material should be placed in layers of eight inches loose thickness,

moisture conditioned, and compacted to at least 90 percent relative compaction.*

conflicts with 75 p — on page 6?

Settlement

The debris fill has and will continue to experience settlement because of decomposition and compression under its own weight. In addition, settlement has occurred and will continue to occur as the compressible bay muds consolidate beneath the weight of the debris fill. The amount of settlement in the bay mud will vary, increasing with increased fill thickness, fill weight, mud thickness, and mud compressibility. We estimate that most of the settlement, both from consolidation of the bay mud and decomposition and compression of the debris fill, has already occurred. However, any new fill placed for the planned improvements will cause additional settlement. We estimate that total remaining settlement, without any new fill loads, will be on the order of 8 to 12 inches. Two and four feet of new compacted fill would cause additional settlements of about 7 and 12 inches, respectively. We recommend that the depth of new fill be kept to a minimum. As settlement occurs, the pavement will require maintenance and possibly overlays or reconstruction. If grades are flat site drainage patterns may change due to settlement and could require regrading.

* Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material, as determined by the ASTM D1557-70(C) laboratory test procedure.

Flexible Pavement Design

We recommend that the pavement section consist of 4 inches of asphaltic concrete and 9 inches of Class 2 aggregate base material. The asphalt concrete and aggregate base should conform to the current California Division of Highways Specifications. Before the aggregate base is placed, the upper 12 inches of subgrade should be moisture conditioned and compacted to at least 95 percent relative compaction. The base rock then should be spread, moisture conditioned, and compacted to at least 95 percent.

Foundation Support

As stated previously, the surface soils are expansive and can cause some heaving and cracking of shallow footings and slabs-on-grade. However, since the building will experience some settlement, it appears that the best method of support for the building would be to design and construct a building that could tolerate the anticipated movements without appreciable damage. Therefore, we recommend that the building be supported on a rigid foundation founded in the fill. Footings should be a minimum of 12 inches wide, bottomed between 12 and 18 inches below lowest adjacent grade, and designed to span at least 10 feet over possible zones of non-support occurring at any location, including the corners. The footings can be designed for dead load bearing pressures of 1000 pounds per square foot (psf) and total bearing pressures of 1500 psf. The footings should be tied together as a grid to minimize the effect of possible differential settlement.

As an alternative, a mat-type foundation could be used. The mat could be a suitably reinforced, 6- to 8-inch-thick slab, designed to impose dead load and total bearing pressures no greater than 1000 and 1500 psf, respectively. The mat should be designed to span a 5-foot-square area of nonsupport. The footing excavations and slab subgrade soils should not be allowed to dry and crack prior to pouring concrete. During the summer months the depth of cracking may extend to depths of about two feet which may require prolonged sprinkling or flooding to close the shrinkage cracks for their full depth.

Inspection and Testing

We recommend that we review the site grading and foundation plans and specifications to correlate them with the intent of our recommendations. The site preparation, fill placement, footing installation, subgrade preparation, and placement and compaction of aggregate base should be performed under our soil engineering inspection. We would perform field and laboratory tests to ascertain that the materials used and the compaction obtained are in conformance with the job specifications and the intent of our recommendations.

PLATES

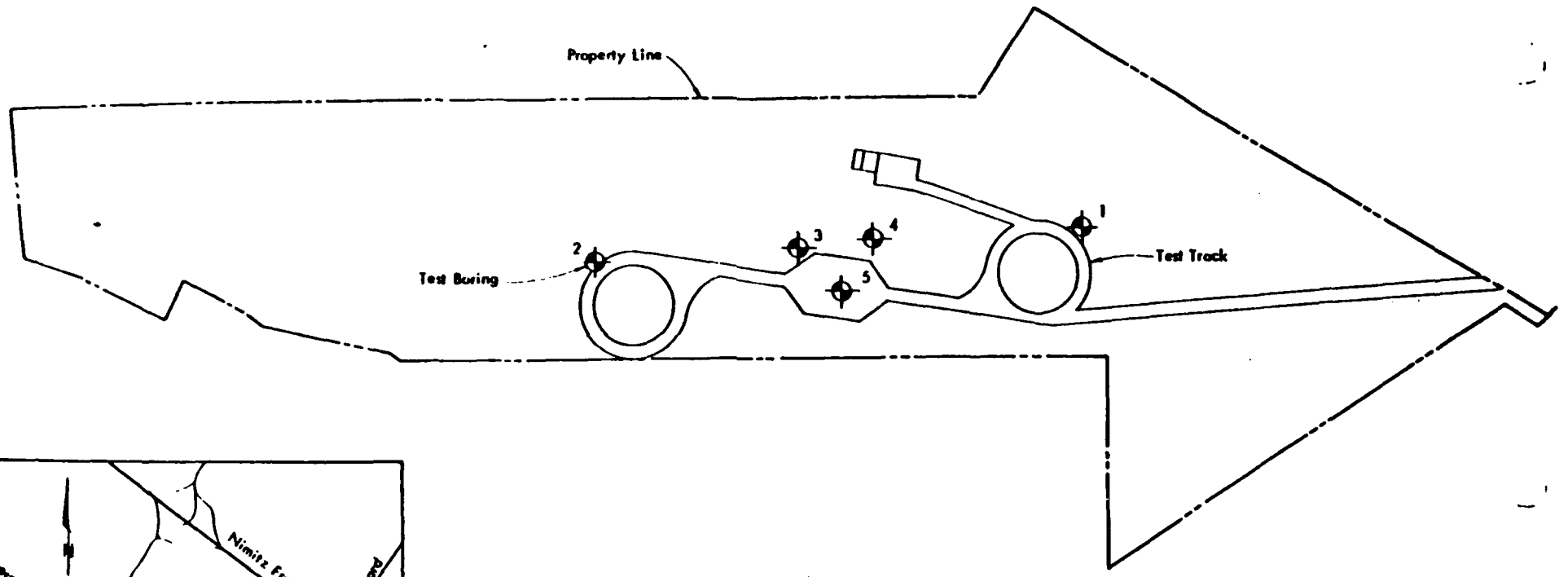
Plate	1	Boring Location Plan
Plates through	2 6	Logs of Borings 1 through 5
Plate	7	Soil Classification Chart and Key to Test Data
Plate	8	Resistance Value Test Data

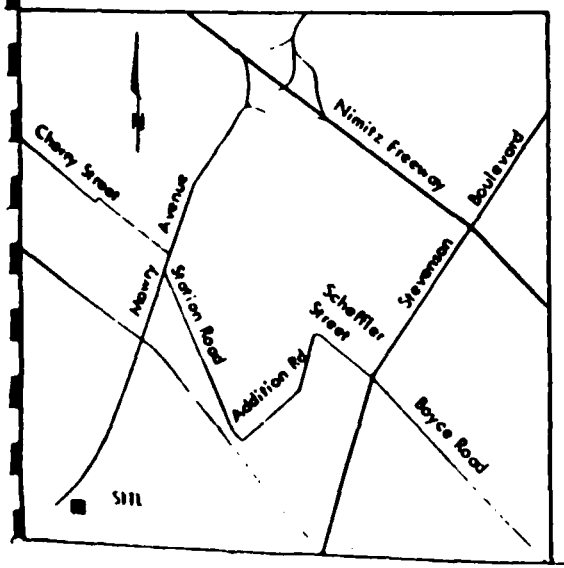
DISTRIBUTION

5 copies: Peterbilt Motors Company
38801 Cherry Street
Newark, California 94560

GEL/CBW/jd

Scale: 1" = 200'





VICINITY MAP
No Scale

Reference: Site Sketch by Peterbilt Motors Company, scale 1" = 200', undated

HARDING-LAWSON ASSOCIATES Consulting Engineers and Geologists	BORING LOCATION PLAN Test Track Peterbilt Motors Company Newark, California	PLATE 1
Job No 8142,001.03 Appr [illegible] Date 11/29/76		

L G OF BORING 1

Equipment 6" Flight Auger

Elevation 100.0* Date 11/8/76

Shear Strength (lbs/sq ft)	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample
			0	
			5	
			10	
	39.4	81		
			15	
			20	
			25	
			30	
			35	
			40	

BROWN SANDY SILT (ML)
stiff, dry
Dry Fill

BLACK SILTY CLAY (CH)
soft, wet, with debris (plastic, glass, wood, paper), organic odor
water level 11/8/76
Debris Fill

LIGHT GRAY CLAYEY SILT (MH)
medium stiff, saturated, (bay mud)

becoming blue-green in color

BROWN SILTY CLAY (CH)
medium stiff, saturated

*Reference: Assumed Elevation = 100.0, top of southwest footing for high tension tower, northeast portion of site

RDING - LAWSON ASSOCIATES
Consulting Engineers and Geologists

8142,001.03 Appr. Date 11/29/76

LOG OF BORING 1
Test Track
Peterbilt Motors Company

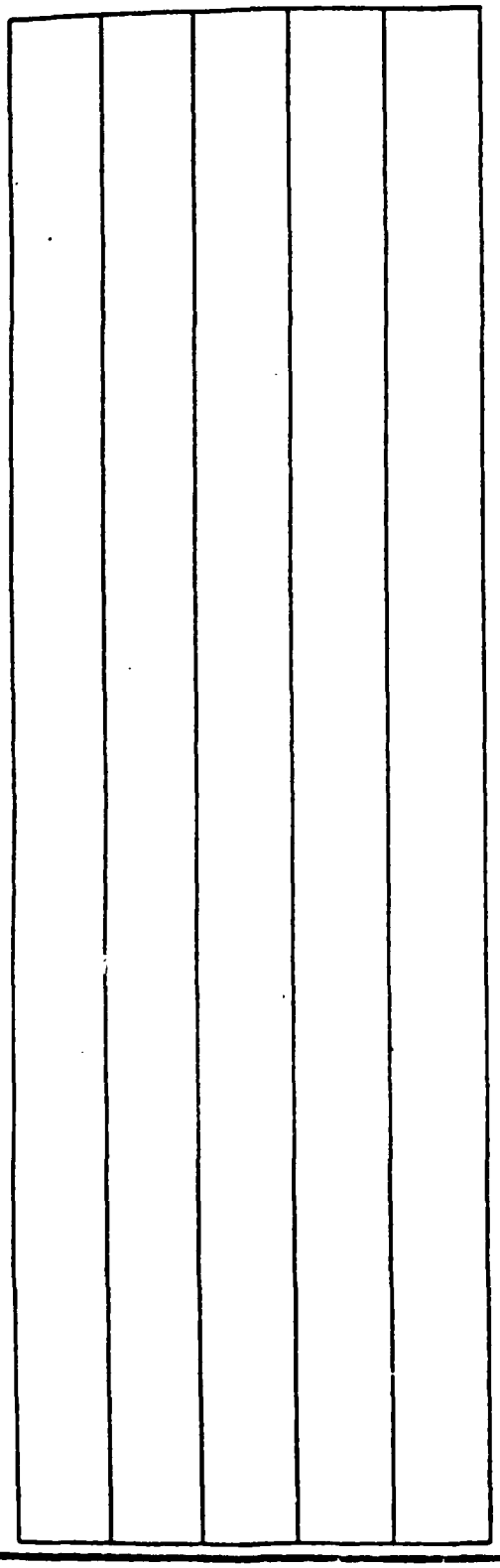
PLATE 2

LOG OF BORING 2

Shear Strength (lbs/sq ft) | Moisture Content (%) | Dry Density (pcf) | Depth (ft) | Sample

Equipment 6" Flight Auger

Elevation 110.0 Date 11/8/76



Depth (ft)	Moisture Content (%)	Dry Density (pcf)	
0			BROWN SANDY SILT (ML) stiff, dry — Dry Fill
			DEBRIS wood, paper, glass, etc., with occasional odor of methane or other organic — Debris Fill
5			
10			
			water level 11/8/76
	42.4	77	GRAY SANDY SILT (MH) medium stiff, wet, (bay mud)
15			
20			
	39.4	81	with occasional thin peaty layers
25			
			MOTTLED BROWN & GRAY SANDY CLAY (CH) - stiff, saturated
30			
35			
40			

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Job No 8142,001.03 Appr [illegible] Date 11/29/76

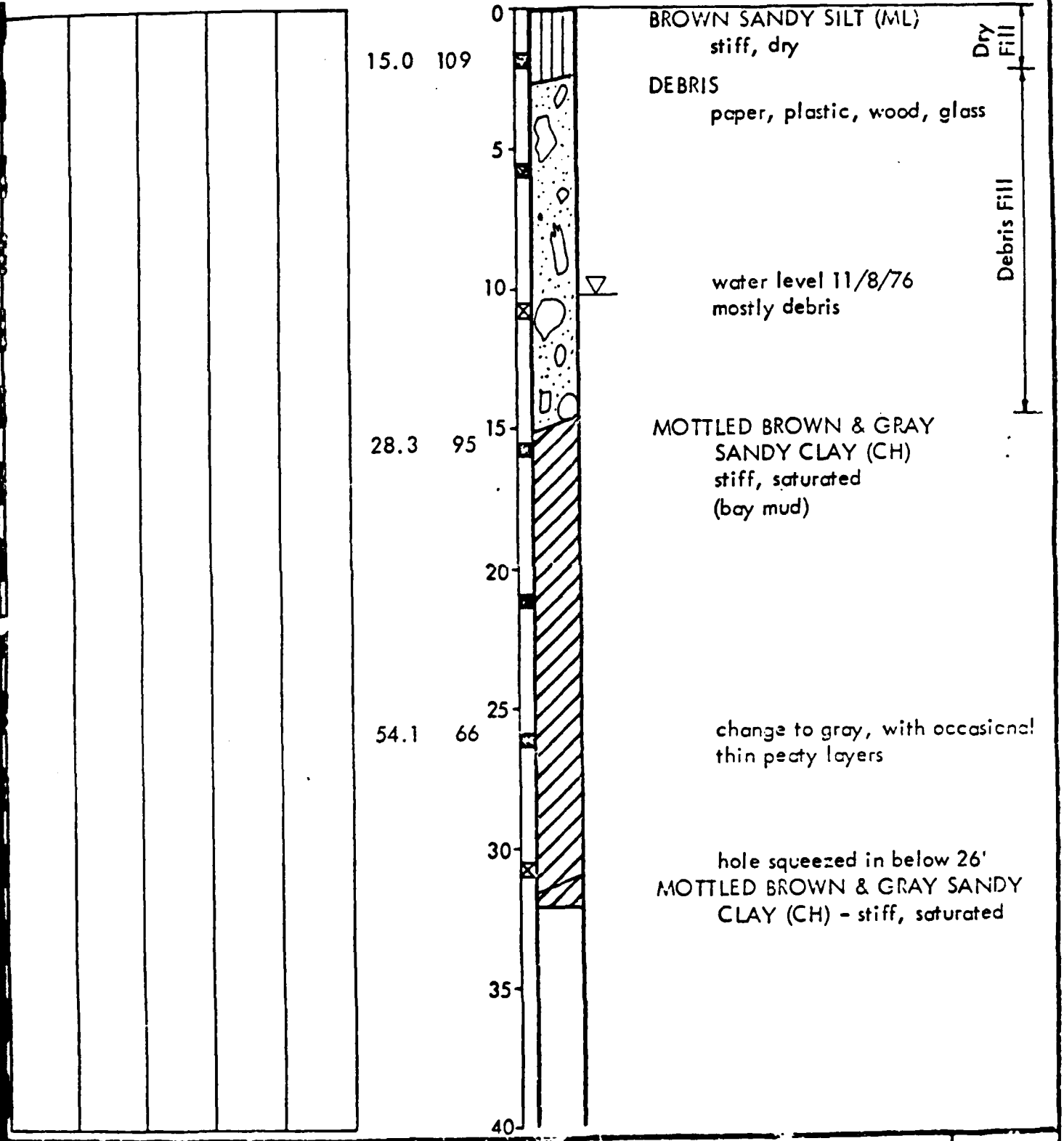
LOG OF BORING 2
Test Track
Peterbilt Motors Company

PLATE 3

LOG OF BORING 3

Equipment 6" Flight Auger

Elevation 109.0 Date 11/8/76



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Job No 8142,001.03 Approved Date 11/29/76

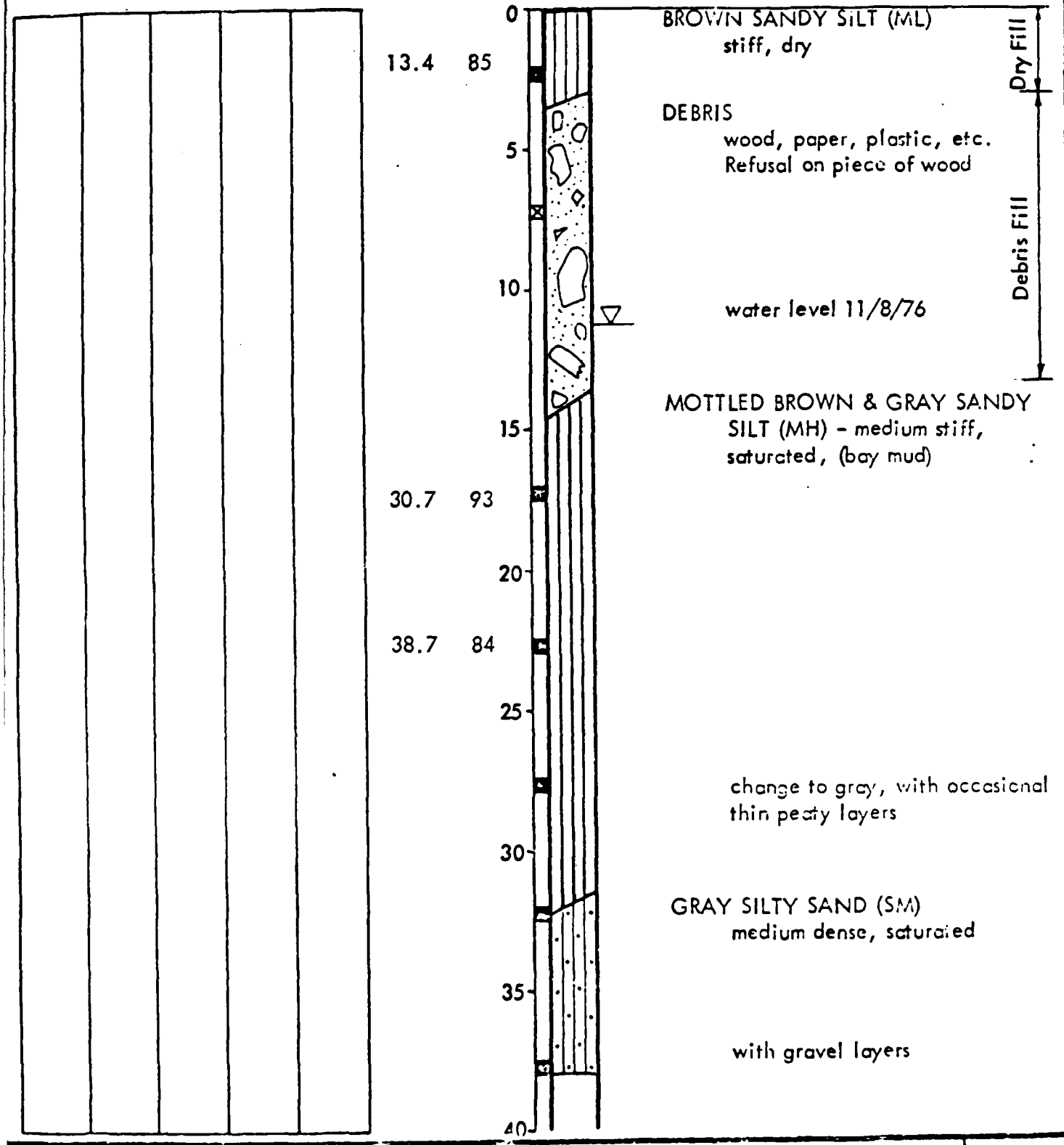
LOG OF BORING 3
Test Track
Peterbilt Motors Company

PLATE 4

LOG OF BORING 4

Equipment 6" Flight Auger

Elevation 110.0 Date 11/8/76



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Job No 8142,001.03 Appr Date 11/29/76

LOG OF BORING 4

Test Track
Peterbilt Motors Company

PLATE 5

LOG OF BORING 5

Equipment 6" Flight Auger

Elevation 110.0 Date 11/8/76

Shear Strength (lbs/sq ft)	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
			0		BROWN SANDY SILT (ML) stiff, dry — Dry Fill
					DEBRIS wood, paper, plastic.
			5		Debris Fill
			10		
			15		MOTTLED BROWN & GRAY SANDY SILT (MH) stiff, wet, (bay mud)
			20		change to gray
			25		with thin peaty layers
			30		(boring backfilled before water level stabilized)
			35		
			40		

