



# CITY OF SACRAMENTO

## CITY PLANNING DEPARTMENT

725 "J" STREET

SACRAMENTO, CALIF. 95814  
TELEPHONE (916) 449-5604

MARTY VAN DUYN  
PLANNING DIRECTOR

February 9, 1981

**APPROVED**  
BY THE CITY COUNCIL

**FEB 17 1981**

OFFICE OF THE  
CITY CLERK

City Council  
Sacramento, California

Honorable Members in Session:

SUBJECT: 1. Tentative Map for Rivergreen Apartments  
2. Special Permit (P-9103)

LOCATION: 37 Cadillac Drive

### SUMMARY

The applicant is proposing to create an air space condominium by converting 64 existing apartment units to 64 condominium units.

The staff and Planning Commission recommend this application be denied based on the low vacancy rate in the Arden/Arcade and East Sacramento planning areas. Rivergreen Apartments are located within 1/4 mile of an adjoining community plan area and the combined vacancy of the two areas is 4.4%.

### BACKGROUND INFORMATION

On January 15, 1981, this item was presented to the Planning Commission along with three other conversion applications in the area. All projects were recommended for denial due to the low vacancy rate. There was also concern regarding the loss of rental units in this area due to heavy conversion activity by the County and the limited amount of vacant land that could be developed for additional apartments.

Testimony relating to vacancy concerns was presented at the beginning of the hearings and applied to all projects located in the Arden/Arcade and East Sacramento planning areas.

Relocation problems for this complex appear to be substantially minimized in light of the relocation and sales program the applicant is proposing. The applicant proposes to offer all eligible tenants the opportunity to lease a comparable unit in an FPI complex. The rental rate of these units will be the same rate the tenant is presently paying or less and the rent will be held at this level for one year.

As an added incentive to purchase, these tenants will be offered discounts up to 7% of the sales price. The applicant is also seeking favorable FHA financing which should aid in providing affordable ownership opportunities for these tenants.

This project was viewed in a somewhat more favorable light than other projects in the area as evidenced by the voting record of the Commission. It was noted by certain Commission members that due to the design of the complex and the excellent physical condition of these units, this project was the type and quality that should be considered for conversion.

Should the Council elect to approve this application, it will be necessary to impose Special Permit conditions on this project due to the proposed changes in the facilities and programs offered by the applicant.

#### VOTE OF COMMISSION

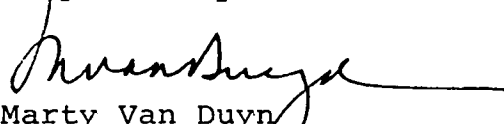
On January 15, 1981, a motion was made to deny the project which resulted in a vote of three ayes, four noes, and two absent. Therefore, the motion failed which constitutes denial of the application.

#### RECOMMENDATION

The staff and Planning Commission recommend that the City Council:

1. Deny the Tentative Map application;
2. Deny the Special Permit based on the attached Findings of Fact.

Respectfully submitted,

  
Marty Van Duyn  
Planning Director

FOR CITY COUNCIL INFORMATION  
WALTER J. SLIPE  
CITY MANAGER

MVD:SC:jm  
Attachments  
P-9103

February 17, 1981  
District No. 3

In the matter of the decision of)  
the City Council on application )  
(P-9103) for Tentative Map and )  
Special Permit to create a 4+ )  
acre air space condominium lot )  
and convert 64 apartment units )  
to 64 condominium units in the )  
C-2-R Zone located at 37 Cadil- )  
lac Drive )

NOTICE OF DECISION  
AND  
FINDINGS OF FACT

On February 17, 1981, the City Council held a hearing on the above referenced item. Predicated on documentary and oral evidence submitted at the public hearing, the City Council denied the Special Permit based on the following findings:

1. The proposed conversion is not consistent with the General Plan and Housing Element as required by Section 28-C-6(a)(i) of the Comprehensive Zoning Ordinance.

The vacancy rate of the community plan area is below five percent and this conversion will adversely affect the rental housing stock.

2. The proposed conversion project is located in the combined Arden/Arcade and East Sacramento planning area where the current vacancy rate is low at 4.4% for all units.

Based on this vacancy rate there is an inadequate supply of rental housing in this area.

---

MAYOR

ATTEST:

---

CITY CLERK

P-9103

MEETING DATE January 15, 1981  
ITEM NO. HA FILE NO. P-9103  
M-

GENERAL PLAN AMENDMENT	<input type="checkbox"/>	TENTATIVE MAP	<input checked="" type="checkbox"/>
COMMUNITY PLAN AMENDMENT	<input type="checkbox"/>	SUBDIVISION MODIFICATION	<input type="checkbox"/>
REZONING	<input type="checkbox"/>	EIR DETERMINATION	<input checked="" type="checkbox"/>
SPECIAL PERMIT	<input type="checkbox"/>	OTHER	_____
VARIANCE	<input type="checkbox"/>	_____	

LOCATION: 37 Cadillac Drive

☐ Favorable  
☒ Unfavorable

LOCATION: 37 (a)

☒ Petition ☐ Correspondence

## NAME

ADDRESS

Chris Kozell - 25 Cadillac Drive, Sacramento  
Jeff Duckett - 53 Cadillac Drive (#19), Sacramento  
Bill White - 61 Cadillac Drive (#7), Sacramento

## NAME

ADDRESS

MOTION NO.

	YES	NO	MOTION	2ND
Augusta	✓			✓
Goodin		✓		
Holloway	<i>absent</i>			
Hunter	✓		✓	
Larson		✓		
Muraki		✓		
Simpson	<i>absent</i>			
Silva	✓			
Fong		✓		

**MOTION:**

- ☐ TO APPROVE
- ☐ TO DENY
- ☐ TO APPROVE SUBJECT TO COND. & BASED ON  
FINDINGS OF FACT IN STAFF REPORT
- ☐ INTENT TO APPROVE SUBJ. TO COND. & BASED  
ON FINDINGS OF FACT DUE \_\_\_\_\_
- ☒ TO RECOMMEND APPROVAL denial  
& FORWARD TO CITY COUNCIL
- ☒ TO RATIFY NEGATIVE DECLARATION
- ☐ TO CONTINUE TO \_\_\_\_\_ MEETING
- ☐ OTHER

EXHIBITS: A. Site Plan ☐  
B. Floor Plan ☐  
C. Elevation ☐  
D. Landscaping ☐



Planning Commission  
Sacramento, California

Members in Session:

- APPLICATION: 1. Tentative Map to create an air space condominium complex for an existing 64 unit apartment complex known as Rivergreens.
2. Special Permit to convert 64 apartment units to 64 condominium units. (P-9103)

LOCATION: 37 Cadillac Drive

PROJECT INFORMATION:

General Plan Designation:	Residential
Campus Commons PUD Community	
Plan Designation:	Multi-family and office
Existing Zoning of Site:	C-2-R
Existing Land Use of Site:	Existing Apartment
Surrounding Land Use and Zoning	
North: Apartment; R-3-R, R-2B-R	
South: Business Office; C-1	
East: Car Sales; C-2	
West: Business Office; OB-R	
Parking Required: 64	Parking Provided: 87
Ratio Required: 1:1	Ratio Provided: 1.4:1
Property Dimensions:	3.9 acres
Density of Development:	16.4 units per acre
Significant Features of Site:	Existing Apartment
Topography:	Flat with berms
Street Improvements:	Existing
Utilities:	Existing

Subdivision Review Committee Recommendation: On November 5, 1980, by a vote of six ayes, two absent, and one abstention, the Subdivision Review Committee recommended approval of the tentative map subject to the attached conditions. (See Exhibit 1)

BACKGROUND INFORMATION: Rivergreen Apartments are located in the Arden/Arcade Planning Area and also located within 1/4 mile of the East Sacramento Planning Area. The combined vacancy rate for these two areas is 4.4%. There are three other projects proposed for conversion in these two areas with units totaling 832 proposed for conversion in the City limits. There is also significant conversion activity from the County in this Planning Area. At the present time the County has approved applications for 2,000 units in the Arden/Arcade area.

This project is three years old and has operated as a multi-family rental complex since it opened in 1978. Rent increases have not exceeded 5% in three years. The vacancy rate in this complex was 3% at the time the application was filed.

Physical Characteristics: Rivergreen Apartments are located between Fair Oaks Blvd. and Cadillac Drive near the American River. Although this complex is bordered on one side by Fair Oaks Blvd., the units that face this street are buffered by rolling berms and evergreens. The location of this complex provides easy access to the University via the bicycle and foot path opposite the levee.

This complex contains 64 units on a 3.9 acre parcel. The configuration of the units vary from one bedroom to three bedroom apartments. All units have a fireplace and a balcony or patio. There is storage space provided off of the patio area. The applicant has proposed to investigate the possibility of using inside storage space for a stack type washer and dryer in each unit. (See Exhibit 3) The present laundry facilities are owned and operated by an outside firm.

Each unit is provided with a separate water heater. There are separate shut-off valves for hot water in each unit. The cold water system provides shut-off valves at each building. Separate sewer service is not provided. The gas service is metered in common and is used for the fireplace only.

There are 87 parking spaces in this complex and all are uncovered. The applicant is proposing to add covered parking if feasible. (See Exhibit 3)

The complex is equipped with a pool for the residents use. A jacuzzi, sauna and recreation room are provided for tenant use but are part of the F.P.I. business offices on the adjoining property. If this complex is allowed to convert this area will be closed off and similar facilities will be added to the complex on the common grounds.

At the present time this complex does not comply with all of the required development standards and building codes for conversion projects. The conditions in Exhibit #1 will be necessary to ensure this complex will meet required standards should this project be approved for conversion to condominium.

Social Characteristics: The tenants of Rivergreen Apartments completed a survey for the Planning Department. The response rate of this survey was 44%. Based on this response the following observations have been made.

The majority of these tenants have lived in this complex for less than one year, many of these are uncertain about how long they plan to live in this complex. At a price of from \$49,950 to \$64,950 a majority of the tenants said they would not purchase a unit. There were, however, 39% of these tenants who said they would purchase a unit providing separate laundry facilities and covered parking be included. (See Exhibit 2)

Approximately 29% of the tenants indicated that they were low or moderate income households according to the survey. Due to high turn-over in this complex many tenants are not eligible for tenant provisions. Out of 58 applications sent to these tenants 23 were returned with no forwarding address available. Of the remaining eligible tenants only three were qualified as low or moderate income. The minimum sales price of these units according to appraised apartment value will be

\$27,500. These three tenants will be eligible to purchase a unit at this price or more depending on the tenants income and available financing.

The tenant survey indicated that many of these tenants were concerned about the availability of comparable replacement housing. In an effort to address this concern the applicant is proposing to offer a relocation plan that may alleviate this concern. The relocation plan is described in Exhibit #3 and discussed in the staff evaluation.

The applicant is further proposing to seek FHA financing for these units which might provide sales incentives to moderate income households. This plan is described in Exhibit #3 and discussed in the staff evaluation.

The four applicants in the Arden/Arcade and East Sacramento Planning Area contracted Marketing Research Consultants to prepare a Vacancy and Social Impact Study in light of the low vacancy rate of those two areas. The study was accomplished in an effort to dispel concern over tenant displacement or relocation problems.

#### Staff Evaluation:

1. City staff conducted its second multiple family rental survey in July 1980, using HUD collected data. Both the source and methodology for reporting were approved by the City Council as part of the Condominium Conversion Ordinance adoption. Support of the survey is based on the reliability of the HUD data, the relative ease of staff retrieval and aggregation, its comprehensiveness, and its cost of updating annually. It should be noted that the Council favors a vacancy rate which includes 2-4 units along with complexes having more units versus their separate breakdown. It should also be reaffirmed that HUD data reflects conventionally financed unit characteristics as well as those having FHA/VA financing. Expressed vacancy rates are a "raw" average, i.e. a summation of individual complex rates surveyed at least annually and in most cases more recently.

The City's July 1980 survey reported a vacancy rate for Arden/Arcade of 4.8% and for East Sacramento of 2.1%. The weighted vacancy rate, used in instances where proposed conversions are in close proximity to adjoining communities is 4.4%. The weighted vacancy rate has in fact dropped from 5.3% when the November 1979 survey was compiled. This drop in vacancies for the two-community area points up the increasing tightness in the rental market.

Following is an identification of several concerns staff has with the Marketing Research Consultants survey of November 1980:

- a. The question may arise as to which survey sample is most appropriate, the City's or MRC's. The City survey represents 10,535 units dispersed throughout Arden-Arcade and East Sacramento; the

MRC survey represents 4,538 units restricted to a somewhat smaller area. Staff feels that the restricted area has merit but wishes to emphasize the importance of as large a data base as possible, in this case, twice the MRC units surveyed.

MRC complexes surveyed were selected on the basis of being "generally comparable in terms of style, amenities, and rental rates." A review of their characteristics shows that the 26 complexes had a high overall level, although varying, of amenities reflective of projects constructed in the competitive multiple family market of the 1970's. Staff believes that the City's surveyed units are similar primarily because the complexes are within the same age bracket. Relative to rental rates, the MRC study used complexes with rental rates ranging from \$128 - \$650 monthly whereas the City's study used complexes with rental rates ranging from \$123 - \$650. Hence, there is a strong similarity in data bases.

- b. Staff believes that understanding the difference between "vacancy rate" and "turnover rate" is very important since both are used in the MRC study. Vacancy rate is that portion of all rentable units which are vacant, either at a fixed point in time or over a period of time. It is the single most important variable in measuring supply - demand within the existing multiple family market. This conclusion is supported by its wide use in other jurisdictions for measuring housing shortages, particularly related to condo conversions. Turnover rate on the other hand expresses the frequency that a unit or units change occupancy. It is far less valuable (HUD uses the term "supplementary" indicator) as a measure of supply - demand and, to be accurate in this respect, must record only the amount of units (usually during a year period) that are occupied by households coming into the complex from outside it. (The shifting of a household from one unit to another within the same complex is usually a short term transaction that neither adds nor removes rentable units from the market.) Turnover rate is not used widely, if at all, by other jurisdictions as an indicator of supply - demand.