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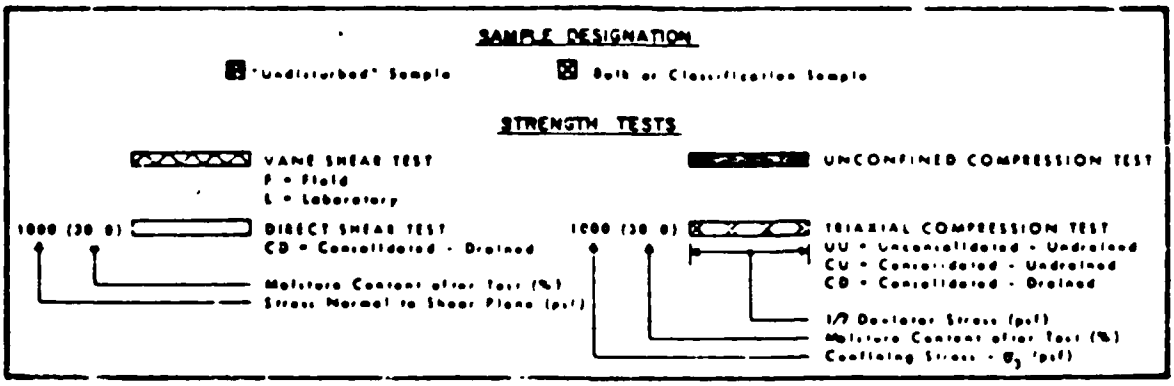
No 8142,001.03 Appr. Date 11/29/76

LOG OF BORING 5
Test Track
Peterbilt Motors Company

PLATE 6

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS (MORE THAN HALF IS LARGER THAN #200 SIEVE)	GRAVELS (MORE THAN HALF COARSE FRACTION IS LARGER THAN NO 4 SIEVE SIZE)	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL - SAND MIXTURES
			GP	POORLY GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL - SAND - SILT MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL - SAND - CLAY MIXTURES
	SANDS (MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO 4 SIEVE SIZE)	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POORLY GRADED SAND - SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND - CLAY MIXTURES
FINE GRAINED SOILS (MORE THAN HALF IS SMALLER THAN #200 SIEVE)	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION SYSTEM



KEY TO TEST DATA

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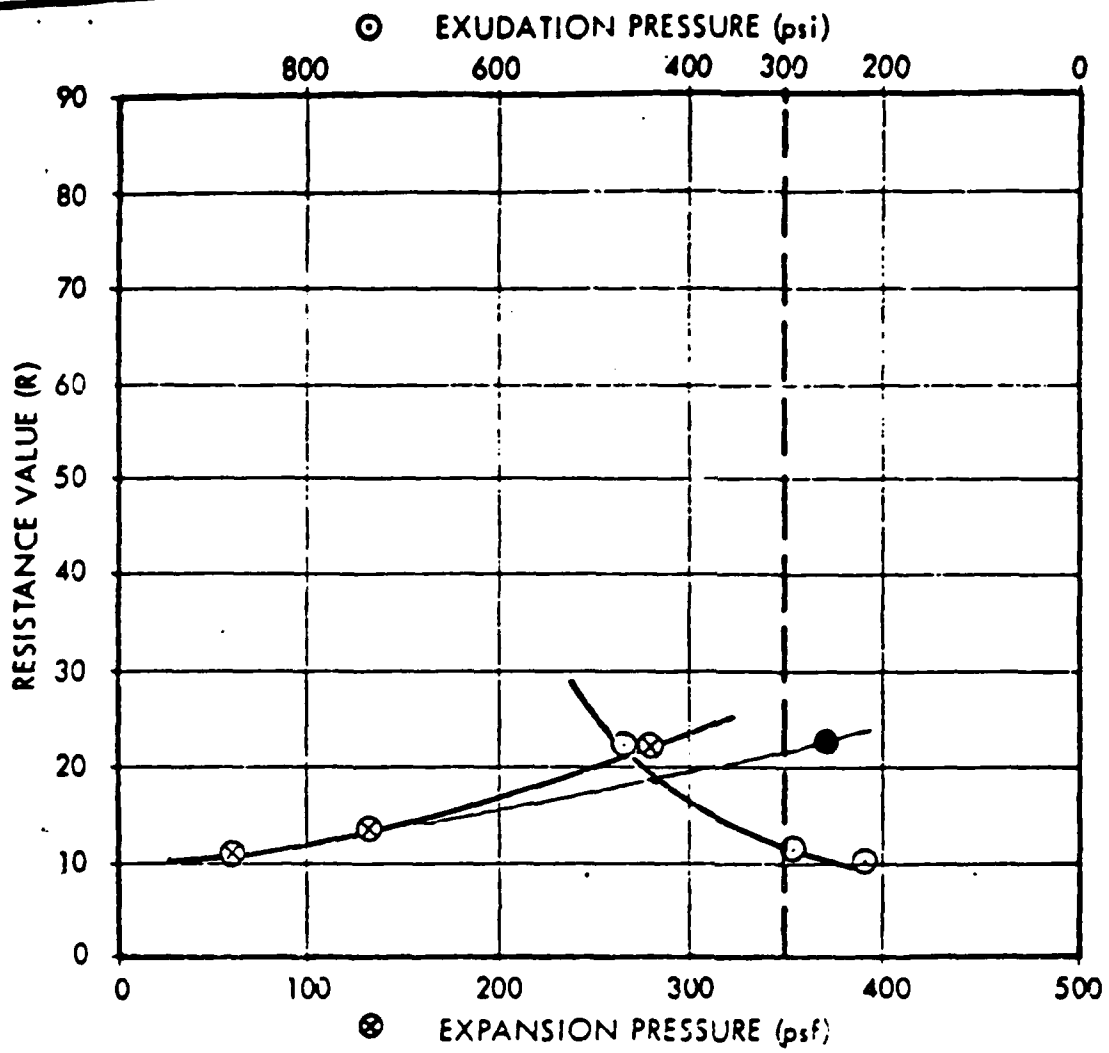
Job No 8142,001.03 Approved Date 12/8/76

SOIL CLASSIFICATION CHART AND KEY TO TEST DATA
Peterbilt Motors Company

PLATE 7



ecimen No.	1	2	3
oisture Content (%)	20.3	22.4	24.1
ry Density (pcf)	106	103	99
udation Pressure (psi)	470	295	220
xpansion Pressure (psf)	379	131	61
esistance Value (R)	23	12	11

TEST DATA

Sample Source	Classification	Sand Equivalent	Expansion Pressure	R value
oring 4 at 0 to 6"	DARK BROWN SANDY SILT (ML)	3	90	12

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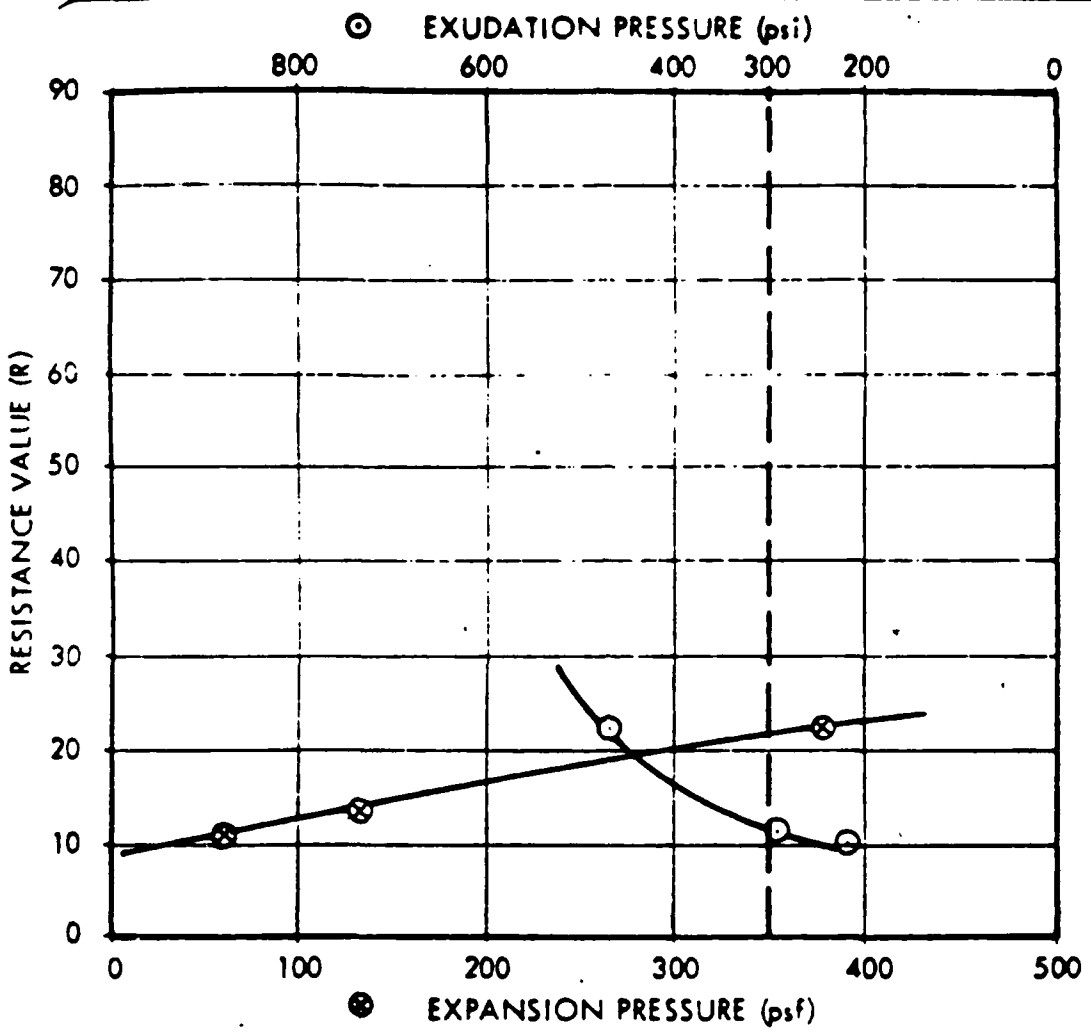
RESISTANCE VALUE TEST DATA

Test Track
Peterbilt Motors Company

PLATE 8

b No 8142,001.03 Appr Date 12/7/76



Specimen No.	1	2	3
Moisture Content (%)	20.3	22.4	24.1
Dry Density (psf)	106	103	99
Exudation Pressure (psi)	470	295	220
Expansion Pressure (psf)	379	131	61
Resistance Value (R)	23	12	11

TEST DATA

Sample Source	Classification	Sand Equivalent	Expansion Pressure	R value
Boring 4 at 0 to 6"	DARK BROWN SANDY SILT (ML)	3	90	12

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RESISTANCE VALUE TEST DATA

PLATE 8

Job No 8142,001.03 Appr [illegible] Date 12/7/76

Test Track
Peterbilt Motors Company

APPENDIX M

TRAFFIC AND CIRCULATION STUDY

TRAFFIC AND CIRCULATION
MARATHON PROJECT
HAYWARD, CALIFORNIA

AUGUST 1986

SETTING

General

The Marathon site is located northerly of the intersection of West Winton Avenue and Cabot Boulevard in the western section of Hayward. The surrounding area is characterized by large industrial development, with several intervening vacant parcels. A few small commercial uses have been incorporated into the industrial areas. There is virtually no residential development in the site vicinity. The lands adjacent to the north and west are vacant. The Hayward Air Terminal Industrial Center and the Skywest Golf Course border the site on the east, and Hayward Industrial Center on the south.

Major Street System

The major street system in the project vicinity is shown in Figure 1. Immediate access to the site is proposed from West Winton Avenue via Cabot Boulevard. North of Hesperian Boulevard, CAbot Boulevard is currently approximately 250 feet in length. It has a 50 foot roadway section and is striped for 2 lanes.

Through the Cabot Boulevard intersection, West Winton Avenue has a 4 lane roadway section plus a median turn lane. This section extends a short distance west of Cabot Boulevard, then narrows to 2 lanes with minimal shoulders. West Winton Avenue ends at Shoreline Park approximately 1 mile to the west. It extends easterly to Hesperian Boulevard, to an interchange with

the Nimitz Freeway (Interstate Route 880), and to an intersection with Jackson Street (State Route 92) on the periphery of the Hayward Central District. These streets and other major streets are described in more detail in Appendix A. Figure 2 shows current average week day traffic volumes on sections of those streets which would experience the heavier impacts from project traffic.[1] [2]

Current Traffic Operations

The study area established for this analysis is essentially that shown in Figure 1. It is bounded on the north by Sulpher Creek and Golf Course Drive, on the east by Hesperian Boulevard, on the south by the Shorelands project, and on the west by the general Route 61 Corridor.

Typically in an urban street system, the primary restraint for traffic operations are the major street intersections. Because of the configuration of the existing street system serving the project area, as shown in Figure 1, all trips from Marathon oriented to the north and to the northeast would have to travel east on West Winton Avenue - either to Hesperian Boulevard, to I-880, or to other points east. The addition of these trips to the significant traffic volumes currently generated by the existing industrial and other uses, particularly during the evening peak hour, would make the major intersections on West Winton Avenue subject to the heaviest impacts from Marathon traffic. Other intersections in the study area that would be impacted to some degree are indicated in Figure 1.

The critical intersections were analyzed to determine their current levels of service. The concept of "Level of Service" has been devised to establish a standard frame of reference when describing traffic flow. Briefly, the service level of a given facility is a theoretical traffic volume determined by its physical and operational characteristics and prescribed conditions of traffic flow.[3] Service levels were calculated

by volume/capacity analysis, which compares the heaviest conflicting movements within the intersection with the available capacities for these movements. The specific procedure conforms to the provisions of Special Report 209 [4].

P.M. peak hour turning counts were taken at the critical intersections. These counts are shown in Figures A-1 through A-16 in Appendix A. The existing volume/capacity ratios and the corresponding levels of service are listed in the first column of Table 1. (The volume/capacity ratios may vary from those of the earlier Marathon reports,[5] since the calculation procedures were changed.) All calculations were expanded by 10 percent to allow for annual increases since the original count dates and for the element of truck traffic.

From Table 1, the intersections of West Winton Avenue - Hesperian Boulevard and of Depot Road - Clawiter Road are currently operating at Level E. All other intersections are at Level D or better, including I-880 and SR-92 ramps.

Observations were made at selected intersections to check actual field conditions. A summary of the observations is contained in Appendix A.

Transit

Transit service is provided during the morning and evening peak hours by A-C Transit. Route 86 runs between the BART station and the industrial area.

MARATHON PROJECT TRAFFIC

Trip Generation and Distribution

The Marathon Project proposes a mixture of light industrial and research and development (R and D) uses. Trip generation rates for these uses can vary. In the previous Marathon study, a cordon count was made of the adjacent area during the PM peak hours to determine the peak hour trip generation of the developed parcels, the directional splits, and the percentage of trucks

during the period. The highest recorded hour was from 4:00 to 5:00 PM at 1,750 vehicles, or a peak hour trip generation rate of 5.3 trips per acre. At an assumed peak hour of 10 percent, the daily trip generation rate would be 53 trips per developed acre. The directional split was 73 percent eastbound (out) and 27 percent westbound (in). The overall proportion of trucks observed during this period was 8 percent.

Since R and D developments tend to have higher trip generation rates than the industrial-warehousing rates of the study area, the trips per acre were increased to 65, and the peak hour to 11 percent as being more representative of the proposed uses. Applying the above factors to the 134 acres proposed for the Marathon Project gives the following daily and PM peak hour trip productions:

Average Weekday Trips - 134 x 65	=	8,710 trips
PM Peak Hour at 11 percent of AWT	=	950 trips
Outbound	=	700 trips
Inbound	=	250 trips

For purposes of trip distribution, it was assumed that all site access would be from West Winton Avenue. The projected peak hour trips were distributed on the street system in accordance with observed traffic patterns in the project vicinity. The basic distribution patterns were assumed as follows:

South on Cabot	-	16 percent
South on Clawiter	-	26 percent
North on Hesperian	-	22 percent
South on Hesperian	-	4 percent
East on Winton (east of Hesperian)	-	32 percent

These patterns were assumed for both outbound and inbound trips.

Traffic Impacts

The impacts on intersection operations under full development of the Marathon Project are listed in the second column of Table 1. The range of impacts are greatest on those West Winton Avenue intersections nearest the project, diminishing in proportion to distance away from the site. The intersection of West Winton Avenue with Hesperian Boulevard will drop from Level E to Level F. Since no intersection can accommodate traffic volumes above its theoretical capacity, the implication here is the extent and duration of congestion will be increased beyond that already experienced. At Depot Road and Clawiter Road, the level would remain at E. All other intersections will be at Level D or better. With the exception of the Hesperian-Winston intersection, therefore if the impacts of Marathon traffic only would not be significant.

Ramp volumes on I-880 - West Winton Avenue interchange are estimated to increase by 8 percent during the PM peak hour due to Marathon traffic. Since most of these ramps are currently operating under forced flow conditions, there would be no perceptible effect on operational characteristics; rather, the effects would be evidenced by an extension of the area of congestion and by its duration. At the SR 92 - Clawiter Road interchange, increases are estimated at 22 percent on the westbound ramps, but total volumes will be approximately 1000 vehicles per hour, which is below theoretical ramp capacity. The increases on the more critical eastbound ramps will be 6 percent; referring to Table 1, the service level at the intersection of the ramps with Clawiter Road will not exceed Level D. The most congestive factor at this interchange is the merge of eastbound on-ramp traffic with freeway traffic; the Marathon addition to this movement is minimal.

Impact on Railroads

The potential impact of increases in traffic due to the Marathon Project are described in Appendix B. It is the conclusion of this analysis that the impacts on railroad operations would be minimal, but that vehicular traffic backups

would be increased substantially during peak hours by train movements over the grade crossings. The effects of these periodic stoppages would be felt primarily at the downstream intersections (to the east for westbound traffic), where the surges in traffic flow would impose excessive demands for 1 or 2 signal phases. Available records do not show any significant accident experience which could be further aggravated by increased traffic. (7)

The remarks in Appendix B were developed for the earlier Marathon studies. There was some concern expressed over their relevancy if the Southern Pacific and Santa Fe Railroads merged into one operation, but this proposal has recently been turned down.

OTHER PROJECT TRAFFIC

North of SR-92

In assessing traffic impacts in the study area previously defined, the potential trips from other undeveloped parcels were considered. There are approximately 283 undeveloped acres in the area north of SR-92 between the wetlands and Hesperian Boulevard. The vacant areas were identified, (6) the acreages calculated, and daily and PM peak hour trips estimated and distributed in accordance with the assumptions made for the Marathon Project. The cumulative volume of these trips together with the Marathon Project trips are listed in column 3 of Table 1. For most intersections, there is a drop of 1 or 2 service level designations. In the immediate Marathon area, the intersections of West Winton Avenue with Hesperian Boulevard and with Clawiter Road, and of Clawiter Road with Depot Road, will fall to Level F. East of Hesperian Boulevard, the intersections of Winton Avenue with Southland Place/Stonewall Avenue and with Southland Drive will also be at Level F.

Shorelands Project

The site of the proposed Shorelands project is shown in Figure 1. This project consists of a mix of uses, including a race track, park, hotel, commercial and industrial and research/development areas.

An EIR is currently being prepared for the Shorelands project. The traffic section of this report is being done by Omni-Means, Limited. All projected Shorelands traffic generation, distribution, and peak hour turning movements were provided by that firm and incorporated into the projections derived in this study. The resultant intersection volume/capacity ratios and levels of service from all sources are listed in the fourth column of Table 1. Virtually all intersections would be operating at Level E or F under the assumed full development condition.

MITIGATION

Local Intersection Improvements

The Marathon Project traffic impacts and the cumulative impacts listed in the columns 1 through 4 of Table 1 are based on the existing roadway and intersection geometrics. Since these developments are scheduled over an indeterminate period, it will be a number of years before the full impacts are realized. During that period, a number of improvements can be anticipated that would mitigate the more critical deficiencies, either as conditions for development of individual parcels or as a system-wide assessment program financed on a mutual basis. Several intersections in the Marathon vicinity for which improvements are under consideration by the City or have been suggested are listed below:

West Winton Avenue - Hesperian Boulevard. The City is presently undertaking a project to revise the eastbound approach of West Winton Avenue by providing 2 separate left

turn lanes and 3 through lanes. This will require the addition of a third eastbound right lane to Winton Avenue east of Hesperian Boulevard. The intersection will be further improved by the addition of a separate right turn lane on the northbound approach of Hesperian Boulevard. The overall decrease in volume/capacity ratio would be significant, since it is almost 25 percent.