Staff is unclear as to MRC's use of the two terms. Both appear to be used synonymously in several parts of the report. A review of the questionnaires indicates that vacancy rate was recorded rather than turnover rate expressing new occupants from outside.

In summary, staff feels that the HUD data on multiple unit complexes accurately reflects vacancies. The number of available units for rent has shrunk between November 1979 and July 1980 and at 4.4% is well below the critical threshold of 5.0% for an adequate rental housing supply. Even MRC's survey forecasts a further reduction in available units for the next 12 months (the vacancy rate of 4.1% is derived from dividing the last column total by the first column total on page 96, then dividing by 12 to get a monthly rate.

2. There are 25,296 rental units in the Arden/Arcade and East Sacramento Planning Areas. The City currently has applications to convert 832 units in this area. The county has approved 2000 units for conversion in this area. These units represent 11% of the rental housing stock in these two planning areas.

According to the MRC Vacancy and Social Impact Study, there would be a minimum of 296 tenants who would have to relocate if these four complexes were to convert. The report additionally states that only 128 of these tenants would be able to find comparable units in this area. Due to the heavy conversion activity by the county in this area, the number of displaced tenants may very well increase if this and other proposed projects are allowed to convert.

In an effort to address the concern of tenant displacement and relocation problems the study points out that the turnover rate may be a better indicator of available units. Although the turnover rate shows the number of units that become available over a period of time, this rate does not adequately reflect the demand for rental housing in this area.

According to the study submitted by M.R.C., survey results indicated that approximately 70 percent of these tenants would seek rental housing within a four mile radius of where they presently live. Based on this relocation tendency and the vacancy rate of the areas, the turnover rate appears to more accurately reflect an exchange of units within the area rather than a clear picture of the demand for rental housing.

Based on the vacancy rate adequate comparable replacement housing will not be available in this area if this complex and others in the area are allowed to convert. Tenant displacement will occur since adequate replacement housing is not available.

In an effort to address the concern of tenant displacement and relocation problems the applicant has proposed a relocation and sales plan.

- a. The applicant is proposing to offer all eligible tenants comparable units in FPI complexes at the rental rate the tenant is now paying or less if the replacement unit has a lower rental rate. FPI owns controlling interest in 17 comparable complexes. In addition to this plan the applicant will make available an updated list of comparable units in the area to the tenants of Rivergreen. The relocation plans are attached in Exhibit 3. See plan A and B.

The plan proposed by the applicant should eliminate or minimize any tenant displacement should this project be approved for conversion, however, this conversion would still have an impact on the rental housing stock since these units would be removed from the rental housing market.

- b. To further minimize tenant displacement the applicant will attempt to assist buyers with FHA financing (See Exhibit 3). The current interest rate on the proposed financing is 13½% to 14% on a 30 year note. With the discounts available to eligible tenants it will be possible to purchase a 1 bedroom unit with a den for \$46,000. The downpayment will be \$3,100 with a monthly payment of \$536.00. Although it is unlikely that this plan will provide housing opportunities for low income households it is a viable plan for the moderate income tenant and other buyers.
3. At the present time this complex does not comply with all required development and building standards for conversion to condominium. For this complex to comply with required codes and standards the conditions attached in Exhibit 1 will be necessary should the commission decide to approve this project for conversion.
4. A study of the organizational documents was completed by the Sacramento Area Condominium Association. A number of recommendations have been made which are believed to be in the best interest of the homeowners should this project be approved for conversion. A report detailing the concerns and recommended changes is attached in Exhibit 4.
5. This property is located in a C-2-R zone at the present time. If this project is approved for conversion to condominium the property will have to be rezoned to R-2A.

Staff Recommendations: Staff recommends the Commission deny this special permit and tentative map to convert 64 apartment units to 64 condominium units based on the following Findings.

Findings of Fact

1. The proposed conversion is not consistent with the General Plan and Housing Element as required by Section 28-C-6(a)(i) of the Comprehensive Zoning Ordinance.

The vacancy rate of the community plan area is below five percent and this conversion will adversely affect the rental housing stock.

2. The proposed conversion project is located in the combined Arden/Arcade and East Sacramento Planning Area where the current vacancy rate is low at 4.4% for all units.

Based on this vacancy rate there is an inadequate supply of rental housing in this area.

Prior to filing the final map with the City Council, the applicant shall:

1. Pay off all existing assessments;
2. Comply with the following development standards set forth in Section 28-C-3 of the Zoning Ordinance:
  - a. separate sewer and water services shall be provided to each unit (Sec. 28-C-3(b);
  - b. floor-to-ceiling and wall-to-wall assemblies between each unit shall comply with the sound transmission and sound impact standards specified in Sec. 28-C-3(c)
  - c. each unit shall be equipped with a smoke detector in the proper location and either an automatic fire sprinkler system or two-hour fire separations on floors and each wall common to itself and an adjacent unit.
3. Provide a minimum 10-foot wide easement for the operation, maintenance and replacement of the sewer line of the office building located on the adjacent parcel to the east; said easement shall be indicated on the final map;
4. Bring the project into compliance with applicable City codes as follows:
  - a. provide ventilation for the dining room and kitchen areas in the three bedroom units;
  - b. provide ground fault circuit interrupters on receptacles which are located outdoors, in bathrooms, at swimming pool lights and in individual garages;
  - c. remove the debris in the utility room at the main service location;
  - d. repair flexible conduit at swimming pool circulating pump;
  - e. air conditioning tubing and condensate lines which pass through units other than those they serve shall be concealed behind furring.



The owner of your apartment complex has filed an application with the City of Sacramento for conversion to condominium (sales) housing. You are requested to answer completely the questions below and return the survey within five (5) days to:

EXHIBIT 2

City Planning Department  
725 J Street  
Sacramento, CA 95814

RIVER GREENS

RESPONSE 28

RESIDENT SURVEY

1. How long have you been a resident? <sup>AVERAGE</sup> \_\_\_ years 6 months
2. Why did you move into this complex? Check most important reason(s).  
13 close to work    4 close to friends    14 amenities  
10 close to services (shopping, church, entertainment)    4 like rent rate  
9 good management, maintenance    2 other
3. How long do you plan on living at this complex?  
18 unknown    2 less than 1 year    41 1 to 3 years  
43 3 to 5 years    0 more than 5 years  
Under what conditions? \_\_\_\_\_
4. If it is offered for sale within the price range estimated for the project, are you interested in purchasing the unit in which you are now living, or another in this complex?  
11 yes    18 no
5. If you are unable to purchase a unit, will you be able to locate a comparable unit to rent within this vicinity?  
4 yes    4 no    20 do not know
6. What improvements, if any, to your unit and/or the complex would be necessary before you would be interested in buying?  
COVERED PARKING, WASHER/DRYER IN UNIT,  
FIX LEAKS, SOUNDPROOF, REFURBISH
7. Are you retired?    2 yes    26 no  
If retired, are others in your household currently wage earners?  
0 yes    2 no
8. Do you approve in principle of this proposed conversion to condominium housing?  
2 yes    19 no  
Why or why not? -73-

9. Do you and your family qualify as a low or moderate income household as defined by the U.S. Department of Housing and Urban Development? Please use the attached table to determine your income status.

8 yes      12 no      7 uncertain

10. Would you be interested in attending a resident meeting to discuss conversion plans?

20 yes      11 no

11. Do you have any comments related to the owner's request?

HUD PROJECT FOR RENTAL, PAYMENT TOO HIGH  
WILL DRIVE UP RENTAL PRICES

The completed questionnaire will be used by the Planning Department in writing its report to the Planning Commission and City Council on the proposed conversion. Your name, apartment number, et cetera will be used only to verify the number of returns, and the City will make every effort to preserve the confidentiality of the tenant. Only a summary of all tenant answers will be disclosed. Thank you for your cooperation.

NAME \_\_\_\_\_ APT. # \_\_\_\_\_  
ADDRESS \_\_\_\_\_ TEL. # \_\_\_\_\_

Further information on condominium conversions can be obtained by calling:

California Department of Real Estate: 322-2505  
County Consumer Protection Bureau: 440-7732  
City Planning Department: 449-5604



FPI Management, Inc.

25 CADILLAC DRIVE  
SACRAMENTO, CA 95825  
(916) 929-3636

December 10, 1980

Ms. Sharon Caudle,  
Assistant Planner  
Sacramento City Planning Department  
725 J Street  
Sacramento, CA

REFERENCE: RIVERGREENS CONVERSION APPLICATION  
P - 9103

Dear Ms. Caudle:

The purpose of this letter is to outline for the members of the Planning Commission, the Purchase Benefits, Proposed Financing Plans, and Relocation Benefits that will affect the residents of the above-mentioned condominium conversion application.

In addition to the above, the applicant would like to state its intentions concerning physical improvements that will be considered to make this property a more attractive condominium community. Due to resident response, we are considering installation of necessary plumbing and electrical stubs, in a closet in each floor plan, to allow for interior washer and dryer facilities for each condominium purchaser. In addition, we are considering the feasibility of changing the gas fireplaces to all-purpose, wood burning fireplaces. We will also inquire into the feasibility of constructing carport or garage structures on the parking lot facility located on the west side of the property. Existing power lines forbid the construction of carports or garages located in the parking lot on the east side of this parcel.

The proposed financing plans and purchase benefits for this property are as follows:

This property will be converted to a unique condominium community. Since these buildings were constructed three years ago, under the FHA 221(d-4) program, this property meets FHA minimum property standards and qualifies for mortgage insurance under a number of FHA single family programs.

Ms. Sharon Caudle  
Page 2  
December 10, 1980

The applicant plans on offering these units to the public at the following prices per floor plan.

Plan A - 1 BR - DEN	@	\$49,500 - \$52,000
Plan B - 2 BR - 2 BA	@	\$57,500 - \$60,000
Plan C - 3 BR - 2 BA	@	\$67,500 - \$69,500

All existing residents of this property, at the time of conversion, (90-day notice of first right of refusal) will be offered the following purchase discounts from the purchase prices mentioned above.

1. Tenant Discount - 3% of selling price
2. "As Is" Discount - 4% of selling price

All eligible tenants (those who occupied a unit at the time our notice of intention to convert was filed, May 19, 1980), will also receive an additional credit in escrow of \$25 per month, since notice of intention was filed, to be credited against their portion of condominium escrow and closing costs. All eligible tenants will also benefit from relocation assistance if they do not choose to purchase their unit, as stated in detail in the relocation section of this outline.

The proposed timing of conversion is as follows:

Processing of all required City, DRE and FHA approvals to offer units to public. January - June, 1981.

Notice of 90-day first right of refusal. July through September, 1981.

Notice of 30-day second right of refusal. October, 1981.

Notice of 60-day intention to vacate unit and relocation assistance to find comparable housing. November through January, 1982.

The various purchase plans that will be considered to assist buyers in the affordability to purchase their unit includes:

FHA - 203 B - Currently at  $13\frac{1}{2}\%$  +  $\frac{1}{2}\%$  for 30 years.

FHA - GPM - 245 Plans I, II, III - Currently at  $14\%$  +  $\frac{1}{2}\%$  for 30 years.

Shared appreciation mortgages with a state chartered savings and loan here in Sacramento. No interest rates or terms are available under this program at this time.

Under any of the FHA programs stated above, residents will be encouraged to seek a blood relative or close friend who will co-mortgage with them to help them qualify for the housing opportunity to purchase a condominium unit here at Rivergreens. This would be especially attractive to residents who are attending a local college here in Sacramento. Parents could help the resident with the required cash down payment and monthly carrying cost during the term of ownership. This form of co-purchasing is encouraged by FHA to assist the first-time buyers. These condominiums will be primarily for owner-occupied condominium buyers.

A copy of the floor plans are included within this proposal and marked as Exhibit "1".

A copy of the proposed financing plans per floor plan is included within this proposal and marked as Exhibit "2".

The following information concerns our relocation benefits to comparable housing within the surrounding area.

#### PLAN A - RELOCATION TO COMPARABLE HOUSING

Assistance in locating replacement housing will include but not be limited to, providing to the tenants a report on the availability of comparable housing units and providing transportation for eligible tenants, where necessary, in connection with the relocation. This report will be continually updated and accompanied with pictures of each comparable rental project.

The attached Exhibits "A" and "B" excerpted from the Apartment Vacancy and Social Impact Survey for Proposed Condominium Conversions of American River Commons, Cadillac Drive Apartments, Rivercrest Village and Rivergreens Apartments as prepared by Marketing Research Consultants are examples of the pertinent information that will be available to Rivergreens tenants.

#### PLAN B - RELOCATION TO FPI PROJECTS

Federal Projects, Inc., aka FPI, has a controlling interest in as many as 17 comparable-type apartment complexes within a 13 mile radius from the subject property. It is the intention of the applicant to make available to non-purchasing tenants these apartment complexes for possible rental housing. Vacancy reports of these projects will be distributed to the convertor project on a semi-monthly basis.

If an eligible tenant chooses to relocate to an FPI apartment complex, and that particular complex has higher rates, the tenant will pay only the current amount he is paying at Rivergreens with the applicant paying the difference. This rental assistance shall be provided for a period of

Ms. Sharon Caudle  
Page 4  
December 10, 1980

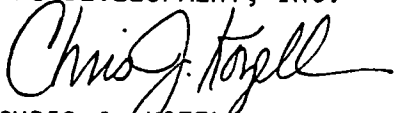
one year from the date the eligible resident is relocated. If an eligible tenant chooses to relocate to an FPI apartment complex, and that particular complex has lower rental rates, the tenant will pay the lower of the rates. At no time during this one-year period will a relocated resident be paying a rental amount in excess of the amount he/she was previously paying at Rivergreens. These eligible tenants choosing to relocate to an FPI project will also receive the \$300 relocation fee or the applicant will pay moving expenses for moving personal property.

Please refer to Exhibit "C" which lists the FPI comparable apartments. This listing gives the distance in miles each project is from Rivergreens and a break-down of bedroom types. Exhibit "D" gives a listing of FPI apartment projects, a break-down of bedroom types along with monthly rental payments. This information will also be made available to Rivergreens residents.

If you should have any questions regarding this information, please do not hesitate to contact me.

Sincerely,

FPI DEVELOPMENT, INC.



CHRIS J. KOZELL  
Vice President

CJK:lj

enclosures

RIVERGREENS

UNIT MODEL TYPE 1BR - 1BASALES PRICE \$ 49,500FINANCING PROGRAM 203 B - 13½% + ½%

## Money Needed to Close:

Sales Price \$ 49,500.  
 Loan Amount \$ 48,200.  
 Dn. Payment \$ 1,300.  
 All Clos.Cst.\$ 1,433.25  
 TOTAL \$ 2,733.25  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

## Monthly Payment:

Prin.&Int. \$ 552.37  
 MMI \$ 20.07  
 Taxes \$ 42.28  
 TOTAL \$ 614.72  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 482.00  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 60.30  
 CLTA Fee \$ 254.75  
 Recording \$ 10.00  
 TOTAL \$ 892.05

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 42.28 mo. \$ 253.68  
 MMI 1 month \$ 20.07  
 P P interest 15 day @ \_\_\_\_\_ \$ 267.45  
 SUB-TOTAL \$ 541.20  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

RIVERGREENS

UNIT MODEL TYPE 1 BR - 1 BA

SALES PRICE \$ 49,500.

FINANCING PROGRAM 245 I - 14% + 1/2%

*70%*

*discount  
7%*

Money Needed to Close:

Monthly Payment:

Sales Price \$ 49,500. *46,035*

Prin.&Int. \$ 519.42 *477.09*

Loan Amount \$ 47,650. *43,950*

MMI \$ 19.94 *18.39*

Dn. Payment \$ 1,850. *2,085*

Taxes \$ 42.28 *39.32*

All Clos.Cst.\$ 1,434.37 *1,022*

TOTAL \$ 581.64 *536.80*

TOTAL \$ 3,284.37 *3,107*

Homeowner's Dues \$ 82.00

Deposit \$                     

TOTAL \$                     

Net to Close \$                     

NON-RECURRING ESTIMATES:

RECURRING ESTIMATES:

Orig. Fee \$ 476.50

Taxes 6 mos.@ \$ 42.28 mo. \$ 253.68

Cr. Report \$ 35.00

MMI 1 month \$ 19.94

Escr. Fee \$ 50.00

P P interest 15 day @ 18.28 \$ 274.20

ALTA Fee \$ 60.30

SUB-TOTAL \$ 547.82

CLTA Fee \$ 254.75

H. O. dues 2 mo.@ \$            mo. \$           

Recording \$ 10.00

,P P interest 15 day @            \$           

TOTAL \$ 886.55

TOTAL \$



# RIVERGREENS

UNIT MODEL TYPE 1 BR - 1 BA

SALES PRICE \$ 49,500

FINANCING PROGRAM 245 II - 14% + 1/2%

## Money Needed to Close:

Sales Price \$ 49,500.  
 Loan Amount \$ 45,850.  
 Dn. Payment \$ 3,650.  
 All Clos.Cst.\$ 1,405.36  
 TOTAL \$ 5,055.36  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

## Monthly Payment:

Prin.&Int. \$ 459.78  
 MMI \$ 19.28  
 Taxes \$ 42.28  
 TOTAL \$ 521.34  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 458.50  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 60.30  
 CLTA Fee \$ 254.75  
 Recording \$ 10.00  
 TOTAL \$ 868.55

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 42.28 mo. \$ 253.68  
 MMI 1 month \$ 19.28  
 P P interest 15 day @ 17.59 \$ 263.85  
 SUB-TOTAL \$ 536.81  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

RIVERGREENS

UNIT MODEL TYPE 1 BR - 1 BA

SALES PRICE \$ 49,500

FINANCING PROGRAM 245 III - 14% +  $\frac{1}{2}\%$

Money Needed to Close:

Sales Price \$ 49,500.

Loan Amount \$ 44,300.

Dn. Payment \$ 5,200.

All Clos.Cst.\$ 1,380.30

TOTAL \$ 6,580.30

Deposit \$                     

Net to Close \$                     

Monthly Payment:

Prin.&Int. \$ 408.68

MMI \$ 18.72

Taxes \$ 42.28

TOTAL \$ 469.68

Homeowner's Dues \$                     

TOTAL \$                     

NON-RECURRING ESTIMATES:

Orig. Fee \$ 443.00

Cr. Report \$ 35.00

Escr. Fee \$ 50.00

ALTA Fee \$ 60.30

CLTA Fee \$ 254.75

Recording \$ 10.00

TOTAL \$ 853.05

RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 42.28 mo. \$ 253.68

MMI 1 month \$ 18.72

P P interest 15 day @ 16.99 \$ 254.85

SUB-TOTAL \$ 527.25

H. O. dues 2 mo.@ \$            mo. \$                     

P P interest 15 day @            \$                     

TOTAL \$

RIVERGREENS

UNIT MODEL TYPE 1 BR - 1 BA

SALES PRICE \$ 52,000

FINANCING PROGRAM 203 B - 13½% + ½%

Money Needed to Close:

Sales Price \$ 52,000.

Loan Amount \$ 50,650.

Dn. Payment \$ 1,350.

All Clos.Cst.\$ 1,492.92

TOTAL \$ 2,842.92

Deposit \$                     

Net to Close \$                     

Monthly Payment:

Prin.&Int. \$ 580.45

MMI \$ 21.10

Taxes \$ 44.42

TOTAL \$ 645.97

Homeowner's Dues \$                     

TOTAL \$                     

NON-RECURRING ESTIMATES:

Orig. Fee \$ 506.50

Cr. Report \$ 35.00

Escr. Fee \$ 50.00

ALTA Fee \$ 61.60

CLTA Fee \$ 261.25

Recording \$ 924.35

TOTAL \$                     

RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 44.42 mo. \$ 266.52

MMI 1 month \$ 21.10

P P interest 15 day @ 18.78 \$ 280.95

SUB-TOTAL \$ 568.57

H. O. dues 2 mo.@ \$            mo. \$                     

P P interest 15 day @            \$                     

TOTAL \$

# RIVERGREENS

UNIT MODEL TYPE 1 BR - 1 BA

SALES PRICE \$ 52,000

FINANCING PROGRAM 245 I - 14% + 1/2%

## Money Needed to Close:

Sales Price \$ 52,000.

Loan Amount \$ 49,900.

Dn. Payment \$ 2,100.

All Clos.Cst.\$ 1,492.

TOTAL \$ 3,592.

Deposit \$                     

Net to Close \$                     

## Monthly Payment:

Prin.&Int. \$ 543.95

MMI \$ 20.88

Taxes \$ 44.42

TOTAL \$ 609.25

Homeowner's Dues \$                     

TOTAL \$                     

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 499.00

Cr. Report \$ 35.00

Escr. Fee \$ 50.00

ALTA Fee \$ 62.25

CLTA Fee \$ 261.25

Recording \$ 10.00

TOTAL \$ 917.50

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 44.42 mo. \$ 266.52

MMI 1 month \$ 20.88

P P interest 15 day @ 19.14 \$ 287.10

SUB-TOTAL \$ 574.50

H. O. dues 2 mo.@ \$            mo. \$                     

P P interest 15 day @            \$                     

TOTAL \$

RIVERGREENS

UNIT MODEL TYPE 1BR - 1BA

SALES PRICE \$ 52,000

FINANCING PROGRAM 245 II - 14% + 1/2%

Money Needed to Close:

Sales Price \$ 52,000.  
 Loan Amount \$ 48,200.  
 Dn. Payment \$ 3,800.  
 All Clos.Cst.\$ 1,464.64  
 TOTAL \$ 5,264.64  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

Monthly Payment:

Prin.&Int. \$ 483.34  
 MMI \$ 20.27  
 Taxes \$ 44.42  
 TOTAL \$ 548.03  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

NON-RECURRING ESTIMATES:

Orig. Fee \$ 482.00  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 62.25  
 CLTA Fee \$ 261.25  
 Recording \$ 10.00  
 TOTAL \$ 900.50

RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 44.42 mo. \$ 266.52  
 MMI 1 month \$ 20.27  
 P P interest 15 day @ 18.49 \$ 277.35  
 SUB-TOTAL \$ 564.14  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

# RIVERGREENS

UNIT MODEL TYPE 1BR - 1BA

SALES PRICE \$ 52,000

FINANCING PROGRAM 245 III - 14% + 1/2%

## Money Needed to Close:

Sales Price \$ 52,000.  
 Loan Amount \$ 46,550.  
 Dn. Payment \$ 5,450.  
 All Clos.Cst.\$ 1,437.94  
 TOTAL \$ 6,887.94  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

## Monthly Payment:

Prin.&Int. \$ 429.43  
 MMI \$ 19.67  
 Taxes \$ 44.42  
 TOTAL \$ 493.52  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 465.50  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 62.25  
 CLTA Fee \$ 261.25  
 Recording \$ 10.00  
 TOTAL \$ 884.00

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 44.42 mo. \$ 266.52  
 MMI 1 month \$ 19.67  
 P P interest 15 day @ 17.85 \$ 267.75  
 SUB-TOTAL \$ 553.94  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

RIVERGREENS

UNIT MODEL TYPE 2BR - 2BA

SALES PRICE \$ 57,500

FINANCING PROGRAM 245 I - 14% + 1/2%

Money Needed to Close:

Sales Price \$ 57,500.  
 Loan Amount \$ 55,200.  
 Dn. Payment \$ 2,300.  
 All Clos.Cst.\$ 1,628.62  
 TOTAL \$ 3,928.62  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

Monthly Payment:

Prin.&Int. \$ 601.72  
 MMI \$ 23.10  
 Taxes \$ 49.12  
 TOTAL \$ 673.94  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

NON-RECURRING ESTIMATES:

Orig. Fee \$ 552.00  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 65.50  
 CLTA Fee \$ 280.75  
 Recording \$ 10.00  
 TOTAL \$ 993.25

RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 49.12 mo. \$ 294.72  
 MMI 1 month \$ 23.10  
 P P interest 15 day @ 21.17 \$ 317.55  
 SUB-TOTAL \$ 635.37  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

RIVERGREENS

UNIT MODEL TYPE 2BR - 2BA

SALES PRICE \$ 57,500

FINANCING PROGRAM 203 B - 13 $\frac{1}{2}$ % +  $\frac{1}{2}$ %

Money Needed to Close:

Sales Price \$ 57,500.  
 Loan Amount \$ 55,950.  
 Dn. Payment \$ 1,550.  
 All Clos.Cst.\$ 1,628.47  
 TOTAL \$ 3,178.47  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

Monthly Payment:

Prin.&Int. \$ 641.18  
 MMI \$ 23.30  
 Taxes \$ 49.12  
 TOTAL \$ 713.60  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

NON-RECURRING ESTIMATES:

Orig. Fee \$ 559.50  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 64.85  
 CLTA Fee \$ 280.75  
 Recording \$ 10.00  
 TOTAL \$ 1,000.10

RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 49.12 mo. \$ 294.72  
 MMI 11month \$ 23.30  
 P P interest 15 day @ 20.69 \$ 310.35  
 SUB-TOTAL \$ 628.37  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_



# RIVERGREENS

UNIT MODEL TYPE 2BR - 2BA

SALES PRICE \$ 57,500

FINANCING PROGRAM 245 III - 14% + 1/2%

## Money Needed to Close:

Sales Price \$ 57,500.

Loan Amount \$ 51,450.

Dn. Payment \$ 1,568.16

All Clos.Cst.\$ 7,618.16

TOTAL \$                     

Deposit \$                     

Net to Close \$                     

## Monthly Payment:

Prin.&Int. \$ 474.64

MMI \$ 21.74

Taxes \$ 49.12

TOTAL \$ 545.50

Homeowner's Dues \$                     

TOTAL \$                     

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 514.50

Cr. Report \$ 35.00

Escr. Fee \$ 50.00

ALTA Fee \$ 65.50

CLTA Fee \$ 280.75

Recording \$ 10.00

TOTAL \$ 955.75

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 49.12 mo. \$ 294.72

MMI 1 month \$ 21.74

P P interest 15 day @ 19.73 \$ 295.95

SUB-TOTAL \$ 612.41

H. O. dues 2 mo.@ \$            mo. \$                     

P P interest 15 day @            \$                     

TOTAL \$

# RIVERGREENS

UNIT MODEL TYPE 2 BR - 2 BA

SALES PRICE \$ 57,500

FINANCING PROGRAM 245 II - 14% + 1/2%

## Money Needed to Close:

Sales Price \$ 57,500.

Loan Amount \$ 53,250.

Dn. Payment \$ 4,250.