West Winton Avenue - Clawiter Road. Operations at this intersection could be improved by converting the existing through land on the northbound Clawiter Road approach to an optional right turn-through lane. This would require removal of the right turn channelization island and relocation of the signal. Turns would be made during the westbound left turn phase on West Winton Avenue plus a possible extension; however, since there will be 2 lanes turning right, this extension should not be too long. Opposite Clawiter Road is the driveway to the Air National Guard installation, so the amount of northbound through traffic - which would have to share the right turn lane - is minimal.

Clawiter Road - Depot Road. Both of these roads are planned for ultimate 4 lane sections. Operations at their intersection could be improved by an interim widening to provide turning lanes on 1 or more approaches. Critical volume calculations indicate the addition of right and left turn lanes and an extra through lane on the eastbound Depot Road approach, and of a separate right turn lane on the northbound Clawiter Road approach. These modifications would lower the volume/capacity, ratios by almost 40 percent, which is considered significant.

Industrial Boulevard - Baumberg Avenue. With existing traffic and with the addition of Marathon plus "other" project traffic, a separate right turn lane installed on the

eastbound Baumberg Avenue approach will greatly improve traffic operations, changing from a Level E to a Level B. The Shorelands project traffic would add a large component of left turning traffic to this approach and a left turn lane would be required. This, with a second left turn-through option lane, would be necessary during PM peak hour to maintain a marginally acceptable level of service. The installation of a separate right turn lane on the Industrial Boulevard southbound approach would also contribute to the intersection's efficiency.

The fifth column of Table 1 shows the service levels which could be achieved with the above improvements. The volumes evaluated in these calculations were those of the third column - existing plus Marathon plus other projects. These, as noted, are representative of future conditions over an indeterminate period. In the case of the West Winton Avenue - Hesperian Boulevard intersection, for which the improvements described are already under way, the immediate effect would be the revision of the volume/capacity level to 0.82, corresponding to a Service Level D.

The interchange of SR-92 with Clawiter Road/Eden Landing Road could be modified to eliminate several turning conflicts on City streets. If these modifications were to take the form of additional ramps, however, they could prove ineffective, since they would interfere with ramp maneuvers at the Industrial Boulevard interchange to the east. Also, Caltrans participation in the construction costs is doubtful at least. If the Industrial Corridor facility is contracted with an interchange at SR-92, many of the current problems would be relieved (see below).

Alameda Industrial Transportion Corridor (SR-61)

The Alameda Industrial Transportion Corridor is a proposed major north south facility extending from Doolittle Drive at Davis Street in San Leandro southerly to State Route 92 (West

Jackson Street) in Hayward. This route is included in the Metropolitan Transportation Commission's Regional Transportation Plan, and has been designated State Route 61 by Caltrans. Its primary function would be to increase north-south capacity for industrial and other traffic, and eliminate much of the east-west traffic currently using urban streets to reach Hesperian Boulevard, Interstate 880, etc.

The precise alignment of this route has not yet been established. The one depicted in Figure 1 is intended to show the general corridor to be served. In the City of Hayward, the utilization of Cabot Boulevard as part of the corridor has been studied. This would determine its location relative to the Marathon site and establish the site access points.

While the City of Hayward and the County of Alameda have been strongly supportive of this facility, the City of San Leandro has been more ambivalent as to its final resolution. The opposition to its extension through the City, which was the policy during the earlier Marathon reports, has been replaced by a decision to study the impacts of route implementation and alignments. [8].

The Industrial Corridor would decrease traffic volumes through most of the intersections listed in Table 1 by diverting traffic from the north-south routes (Hesperian Boulevard, Industrial Boulevard, I-880, etc.) and by redirecting traffic on the east-west routes (West Winton Avenue, Depot Road, SR-92, etc.). Estimates of the amount of diverted traffic have been made on a preliminary basis only, and are subject to revision as land use changes are made. It can be stated, though, that the volume/capacity ratios and service levels listed in Table 1 would be raised to more acceptable standards by construction of the Corridor facility. An interchange of the new facility with SR-92 would relieve current pressures on that route by intercepting eastbound traffic from the San Mateo Bridge, and by attracting traffic which would otherwise use the interchanges to the east.

Other Mitigation Measures

Besides construction of new elements of the street system or modifications of existing ones, reduction of traffic can be obtained by improving existing transit service, by car-pooling or van-pooling, or by provision of an ancillary transit system to serve the local activities. The Shorelands project has made a number of reviews of this type of service. As noted, there is already an A/C Transit bus serving the industrial area from and to the BART Station. As the industrial area grows, it may be feasible to expand this service through more buses and reduced headways.

Car-pooling and van-pooling are usually undertakings of the various industries involved, and these measures should be encouraged on that level. Another measure which may prove especially effective in a largely industrial area is flex-time operations - i.e., the spreading of arrival and departure times over more extended periods to reduce the concentrated traffic surges.

FOOTNOTES

(1) Traffic Operations, Department of Public Works, City of Hayward

(2) 1983 Traffic Volumes on California State Highways - Caltrans

(3) Highway Capacity Manual Highway Research Board - 1965

(4) Special Report 209 - Highway Capacity Manual Transportation Research Board - 1985

(5) Marathon Industrial Development - William H. Liskamm - September, 1982 (Forristal - Traffic); TRS Associates, Inc. - 1985 (Forristal - Traffic)

(6) Ron Goshue - Civil Engineering Senior, Planning Deparment, City of Hayward

(7) Chieu Chang - Traffic Engineer, City of Hayward

(8) Dan Smith - Transportation Planner, City of San Leandro

TABLE 1 (page 1)

PM PEAK HOUR VOLUME/CAPACITY RATIOS AND LEVELS OF SERVICE

Intersection	Existing	Existing +Marathon	Existing +Marathon +Other*	Existing +Marathon +Other +Shorelands	Existing +Marathon +Other with modifications
1. W. Winton Avenue - Cabot Blvd.	0.14 - A	0.64 - B**	0.78 - C**	0.78 - C	-
2. W. Winton Avenue - Corsair Blvd.	0.35 - A	0.56 - A	0.74 - C	0.74 - C	-
3. W. Winton Avenue - Clawiter Rd.	0.73 - C	0.85 - D	1.04 - F	1.08 - F	0.93 - E
4. W. Winton Avenue - Hesperian Blvd.	1.05 - E	1.15 - F	1.31 - F	1.35 - F	1.01 - F
5. W. Winton Avenue - Southland Pl/Stonewall Ave.	0.76 - C	0.80 - D	0.94 - E	0.96 - E	-
6. W. Winton Avenue - Southland Drive	0.88 - D	0.89 - D	0.97 - E	0.98 - E	-
7. Depot Road - Clawiter Road	0.91 - E	0.94 - E	1.50 - F	1.59 - F	0.92 - E
8. Depot Road - Industrial Blvd.	0.73 - C	0.74 - C	0.86 - D	0.88 - D	-

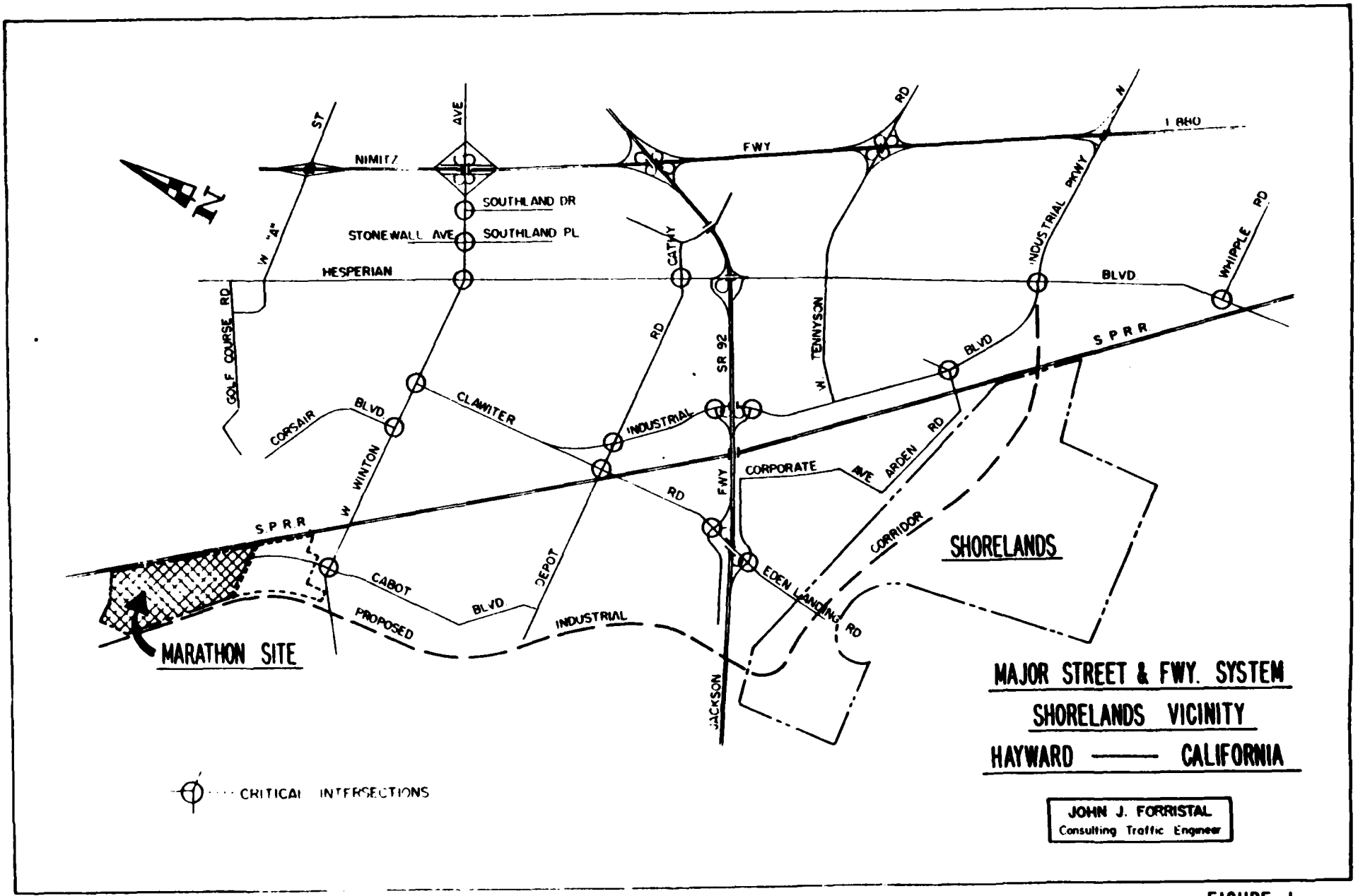
TABLE 1 (page 2)

PM PEAK HOUR VOLUME/CAPACITY RATIOS AND LEVELS OF SERVICE

	Intersection	Existing	Existing +Marathon	Existing +Marathon +Other*	Existing +Marathon +Other +Shorelands	Existing +Marathon +Other w/modifications
9.	Depot Road Hesperian Blvd.	0.79 - C	0.80 - D	0.86 - D	0.86 - D	-
10.	SR 92 WB Ramps/Breakwater Ave. Clawiter Road	0.78 - C	0.80 - D	0.89 - D	1.01 - F	-
11.	SR 92 EB Ramps/Eden Ldg. Rd. Clawiter Road	0.74 - C	0.77 - C	0.85 - D	1.54 - F	-
12.	SR 92 WB Ramps/Cryer St. Industrial Blvd.	0.76 - C	0.77 - C	0.97 - E	0.98 - E	-
13.	SR 92 WB Ramps/Sleepy Hollow Industrial Blvd.	0.58 - A	0.60 - B	0.72 - C	1.27 - F	-
14.	Industrial Boulevard Baumberg Avenue	0.74 - C	0.76 - C	0.96 - E	1.58 - F	0.69 - B
15.	Industrial Boulevard Hesperian Boulevard	0.84 - D	0.88 - D	1.02 - F	1.77 - F	-
16.	Union City Boulevard Whipple Avenue	0.45 - A	0.48 - A	0.74 - C	1.03 - F	-

* - "Other" assumes full development of all vacant lands North of SR 92 except Marathon.

** - Assumes Cabot Boulevard realigned to intersect W. Winton Ave. opposite Bruzzoni.


N
NIMITZ
ST
AVE
FWY
RD
N
I 880
SOUTHLAND DR
STONEWALL AVE
SOUTHLAND PL
W "A"
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CATHY
INDUSTRIAL PKWY
WHIPPLE RD
BLVD
GOLF COURSE RD
RD
SR 92
W TENNYSON
BLVD
S P R R
CORSAIR
BLVD
CLAWITER
INDUSTRIAL
W WINTON
CORPORATE
AVE
ARDEN
RD
FWY
RD
S P R R
CORRIDOR
SHORELANDS
CABOT
BLVD
DEPOT
PROPOSED
INDUSTRIAL
EDEN LANDING
RD
MARATHON SITE
JACKSON
CRITICAL INTERSECTIONS
MAJOR STREET & FWY. SYSTEM
SHORELANDS VICINITY
HAYWARD —— CALIFORNIA
JOHN J. FORRISTAL
Consulting Traffic Engineer

FIGURE 1

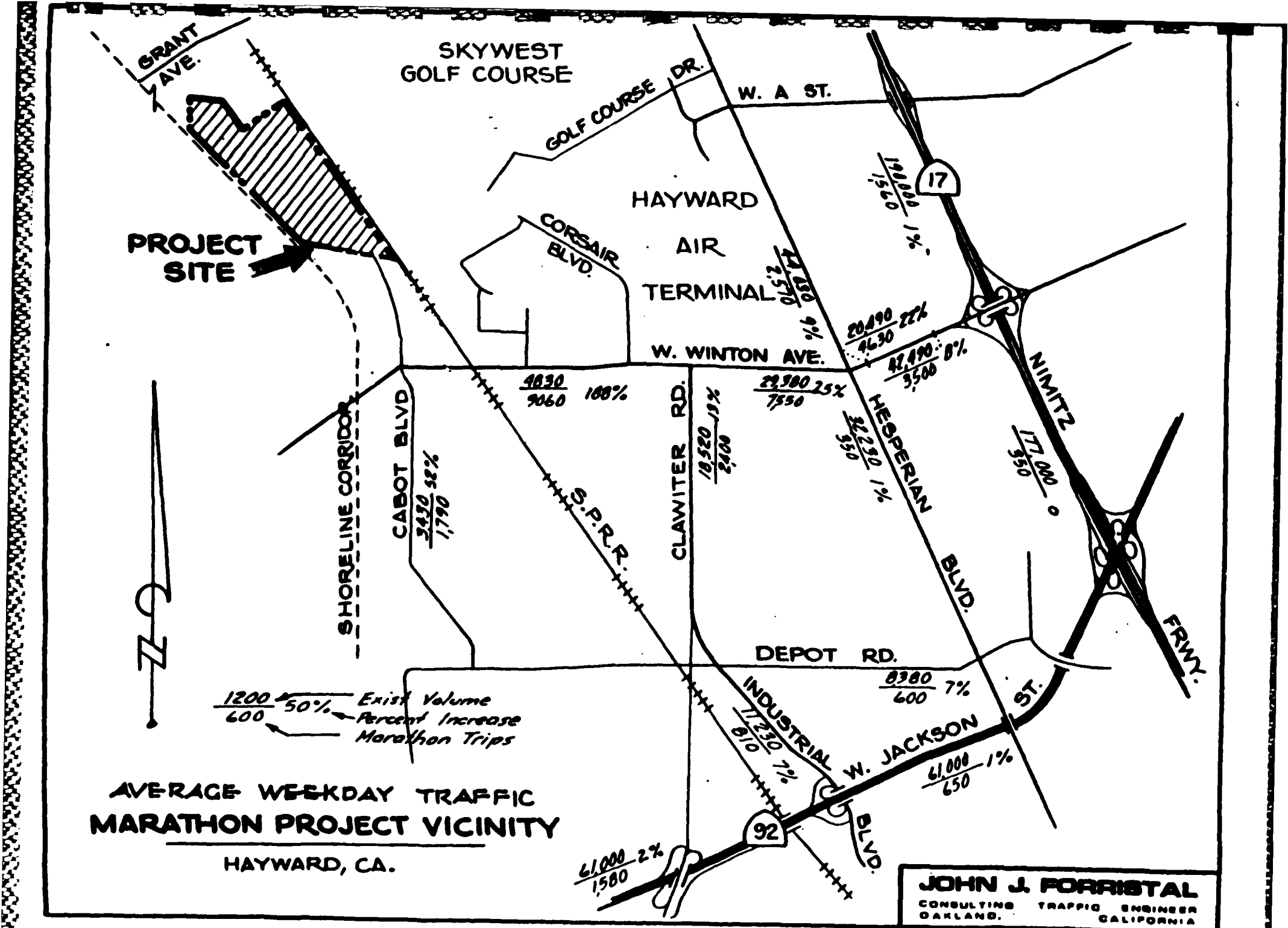

GRANT AVE.
SKYWEST GOLF COURSE
GOLF COURSE DR.
W. A ST.
PROJECT SITE
CORSAIR BLVD.
HAYWARD AIR TERMINAL
W. WINTON AVE.
SHORELINE CORRIDOR
CABOT BLVD
S.P.R.R.
CLAWITER RD.
HESPERIAN BLVD.
NIMITZ FRWY.
DEPOT RD.
INDUSTRIAL BLVD.
W. JACKSON ST.
17
92
1200/600 50% Exist Volume, Percent Increase, Marathon Trips
AVERAGE WEEKDAY TRAFFIC
MARATHON PROJECT VICINITY
HAYWARD, CA.
JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

FIGURE 2

TRAFFIC AND CIRCULATION
MARATHON PROJECT
HAYWARD, CALIFORNIA

APPENDIX A

MAJOR STREET SYSTEM AND CURRENT OPERATIONS

Appendix A
Major Street System Description
Marathon Project Vicinity

STREET SYSTEM DATA

The major streets serving the proposed Marathon Project are described below.

West Winton Avenue

Between Cabot Boulevard and Hesperian Boulevard, West Winton Avenue is a 4 lane roadway with a painted median lane. The median lane provides left turn lanes at intersections, and functions as a 2 way left turn lane between intersections. Curb parking is permitted along most of the street, but there are partial restrictions on the south side between Cabot Boulevard and Clawiter Road. The speed limit on Western Winton Avenue is 45 miles per hour.

East of Hesperian Boulevard to Wright Drive, West Winton Avenue has 4 lanes plus a median lane that provides back-to-back left turn lanes at the intersections. There is no on-street parking on this portion of the street. Between Wright Drive and Southland Place/Stonewall Avenue, the roadway section widens sufficiently to provide parking on the south side of the street.

East of Southland Place/Stonewall Avenue to SR 17, West Winton Avenue has 2 westbound lanes and 3 eastbound lanes. There are actually 3 lanes in the westbound direction; however, the outside lane is a merge lane coming off the freeway and the center lane is a merge lane coming off the freeway and the center lane converts into a double left turn lane on the Southland Drive approach. There is no parking on this portion of Winton Avenue.

Depot Road

A second east-west arterial in the project vicinity is Depot Road, 1 mile south of West Winton Avenue. Between Cabot

Boulevard and Clawiter Road, it has a 2 lane section of varying width. On-street parking is intermittent along this portion, as roadway width permits. From Clawiter Road east to Industrial Boulevard it has a wider roadway section with some street frontage improvements. East of Industrial Boulevard, Depot Road has been developed to its ultimate 56 foot section, with 2 through lanes and parking. On the eastbound approaches to both Industrial Boulevard and Hesperian Boulevard, the parking has been removed to provide 3 traffic lanes.

Cabot Boulevard

The major north-south streets in the area are Cabot Boulevard, Clawiter Road/Industrial Boulevard and Hesperian Boulevard. Cabot Boulevard extends south of West Winton Avenue to Depot Road. This street is presently stripped for 2 traffic lanes, although it has sufficient width for 4 lanes and a median lane. No parking is permitted on Cabot Boulevard, presumably for esthetic reasons - e.g., to prevent long-term truck parking.

Clawiter Road/Industrial Boulevard

Clawiter Road has a T intersection to the south with West Winton Avenue approximately 1 mile east of Cabot Boulevard. It runs southernly to an intersection with Industrial Boulevard a short distance north of Depot Road. The main roadway alignment then curves to the southeast as Industrial Boulevard to and through an interchange with State Route 92 and continues to Industrial Parkway in the south part of Hayward. This portion of Clawiter Road/Industrial Boulevard has a 4-lane roadway with a 2-way left turn median. Parking is permitted on the street. Clawiter Road continues south of Industrial Boulevard as a 2-lane street with some frontage improvements to an interchange with State Route 92.

Hesperian Boulevard

Hesperian Boulevard is a major arterial, extending northerly through Hayward, San Lorenzo and San Leandro to East 14th Street and southerly to Union City. In the vicinity of Winton Avenue, it has a 6-lane section with a raised median island. On-street parking is prohibited along must of its length, and access is limited on those portions where frontage roads are provided.

Regional Facilities

Regional access in the general project area is provided by Interstate Route 880 (the Nimitz Freeway) and State Route 92 (West Jackson Street and the San Mateo Bridge). The Nimitz Freeway provides service northerly to the San Leandro and Oakland areas and to San Francisco via the Bay Bridge. For traffic oriented to the north, there are interchanges at Winton Avenue, A Street, and Hesperian Boulevard. To the south, the Nimitz Freeway extends through Union City and Fremont to metropolitan San Jose. South oriented trips are served by interchanges at Winton Avenue and at Jackson Street.

West Jackson Street runs in a general northeasterly direction, ending in the Hayward Central District at a junction with Mission Boulevard. Trips to Interstate 580 east would take this route. To the west, the San Mateo Bridge provides service to the San Francisco Peninsula and to the cities of San Francisco and San Jose via SR 101.

CURRENT TRAFFIC OPERATIONS

Traffic operations are defined in terms of volume/capacity ratios and levels of service at critical intersections. The methodology used in this project conforms to the procedures in Special Report 209 for Planning Purposes, since both existing and future conditions were evaluated. The intersection volume/capacity values and corresponding service levels are listed in Table A-1.

Observations were made at several intersections to corroborate the service levels listed in Table 1 of this report. These observations are summarized below.

Hesperian Boulevard-West Winton Avenue

The Hesperian Boulevard-West Winton Avenue intersection is at capacity during the evening peak hour, with the eastbound movement on West Winton Avenue experiencing the most delay. Volume/capacity ratios are by definition computed for one-hour periods, but the actual conditions may fluctuate over that period. This is the case at West Winton Avenue and Hesperian Boulevard. Traffic flow is not constant, but has heavy peaks interspersed with short intervals of lighter demand. This is typical of industrial traffic because of the recurrent surges of employee work-to-home trips. The West Winton Avenue eastbound approach to Hesperian Boulevard has a right turn lane, a through lane, a through-left turn optional lane, and a left turn lane. The numbers of through lanes is limited to 2 because the east leg has only 2 eastbound through lanes. The average timed signal cycle was 3 minutes.

Observations were also made of the morning peak hour conditions at this intersection. Although counts show the westbound volume on West Winton Avenue is approximately equal to the evening eastbound volume, delay is considerably less. This is because the component of other (than home-to-work) traffic is lower on the conflicting movements. The signal cycle times during this period varied from 2 to 2-1/2 minutes.

Depot Road - Clawiter Road

The intersection of Depot Road and Clawiter Road is controlled by 4-way stop signs. Clawiter Road has single lane approaches; Depot Road has right turn lanes on both approaches. During the P.M. peak hour, the major back-ups are the northbound movement on Clawiter Road and the eastbound movement on Depot

Road. Again, the congestion is recurrent in nature, lasting for limited periods with relatively free flow in between.

West Winton Avenue - Clawiter Road

At West Winton Avenue and Clawiter Road, the movement with the longest delay during the evening peak is the northbound right turn from Clawiter Road into West Winton Avenue. This is unusual, since the right turn movements at intersections typically are not a factor in volume/capacity calculations. In this case, however, the right turn periodic demand becomes heavy, but the eastbound flow on West Winton Avenue does not permit many free right turns. Most of these turns are made during the westbound left turn phase on est Winton Avenue. A number of vehicles were observed making right turns from the adjacent through lane, around the right turn channelization island.

Other Intersections

Project trips oriented to the south and southeast would travel on Cabot Boulevard, Clawiter Road, and Industrial HighwaY. The intersections of Depot Road with Industrial Boulevard and with Hesperian Boulevard are signalized; however, peak hour volumes through these intersections are relatively light compared to West Winton Avenue. In concurrence with the calculated service levels, field observations did not show any excessive delay on the intersection approaches. At Industrial Boulevard and Hesperian Boulevard, the heavy eastbound movement on Hesperian Boulevard is the primary contributing factor to the P.M. peak hour congestion.

Freeway Interchanges

As noted, West Winton Avenue and I-880 (Nimitz Freeway) represents virtually the sole regional route between the project area and northerly oriented trips under the existing highway set-up. The bulk of these trips, therefore, must utilize the Winton Avenue-I-880 interchange. This interchange is a 4-quad

full cloverleaf-type. During the evening peak hour, the weaving of ramp traffic on Winton Avenue and on the auxiliary frontage road, and the merge with freeway traffic causes congestion in both directions. The freeway itself is at capacity in the southbound direction and close to it in the northbound direction.

Both Clawiter Road and Industrial Boulevard have interchanges at State Route 92. These are of the half-quad type which require left turns for certain ramp movements. The main problem during the P.M. peak hour is the merge of eastbound on-ramp traffic with freeway traffic. This is more evident on Clawiter Road, where the back-up to the ramp on the single southbound lane can block all traffic through the City streets. The P.M. peak hour eastbound freeway traffic itself is impeded by the closely spaced interchanges and heavy off-on volumes at the Clawiter Road, Industrial Boulevard, Hesperian Boulevard and I-880 interchanges.

MARATHON PROJECT

HAYWARD, CALIFORNIA

APPENDIX B

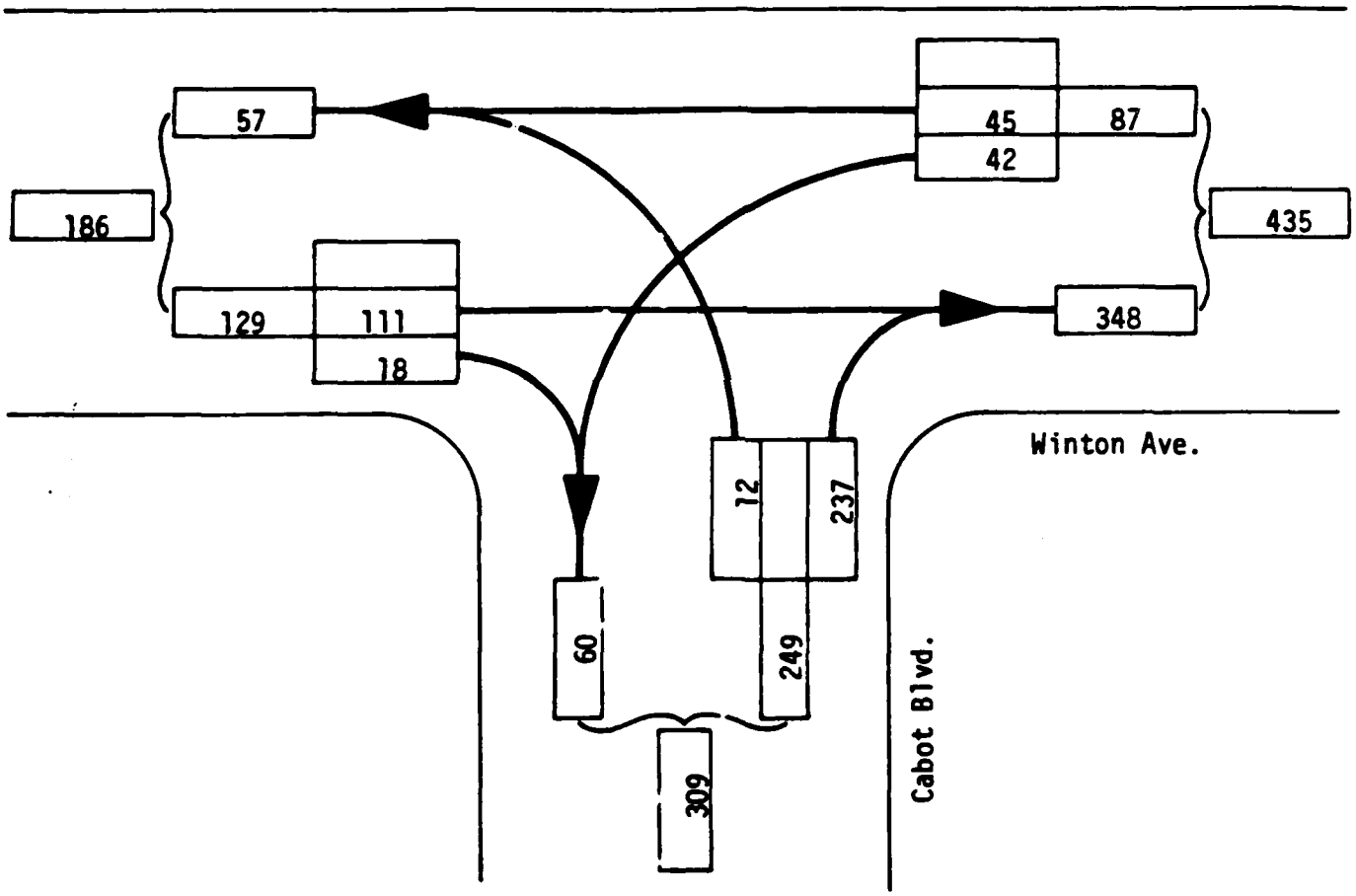
IMPACTS ON RAILROAD OPERATIONS

IMPACTS ON RAILROAD OPERATIONS

The Southern Pacific mainline track is adjacent to the Marathon site on the east. Approximately 24 freight trains and 4 passenger trains use this track daily. During the survey period from 4:00 to 5:30 PM, two train movements were observed. There are grade crossings at West Winton Avenue, Depot Road, and Clawiter Road. Crossing gates and flahsing lights have been installed at all crossings. These devices are about the limit of grade crossing protection. The ideal situation would be the construction of grade separations; however, these projects would be virtually unfeasible without the participation of the Public Utilities Commission. This would require inclusion in their Grade Separation Priority Lists - a statewide construction schedule revised annually on the basis of a set of warrants to determine priorities. Among the warrants germane to this analysis are accident records and traffic volumes.

City records do not indicate a significant accident history at any of the 3 crossings. The Marathon project will add an estimated 4,980 daily trips at the West Winton Crossing, 980 at the Depot Road crossing and 750 at the Clawiter Road crossings. It does not appear that the addition of these trips will increase the accident potential or the traffic volumes a sufficient amount to quality the crossings for a near-term listing in the PUC program. The rankings of all 3 crossings are currently over 60; considering that about 4 projects a year are built statewide, this gives some idea of the relative status of these crossings with regard to critical warrants.

A spur track is indicated on the preliminary development plan entering the Marathon site adjacent to the south side of the City storm drain. Since this drain marks the northerly limit of the first phase Marathon development, there will be no interior grade crossings in that phase. Because of the proximity of this and other spur tracks to the West Winton Avenue crossing, it is anticipated that predictors or similar time-out devices will be installed by the Southern Pacific Company to minimize delay to vehicular traffic during switching operations.



LOCATION Winton Ave. & Cabot Blvd.

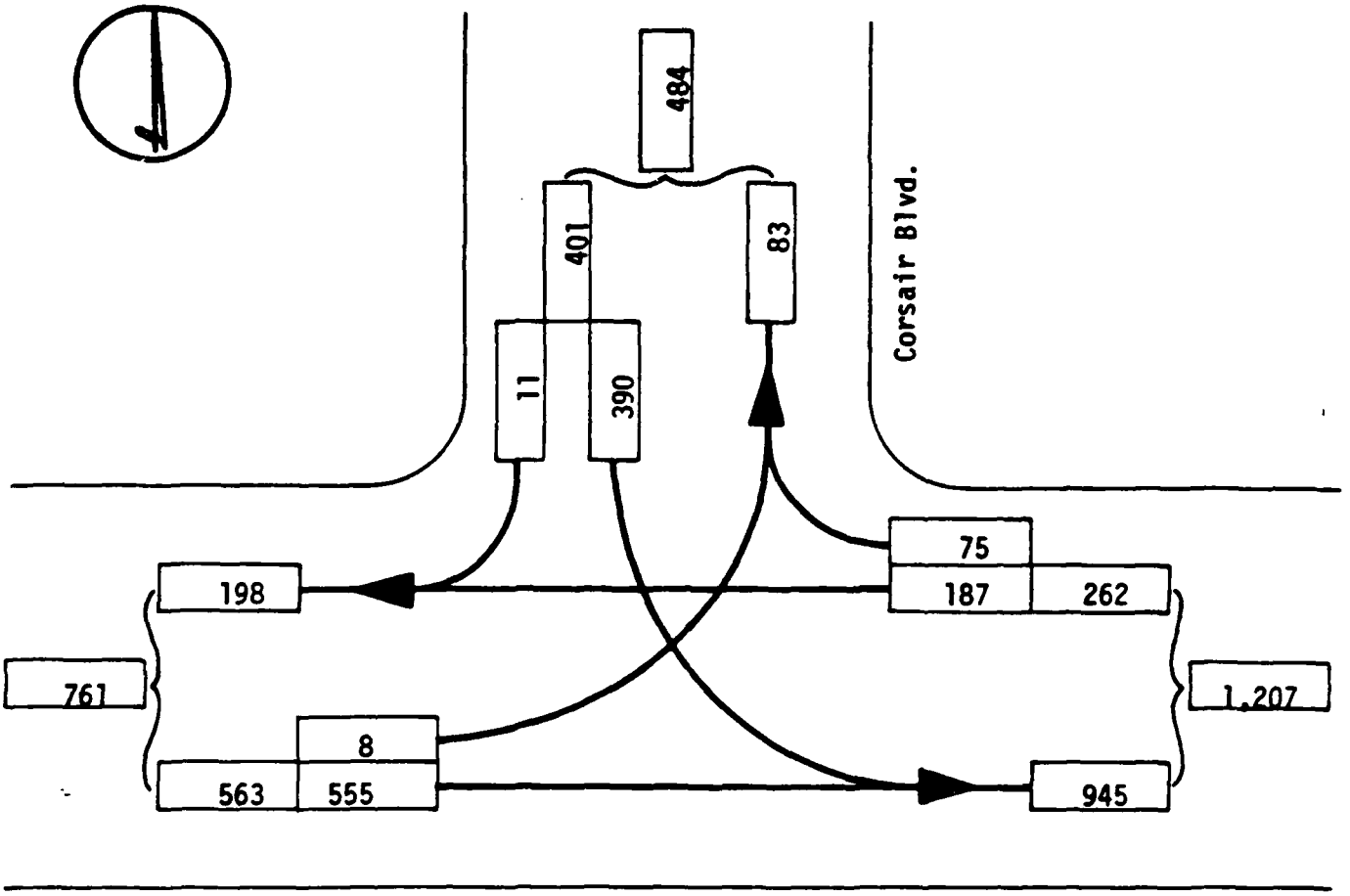
PERIOD 4:30 - 5:30 PM 4-20-82

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure A-1



LOCATION Winton Ave. and Corsair Blvd.

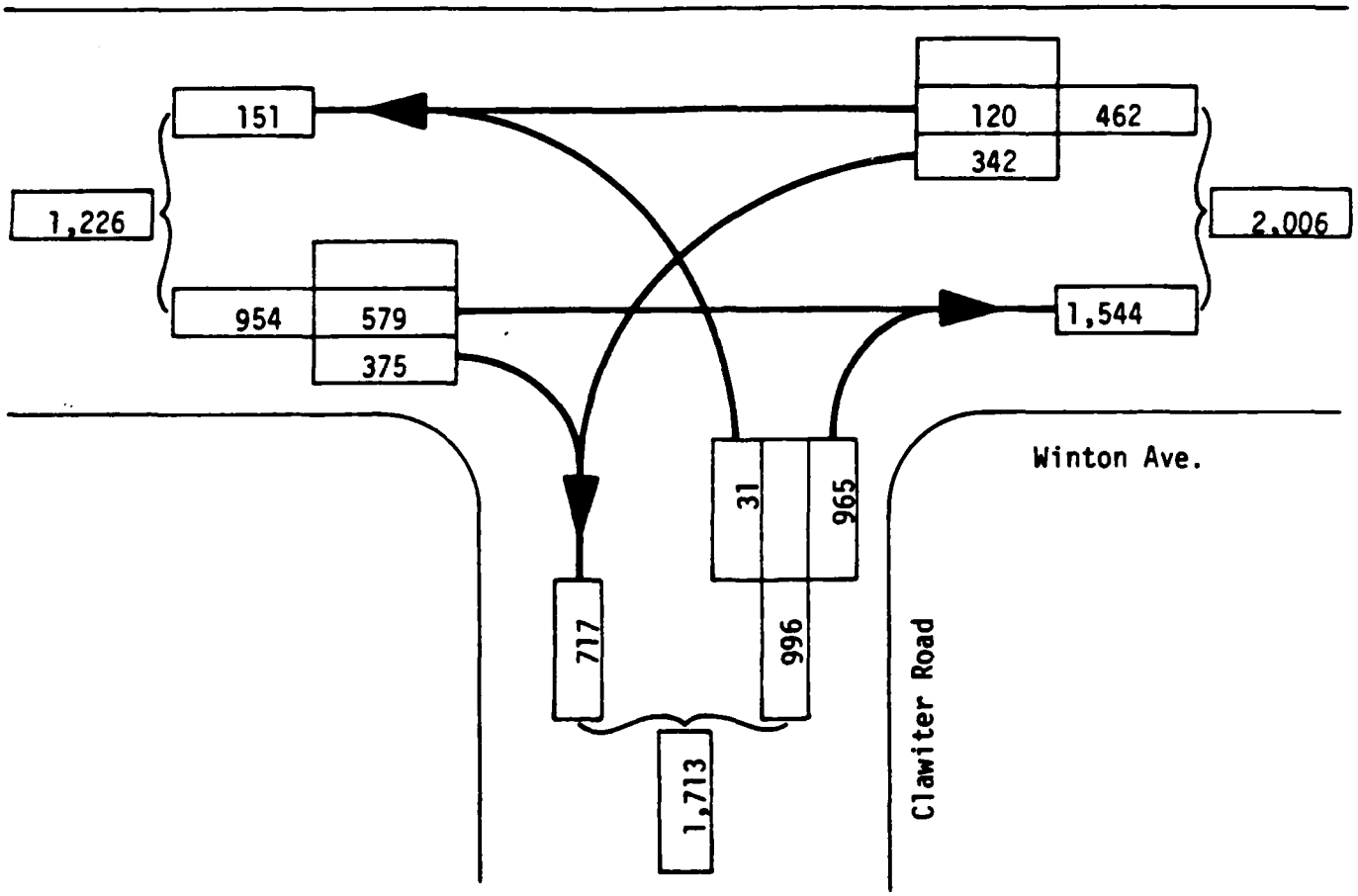
PERIOD 4:30 - 5:30 PM 4-30-82

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure A-2



LOCATION Winton Ave. and Clawiter Road

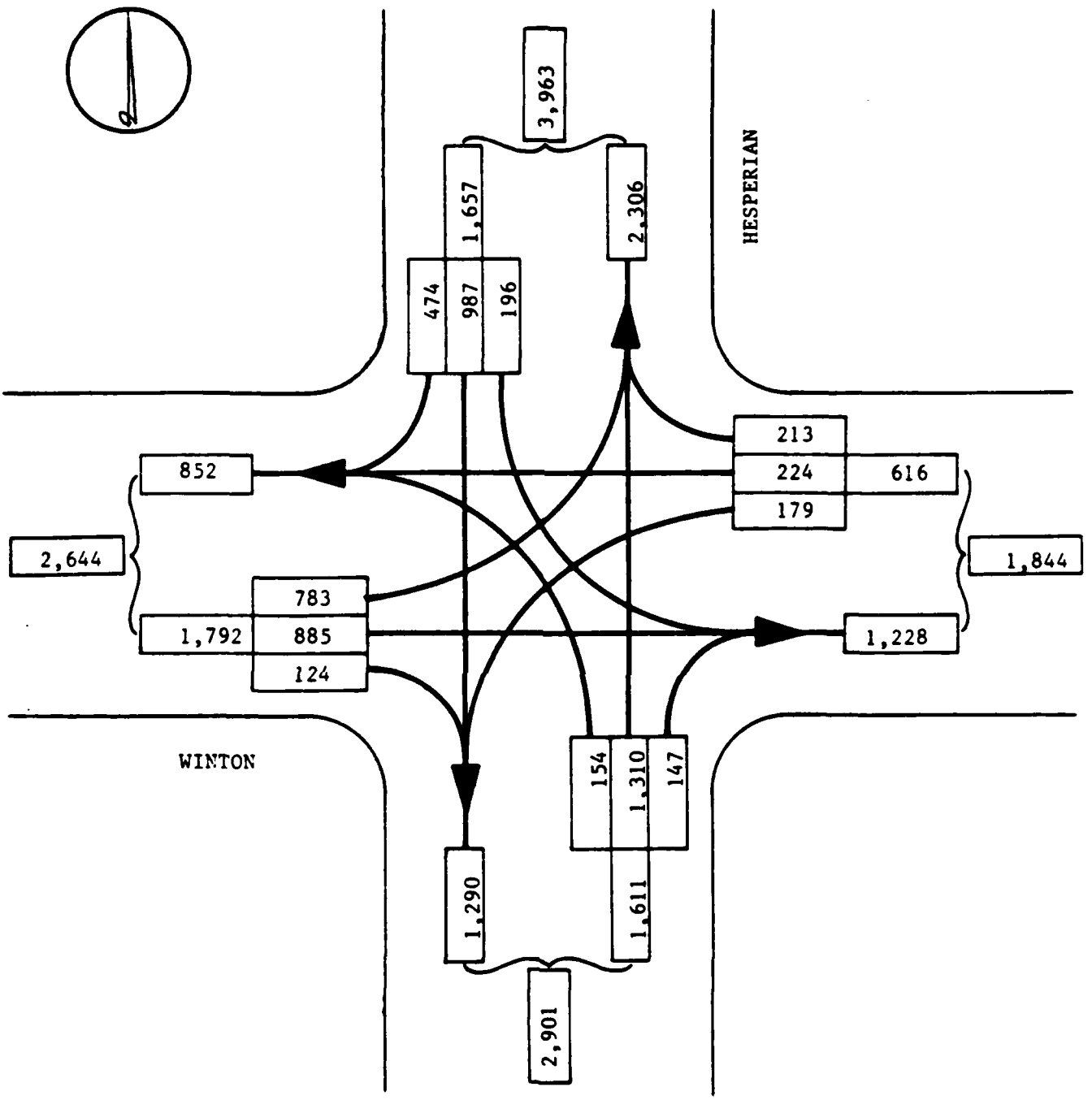
PERIOD 4:30 - 5:30 PM, 4-30-82

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND CALIFORNIA

Figure A-3



LOCATION W. WINTON AVENUE & HESPERIAN BLVD.