All Clos.Cst.\$ 1,597.17

TOTAL \$ 5,847.17

Deposit \$                     

Net to Close \$                     

## Monthly Payment:

Prin.&Int. \$ 533.99

MMI \$ 22.40

Taxes \$ 49.12

TOTAL \$ 605.51

Homeowner's Dues \$                     

TOTAL \$                     

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 532.50

Cr. Report \$ 35.00

Escr. Fee \$ 50.00

ALTA Fee \$ 65.50

CLTA Fee \$ 280.75

Recording \$ 10.00

TOTAL \$ 973.75

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 49.12 mo. \$ 294.72

MMI 1 month \$ 22.40

P P interest 15 day @ 20.42 \$ 306.30

SUB-TOTAL \$ 623.42

H. O. dues 2 mo.@ \$            mo. \$                     

P P interest 15 day @            \$                     

TOTAL \$

# RIVERGREENS

UNIT MODEL TYPE 2BR - 2BA

SALES PRICE \$ 60,000

FINANCING PROGRAM 203 B - 13 $\frac{1}{2}$ % +  $\frac{1}{2}$ %

## Money Needed to Close:

Sales Price \$ 60,000.  
 Loan Amount \$ 58,400.  
 Dn. Payment \$ 1,600.  
 All Clos.Cst.\$ 1,688.86  
 TOTAL \$ 3,288.86  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

## Monthly Payment:

Prin.&Int. \$ 669.26  
 MMI \$ 24.31  
 Taxes \$ 51.25  
 TOTAL \$ 744.82  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 584.00  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 66.80  
 CLTA Fee \$ 287.25  
 Recording \$ 10.00  
 TOTAL \$ 1,033.05

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 51.25 mo. \$ 307.50  
 MMI 1 month \$ 24.31  
 P P interest 15 day @ 21.60 \$ 324.00  
 SUB-TOTAL \$ 655.81  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

# RIVERGREENS

UNIT MODEL TYPE 2BR - 2BA

SALES PRICE \$ 60,000

FINANCING PROGRAM 245 I - 14% + 1/2%

## Money Needed to Close:

Sales Price \$ 60,000.  
 Loan Amount \$ 57,650.  
 Dn. Payment \$ 2,350.  
 All Clos.Cst.\$ 1,689.48  
 TOTAL \$ 4,039.48  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

## Monthly Payment:

Prin.&Int. \$ 628.43  
 MMI \$ 24.13  
 Taxes \$ 51.25  
 TOTAL \$ 703.81  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 576.50  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 67.45  
 CLTA Fee \$ 287.25  
 Recording \$ 10.00  
 TOTAL \$ 1,026.20

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 51.25 mo. \$ 307.50  
 MMI 1 month \$ 24.13  
 P P interest 15 day @ 22.11 \$ 331.65  
 SUB-TOTAL \$ 663.28  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

# RIVERGREENS

UNIT MODEL TYPE 2BR - 2BA

SALES PRICE \$ 60,000

FINANCING PROGRAM 245 II - 14% + 1/2%

## Money Needed to Close:

Sales Price \$ 60,000.  
 Loan Amount \$ 55,600.  
 Dn. Payment \$ 4,400.  
 All Clos.Cst.\$ 1,656.54  
 TOTAL \$ 6,056.54  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

## Monthly Payment:

Prin.&Int. \$ 557.55  
 MMI \$ 23.39  
 Taxes \$ 51.25  
 TOTAL \$ 632.19  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 556.00  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 67.45  
 CLTA Fee \$ 287.25  
 Recording \$ 10.00  
 TOTAL \$ 1,005.70

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 51.25 mo. \$ 307.50  
 MMI 1 month \$ 23.39  
 P P interest 15 day @ 21.33 \$ 319.95  
 SUB-TOTAL \$ 650.84  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

# RIVERGREENS

UNIT MODEL TYPE 2BR - 2BA

SALES PRICE \$ 60,000

FINANCING PROGRAM 245 III - 14% + 1/2%

## Money Needed to Close:

Sales Price \$ 60,000.

Loan Amount \$ 53,700.

Dn. Payment \$ 6,300.

All Clos.Cst.\$ 1,625.89

TOTAL \$ 7,925.89

Deposit \$                     

Net to Close \$                     

## Monthly Payment:

Prin.&Int. \$ 495.39

MMI \$ 22.69

Taxes \$ 51.25

TOTAL \$ 569.33

Homeowner's Dues \$                     

TOTAL \$                     

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 537.00

Cr. Report \$ 35.00

Escr. Fee \$ 50.00

ALTA Fee \$ 67.45

CLTA Fee \$ 287.25

Recording \$ 10.00

TOTAL \$ 986.70

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 51.25 mo. \$ 307.50

MMI 1 month \$ 22.69

P P interest 15 day @ 20.60 \$ 309.00

SUB-TOTAL \$ 639.19

H. O. dues 2 mo.@ \$            mo. \$                     

P P interest 15 day @            \$                     

TOTAL \$

RIVERGREENS

UNIT MODEL TYPE 3BR - 2BA  
 SALES PRICE \$ 67,500  
 FINANCING PROGRAM 203 B - 13½% + ½%

Money Needed to Close:

Sales Price \$ 67,500.  
 Loan Amount \$ 65,550.  
 Dn. Payment \$ 1,950.  
 All Clos.Cst.\$ 1,869.65  
 TOTAL \$ 3,819.65  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

Monthly Payment:

Prin.&Int. \$ 751.20  
 MMI \$ 27.29  
 Taxes \$ 57.66  
 TOTAL \$ 836.15  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

NON-RECURRING ESTIMATES:

Orig. Fee \$ 655.50  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 71.05  
 CLTA Fee \$ 311.25  
 Recording \$ 10.00  
 TOTAL \$ 1,132.80

RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 57.66 mo. \$ 345.96  
 MMI 1 month \$ 27.29  
 P P interest 15 day @ 24.24 \$ 363.60  
 SUB-TOTAL \$ 736.85  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

# RIVERGREENS

UNIT MODEL TYPE 3BR - 2BA.

SALES PRICE \$ 67,500

FINANCING PROGRAM 245 I - 14% + 1/2%

## Money Needed to Close:

Sales Price \$ 67,500.

Loan Amount \$ 64,750.

Dn. Payment \$ 2,750.

All Clos.Cst.\$ 1,871.06

TOTAL \$ 4,621.06

Deposit \$                     

Net to Close \$                     

## Monthly Payment:

Prin.&Int. \$ 705.83

MMI \$ 27.10

Taxes \$ 57.66

TOTAL \$ 790.59

Homeowner's Dues \$                     

TOTAL \$                     

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 647.50

Cr. Report \$ 35.00

Escr. Fee \$ 50.00

ALTA Fee \$ 71.65

CLTA Fee \$ 311.25

Recording \$ 10.00

TOTAL \$ 1,125.40

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 57.66 mo. \$ 345.96

MMI 1 month \$ 27.10

P P interest 15 day @ 24.84 \$ 372.60

SUB-TOTAL \$ 745.66

H. O. dues 2 mo.@ \$            mo. \$                     

P P interest 15 day @            \$                     

TOTAL \$



RIVERGREENS

UNIT MODEL TYPE 3BR - 2BA  
 SALES PRICE \$ 67,500  
 FINANCING PROGRAM 245 II - 14% +  $\frac{1}{2}\%$

Money Needed to Close:

Sales Price \$ 67,500.  
 Loan Amount \$ 62,450.  
 Dn. Payment \$ 5,050.  
 All Clos.Cst.\$ 1,833.88  
 TOTAL \$ 6,883.88  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

Monthly Payment:

Prin.&Int. \$ 626.24  
 MMI \$ 26.27  
 Taxes \$ 57.66  
 TOTAL \$ 710.17  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

NON-RECURRING ESTIMATES:

Orig. Fee \$ 624.50  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 71.65  
 CLTA Fee \$ 311.25  
 Recording \$ 10.00  
 TOTAL \$ 1,102.40

RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 57.66 mo. \$ 345.96  
 MMI 1 month \$ 26.27  
 P P interest 15 day @ 23.95 \$ 359.25  
 SUB-TOTAL \$ 731.48  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

# RIVERGREENS

UNIT MODEL TYPE 3BR - 2BA

SALES PRICE \$ 69,500

FINANCING PROGRAM 203 B - 13½% + ½%

## Money Needed to Close:

Sales Price \$ 69,500.  
 Loan Amount \$ 67,500.  
 Dn. Payment \$ 2,000.  
 All Clos.Cst.\$ 1,918.37  
 TOTAL \$ 3,918.37  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

## Monthly Payment:

Prin.&Int. \$ 773.55  
 MMI \$ 28.10  
 Taxes \$ 59.37  
 TOTAL \$ 861.02  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 675.00  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 72.25  
 CLTA Fee \$ 317.25  
 Recording \$ 10.00  
 TOTAL \$ 1,159.50

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 59.37 mo. \$ 356.22  
 MMI 1 month \$ 28.10  
 P P interest 15 day @ 24.97 \$ 374.55  
 SUB-TOTAL \$ 758.87  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

RIVERGREENS

UNIT MODEL TYPE 3BR - 2BA

SALES PRICE \$ 67,500

FINANCING PROGRAM 245 III - 14% + 1/2%

Money Needed to Close:

Sales Price \$ 67,500.  
 Loan Amount \$ 60,350.  
 Dn. Payment \$ 7,150.  
 All Clos.Cst.\$ 1,800.11  
 TOTAL \$ 8,950.11  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

Monthly Payment:

Prin.&Int. \$ 556.74  
 MMI \$ 25.50  
 Taxes \$ 57.66  
 TOTAL \$ 639.90  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

NON-RECURRING ESTIMATES:

Orig. Fee \$ 603.50  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 71.65  
 CLTA Fee \$ 311.25  
 Recording \$ 10.00  
 TOTAL \$ 1,081.40

RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 57.66 mo. \$ 345.96  
 MMI 1 month \$ 25.50  
 P P interest 15 day @ 23.15 \$ 347.25  
 SUB-TOTAL \$ 718.71  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

# RIVERGREENS

UNIT MODEL TYPE 3BR - 2BA

SALES PRICE \$ 69,500

FINANCING PROGRAM 245 I - 14% + 1/2%

## Money Needed to Close:

Sales Price \$ 69,500.

Loan Amount \$ 66,700.

Dn. Payment \$ 2,800.

All Clos.Cst.\$ 1,919.93

TOTAL \$ 4,719.93

Deposit \$                     

Net to Close \$                     

## Monthly Payment:

Prin.&Int. \$ 727.08

MMI \$ 27.91

Taxes \$ 59.37

TOTAL \$ 814.36

Homeowner's Dues \$                     

TOTAL \$                     

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 667.00

Cr. Report \$ 35.00

Escr. Fee \$ 50.00

ALTA Fee \$ 72.85

CLTA Fee \$ 317.25

Recording \$ 10.00

TOTAL \$ 1,152.10

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 59.37 mo. \$ 356.22

MMI 11month \$ 27.91

P P interest 15 day @ 25.58 \$ 383.70

SUB-TOTAL \$ 767.83

H. O. dues 2 mo.@ \$            mo. \$           

P P interest 15 day @            \$           

TOTAL \$

# RIVERGREENS

UNIT MODEL TYPE 3BR - 2BA

SALES PRICE \$ 69,500

FINANCING PROGRAM 245 III - 14% + 1/2%

## Money Needed to Close:

Sales Price \$ 69,500.  
 Loan Amount \$ 62,200.  
 Dn. Payment \$ 7,300.  
 All Clos.Cst.\$ 1,847.50  
 TOTAL \$ 9,147.50  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

## Monthly Payment:

Prin.&Int. \$ 573.81  
 MMI \$ 26.28  
 Taxes \$ 59.37  
 TOTAL \$ 659.46  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 622.00  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 72.85  
 CLTA Fee \$ 317.25  
 Recording \$ 10.00  
 TOTAL \$ 1,107.10

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 59.37mo. \$ 356.22  
 MMI 1month \$ 26.28  
 P P interest 15 day @ 23.86 \$ 357.90  
 SUB-TOTAL \$ \_\_\_\_\_  
 H. O. dues 2 mo. @ \$ \_\_\_\_\_mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

# RIVERGREENS

UNIT MODEL TYPE 3BR - 2BA

SALES PRICE \$ 69,500

FINANCING PROGRAM 245 II -14% + 1/2%

## Money Needed to Close:

Sales Price \$ 69,500.  
 Loan Amount \$ 64,350.  
 Dn. Payment \$ 5,150.  
 All Clos.Cst.\$ 1,882.09  
 TOTAL \$ 7,032.09  
 Deposit \$ \_\_\_\_\_  
 Net to Close \$ \_\_\_\_\_

## Monthly Payment:

Prin.&Int. \$ 645.30  
 MMI \$ 27.07  
 Taxes \$ 59.37  
 TOTAL \$ 731.74  
 Homeowner's Dues \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

## NON-RECURRING ESTIMATES:

Orig. Fee \$ 643.50  
 Cr. Report \$ 35.00  
 Escr. Fee \$ 50.00  
 ALTA Fee \$ 72.85  
 CLTA Fee \$ 317.25  
 Recording \$ 10.00  
 TOTAL \$ 1,128.60

## RECURRING ESTIMATES:

Taxes 6 mos.@ \$ 59.37 mo. \$ 356.22  
 MMI 1 month \$ 27.07  
 P P interest 15 day @ 24.68 \$ 370.20  
 SUB-TOTAL \$ 753.49  
 H. O. dues 2 mo.@ \$ \_\_\_\_\_ mo. \$ \_\_\_\_\_  
 P P interest 15 day @ \_\_\_\_\_ \$ \_\_\_\_\_  
 TOTAL \$ \_\_\_\_\_