PERIOD P.M. PEAK HOUR 12-6-84

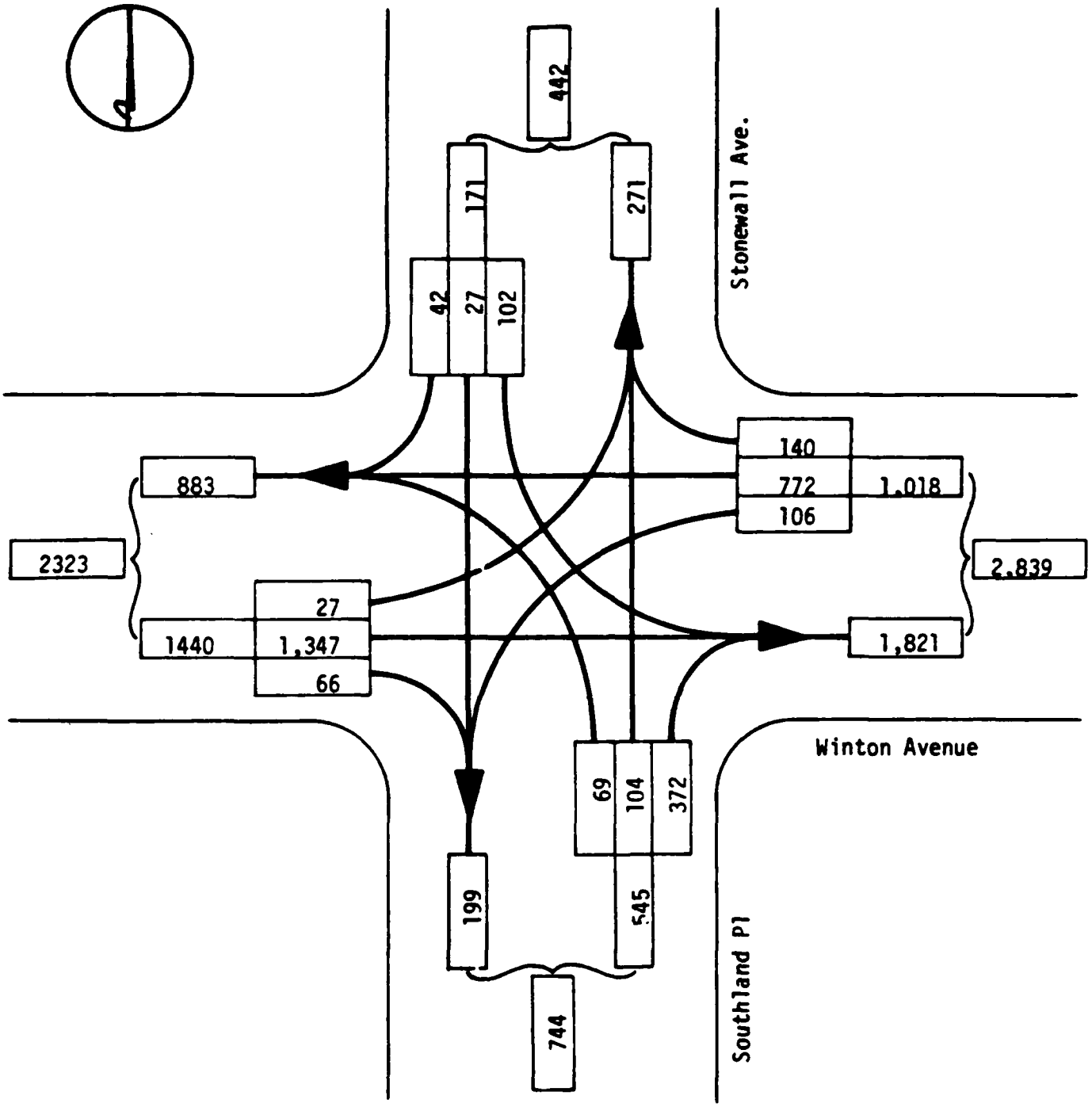
INTERSECTION TURNING MOVEMENTS

EXISTING VOLUME

JOHN J. FORRISTAL

CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

FIGURE A-4



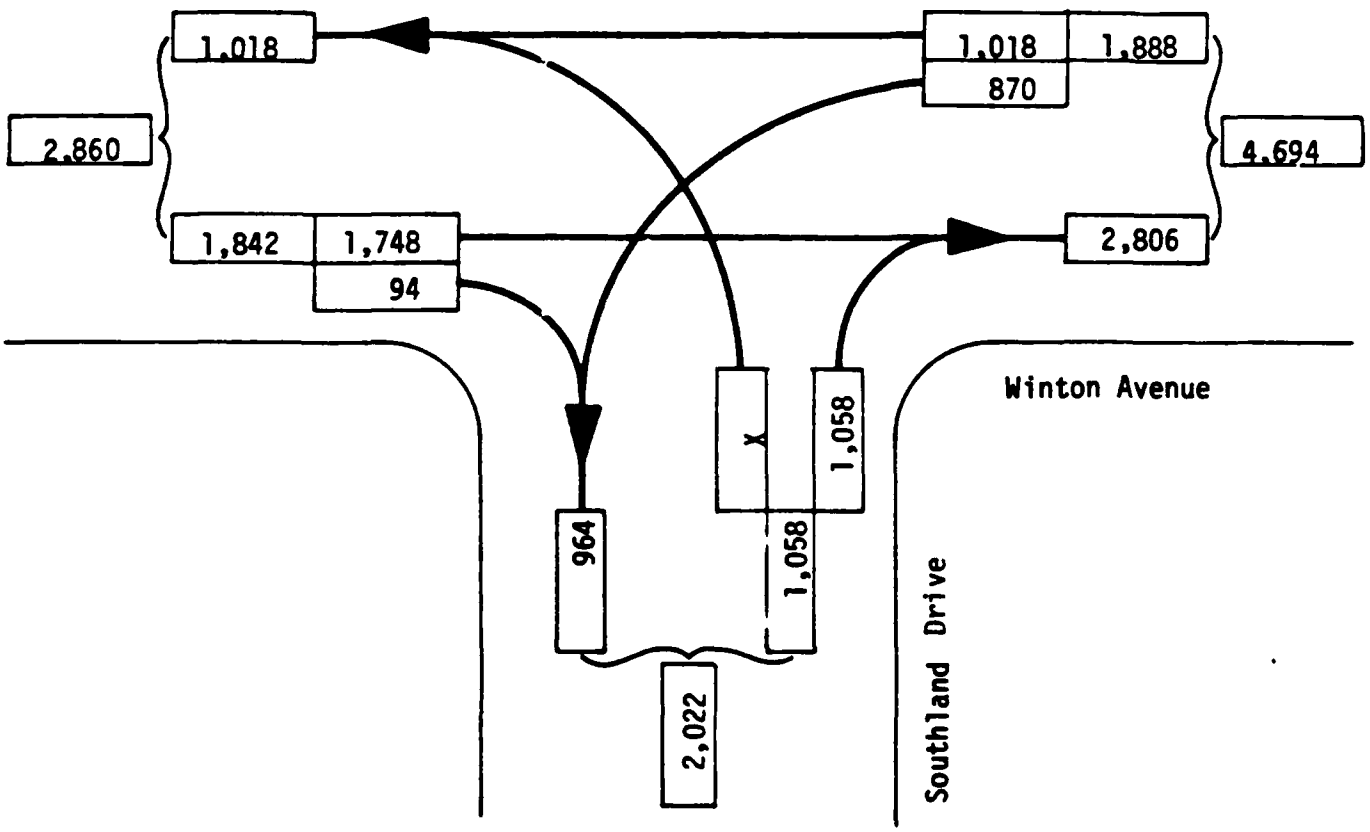
LOCATION Winton Ave. and Southland Pl/Stonewall Ave.

PERIOD 4:00 - 5:00 PM 4-29-82

INTERSECTION TURNING MOVEMENTS

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure A-5



LOCATION Winton Avenue and Southland Drive

PERIOD 4:00 - 5:00 PM 4-29-82

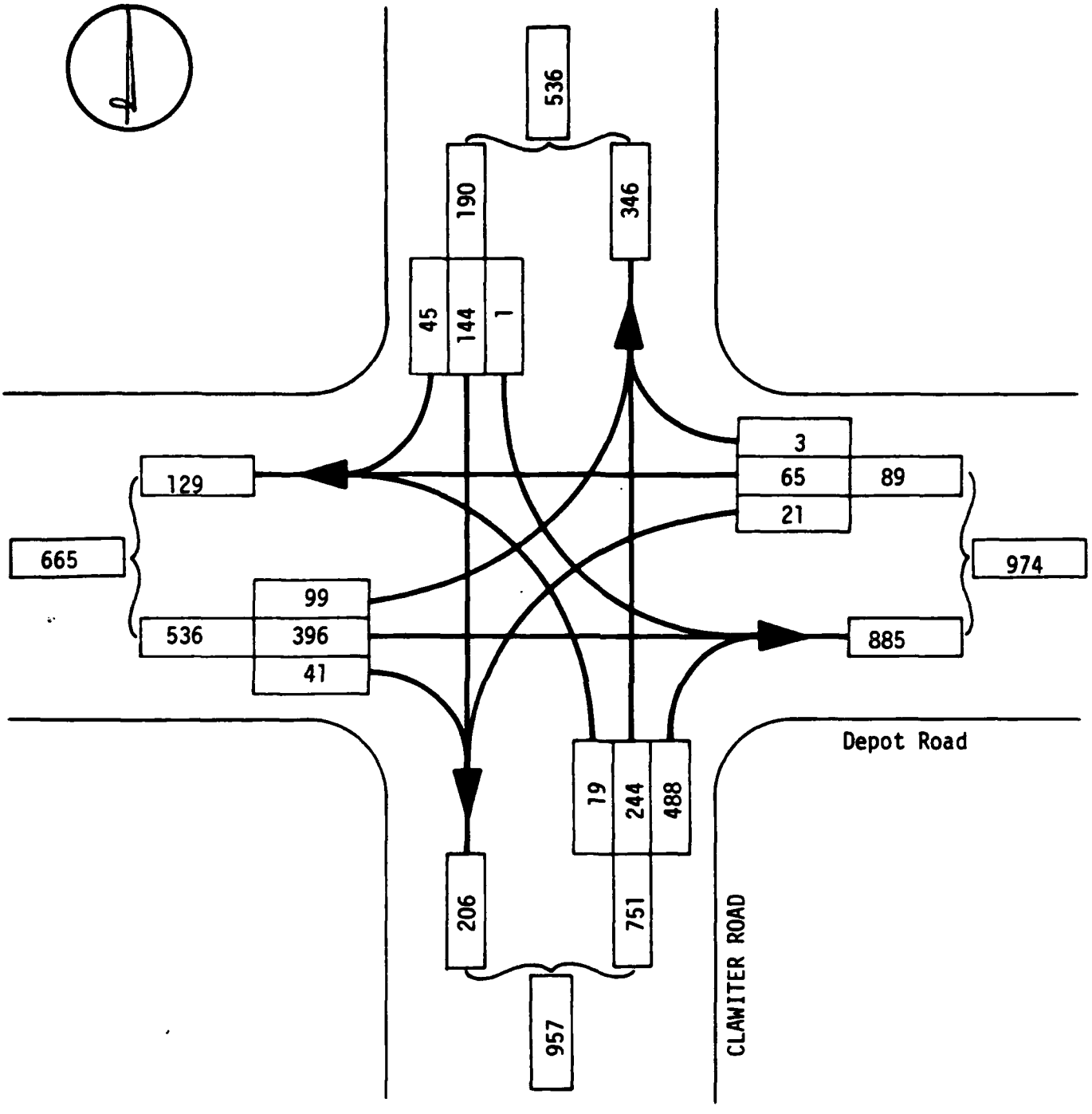
INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL

CONSULTING TRAFFIC ENGINEER
OAKLAND CALIFORNIA

Figure A-6



LOCATION DEPOT ROAD - CLAWITER ROAD

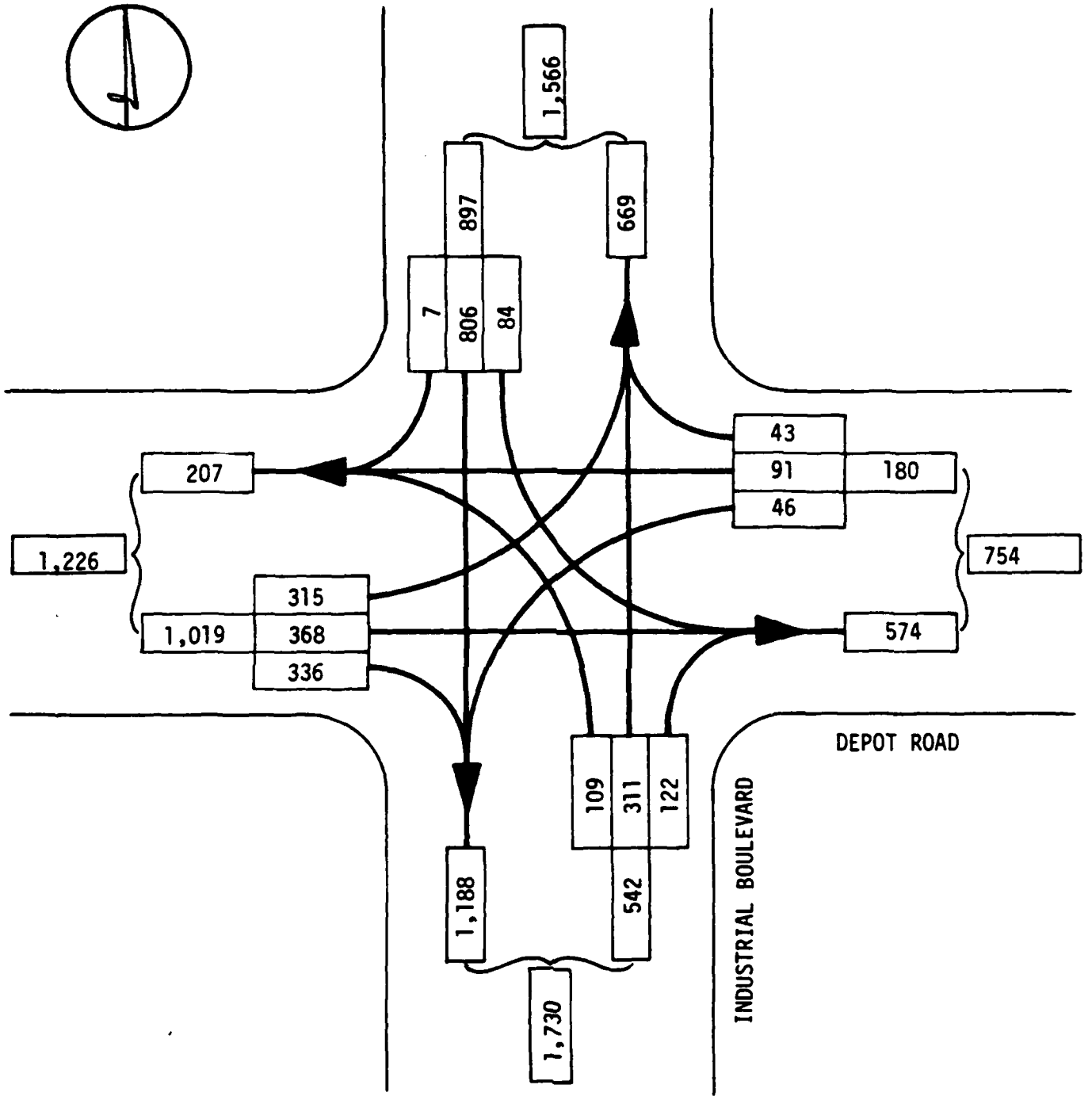
PERIOD 5:00 - 6:00 PM 9-13-84

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure A-7



LOCATION DEPOT ROAD - INDUSTRIAL BOULEVARD

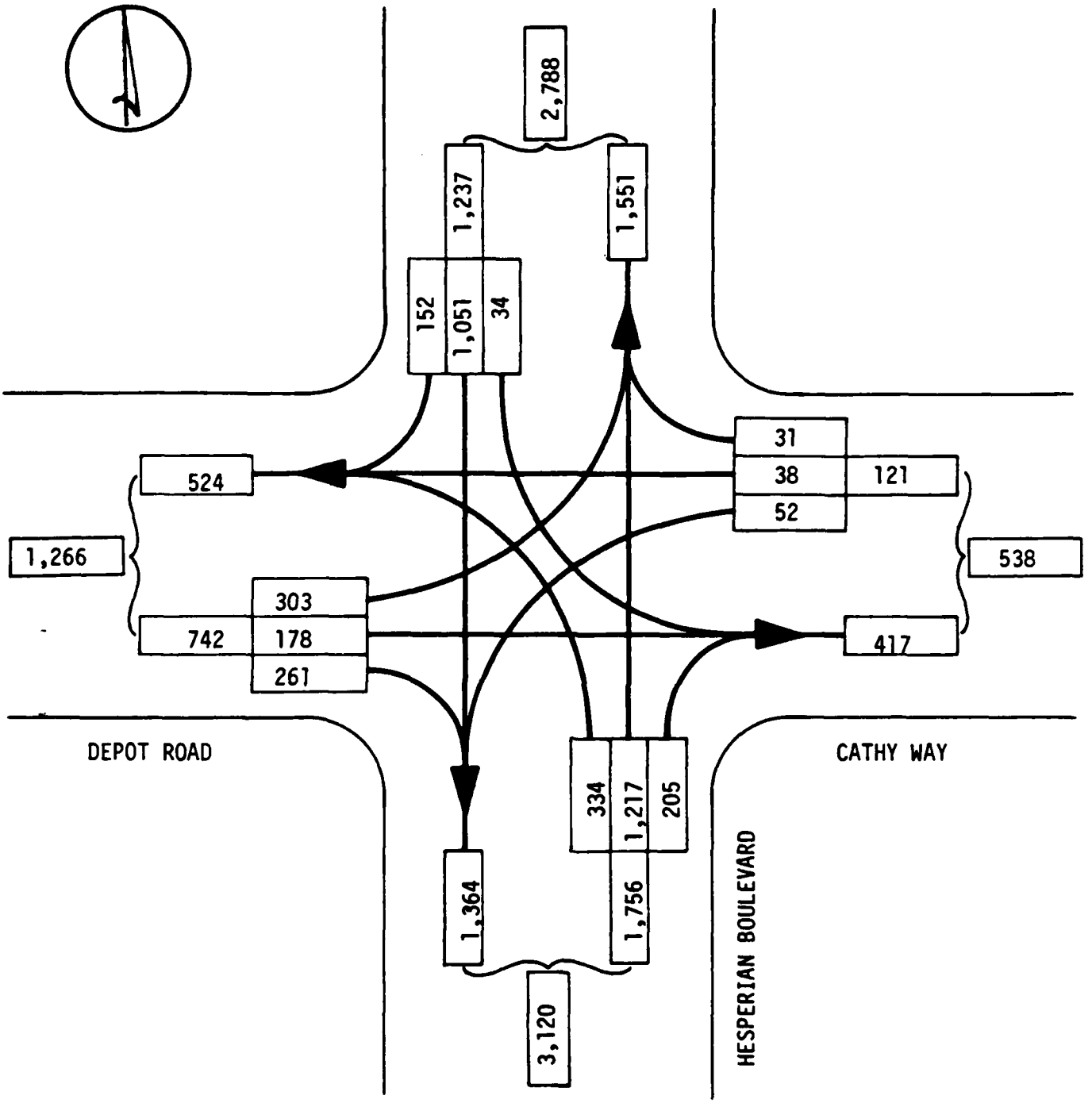
PERIOD 4:30 - 5:30 PM 9-13-84

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure A-8



LOCATION DEPOT ROAD/CATHY WAY - HESPERIAN BOULEVARD

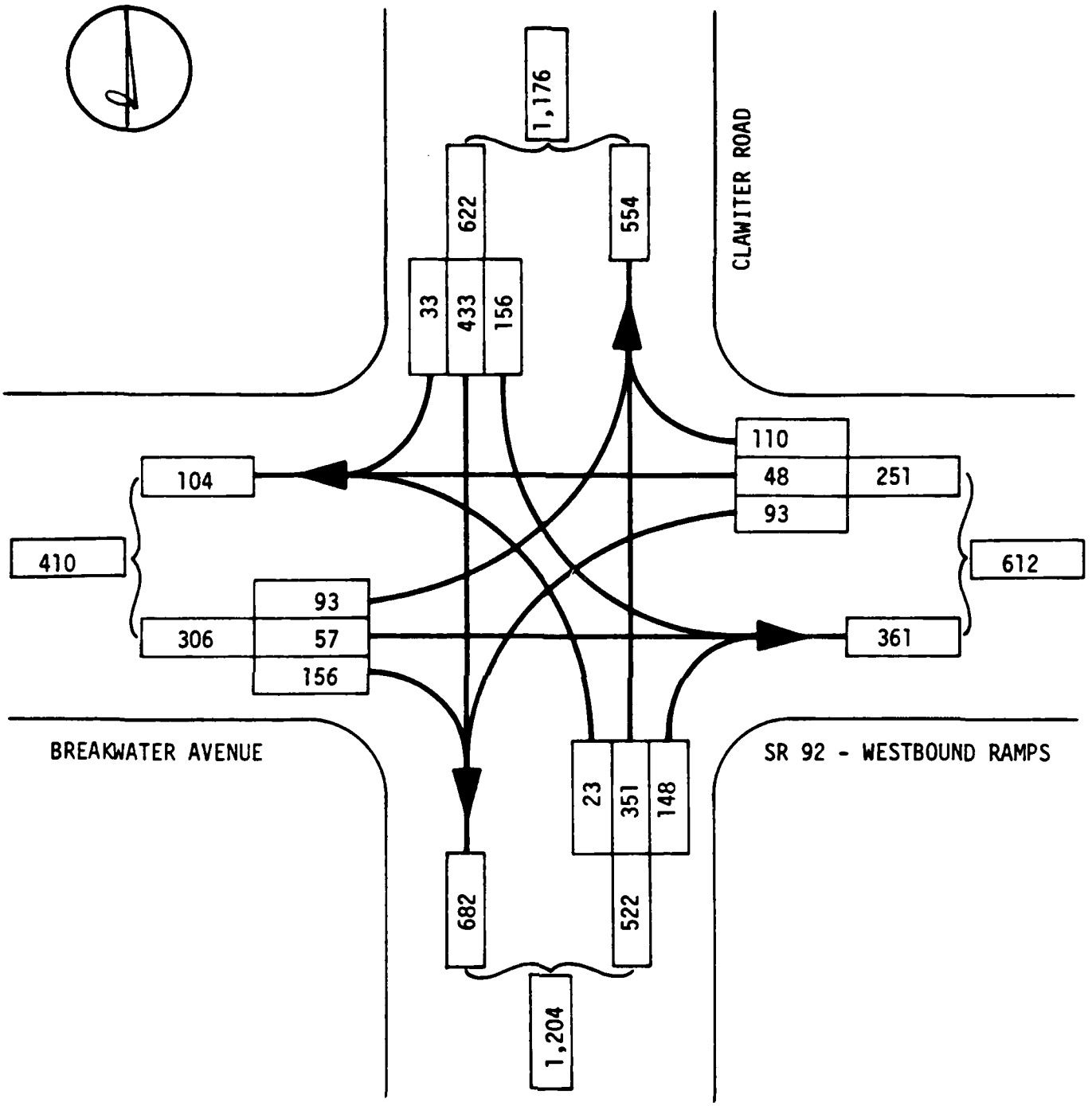
PERIOD 3:45 - 4:45 PM 9-12-84

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure A-9



LOCATION CLAWITER ROAD - SR 92 WESTBOUND RAMPS/BREAKWATER AVENUE

PERIOD 4:45 PM - 5:45 PM 9-13-84

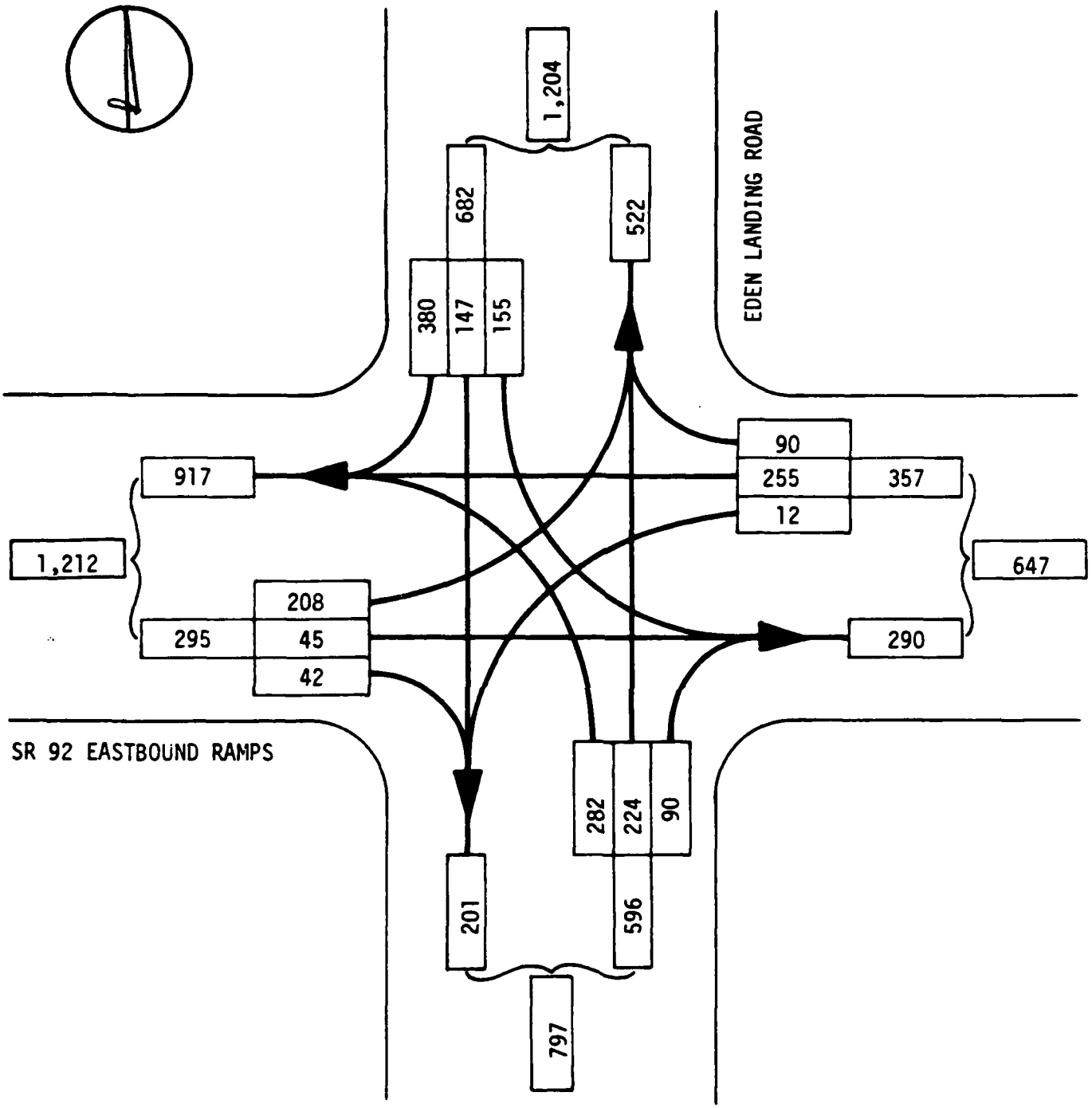
INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL

CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure A-10



LOCATION EDEN LANDING ROAD - SR 92 EASTBOUND RAMPS

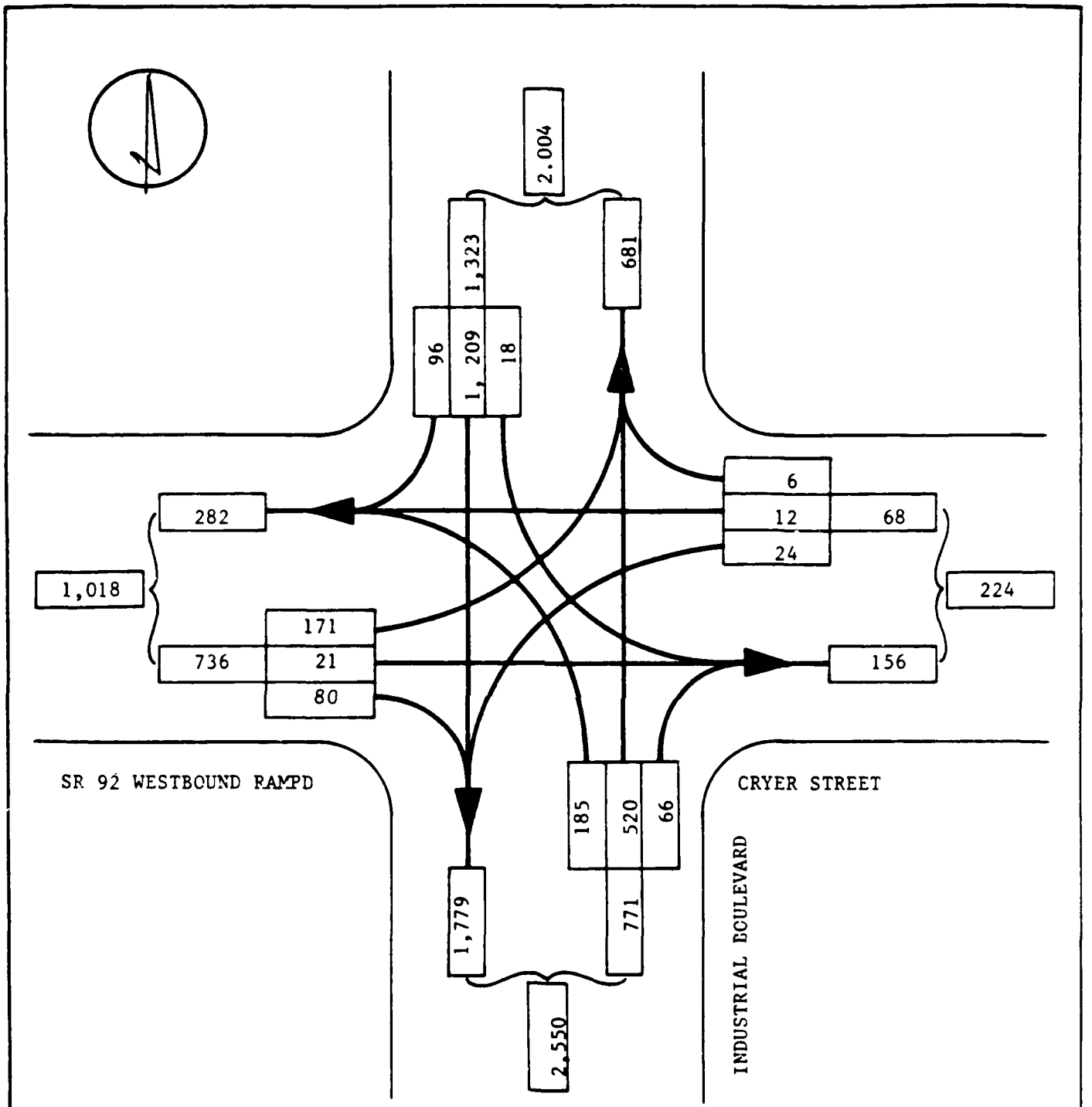
PERIOD 4:45 - 5:45 PM 9-13-84

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure A-11



LOCATION INDUSTRIAL BOULEVARD - SR 92 WESTBOUND RAMPS/CRYER STREET

PERIOD 3:30 - 4:30 PM 9-14-84

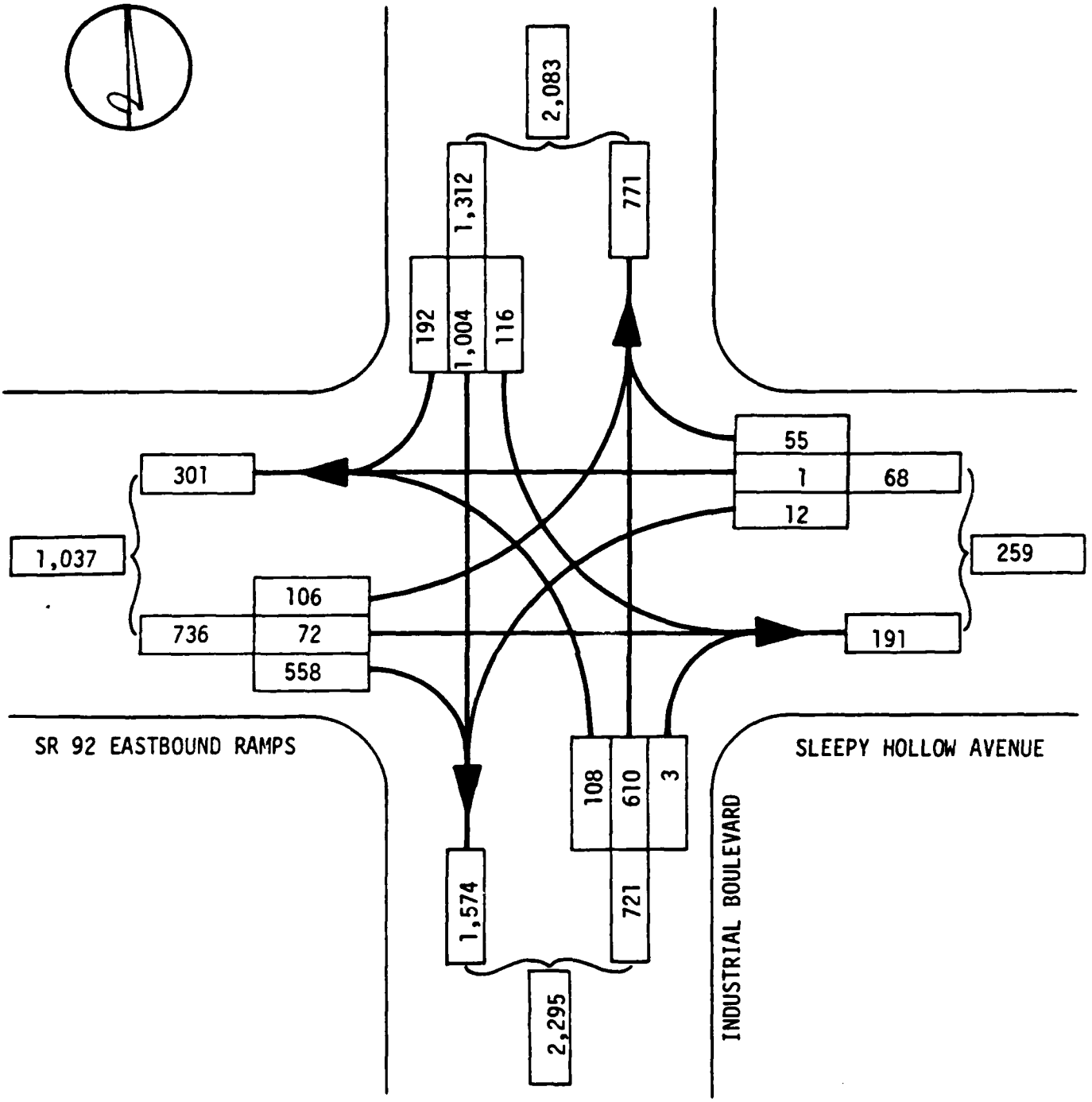
INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL

CONSULTING TRAFFIC ENGINEER
OAKLAND CALIFORNIA

Figure A-12



LOCATION INDUSTRIAL BOULEVARD - SR 92 EASTBOUND RAMPS/SLEEPY HOLLOW AVE.