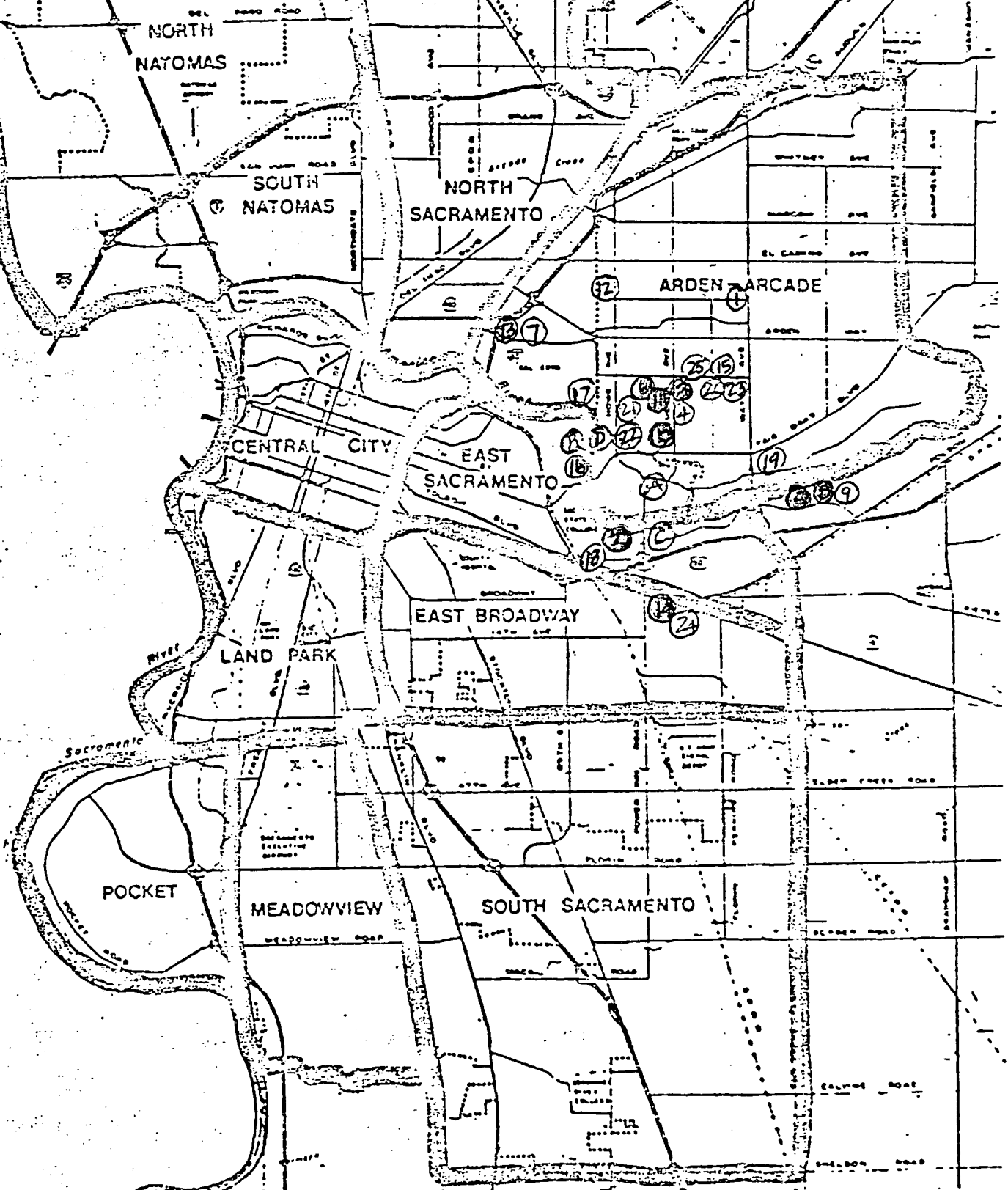
	Rental Range	Bedrooms	Children Allowed	Pets Allowed	HBO	Fireplace	Storage	Rec Room	Sauna	Spa	Tennis	Other Sports	Pool	Gym	Covered Parking
4. Most Comparable to Rivergreens a. About Same Price	315 - 415	1, 2, 3				X	X	X	X	X	2		X		
1. Ardendale	270- 375	1, 2			X	S	X	X					3	X	X
7. Innsbruck Village	250- 445	1, 2, 3D	X	X		D	X	X	X	X	3		2	2	X
9. La Riviera Commons	250- 280	1, 2	X				X	X	X	X	2	X	X		X
13. Point West	279- 431	1, 2, 3				S	X	X	2	X	4	X	3	X	E
15. Ridgewood	255- 375	1, 2, 2TH		X				X	2	X			1		X
16. River Commons	315- 415	1, 2, 3	X		X	X	X	X	X	X	2		X		X
18. Riverwood	240- 425	1, 2, 3, 3D				D		X	X		2		2	X	X
19. Selby Ranch	300- 650	3, 1TH 2TH, 3TH	X	X			X	X	X	X	4		5	X	X
22. Village, The	240- 440	1, 2, 3, 3TH	X	X		S	X	X	X	X	4	X	3		
23. Willow Grove	220- 340	St, 1, 2, 3, 2TH	X	X	X	S	X	X	2	X	3		3		X
25. Woodside Oaks/ Woodside Sierra	325- 600	1, 2, 2TH, 3TH, 1TH, 3D	X	X	X	X	X	X	X	X	X	X	X	X	S

	Rental Range	Bedrooms	Children Allowed	Pets Allowed	HBO	Fireplace	Storage	Rec Room	Sauna	Spa	Tennis	Other Sports	Pool	Gym	Covered Parking
5. Generally Comparable															
2. College Gardens	128- 199	1, 2	X			X									
3. Fulton Villa	255- 355	1, 2, 2TH				X							1		X
5. Glenbrook I	245- 275	1, 2				X	X	2					1		X
6. Hurley Villa	240- 385	1, 2, 3						X	2				1		X
8. La Riviera Apts.	250- 285	1, 2					S	X	2				1		X
10. Lincoln Place	195- 290	1, 2					S	X					2		X
11. Manchester Villa	230- 260	1, 2	X	X				X					X		X
14. Redwood Village	260- 445	1, 2, 3		X		S	S	X	2	X	4		2	X	X

KEY: X = Yes  
 St = Studio  
 1TH = 1 Bedroom Townhouse  
 2TH = 2 Bedroom Townhouse  
 3TH = 3 Bedroom Townhouse  
 D = Duplexes Only  
 S = Some  
 E = Pay Extra



EXHIBIT 4  
MAP OF  
PLANNING AREAS



- = RIVERGREENS
- = Most Comparable to Rivergreens
- = Generally Comparable

(D-1)  
EXHIBIT "B"

FPI COMPARABLE HOUSING

SACRAMENTO AREA

RIVERGREENS

<u>COMPLEX</u>	<u>MILES FROM SUB. PROP.</u>	<u>TOTAL 1 BR</u>	<u>TOTAL 2 BR</u>	<u>TOTAL 3 BR</u>
1. CAMPUS GARDENS	<u>1</u>	<u>46</u>	<u>80</u>	<u>      </u>
2. DISCOVERY COMMONS	<u>6</u>	<u>48</u>	<u>96</u>	<u>16</u>
3. FOOTHILLS	<u>9</u>	<u>32</u>	<u>112</u>	<u>      </u>
4. GREENBACK TERRACE	<u>11</u>	<u>16</u>	<u>40</u>	<u>16</u>
5. HILLSDALE GARDENS	<u>8</u>	<u>16</u>	<u>32</u>	<u>      </u>
6. KOHLER GARDENS	<u>8</u>	<u>40</u>	<u>56</u>	<u>      </u>
7. LA RIVIERA COMMONS	<u>2</u>	<u>32</u>	<u>112</u>	<u>      </u>
8. LARCHMONT GARDENS	<u>10</u>	<u>32</u>	<u>56</u>	<u>28</u>
9. OAK TREE	<u>3</u>	<u>40</u>	<u>104</u>	<u>      </u>
10. RIVER COMMONS	<u>1</u>	<u>24</u>	<u>56</u>	<u>16</u>
11. RIVERCREST VILLAGE	<u>2</u>	<u>84</u>	<u>212</u>	<u>32</u>
12. RIVERGREENS	<u>N/A</u>	<u>      </u>	<u>      </u>	<u>      </u>
13. ROLLINGWOOD	<u>12</u>	<u>72</u>	<u>172</u>	<u>28</u>
14. SUNRISE VISTA	<u>11</u>	<u>40</u>	<u>104</u>	<u>      </u>
15. SUTTER TERRACE	<u>6</u>	<u>24</u>	<u>36</u>	<u>16</u>
16. VALLEY HI	<u>13</u>	<u>24</u>	<u>88</u>	<u>      </u>
17. VINTAGE FAIRE	<u>8</u>	<u>32</u>	<u>80</u>	<u>      </u>
18. WINDWARD VILLAGE	<u>2</u>	<u>42</u>	<u>126</u>	<u>      </u>
TOTAL - ALL PROJECTS	<u>113</u>	<u>644</u>	<u>1,562</u>	<u>152</u>

FPI COMPARABLE HOUSING

## SACRAMENTO AREA

<u>COMPLEX</u>	<u>1 BR</u>	<u>2 BR</u>	<u>3 BR</u>
1. CAMPUS GARDENS	<u>\$186</u>	<u>\$219</u>	<u>\$</u>
2. DISCOVERY COMMONS	<u>260</u>	<u>310</u>	<u>375</u>
3. FOOTHILLS	<u>245</u>	<u>275</u>	<u></u>
4. GREENBACK TERRACE	<u>290</u>	<u>315</u>	<u>365</u>
5. HILLSDALE GARDENS	<u>200</u>	<u>225</u>	<u></u>
6. KOHLER GARDENS	<u>210</u>	<u>250</u>	<u></u>
7. LA RIVIERA COMMONS	<u>250</u>	<u>280</u>	<u></u>
8. LARCHMONT GARDENS	<u>169</u>	<u>213</u>	<u>241</u>
9. OAK TREE	<u>225</u>	<u>250</u>	<u></u>
10. RIVER COMMONS	<u>315</u>	<u>365</u>	<u>415</u>
11. RIVERCREST VILLAGE	<u>255</u>	<u>305</u>	<u>375</u>
12. RIVERGREENS	<u>315</u>	<u>365</u>	<u>415</u>
13. ROLLINGWOOD	<u>321</u>	<u>391</u>	<u>462</u>
14. SUNRISE VISTA	<u>230</u>	<u>260</u>	<u></u>
15. SUTTER TERRACE	<u>191</u>	<u>220</u>	<u>242</u>
16. VALLEY HI	<u>235</u>	<u>265</u>	<u></u>
17. VINTAGE FAIRE	<u>265</u>	<u>290</u>	<u></u>
18. WINDWARD VILLAGE	<u>221</u>	<u>240</u>	<u></u>



28 September 80

PO BOX 160248  
SACRAMENTO CA 95815

City Planning Department  
725 J St  
Sacramento  
Ca 95814

Attn: Sharon Caudle

Re: RIVERGREENS CONDOMINIUMS  
Condominium Conversion Special Permit

Dear Sharon:

I have reviewed the conversion documents and had Bill Crawford carefully study the budget of the proposed Rivergreen Condominiums -- then we reviewed each other's work.

I have been the President of one condominium and Treasurer of two. I am Director for Homeowner Assistance for the Sacramento Area Condominium Assn (I'm the one they call for problems) and am Executive Director of the California Condominium Council, a statewide organization of the leaders of five regional condominium associations. We represent condominium homeowners.

Bill Crawford is President of the Creative Management Corporation. His organization manages seven condominium associations in Sacramento, and he has had extensive experience in making and living with condominium budgets. Bill manages both high and low income condominium complexes.

Our purpose is constructive -- to make the condominiums formed work successfully. Both the documents and the budget must be sound. The following are our recommendations:

CC&Rs RIVERGREENS CONDOMINIUMS

- Page 11 Article III, 4 Voting Rights  
(ADD) Fractional voting is not permitted. If co-owners of a unit cannot agree on a vote, their vote shall be null and void.
- Page 13 Article IV, 3 Maximum Annual Assessments.  
(Change) The initial maximum general assessment shall be eighty nine dollars (\$89.00) for all units. (Round dollars should be used in monthly assessments to prevent management company headaches collecting assessments).

It is not customary to vary the assessment according to the square footage of the unit. As each unit has equal ownership of the common area, he has equal responsibility for his share of the budget. (The difference in size of units is reflected in the selling price of the unit itself).

Page 13

Article IV, 4Special Charges and Assessments:  
(Delete first paragraph and substitute).

The Board may make a Special Assessment or an assessment for captial improvements of not more than five percent (5%) of the budgeted gross expense of the Association for the fiscal year. Any special assessment in excess of five percent (5%) of the budgeted gross expense of the Association for the fiscal year in which a special assessment is levied shall require approval by vote or written consent of a majority of the members of the Association residing in members other than Declarant, except in the case of a special assessment against an Owner as a remedy utilized by the Board to reimburse the Association for costs incurred in bringing the member of his condominium into compliance with the provisions of this Declaration.

Page 15

Article IV, 6. Division of Assessments.

(CHANGE) All assessments, both general and special, shall be charged to and divided equally among unit owners. (I live at the Bluffs, a true condominium. Square footage varies from 1,600 to 2,400 square feet. All regular and special assessments are equal).

Page 15

Article IV, 8. Effect of Nonpayment of Assessments  
(ADD) A late charge of ten dollars (\$10) or 10% of the regular monthly assessment, whichever is greater, will be charged for monthly assessments not paid (as indicated by envelope postmark) by the fifteenth (15th) of the month.

Page 18

Article IV, 10

(Line 6 from top, delete rent, add assessment.)

Page 19

Article V, 1. a. Maintenance:

(ADD) Owner shall be responsible for repair, replacement and cleaning of windows and glass of his unit, both exterior and interior. Each owner shall also maintain and repair all air conditioners, heaters, electric appliances, plumbing outlets and toilets, sinks, showers and tubs, keeping the same in good condition. The Association is not responsible for the glass of the individual unit.

Page 20

Article V, 2c Management Agent

(Delete) right of Association to terminate the same (contract) at the first annual meeting of the members of the Association. (ADD) The Association shall have the right to terminate the contract with the Manager or Management Company at any time without cause with sixty (60) days written notice.

- Page 21 Article V, 2f Assessments, Liens and Fines.  
The Board shall have the power to fine for a single violation up to one hundred dollars (\$100.00) or an amount of one months regular assessment, whichever is greater.
- Page 24 Article VII, 3 Vehicle Restrictions.  
(ADD) No delapidated vehicles or equipment of any kind shall be parked or left on any part of the properties. There shall be no repair nor reconstruction of automobiles within the properties, except for emergency repairs. The Association may remove any unauthorized vehicle at the expense of the owner thereof. The Board of Directors shall have the right to tow away vehicles parked in violation of rules or vehicles that obstruct any part of the Common Area.
- Page 27 Article VII, 9, Paragraph 3 Architectural Control  
(DELETE) until fifth anniversary of the issuance of the Final Public Report. (This is an unreasonable length of time to maintain control of the second most important body of a condominium). Three years instead of five, or the sale of seventy five (75%) of the units. (DELETE ninety percent (90%) throughout #9 and substitute 75%).  
(DELETE the 30 days from) fails to approve or disapprove plans and specifications within thirty (30), change to 60 days. (ADD) The Board shall require submissions for Architectural change by a specific date in the month (say two weeks before the regular Board meeting, to give the Architectural Review Committee time to study the proposal in detail. Requests can be complex. Architectural changes not finished with sixty (60) days after approval must be resubmitted. The Board may grant an extension.
- Page 30 Article VIII, 1 Enforcement (To first sentence)  
(ADD) simple interest at ten percent (10%) per annum and costs.
- Page 33 Article VIII, 6a  
(DELETE) except as noted in Article IV, Paragraph six (6). Assessment rates will be equal for all unit owners for the regular monthly assessment.
- Page 35 Article VIII, 7  
Unit owner has the right of appeal to the Appeals Committee.
- Page 37 Article VIII, 9  
(ADD) The Board may obtain errors and omissions insurance.

By-Laws RIVERGREENS CONDOMINIUS

- Page 4 Article III, 5 Proxies  
(ADD) Proxies are not valid for more than one year.

- Page 4      Article IV, 2. Term of Office  
(CHANGE) At the first meeting of the Association, the members shall elect Directors. Three members shall be elected for two years and two Directors shall be elected for one year. thereafter terms shall be for two years for all Directors.  
(It is unwise to risk a complete turnover of the Board each year. It is better continuity if terms are for two years with only part of the Board changing each year. There is too much danger of getting a completely new Board who are totally inexperienced (This is an important and necessary change).
- Page 5      Article IV, 3 Removal  
(ADD) Any Director who misses three consecutive Board meetings shall be removed by the Board, at the discretion of the Board.
- Page 5      Article IV, 5 Indemnification of Officers and Directors  
(DELETE THIS SECTION ENTIRELY)  
This section is basically unfair to homeowners. When the Developer has left, the problem is handled by Errors and Omissions Insurance. If the Board of Directors as long as the Declarant is on the Board is unable to obtain Errors and Omissions Insurance, It is basically unfair to ask the homeowners to take a financial risk that an insurance company won't take. Remember, the Declarant controls the Board and the homeowners never have more than a minority voice till the Declarant (Developer) goes.
- Page 12     Article VIII, 8a President  
(ADD) Managing Agent shall be bonded.
- Page 14     Article VIII, 8d 4 Audit  
(CHANGE) An external audit by an independent public accountant shall be required for fiscal year financial statements (other than budgets) every fiscal year.
- Page 14     Article IX Committees  
(ADD) The Board shall create an Appeals Committee. The Board shall determine the size, method of operation and procedures of the Appeals Committee (Two examples of Sacramento Appeals Committees are attached to the end of the report).

DECLARANT AT THE END OF HIS REPORT STATES HE DOES NOT PLAN TO MAKE ANY CONTRIBUTION TO THE HOMEOWNERS' ASSOCIATION FOR DEFERRED MAINTENANCE OF COMMON AREAS. THIS IS UNFAIR. IT IS INEVITABLE THAT MANY OF THE CAPITAL ITEMS SUCH AS EXTERIOR PAINTING AND ROOFING WILL BE NEEDED IN THE FUTURE. IT IS ONLY FAIR THAT DECLARANT PAY HIS FAIR SHARE OF SUCH COSTS FOR YEARS PAST. (In the condominium where I now live which is 5 years old, we have reserves for roofs alone of \$26,240. This next year we have decided to increase our contribution for roofs to \$8,674). WITHOUT AN ENGINEERING REPORT, I AM UNABLE TO RECOMMEND WHAT THEIR CONTRIBUTION SHOULD BE.

I wish to repeat. Our purpose is constructive -- to make the condominiums formed work successfully. The budget must be sound, and include the Declarants fair share of money for Future Maintenance Reserves for the past life of the Apartment he is converting into a condominium.

Very truly yours,

*Raymond E. Porter M.D.*

Raymond E. Porter, M.D.  
Executive Director  
California Condominium Council

Director for Homeowner Assistance  
Sacramento Area Condominium Assn



# APPEALS COMMITTEE PROCEDURE

## Bluff City Condominiums

### Committee

The Committee consists of five homeowners. The full Board of Directors shall, collectively, annually appoint homeowners to be members of the Appeals Committee. In addition, an alternate member to serve in the absence of an Appeals Committee member, will be appointed annually by the full Board of Directors. The Committee members shall elect a chairman, vice chairman and secretary.

### Purpose

To hear appeals from fines and sanctions imposed by the Board of Directors on a homeowner (s) of the Association.

### Decisions

The decision of the Committee, if unanimous by all five voting members, must be adopted by the Board of Directors as the final decision of the Association. A divided decision of the Committee refers the matter on appeal, back to the Board of Directors for reconsideration. The Board of Directors' decision on the matter becomes final.

### Appeals Procedure

1. To appeal a decision of the Board of Directors, the appeal must be in writing; one copy sent to the President of the Board of Directors; one copy to the Chairman of the Appeals Committee, or in his/her absence, to any member of the Committee.
2. Time to file appeal is limited. The written appeal must be mailed within ten (10) days following the decision of the Board of Directors. The time for mailing an appeal may be extended for good cause by a majority vote of the members of the Appeals Committee, provided however, that the extension may NOT exceed ten (10) additional days.
3. Time of hearing and decision is limited. The appeal hearing must be held within twenty (20) days after receipt of the request for appeal or appeal extension. Written decision by the Appeals Committee must be rendered within ten (10) days after the appeals hearing. These times may be extended, however, for good cause if the appellant is in agreement and provided the extension does NOT exceed twenty (20) additional days. One copy of the Appeals Committee decision will be sent to the President of the Board of Directors, or in his/her absence, to any member of the Board of Directors; one copy to the appellant.

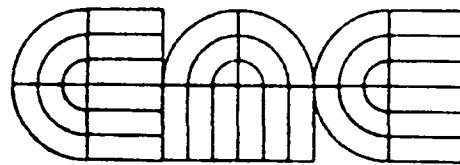
### Hearing

- A. The Appeals Committee chairman shall preside over the hearing.
- B. Five members of the Committee shall hear the appeal.
- C. The decision on appeal shall be by majority vote of those members present and voting. Only Committee members present throughout the hearing may vote.
- D. No member may participate in the hearing or vote if beneficially interested, directly or indirectly, in the decision other than generally as a member of the Association.
- E. The appellant may be represented by legal counsel or any representative appointed by him/her if the Committee is notified at least ten (10) days prior to hearing.
- F. A member of the Board of Directors representing the majority view of the Board of Directors shall be the party to present the case of the Board.
- G. The hearing may be phonographically or stenographically reported at the sole expense of the party requesting same.
- H. The hearing will be open to any homeowner unless requested in writing to be closed by the appellant at least ten (10) days prior to hearing.
- I. The parties shall have a right to present and examine witnesses, to introduce exhibits and to cross examine witnesses.
- J. The hearing need not be conducted according to technical rules relating to evidence and witnesses. Any relevant evidence shall be admitted if it is the sort of evidence on which responsible persons are accustomed to rely on in the conduct of serious affairs.

### Factors to be considered in the decision

In arriving at its decision, the Appeals Committee shall be concerned whether the decision under appeal : 1. Is consistent with the Articles of Incorporation; Covenants, Conditions & Restrictions; Bylaws; Rules and Resolutions of the Association. 2. Is in the best interest of the Association and legally sound. 3. In the light of evidence presented, is a reasonable restriction upon the rights of the appellant.

Adopted 13 Feb 79



CREATIVE MANAGEMENT  
CORPORATION

RIVERGREENS

BUDGET REVIEW

Project Inventory:  
Reserves

Only one item (furnishings) has a projected replacement cost and remaining life.

The developer should be required to employ an independent engineering firm to do a certified engineering report on capital items that project the remaining life of the capital items. Based upon the report the developer should fund the already expired life of these assets in the Association account.

Capital Contributions to Homeowner Association

This statement will be the cause for possible lawsuits in the near future for developers of conversions if capital reserve accounts are not adequately funded.

Hot water to the units will be the responsibility of the Association. We presently are managing a new McKeon development where the hot water consumption is averaging a little over \$12.00 per unit per month.

On the reserve worksheet, the developer is basing the replacement cost on 3 40 gallon hot water heaters, but on the project inventory of electrical energy consumption, it states that there are two 119.9 gallon tanks and one 40 gallon tank.

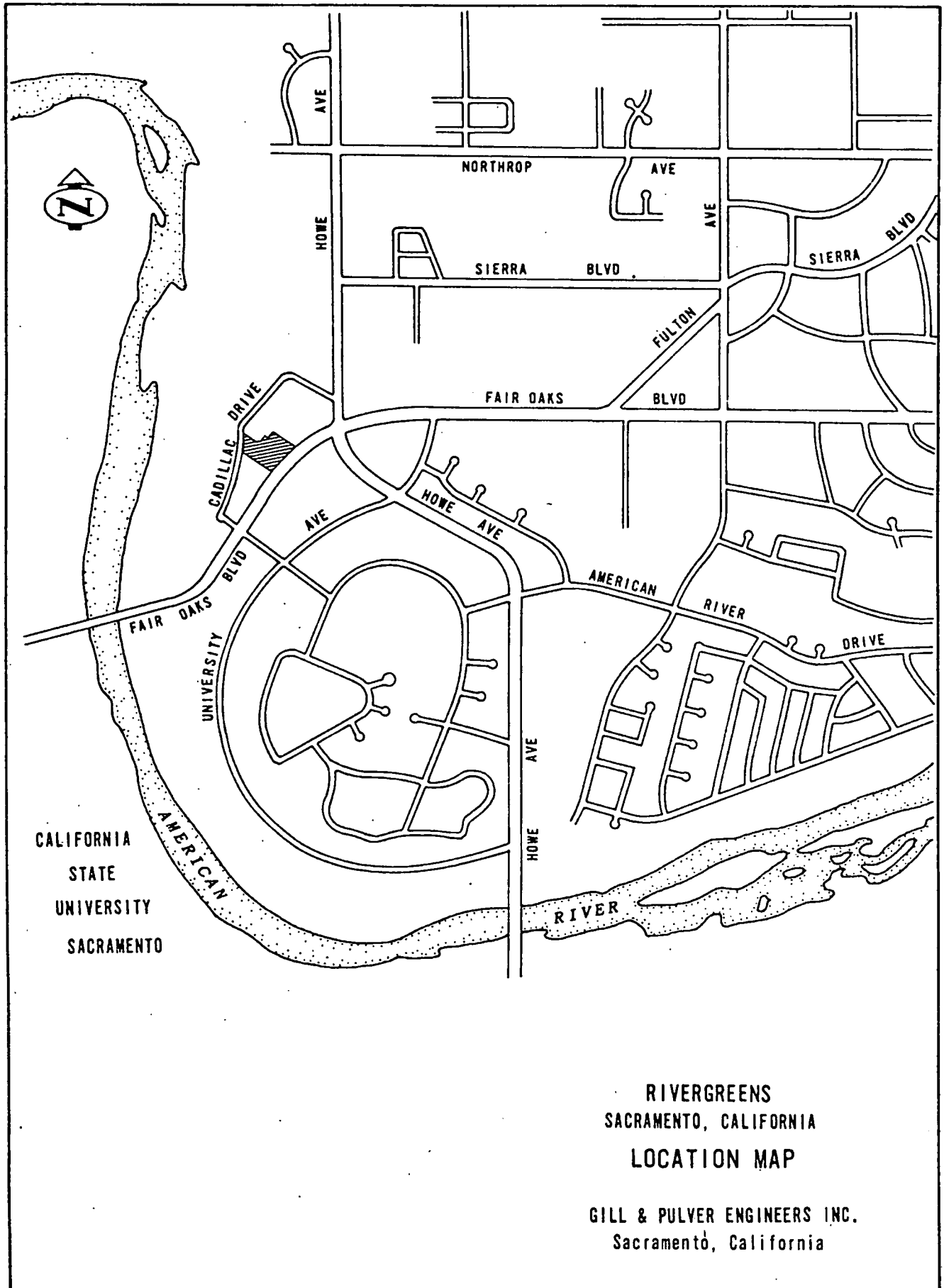
Energy cost pass through provisions should be made available to the Association (Board of Directors) without going to the membership if average utility cost exceeded the current budget amount.

On-Site Review:

In our experience in Homeowner Association Management, we find that a change takes place when a person makes the transition from tenant to homeowner; their expectations increase, especially when it comes to the common areas, mainly in landscaping and gardening.