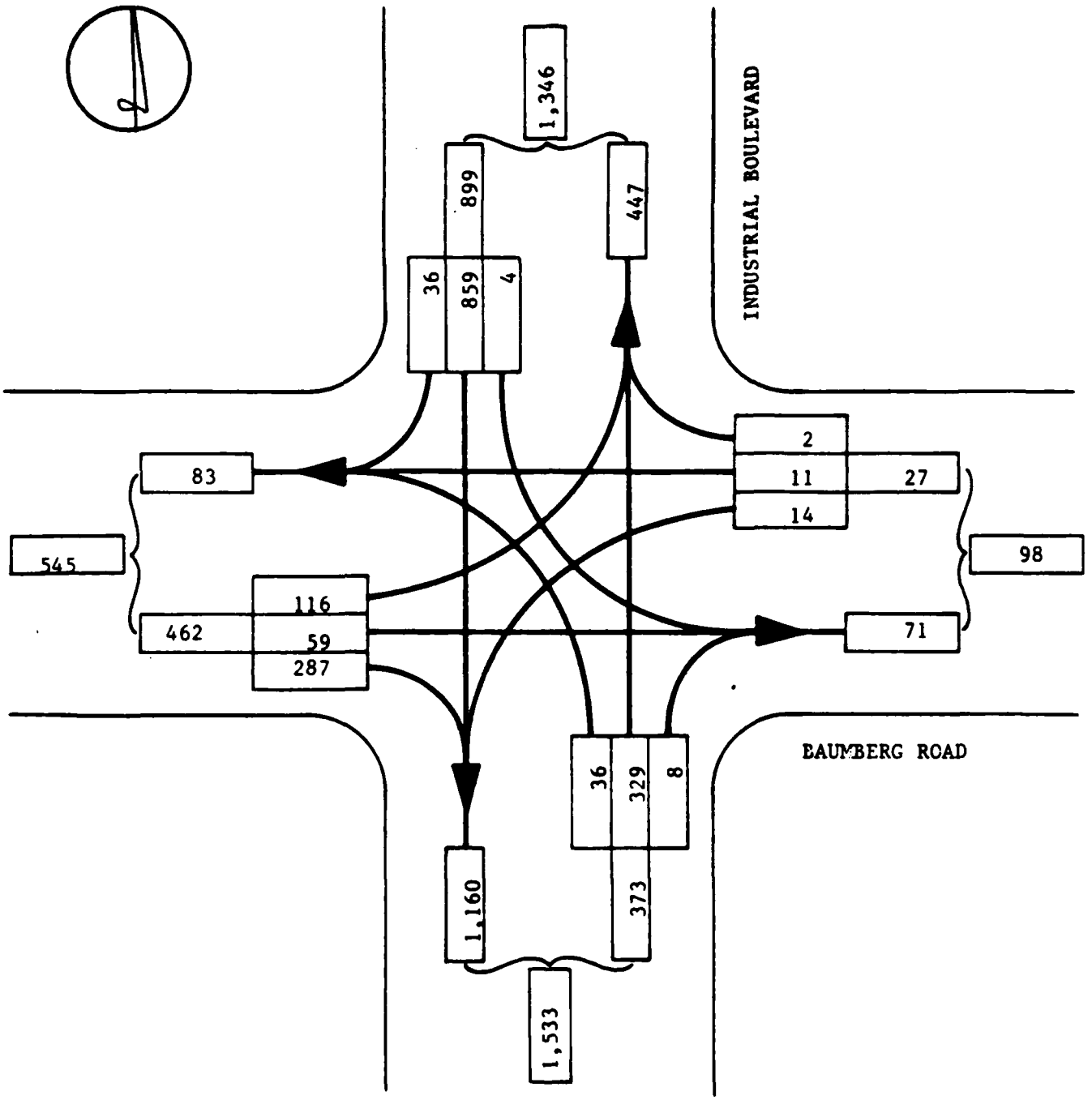
PERIOD 4:00 - 5:00 PM 9-14-84

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure A-13



LOCATION INDUSTRIAL BOULEVARD & BAUMBERG ROAD

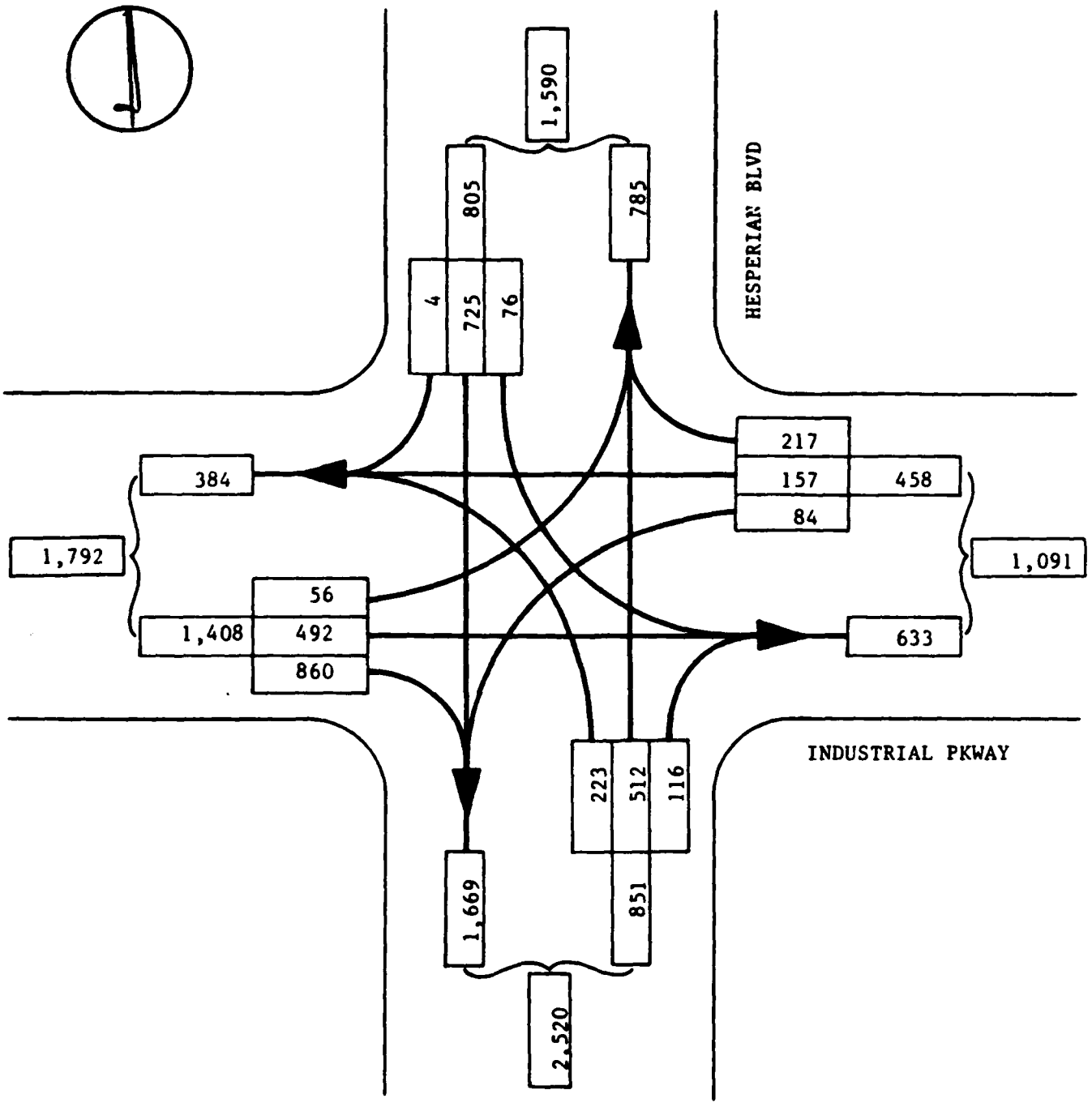
PERIOD P.M. PEAK HOUR 12-12-84

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure A-14



LOCATION HESPERIAN BLVD & INDUSTRIAL PARKWAY

PERIOD P.M. PEAK HOUR 12-12-84

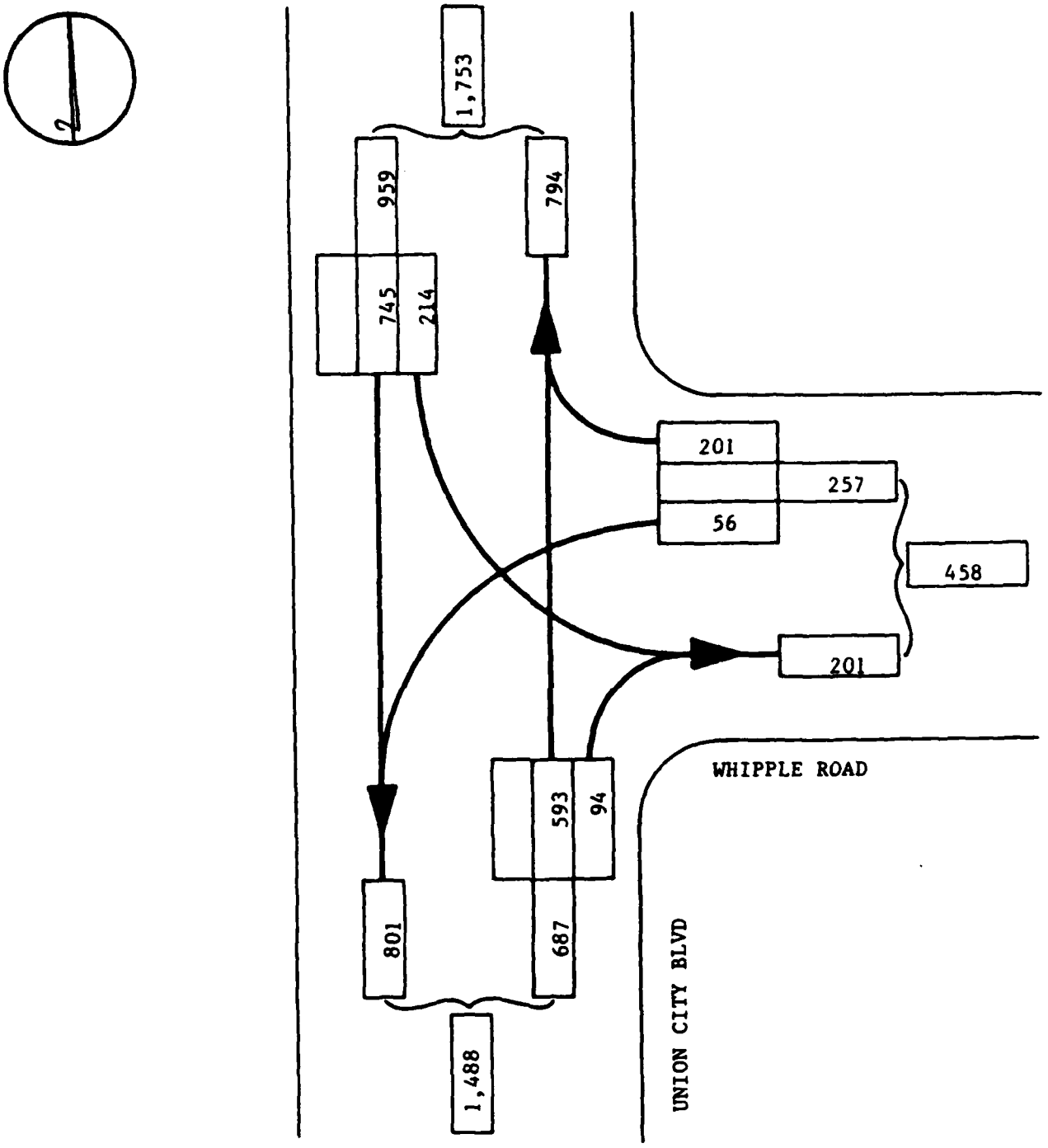
INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL

CONSULTING TRAFFIC ENGINEER
OAKLAND CALIFORNIA

Figure A-15



LOCATION UNION CITY BLVD & WHIPPLE ROAD

PERIOD P.M. PEAK HOUR 12-12-84

INTERSECTION TURNING MOVEMENTS

EXISTING VOLUMES

JOHN J. FORRISTAL
CONSULTING TRAFFIC ENGINEER
OAKLAND, CALIFORNIA

Figure A-16

APPENDIX N

PROJECTED FISCAL IMPACT UPON LOCAL JURISDICTIONS RESULTING FROM MARATHON HAYWARD INDUSTRIAL PARK

April 25, 1986

To: James E. Christian

Marathon U.S. Realties
595 Market Street, Suite 1330
San Francisco, California 94105

From: James E. Stark

Reimer Associates
1633 Old Bayshore Highway, Suite 120
Burlingame, California 94010

Re: Projected Fiscal Impact upon Local Jurisdictions Resulting from Marathon Hayward Industrial Park

OVERVIEW

Marathon U.S. Realties, Incorporated, requested a fiscal impact analysis for Marathon's 130 acre industrial project located in the northwest industrial area of the City of Hayward. This memorandum provides a summary of findings resulting from that assignment. Reimer Associates' urban planning section has completed several investigations of the fiscal consequences, of various categories of land development, upon local jurisdictions in northern California and Nevada.

This analysis was conducted on a marginal cost and revenue basis rather than on an average cost revenue basis. Actual increases in the costs of providing governmental services and facilities to serve the Marathon project were compared to anticipated revenues. Revenue estimates were based upon land and improvement values and employment levels projected for this specific project. These projections were based, in turn, on recent similar projects in the area and data presented in the October, 1985 EIR evaluating this project. Both annual operating costs and revenue, and "one-time only" capital costs and revenues were considered.

SUMMARY OF FINDINGS

- Following buildout, the Marathon project will produce an estimated $1.24 million in annual revenues flowing to local jurisdictions (1985 dollars). See Tables 1 and 2 attached. The property presently produces $20,000 in annual revenues.

- There is only one identifiable marginal cost, to local jurisdictions, which is not offset by locally mandated fees and charges. This cost is the estimated annual charge for street lighting within the project. The amount is $5,300.

- All on-site and off-site capital costs associated with the project will be paid for by the sponsor. Marathon will make a one-time contribution of $500,000 for the purchase and/or restoration of a wetland area. Furthermore, the project will account for at least ten percent (10%) of the land area that will be liened by special assessment to create the proposed Alameda Industrial Transportation Corridor - an important local arterial that will benefit all of western Hayward.

- Inflation in government costs is not an issue since revenue exceeds projected costs by a very large margin, and, increased revenues will be realized as property within the project is sold and reassessed at the new cash value.

ANNUAL OPERATING COSTS

Public Safety - No increase in the annual cost of delivering fire and police service to the City of Hayward will result from the Marathon project. Existing manpower and facilities are adequate to serve the project area. Public Safety budget requirements are provided for in the City's General Fund which is supported by tax revenues - primarily property tax and sales tax.

Water and Wastewater Treatment - The City of Hayward's water treatment plant, water distribution system, sewage collection, and wastewater treatment plant are maintained as enterprise funds within the City budget. The annual costs of water and wastewater operations are directly offset by fees collected from consumers. Fees are directly related to service demands. Since the services are self funding the net cost to the City is zero.

Storm Drainage - The Alameda County Flood Control and Water Conservation District (ACFCWCD) is unique in that it collects a one-time only fee to offset the annual maintenance costs of its storm drainage system. The Marathon project will contribute $150,000 to ACFCWCD in response to their requirement.

Street Maintenance - On a marginal cost basis there will be no increase, in manpower costs or equipment investment, placed upon the City of Hayward's Street Maintenance Department as a result of the proposed project.

Street Lighting - Pacific Gas and Electric owns and generates street lights within the City of Hayward. The proposed budget for FY 1985-86 is $781,536. With 250 miles of city streets the average annual street lighting cost is $3,126 per mile. With 1.7 miles of new streets proposed, the marginal increase in street lighting costs is estimated to be $5,300.

Development Processing - Building Inspection - The costs of development processing, plus permit review and building inspection are directly offset by fees charged for these services. The net cost to the City is zero.

Other Annual Operating Costs - Other departments within the City of Hayward such as City administrative offices, the airport, the library, etc., and other juristictions which serve the project area such as the park district and school district, will not incur any additional operating expense as a result of the proposed industrial park project.

CAPITAL IMPROVEMENT COSTS

On-site streets, water, sewer, and storm drainage will be provided by the developer and dedicated to the City of Hayward.

Off-site water and sewer facilities will not require any additional investment to serve the proposed project. Off-site storm drainage improvements will be borne by the project sponsor.

Off-site streets will be impacted by the project. Deficiencies in the existing circulation system are an area wide problem. Traffic impacts would occur with or without this project. Capital costs of project related mitigation will be born by the project sponsor. These costs have not been quantified. The required off-site street improvements, however, will become a condition of approval to be placed on the project Tentative Map of Subdivision. Furthermore, the project sponsor has indicated that he will participate in an assessment district that will provide a major arterial in the project area.

This arterial, the Alameda Industrial Transportation Corridor, will benefit the entire western industrial area of the City, including numerous parcels that will not bear any assessment. The Marathon project will be a critical part of the assessment district since it will provide linkage between two existing rights-of-way and it will account, in an economic sense, for at least 10% of the land area that will bear the assessment district liens. Although this capital contribution presently cannot be quantified it will have significant positive fiscal impact in the City of Hayward.

ANNUAL REVENUE PRODUCTION

Property Taxes - Secured Property - Based upon recent experiences with proximate sites, the improved land value (graded land, with street and utilities in place) is estimated to be 26.3 million dollars. The value of buildings is estimated to be $12.2 million dollars for research and development (R&D) structures (shell only) and 22.8 million dollars for warehouse space. Tenant improvements will provide an additional 6.1 million dollars. The total value of real property subject to property tax is 67.4 million dollars. Taking the 1985-1986 tax rate of 1.1511% from Tax Code Area 25-060 as "typical" for this site, the property tax yield, from secured property, will be $776,000 in current tax year dollars.

Property Taxes - Unsecured Property - The current value of unsecured property within the City of Hayward is 448.3 million dollars. Current employment is estimated to be 51,683 persons. Using the present average tax rate of 1.2754% for the City of Hayward, and dividing the tax revenue product by the total of employed persons, yeilds an average value of $110.73 per employee. The Marathon project's anticipated employment is 4,040 persons. Given the average revenue from unsecured property at $110.73 per employee, the projected annual revenue yield from this source is $447,300 in current year dollars.

Property Transfer Tax - A portion of the project will be absorbed into the real estate market each year until build-out occurs; following build-out it can be assumed that a part of the project will be resold each year. Consequently, from first sale onward, throughout the life of the project, property transfer taxes will be a continuing source of revenue to the City of Hayward. Property transfer taxes are levied at the rate of $1.10/$1,000 of value. The total project value of 67.4 million dollars will have yielded $74,140 in property transfer taxes at build-out. Assuming a five-year build-out period, that annual revenue stream from this source, until build-out is reached, is $14,828. Following build-out it is assumed that 10% of the project will be resold annually. In current year dollars the annual revenue stream from this tax source beginning in year 6 will be $7,414.

Business License Fees - There is no specific rate for R&D uses. Where an industry is not specifically identified in the City Business License Fee ordinance, the manufacturing business license fee applies. Business license fees for manufacturing firms are based upon employment levels for each firm. Assuming 23 R&D firms with an average employment level of 126 persons and 42 light manufacturing firms with an average employment of 27 persons, the annual business license fee will be $5,868.

OTHER REVENUE SOURCES

The Marathon project will contribute several hundred thousand dollars in development fees, building permit and inspection fees, plumbing, electric, and mechanical permit fees, water and sewer connection fees, and annual water and sewer service charges. All of these revenues are assumed to offset, directly, the costs of services provided by the agencies collecting the fees.The project will also contribute to utility Franchise Fees, however, this source cannot be reasonably estimated.

The project will also make a contribution, via a local improvement district, to the construction of The Alameda Industrial Transportation Corridor. This contribution will also be measured in the hundreds of thousands of dollars. It will benefit an area greater than that contained within the bounds of the local improvement district. Finally, the project sponsor has agreed to make a "one-time" $500,000 contribution toward the acquisition and/or restoration of wetlands in the project vicinity.

TABLE 1
ANNUAL REVENUE PRODUCTION SUMMARY
MARATHON-HAYWARD PROJECT
(000's in constant 1985 dollars)

	Year 1 (20% complete)	Year 2 (60% complete)	Year 6 (buildout + 1 year)
Property Taxes Secured Property	115.2	465.6	776.0
Property Taxes Unsecured Property	89.5	268.4	447.3
Property Transfer Tax	14.8	14.8	7.4
Business License Fee	1.2	3.5	5.9
TOTAL	260.7	752.3	1236.6

* These figures include revenue generated at the 1.1511% rate for Tax Code Area 25-060. Taxes collected above the 1% county-wide flat rate are used to pay pre-Prop. 13 general obligation bond assessments. This rate may fluxuate from year to year. Total property tax, for both secured and unsecured property, is estimated to be $1.024 million under the County wide 1% flat rate.

TABLE 2

DISTRIBUTION OF PROPERTY TAX DOLLARS
(1% flat rate)
AT FULL DEVELOPMENT -
COMPARED TO DEMAND FOR SERVICES

MARATHON-HAYWARD PROJECT
(constant 1985 dollars)
(Tax Code Area No. 25-060)

	%	Revenues Received	Marginal Increase In Service Demand Not Met By Other Fees
Alameda County	34.75%	355,635.20	00.0
South County Community College	2.51%	25,702.40	00.0
San Lorenzo Unified School District	19.16%	196,198.40	00.0
School Instit Pupils	0.16%	1,638.40	00.0
Juvenile Hall Education	0.03%	307.20	00.0
County Superintendent of School Service	0.10%	1,024.00	00.0
County Superintendent of School Capital	0.08%	819.20	00.0
School Developeent Center	0.10%	1,024.00	00.0
School Audio Visual Cab	0.02%	204.80	00.0
County Flood Control	0.21%	2,150.40	00.0
Flood Zone 2	3.23%	33,075.20	00.0
Bay Area Air Quality Control District	0.21%	2,150.40	00.0
Mosquito Abateeent	0.14%	1,433.60	00.0
AC Transit Service 1	5.21%	53,350.40	00.0
BART	0.61%	6,246.40	00.0
Hayward Area Recreation and Park District	10.01%	102,502.40	00.0
East Bay Regional Parks District	2.93%	30,003.20	00.0
City of Hayward	20.56%	210,534.40	5,300.00
TOTAL		1,024,000.00	5,300.00

APPENDIX O

ARCHAEOLOGICAL RECORDS SEARCH

FOR A PROPOSED INDUSTRIAL/BUSINESS PARK EIR/EIS

California Archaeological Inventory

ALAMEDA
COLUSA
CONTRA COSTA
DEL NORTE
HUMBOLDT
LAKE
MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO
SAN MATEO
SANTA CLARA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Department of Anthropology
Sonoma State University
Rohnert Park, California 94928
(707) 664-2494

24 January 1985

File No.: 6080-84-636

Ellen LaPorte
TRS Consultants, Inc.
500 Sutter Street, Suite 615
San Francisco, CA 94102

re: Archaeological records search for a proposed industrial/business park EIR/EIS, City of Hayward, Alameda County.

Dear Ms. LaPorte:

In response to your letter request of 13 December 1984, documents on file at the Northwest Information Center were reviewed with regard to the project area shown on your map.

There were no National Register properties, California Inventory of Historic Resources sites or California Historical Landmarks within or adjacent to the project area. An archaeological study which included the subject property did not result in the discovery of cultural resources (Sawyer et al 1978).

In consideration of the above, the project area was determined to be of low archaeological sensitivity and further archaeological study is not recommended at this time. However, in the event that archaeological materials are encountered during project activity, any activity which could damage the resource should be halted until an archaeologist has evaluated the situation and provided recommendations for further procedure.

Prehistoric archaeological materials include but are not limited to obsidian or chert flakes or artifacts, (eg. arrowheads, associated manufacturing debris), grinding tools (eg. pestles), bone, shell deposits or debris, locally darkened soil (midden), and human graves. Historic archaeological materials include but are not limited to stone, brick or adobe foundations, stone alignments, refuse deposits, backfilled wells, square nails, bottles, and glass fragments.

Please sign and return the enclosed confidentiality form. If we can be of further assistance, do not hesitate to contact our office.