The developer has projected that only \$9.37 per unit be set aside for gardening. We feel this will be inadequate.

We project a minimum of \$14.00 a unit will be needed in order to keep a well maintained landscaped area.



BRIARWOOD GREENHAVEN  
APPEAL COMMITTEE PROCEDURE

I. TIME FOR APPEAL

- A. An appeal shall be filed with the Chairman of the Appeals Committee, or in his absence with any member of the Committee, no later than the 10th day following receipt by the appellant of the written decision of the Architectural Control Committee or, in the case of an appeal from the action of the Board of Directors, no later than the 10th day following the taking of such action.
- B. The time for filing of an appeal may be extended for good cause by majority vote of the Committee, provided however, that no extension may exceed 30 days from receipt of the decision or the taking of the action appealed from.

II. FORM OF APPEAL

Each appeal shall be in writing and signed by the appellant and shall contain the following:

- A. An attached copy of the decision appealed from or a description of the action appealed from, including the dates thereof.
- B. A clear and concise description of the relief sought.
- C. A clear and concise statement of the grounds for the appeal.
- D. A clear and concise statement of all pertinent facts upon which the appellant believes he is entitled to the relief sought.

### III. INFORMAL INVESTIGATION AND CONCILLIATION

- A. Upon receipt of an appeal, the Chairman shall forthwith refer it to a committee member for review and investigation.
- B. The assigned member shall confer with the appellant and attempt to find a basis for the reconcilliation of conflicting viewpoints. If successful, such member shall request that the Architectural Control Committee or the Board agree to accept a voluntary remand for the purpose of considering the proposed compromise. The member's written findings and recommendations shall be transmitted to the body accepting the remand.
- C. If the voluntary remand is accepted no further proceedings shall be had by the Committee until the decision on remand has been rendered or action on remand is taken.
- D. If the decision or action or remand is acceptable to the appellant the appeal shall be terminated.
- E. If the decision or action on remand is not acceptable to the appellant, the appellant, not later than the 10th day following receipt of the written decision or the taking of action, may request a formal hearing before the Appeals Committee. This time may not be extended.
- F. The assigned member shall make his written findings and recommendations within 20 days of receipt by the Committee of the appeal unless such time period is waived in writing by the appellant.

### IV. FORMAL APPEAL PROCEDURE

- A. If the assigned member is unable to recommend a basis for reconcilliation or a voluntary remand is not accepted or the decision or action on remand is not acceptable to the appellant and timely request is made therefor, a hearing shall be held by the Committee.
- B. The hearing shall be held and a written decision rendered by the Committee within 30 days of receipt of such request, unless such time is waived in writing by the appellant.
- C. The Committee Chairman shall preside over the hearing.

- D. A majority of the Committee shall constitute a quorum.
- E. The decision on appeal shall be by majority vote of those members present and voting. Only committee members present throughout the hearing may vote.
- F. No member may participate in the hearing or vote if beneficially interested, directly or indirectly, in the decision other than generally as a member of the association.
- G. The appellant may be represented by legal counsel or any representative appointed by him in writing.
- H. The hearing may be phonographically or stenographically reported at the sole expense of the party requesting the same.
- I. The hearing will not be open to anyone other than the appellant and his witnesses unless authorized to be open by the appellant in writing.
- J. Each party shall have the right to call and examine witnesses, to introduce exhibits and to cross-examine opposing witnesses.
- K. The hearing need not be conducted according to technical rules relating to evidence and witnesses. Any relevant evidence shall be admitted if it is the sort of evidence on which responsible persons are accustomed to rely in the conduct of serious affairs.
- L. In arriving at its decision the Committee shall determine whether the decision or action appealed from:
  - 1. Is consistent with the Articles of Incorporation; covenants, conditions and restrictions, by-laws and resolutions of the Association.
  - 2. In the light of the evidence presented is a reasonable restriction upon the rights of the appellant.
  - 3. Is in the best interest of the Association.
- M. The decision of the Appeals Committee shall be binding upon the Association.

P R O J E C T M A N U A L

INTERSTATE-5 FREEWAY  
PARKING STRUCTURE  
FOR THE CITY OF SACRAMENTO

CONRAD ASSOCIATES  
1964 MOUNTAIN BOULEVARD  
SUITE 205  
OAKLAND, CA 94611

ARCHITECTURE &  
STRUCTURAL ENGINEERING

DONALD F. DICKERSON & ASSOCIATES  
6901 HAYVENHURST AVE. - SUITE 'A'  
VAN NUYS, CA 91406

MECHANICAL ENGINEERING

SAUL GOLDIN & ASSOCIATES, INC.  
1818 S. ROBERTSON BLVD.  
LOS ANGELES, CA 90035

ELECTRICAL ENGINEERING



TABLE OF CONTENTS

	<u>Pages</u>
<u>BIDDING REQUIREMENTS</u>	
Notice to Contractors	1 Only
Instructions to Bidders	1 - 4
Proposal Bid Form	1 - 3
Bidders Bond	1 - 2
Sub-Bidder Form	1 Only
<u>CONTRACT FORMS</u>	
Agreement	1 - 3
Performance Bond	1 - 2
Payment Bond	1 - 2
Certificate of Insurance	1 Only
Guarantee	1 Only
Schedule of Values/Pay Request	1 - 2
<u>GENERAL CONDITIONS OF THE CONTRACT</u>	
General Conditions	1 Only
Supplementary Conditions	1 - 20
Greater Sacramento Area Plan	1 - 8
<u>TECHNICAL SPECIFICATIONS</u>	
<u>Division One - General Requirements:</u>	
01009 - Project Description	1 Only
01020 - Allowances	1 - 3
01021 - Alternatives	1 - 2
01070 - Cutting and Patching	1 - 4
01300 - Submittals	1 - 10
01380 - Construction Photographs	1 - 3
01400 - Quality Control	1 - 3
01500 - Temporary Facilities and Controls	1 - 5
01700 - Project Closeout	1 - 4
01710 - Cleaning Up	1 - 3
<u>Division Two - Site Work:</u>	
02100 - Demolition and Clearing	1 - 3
02200 - Excavation, Filling and Grading (Soils Report attached)	1 - 5

Pages

Division Two - Site Work: (Cont'd.)

02620 - Concrete Curbs, Walks, Driveways and Gutters	1 - 2
02800 - Landscaping & Irrigation	1 - 16

Division Three - Concrete:

03000 - Pile Foundations	1 - 6
03100 - Concrete Formwork - Cast-In-Place Concrete	1 - 4
03200 - Concrete Reinforcement	1 - 4
03230 - Concrete Prestressing	1 - 6
03300 - Cast-In-Place Concrete	1 - 14
03432 - Decorative Cement Coating	1 - 2

Division Four - Masonry:

04200 - Unit Masonry	1 - 5
----------------------	-------

Division Five - Miscellaneous & Ornamental Metals:

05400 - Chain Link Fencing	1 - 2
05500 - Miscellaneous & Ornamental Metals	1 - 5

Division Six - Carpentry:

06000 - Carpentry	1 Only
-------------------	--------

Division Seven - Moisture Protection:

07530 - Waterproofing and Dampproofing	1 - 2
07540 - Elastomeric Deck Coating	1 - 3
07600 - Flashing and Sheet Metal	1 - 2
07900 - Sealants	1 - 3
07910 - Epoxy Injection Crack Repair	1 - 2

Division Eight - Doors and Windows:

08100 - Metal Doors and Frames	1 - 3
08700 - Finish Hardware	1 - 4
08800 - Woven Wire Partitions	1 - 2

Division Nine - Finishes:

09300 - Ceramic Tile	1 - 4
09500 - Suspended Acoustical Ceiling	1 - 4
09650 - Resilient Flooring	1 - 4
09900 - Painting	1 - 6

Pages

Division Ten - Specialties:

10400 - Painted and Illuminated Signs	1 - 7
10600 - Parking Line Painting	1 - 2
10800 - Toilet Room Accessories	1 - 2
10850 - Bicycle Storage Equipment	1 - 2

Division Eleven - Parking Equipment:

11101 - Safes	1 - 2
11850 - Access and Revenue Control Systems	1 - 26
11851 - Closed Circuit T.V. & Audio Monitoring System	1 - 3

Division Twelve & Thirteen: (NOT USED IN THIS  
PROJECT MANUAL)

Division Fourteen - Conveying Systems:

14200 - Elevators	1 - 14
-------------------	--------

Division Fifteen - Mechanical:

15060 - Automatic Fire Protection	1 - 8
15400 - Plumbing and Mechanical Work	1 - 25

Division Sixteen - Electrical:

16400 - Electrical	1 - 10
16500 - Traffic Signal System	1 - 17

NOTICE TO CONTRACTORS

Page 1

Sealed proposals will be received by the City Clerk of the City of Sacramento at the Office of the City Clerk, Room 308, City Hall, located on "I" Street between 9th and 10th Streets, Sacramento, California, up to the hour of 10:00 a.m. on FEB 17 1981 and opened at 10:15 a.m. in the Council Chambers of said City Hall for construction of:

Type I, cast-in-place concrete parking structure located at the southwest corner of Third and I Streets, City of Sacramento, California

as set forth in Contract Documents  
by the City of Sacramento.

adopted JAN 20 1981

Bids must be submitted on the Proposal-Bid Forms and accompanying documents supplied by the City without charge to the prospective bidders and enclosed in an envelope marked "Sealed Proposal for the Construction of Type I, Cast-in-place Concrete Parking Structure, Third & I Streets." Copies of the Sealed Proposal Forms and accompanying documents are available at the office of Department of Engineering, 915 I Street, Sacramento, CA 95814

All Contractors, Subcontractors and all concerned must comply with the rate of wages per hour as established by the Director of the Department of Industrial Relations under provisions of Sections 1770 and 1773 of the Labor Code of the State of California, a copy of which is on file in the office of the City Clerk; or such other rate of wages as may hereafter be established by the Director of the Department of Industrial Relations in compliance with Section 1770 of the Labor Code of the State of California.

Each bid must be accompanied by certified check or corporate surety bond made payable to the order of the City Director of Finance in the sum of ten percent (10%) of the aggregate of the base bid of said proposal.

The right to reject any and all bids or to waive any informality in any bid received is reserved by the City of Sacramento.

Lorraine Magana  
City Clerk

(Mention plan deposit, if any)

INSTRUCTIONS TO BIDDERS

PAGE 1

To be considered, Proposals must be made in accordance with these Instructions to Bidders.

DOCUMENTS

Bidders may obtain Drawings and Project Manual from the office of

Office of the City Clerk  
Room 308, 915 "I" Street  
Sacramento, CA. 95814

Drawings and Project Manual may be examined at the Architect's office and at the following locations:

Daily Construction Newsletter, 4536 Auburn Blvd., Sacramento, CA 95841  
Sacramento Builders' Exchange, 1331 T Street, Sacramento, CA 95807  
Builders Exchange of Stockton, 7500 Northwest Lane, Stockton, CA 95204  
Builders Exchange of Alameda County, 3055 Alvarado Street, San Leandro, CA 94577  
Daily Pacific Builder, 2450 17th Street, San Francisco, CA 94119  
Dodge-Scan, 2450 17th Street, San Francisco, CA 94119  
San Francisco Builders Exchange, 850 S. Van Ness, San Francisco, CA 94110  
Peninsula Builders Exchange 735 Industrial Way, San Carlos, CA 94070

EXAMINATION

The bidder is required to examine carefully the site of the proposed work and the Contract Documents, including the Drawings and Project Manual. The submission of a Proposal shall be prima facie evidence that the bidder has made such an examination and has satisfied himself concerning the character, quality, and quantity of all work to be done and materials to be furnished.

QUESTIONS AND RESOLUTION OF DISCREPANCIES

Submit all questions about the Drawings and Project Manual to the office of

Department of Engineering, 915 'I' Street  
Sacramento, California 95814

Written replies will be issued to all prime bidders on Addenda to the Drawings and Project Manual and will become a part of the Contract. The City, City Engineer, and Architect will not be responsible for oral clarifications. Questions received less than 120 hours before the bid opening cannot be answered in writing.

BASIS OF BID

The bidder must include all unit cost items and all alternates (if required) shown on the proposal forms; failure to comply may be cause for rejection. No segregated proposals or assignments will be considered.

## PREPARATION OF PROPOSAL

Proposals must be submitted on the unaltered forms furnished by the City, a copy of which is bound with the Project Manual. The Proposal must be in ink which is clearly legible and must be properly executed and signed. Signatures of all persons signing must be in longhand, with name typed below signature. Proposals submitted by corporation must be signed by a duly authorized officer, and the name of the State of incorporation must be indicated. Numbers shall be stated both in writing and in figures.

## PROPOSAL GUARANTEE

The proposal shall be accompanied by a corporate surety bond in the form hereinafter set forth, or by a certified check on a solvent bank of the State of California, made payable on sight to the Finance Director, the City of Sacramento, the amount of which shall be not less than 10% of the base or lump sum bid for the proposed work. No proposal will be considered unless accompanied by such bond or check.

When proposals have been received and reviewed by the City, all bonds and checks will be returned to the respective bidders except those submitted by the two lowest responsible bidders, which checks will be returned after the Contract has been awarded and subsequently the successful bidder has executed the agreement and filed satisfactory bonds and proof of insurance as specified, or after all proposals have been rejected if no award is made. The proceeds of such bond or check will be retained by the City as damages should such bidder fail to enter into said contract within the specified time, unless the City, by resolution, approves the return of said bond or check.

## PERFORMANCE AND PAYMENT BONDS

The successful bidder will be required to furnish a Payment Bond in the amount equal to one hundred percent (100%) of the Contract Price, and a Faithful Performance Bond in an amount equal to one hundred percent (100%) of the Contract Price. Said bonds to be secured from a surety company satisfactory to the City of Sacramento and shall be furnished to the City of Sacramento simultaneously with delivery of the signed contract.