Sincerely,

Christian Gerike
Assistant Coordinator

Lisa C. Hagel

Lisa C. Hagel
Researcher II

LITERATURE REVIEWED

In addition to archaeological maps and site records on file at the Northwest Information Center, the following literature was reviewed:

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1982 California Historical Landmarks (revised). The Resources Agency, Sacramento.

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United States Department of the Interior
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1984 National Register of Historic Places, Annual Listing of Historic Properties. In Federal Register 49(26):IV. General Services Administration, Washington, D.C.

APPENDIX P

BIOLOGICAL ASSESSMENT FOR THE SALT MARSH HARVEST MOUSE AND FOR THE POINT REYES BIRD'S BEAK MAY, 1987

MARATHON BUSINESS-INDUSTRIAL PARK
ALAMEDA COUNTY, CALIFORNIA

BIOLOGICAL ASSESSMENT FOR
SALT MARSH HARVEST MOUSE
(Reithrodontomys raviventris raviventris)
AND FOR THE
POINT REYES BIRD'S BEAK
(Cordylanthus maritimus palustris)

MAY 1987

PROPOSED DEVELOPMENT

The proposed development on the Marathon property would include a levee at an elevation of +10 feet, NGVD, to hydrologically isolate the East Bay Regional Park District (EBRPD) area immediately west of the Marathon development. About 34,000 cubic yards of fill would be placed along the western site border to establish this levee connecting with the Bockman and Sulphur Creek levees. An additional 540,000 cubic yards of fill would also be needed to fill Tract 5167 an average of 30 inches to bring the site to its finished grade.

The site would be subdivided into 65 lots ranging in size from 1.1 to 5.4 acres. Lots could be grouped or purchased separately by contractors or builders. Marathon would provide all infrastructure needed to serve the 134 acres within the rights-of-way. Individual lot owners would be responsible for the connections to infrastructure improvements on their individual lots. Land uses expected at the site would be industrial and commercial oriented toward rail service. It is anticipated that the industrial activities would include warehouse/distribution, light manufacturing, and potential research and development companies. Commercial uses would include businesses which support the industrial users and serve employees and the general public.

The City of Hayward would provide sewer, water, police and fire protection service for the site. The Alameda County Flood Control and Water Conservation District would maintain the storm drainage system of the development.The Marathon site would be serviced with an underground storm drainage system which would discharge all surface runoff to an existing pump station on the south side of Sulphur Creek and then onto the two HARPD parcels planned for wetland enhancement. No runoff would be discharged onto the EBRPD property.

SALT MARSH HARVEST MOUSE

LITERATURE REVIEW

The salt marsh harvest mouse (Reithrodontomys raviventris raviventris) is a cricetine rodent (belonging to the family Cricetidae) endemic to the salt and brackish marshes surrounding San Francisco Bay where it may have evolved from the more common western harvest mouse (R. megalotis). There are two sub-species of the salt marsh harvest mouse, characterized by geographical location. The southern sub-species (R. r. raviventris), the subject of this assessment, is found from the southern tip of South San Francisco Bay north to the City of San Pablo on the east side of the Bay and to Corte Madera on the west side.

Salt marsh harvest mice are critically dependent upon dense vegetative cover with a preference toward pickleweed (Salicornia spp.). They are seldom found in cordgrass (Spartina spp.) or alkali bulrush (Scirpus spp.). In marshes with an upper zone of peripheral halophytes, mice use the vegetation to escape high tides. In some instances, mice may spend considerable time in the upper transitional zone of dense vegetation. The availability of the transitional halophyte zone is significant to the presence of the mouse since the vegetation would provide cover during high tides. Marsh areas without such cover would not be conducive for mouse populations, as the mouse would be subject to predation and drowning.

Studies indicate that pickleweed habitat preferred by the salt marsh harvest mouse has the following characteristics (USFWS, 1984):

a) 100 percent cover;

b) Cover depth of 30 to 50 centimeters at maximum summer population;

c) High percentage cover of pickleweed (at least 60 percent); and

d) Vegetative diversity in form of fat hen (Atriplex patula) and alkali heath (Frankenia grandifolia) or other halophytes.

Saltgrass and brass buttons provide very poor habitat for salt marsh harvest mice; they are low growing, lack stratification and provide poor cover.

Historical studies have demonstrated that the population of the salt marsh harvest mouse diminished in conjunction with salt marsh habitat losses resulting from urbanization and development around San Francisco Bay. It is documented that about 80 percent of the historic intertidal marshland has been eliminated by diking, draining and filling. Loss of marsh habitat has been greatest in south San Francisco Bay in Santa Clara County. Many remaining marshes are too small and too widely separated to support viable populations of the mouse. As a direct result of marshland losses, the salt marsh harvest mouse population is listed as endangered with extinction and has been so identified by the Department of the Interior (October 13, 1970).

Although the endangered mouse is uniquely adapted for life tidal areas, they must escape the seasonally extreme high tides. However, because of the loss of habitat, even tides of lesser range than 7.2 feet now pose a threat to the mouse in many tidal marshes.

"Historically, diking and filling typically occurred out to the bayward edge of marshes, eliminating vast expanses of higher elevation marsh and leaving only a narrow band of low marsh along outboard levees. The salt marsh harvest mouse, being a creature of the mid to upper pickleweed (Salicornia virginica) marsh zone, cannot survive the rigors of daily tidal inundation at lower elevations dominated by cord grass (Spartina foliosa)(Fisler, 1965). Although salt marsh harvest mouse are uniquely adapted to a tidal environment, they must escape the seasonally extreme high tides of June, July, December and January. The fact that the highest tides in the Bay occur in the Alviso district (a mean tidal range of 7.2 feet)(Fisler, 1965), and that the southern end of the bay supports the largest and centrally most important area for the southern subspecies (in current and historical times), unfortunately coincides with the fact that South San Francisco Bay has also undergone the most extensive habitat loss within the range of R. r. raviventris. Because of the habitat loss, even lesser tides now post a serious threat to salt marsh harvest mouse survival in many tidal marshes." (Meyer, 1983)

With the declining trend in the habitat of the endangered mouse in tidal marshes, more importance has been assigned to non-tidal diked marshes for the long-term survival of the mouse. While the absence of tidal influence is a radical departure from the accustomed tidal conditions, the documented existence of mouse populations in these non-tidal areas indicates their habitat value (Meyer, 1983). While the importance of such non-tidal areas to the salt marsh harvest mouse has been noted, the location of such non-tidal marshes in association with nearby tidal areas indicates the significance of remaining habitat, both tidal and non-tidal.

In the species account for the salt marsh harvest mouse provided by the Fish and Wildlife Service biological opinion, 1-1-82-F-120, dated January 12, 1983, the following is stated: "The smaller and more isolated the area to which the species population is confined, the greater the probability that the species will be extirpated from that area. Especially (emphasized) when related to the salt marsh harvest mouse populations which are in small numbers and not able to disperse and colonize new or adjacent habitat."

Of the remaining bay marshlands within the range of R. r. raviventris, approximately 60 percent are tidal and 40 percent are non-tidal diked marshes (Jones and Stokes, et. al. 1979). All remaining non-tidal diked marshes are also small individual parcels partitioned by dikes and/or bay-commercial, salt ponds and urban-industrial complexes. Where habitat conditions are marginal for the endangered mouse, mortality rates are high (Meyer, 1983). Such conditions heighten the potential threat to the survival of the species in the restricted areas where they may be presently found. It is also stated in the U. S. Fish and Wildlife Service's 1983 opinion (Meyer, 1983) that "Non-tidal diked marshes are important to survival of the mouse."

Certain non-tidal diked habitats are subjected to two land-use practices not shared by tidal marshes - the mosquito abatement practice of discing marshlands, and the flood control practice of diverting storm-water runoff into diked retention ponds. The discing practice eliminates habitat values of the marsh for the salt marsh harvest mouse during the period of time needed to restore the vegetative cover, if site conditions are not otherwise altered. If no peripheral higher elevation refugia are available, storm-water diversions result in the inundation of the area threatening the mouse with drowning. Impacts to the mouse are obviously severe and have undoubtedly extirpated many sub-populations throughout the Bay Area (Meyer, 1983).

Diked non-tidal habitats exist under a wide array of environmental conditions, some conducive to the mouse, others not. Some non-tidal habitats support no or only limited vegetative growth and do not provide suitable habitat. Data resulting from several trapping efforts after 1980 indicate that the previously considered unsuitable habitat is being used by the endangered mouse. Before 1980, most non-tidal wetland habitat had been routinely categorized as "marginal" habitat for the salt marsh harvest mouse. When, however, the degraded condition of almost all remaining tidal habitat is considered, survival of the salt marsh harvest mouse is highly dependent on maintaining even "marginal" areas. The 1983 opinion concludes that there is very little prime habitat left in the range of R. r. raviventris, including marshes being administered by Federal, State and local agencies. Thus, maintaining all known salt marsh harvest mouse populations, even those residing in "marginal" habitats, is important in the effort to attain recovery of the species. With proper management, many areas of "marginal" habitat have the potential to be greatly improved for the mouse in terms of habitat quantity and quality.

The present status of the salt marsh harvest mouse as indicated in the draft Recovery Plan is declining. The estimated number totals a few thousand at their peak during the summer. Their distribution around the Bay is limited to small, disjunct populations, often in marginal habitat and almost always in marshes lacking an upper edge of vegetation.

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INTERVIEW EXPERTS

Peter Sorenson, Endangered Species Office, U. S. Fish and Wildlife Service
John Gustavson, California Department of Fish and Game, Sacramento
Paul Kelley, California Department of Fish and Game, Sacramento
Tom Lindenmeyer, Biologist, East Bay Regional Park District
Dr. Thomas E. Harvey, Consultant, with expertise on wetland habitat and the salt marsh harvest mouse
Dr. Howard E. Shellhammer, Consultant, with expertise on the salt marsh harvest mouse

ON-SITE INSPECTION

The proposed project involves the filling of a 134-acre Marathon parcel (referred to as Tract 5167). The 134-acre fill site is located inboard along the Hayward shoreline, north of Sulphur Creek and south of Bockman Canal just west of the Southern Pacific Railroad and east of the East Bay Regional Park District (EBRPD) lands (200-acre parcel). The fill site was surveyed during the spring of 1983 by Harvey and Stanley Associates and revisited on January 14, 1986 by Harvey and Stanley Associates Two main habitat types characterize the project area. The wetland area consists mainly of pickleweed (40 percent cover) and brass buttons (20 percent cover), and the grazed upland consists of ruderal grasses and herbs as described by H. T. Harvey in 1983. Of the 134 acres, approximately 90 acres are seasonal wetlands and 44 acres are ruderal uplands. The Corps of Engineers has determined that approximately 90 acres of wetlands are within its Section 404 permitting authority.

Wetlands on the Marathon site are historic baylands that have been diked for many years. Approximately two-thirds of the Marathon site is situated within the area identified as the historic (ca. 1850) margin of marshland around San Francisco Bay (Nichols, D. R. and Wright, N. A., 1971). Although removed from daily tidal action, these lands are now subject to seasonal flooding from winter rains.

The on-site wetlands of Tract No. 5167 have been identified as seasonal marshes by the staffs of the U. S. Fish and Wildlife Service, Division of Ecological Services, and the California Department of Fish and Game. They consist of a mosaic of salt marsh vegetation and open ponds that remain flooded from two to seven months of the year depending on annual rainfall, which varies significantly from year to year. The dominant vegetation is Salicornia, about 40 percent cover, and brass button (Cotula coronopifolia), about 20 percent cover, is associated with the pickleweed. About 44 acres of the fill site is ruderal upland, characterized by a prevalence of foxtail and alkali heath (Frankenia grandifolia). Much of this habitat is located on dikes and forms linear trail-like areas dispersed across the property (DEIR/EIS, 1985).

REVIEW AND ANALYSIS OF EFFECTS

Dr. Shellhammer indicated in Harvey and Stanley's 1983 report and in his May 1985 letter to the developer that "the pickleweed is too widely scattered or too short to serve as adequate habitat for the mouse." Existing grazing on the parcel also limits the availability of escape cover. Although about 67 percent of the Marathon site was once historic wetland and pickleweed vegetation (about 40 percent cover) is still present, it was concluded that the site does not presently support the endangered salt marsh harvest mouse.

During the early 1970's, resource agencies, including the California Department of Fish and Game and the U. S. Fish and Wildlife Service, promoted the protection of salt marshes and tidal restoration in San Francisco Bay. The protection and restoration of salt marshes were made primary objectives when the Hayward Area Shoreline Plan was being developed (HARPD, 1981). Areas along the Hayward shoreline were designated for protection and maintenance of salt marsh and lands that could be acquired for their resource value were purchased.

An 88-acre parcel of non-tidal marsh, property of the EBRPD, is proposed for restoration just north of Sulphur Creek as an area of essential habitat for the salt marsh harvest mouse. This area lies immediately west of the proposed Marathon development. The EBRPD's lands are presently behind dikes. The tidal salt marsh restoration would allow potential expansion of the mouse population.

The proposed Marathon development will not directly affect the salt marsh harvest mouse population. None presently are known to occupy the proposed development site. Although trapping of the site was not determined necessary as indicated by Dr. Shellhammer in his January 1986 letter, the view of the U. S. Fish and Wildlife Service that maintenance of even "marginal" habitat areas is important to the recovery of the species must be considered.

The Marathon development will be situated immediately adjacent to the proposed EBRPD's marsh restoration but will be separated physically with the construction of a 10-foot high levee. During a summer trapping effort on the adjacent EBRPD lands in 1985, the presence of a salt marsh harvest mouse was documented. Because of recent investigations in "marginal habitat areas" of San Francisco Bay, the occurrence of the mouse on the EBRPD lands raises concerns that the potential for "marginal habitat" on Tract No. 5167 may provide habitat for the salt marsh harvest mouse.

The adjacent EBRPD lands west of Tract No. 5167 encompasses about 200 acres, including the 88-acre parcel to be enhanced for the salt marsh harvest mouse. The EBRPD parcel represents a relatively large remaining salt marsh complex in South San Francisco Bay that apparently supports the salt marsh harvest mouse. The geographical location of the EBRPD parcel with a sludge disposal area to the north, Sulphur Creek to the south, and Tract No. 5167 to the west isolates the salt marsh habitat. When Tract No. 5167 is developed, it would effectively limit the eastern range of available natural habitat.

Based on the January 1986 and April 1987 views of Drs. H. S. Shellhammer and H. T. Harvey, appropriate habitat requirements for the salt marsh harvest mouse do not exist on Tract No. 5167. Due to the sparse character of the habitat found on the project area, trapping was not determined needed to assess possible effects based on the existing body of knowledge. The availability of extremely poor cover found on Tract No. 5167 is also severely limited in extent (estimated maximum of three acres). The three acres of pickleweed identified by Shellhammer and Harvey, if added to the EBRPD complex, would represent only a 1.5 percent increase of habitat. However, the suitability of the 3-acre pickleweed area on Tract 5167 to provide additional habitat for the salt marsh harvest mouse when compared to the EBRPD lands may have a greater potential value than was previously assessed.

The recent findings of researchers on "marginal habitats" for the endangered mouse indicate that habitat found on Tract 5167 may become more conducive for the endangered mouse if favorable conditions allowed improvement of the habitat (Shellhammer, 1987). Tract No. 5167 can potentially provide a means of escape for the endangered mouse during those times when the EBRPD lands are flooded either by overtopping of the outboard levee or by rainfall and the mouse is forced to move to higher ground with appropriate cover. As mentioned, the EBRPD lands are essentially isolated by levees to the north, west and south. A levee to the east of the EBRPD lands, required for the Marathon development, would effectively enclose the park lands. However, the potential for escape by the mouse would not be eliminated.

Although critical habitat for the endangered mouse within the meaning of the Endangered Species Act has not been identified, the following estimates of essential habitat have been developed in the 1984 Recovery Plan for the Salt Marsh Harvest Mouse as follows:

Generic Description of Areas	Estimated Acreage
Known occupied essential habitat (Federal, State, local jurisdiction)	9,630
Known occupied essential habitat (largely private ownership)	7,900
Restoration and enhancement of essential tidal marsh and diked baylands	17,290
TOTAL	34,820

Tract No. 5167, or portion thereof, has not been identified in the Recovery Plan as being occupied essential habitat in private ownership or the essential diked baylands. Although the 34,820 acres represent a modest areas of a once extensive areas populated by the species, the areas identified in the Recovery Plan will receive the major effort in the San Francisco Bay Area to ensure that the salt marsh harvest mouse can survive.

Since the habitat available on Tract No. 5167 remains in a condition unlikely to support the endangered mouse, this assessment concludes that the proposed development on Tract No. 5167 is not likely to affect the endangered salt marsh harvest mouse.

POINT REYES BIRD'S BEAK

LITERATURE REVIEW

The Pt. Reyes bird's beak (Cordylanthus maritimus ssp. palustris) is a candidate plant species for protection under federal law. Chuang and Heckard (1973) distinguish the following four species within the Cordylanthus subgenus Hemistegia; C. maritimus, C. mollis, C. palmatus, and C. tecopensis. Cordylanthus maritimus, the most widespread of these species, has two coastal salt marsh subspecies, C. maritimus ssp. maritimus found in southern Calfornia and C. maritimus ssp. palustris found in northern California.

Cordylanthus maritimus (Scrophulariaceae) is a 10-30 cm tall annual herb. Blooming June to October, the 1.8-2.5 cm corolla is pink to purple in color (Chuang and Heckard, 1973). The extended flowering season of this species, along with other species of the subspecies Hemistegia, is thought to be at least partially a product of the hemi-parasitic nature of the plant (Chuang and Heckard, 1971). A halophyte, C. maritimus has glaucous greyish-green leaves which are often purple tinged (Chuang and Heckard, 1973).

The Pt. Reyes bird's beak is found in salt marshes along the Pacific Coast from Coos Bay, Oregon to Morro Bay, California (Chuang and Heckard, 1973). Researchers differ in opinion as to the within marsh distribution of this subspecies. Howell (1970), and Chuang and Heckard (1973) found C. maritimus ssp. palustris growing within the zone dominated by pickleweed, while Chapman (1960) and Barbour, et all (1973) characterize this subspecies as growing at higher elevations than pickleweed.

The California Native Plant Society considers Pt. Reyes bird's beak to be endangered within a portion of its range (California Native Plant Society, 1984), and Chuang and Heckard (1973) state that a reduction has occurredin C. maritimus abundance in San Francisco Bay marshes over the past 50 years. Factors causing the population decline of this subspecies are not presently known but may include: a reduction of suitable habitat area, an increase in bay water salinity, and increased pollution.

Occurrences of the Pt. Reyes bird's beak within the San Francisco Bay area include recent sitings in the vicinity of Kent Island and Richardson Bay, and historic sitings near San Rafael, Alameda Marsh, Stinson Beach, Palo Alto, Redwood City, Belmont and West Berkeley. Of these sitings, the Alameda Marsh site is the closest to the site proposed for development by the Marathon industrial development. This populaton of C. maritimus was last sited in 1917. It is probably extinct according to information provided by the State Department of Fish and Game Natural Diversity Data Base.

A species list provided by the U. S. Fish and Wildlife Service on August 27, 1984 for the Marathon site included the Pt. Reyes bird's beak as a candidate species.

The Marathon property consists of 134 acres of which 90 acres are wetlands and 44 are uplands. The wetlands on-site consist of a mosaic of salt marsh vegetation and open ponds that remain flooded on average 2 to 7 months per year. The dominant vegetation includes wetland indicator species such as Salicornia virginica, Salicornia europaea and Cotula coronopifolia. Other species found in the area include: Polypogon monspeliensis, Hordeum hystrix, and Frankenia grandifolia.

Based on the plant associations found at the Marathon site, it appears that the site could provide suitable habitat for the Pt. Reyes bird's beak which generally occurs in transitional, peripheral halophyte zones subject only to extreme tidal action.

Wetlands on the site are historic baylands that have been diked for many years. Fresh and saltwater input to the site includes rainfall, storm water runoff, and periodic inundation from storm tides.

ON-SITE SURVEY

Two individuals from the Corps of Engineers worked together to survey the site for C. maritimus on April 24, 1986. The major field surveyor was experienced both as field investigator and as plant taxonomist. The field sampling design was conducted in a manner that would both systematically allow for all of the habitat types to be surveyed, and for more time to be spent on wetland areas than upland areas. The two field investigators walked roughly parallel paths surveying the borders of the site and making numerous passes through each habitat subsection. When the survey path crossed habitat suitable for C. maritimus, time was taken to completely explore the zone to assure that C. maritimus was not present.

No individuals of C. maritimus were found during the course of this survey.

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REVIEW AND ANALYSIS OF EFFECTS

Based on the present grazing and surveys conducted, it is not anticipated that C. maritimus occurs on the Marathon Tract No. 5167. Therefore, the proposed development is not expected to have any effect on the Pt. Reyes bird's beak.

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