## SUBCONTRACTORS

Names of subcontractors that the Bidder proposes to use on the work must be listed in the space provided in the Sub-Bidder Form, pursuant to the provisions of Sections 4101 to 4107, inclusive, of the Government Code of the State of California.

These sections require, among other things, that the Contractor, in submitting his bid, must show the following:

- A. The name and location of the place of business of each subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the work or improvement in an amount in excess of 1/2 of 1% of the prime Contractor's total bid.

- B. The portion of the work which will be done by each such subcontractor. The Contractor shall list only one subcontractor for each portion as is defined by the Contractor in his bid. If a Contractor fails to specify a subcontractor or if a Contractor specifies more than one subcontractor for the same portion of the work to be performed under the Contract in excess of 1/2 of 1% of the Contractor's total bid, he agrees to perform that portion himself.

#### OPENING OF BIDS

Bids will be opened and read aloud publicly at the time and place set forth in the advertised "Notice to Contractors". Bidders or their authorized representatives may be present at the opening of bids.

#### AWARD OF CONTRACT

In accordance with Section 58.102 of the City Code, the Council shall at any time within sixty (60) days after the date set for the opening of bids, either award the Contract or reject all bids.

#### EXECUTION OF CONTRACT

No Contract is binding upon the City until it has been executed on behalf of the City by the City Manager, attested by the City Clerk.

The individual, firm, partnership, joint venture, or corporation to whom or to which the Contract has been awarded shall sign the necessary Agreements entering into the Contract and shall furnish the surety bonds required within ten (10) calendar days after the award of the Contract by the City Council. A sample form of Agreement is included with the Project Manual.

Failure to comply with any of the requirements of these Instructions to Bidders, to execute the Contract as prescribed, or to furnish security as set forth, might be cause for the annulment of the award. In the event of an annulment of the award because of such failure to comply by the Bidder, the Proposal Guarantee shall become the property of the City, not as a penalty, but as liquidated damages. Award may then be made to the next best qualified bidder, or the work may be readvertised, as determined by the Council.

The successful bidder shall not, without the written consent of the subcontractor listed and the City Engineer, substitute any person as subcontractor in place of the subcontractor listed in the Sub-Bidder Form.

#### DELIVERY OF PROPOSAL

The Proposal must be delivered to the City Clerk by the time set forth in the Notice to Contractors. The proposal must be enclosed in the envelope provided by the City Clerk for that purpose. The envelope must be marked on the outside as indicated in the Notice to Contractors, and the envelope must be sealed.

#### REJECTION OF PROPOSALS

The City reserves the right to reject any or all bids.

Proposals containing any omissions, alterations of form, additions, or conditions not called for, conditional or alternate bids unless called for, bids or proposals, otherwise regular, which are not accompanied by a Proposal guarantee, will be considered irregular and may be rejected. The City of Sacramento reserves the right to waive technicalities as to changes, alterations, or reservations, and make the award to the best interest of the City.

#### BIDDER'S QUALIFICATIONS

Every bidder must hold a valid Contractor's license and the license must be registered in exactly the same individual, co-partnership, or corporation as that making the bid. The Contractor's license must be of a class which permits its holder to do the type of work contemplated in the project as of the date the Proposal is submitted, and such license must be maintained for the duration of the work.

The bidder shall indicate his license number in the space provided for that purpose on the Proposal Form.

#### LAWS AND REGULATIONS

All applicable Federal and State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.

\* \* \* \* \*



PROPOSAL - BID FORM

Page 1

TO THE HONORABLE CITY COUNCIL  
SACRAMENTO, CALIFORNIA:

In compliance with the advertised Notice to Contractors and Instructions to Bidders, the undersigned hereby proposes to furnish all required labor, materials, transportation, equipment, services, taxes and incidentals required to construct the Type I, cast-in-place concrete parking structure located at the southwest corner of Third and I Streets,

in the City and County of Sacramento, California.

The Work is to be done in strict conformity with the Drawings and Project Manual now on file in the office of the City Clerk, for the following:

BASE BID:

\_\_\_\_\_ DOLLARS  
(\$ \_\_\_\_\_)

DEDUCTIVE ALTERNATE - TUNNEL UNDER J STREET OFF RAMP, SECTION 01021:

\_\_\_\_\_ DOLLARS  
(\$ \_\_\_\_\_)

UNIT PRICES: For adding or deleting to length of piles.

- (1) Manufacturing and furnishing piles - including driving.  
Price per linear foot:

ADD: \_\_\_\_\_ DOLLARS/Lin.Ft.  
(\$ \_\_\_\_\_)

DELETE: \_\_\_\_\_ DOLLARS/Lin.Ft.  
(\$ \_\_\_\_\_)

If awarded the contract, the undersigned agrees to sign said contract and furnish the necessary bonds within ten (10) days after notice of the award of said contract, and to begin work within fifteen (15) days after the date of the signing of the contract by the Contractor and the City.

It is understood that this bid is based upon completion of the Work within a period of 365 calendar days, commencing on the date set forth in the written "Notice to Proceed" issued by the City to the Contractor.

The undersigned has examined the location of the proposed Work and is familiar with the Drawings and Project Manual as well as the local conditions at the place where the Work is to be done, and is familiar with the liquidated damages provision of the Supplementary Conditions.

The undersigned has checked carefully all of the foregoing figures and understands that the City of Sacramento will not be responsible for any errors or omissions on the part of the undersigned in making up this bid.

Enclosed is bid security as required consisting of a bidder's bond or certified check for not less than 10% of the amount bid.

The undersigned agrees that all addenda received and acknowledged herein shall become a part of and be included in this bid. This bid includes the following addenda:

Add. # \_\_\_\_\_ Date \_\_\_\_\_

Add. # \_\_\_\_\_ Date \_\_\_\_\_

Add. # \_\_\_\_\_ Date \_\_\_\_\_

Add. # \_\_\_\_\_ Date \_\_\_\_\_

Add. # \_\_\_\_\_ Date \_\_\_\_\_

NOTE: State whether your concern is a corporation, a co-partnership, private individual, or individuals doing business under a firm name:

\_\_\_\_\_  
If the bidder is a corporation, the bid must be executed in the name of the corporation and must be signed by a duly authorized officer of the corporation. If the bidder is a corporation, fill in the following sentence:

"This corporation is organized and existing under and by virtue of the laws of the State of \_\_\_\_\_."

If the bidder is a partnership, the bid must be executed in the name of the partnership and one of the partners must subscribe his signature as the authorized representative of the partnership.

AMOUNT OF BID DEPOSIT ENCLOSED:

(\$ \_\_\_\_\_) not less than 10% of amount bid

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CERTIFIED CHECK  
CASHIER'S CHECK  
BID BOND  
MONEY ORDER  
CASH

CONTRACTOR:

By \_\_\_\_\_  
(Signature)

Title \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_

Telephone No. \_\_\_\_\_

Date \_\_\_\_\_

Valid Contractor's License  
No. \_\_\_\_\_ is held  
by the Bidder.

BIDDER'S BOND

Page 1

KNOW ALL MEN BY THESE PRESENTS,

That we, \_\_\_\_\_

\_\_\_\_\_

as Principal, and \_\_\_\_\_

\_\_\_\_\_

a corporation duly organized under the laws of the State of \_\_\_\_\_, and duly licensed to become sole surety on bonds required or authorized by the State of California, as Surety, are held and firmly bound unto the City of Sacramento, hereinafter called the City, in the penal sum of ten percent (10%) of the (BASE OR LUMP SUM) bid of the Principal above named, submitted by said Principal to the City for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH

That whereas the Principal has submitted the above-mentioned bid to the City for certain construction specifically described as follows for which bids are to be opened in the Council Chambers at City Hall, Sacramento, California, on \_\_\_\_\_, for a Type I cast-in-place concrete parking structure at the southwest corner of Third and I Streets.

NOW, THEREFORE, if the aforesaid Principal is awarded the contract and within the time and manner required under the Contract Documents, enters into a written contract, in the prescribed form, in accordance with the bid, and files the two (2) bonds with the City, one to guarantee faithful performance and the other to guarantee payment for labor and materials, and files the required insurance policies with the City, all as required by the Contract Documents or by law, then the obligation shall be null and void; otherwise it shall be and remain in full force and virtue.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorney's fee to be fixed by the court, which sums shall be additional to the principal amount of this bond.

BIDDER'S BOND

Page 2

IN WITNESS WHEREOF we have hereunto set our hands and seals this \_\_\_\_\_  
day of \_\_\_\_\_, 19\_\_\_\_.

(seal)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

PRINCIPAL

(seal)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SURETY

I-5 Parking Structure  
City of Sacramento

NAME & SUB-BIDDER	ADDRESS SHOP, MILL OR OFFICE	CLASS OF WORK	PORTION OF WORK TO BE DONE

AGREEMENT

Page 1

THIS AGREEMENT, entered into as of \_\_\_\_\_, 19\_\_\_\_,  
between the Parking Authority, City of Sacramento, State of California (herein-  
after called the City), and \_\_\_\_\_  
(hereinafter called the Contractor),

WHEREAS, the Contractor has been conditionally awarded the contract for the  
work hereafter mentioned: A Type I, cast-in-place concrete parking structure  
located at the southwest corner of Third and I Streets, in the City and  
County of Sacramento.

W I T N E S S E T H:

that the parties hereto mutually agree to the terms and conditions hereinafter  
set forth.

CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, completed and accepted  
Proposal - Bid Form, Conditions of the Contract (General, Supplementary and  
other Conditions), Drawings, Specifications, and any modifications of any  
of the foregoing in the form of Addenda or otherwise effected in accordance  
with the terms of the Contract. These items form the Contract and the  
provisions thereof shall be as binding upon the parties hereto as if they  
were herein fully set forth. Work called for in any one Contract Document  
and not mentioned in another is to be performed and executed the same as if  
mentioned in all Contract Documents.

The Sections of the Technical Specifications are listed in the Table of Contents  
for the Project Manual and the titles of the drawing sheets, with their  
assigned numbers, are listed on the Drawings.

DEFINITIONS

Unless otherwise specifically provided herein, all words and phrases defined  
in the General Conditions shall have the same meaning and intent in this  
Agreement.

SCOPE OF CONTRACT

The Contractor agrees to furnish all tools, equipment, apparatus, facilities,  
labor and material and transportation necessary to perform and complete in  
a good and workmanlike manner to the satisfaction of the City, all the Work  
called for, and in the manner designated in, and in strict conformity with,  
the Contract Documents entitled,

INTERSTATE-5 FREEWAY PARKING STRUCTURE  
FOR THE CITY OF SACRAMENTO

CONTRACT TIME

The time limit for completion of the Work is 365 calendar days  
from and after the date set forth in the "Notice to Proceed" issued to the

## Page 2

Five Hundred and no/100 DOLLARS (\$ 500.00 )

Five Hundred and no/100 \_\_\_\_\_ DOLLARS (\$ 500.00 )

DOLLARS (\$ \_\_\_\_\_),

In the event of a conflict between the terms and conditions as set forth in this Agreement and the terms and conditions set forth in other Contract Documents, the terms and conditions set forth in this Agreement shall prevail.



AGREEMENT

Page 3

IN WITNESS WHEREOF, the parties hereto have signed this Agreement on the date set forth above.

CONTRACTOR

By \_\_\_\_\_  
(Signature)

Title \_\_\_\_\_

Telephone \_\_\_\_\_

PARKING AUTHORITY,  
CITY OF SACRAMENTO, a municipal  
corporation

By \_\_\_\_\_  
City Manager

APPROVED AS TO FORM:

FUNDS AVAILABLE:

\_\_\_\_\_  
City Attorney

\_\_\_\_\_  
Director of Finance

PERFORMANCE BOND

Page 1

KNOW ALL MEN BY THESE PRESENTS: That, WHEREAS, the City of Sacramento, State of California, has conditionally awarded to (here insert full name and address or legal title of Contractor)

---

---

as Principal, hereinafter called Contractor, a Contract for Construction of a Type I, cast-in-place concrete parking structure located at the southwest corner of Third and I Streets

in accordance with Drawings and Project Manual prepared therefor, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract, and WHEREAS, said Contractor is required under the terms of said Contract to furnish a bond for the faithful performance of said Contract.

NOW, THEREFORE, we the Contractor and (here insert full name and address or legal title of Surety)

---

---

as Surety, hereinafter called Surety, are held and firmly bound unto the Parking Authority, City of Sacramento, State of California (Hereinafter called the City) as obligee, in the penal sum of

\_\_\_\_\_ DOLLARS

(\$ \_\_\_\_\_), lawful money of the United States, for the payment of which sum well and truly to be made, we the Contractor and Surety bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the above-bounden Contractor, his heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the said Contract, including the provisions for liquidated damages in the said Contract, any changes, additions or alterations thereof made as therein provided, on his or their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meanings, and shall indemnify and save harmless the City, its officers and agents, as therein stipulated, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

PERFORMANCE BOND

Page 2

And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Work.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, the name and corporate seal of each corporate party being affixed hereto and these presents duly signed by its undersigned representatives, pursuant to authority of its governing body.

SIGNED AND SEALED this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

\_\_\_\_\_  
(Principal) (Seal)

\_\_\_\_\_  
Witness By \_\_\_\_\_

\_\_\_\_\_  
Title \_\_\_\_\_

\_\_\_\_\_  
(Surety)

\_\_\_\_\_  
Witness By \_\_\_\_\_  
Attorney-in-fact (Seal)

\_\_\_\_\_  
Title \_\_\_\_\_

APPROVED AS TO FORM

\_\_\_\_\_  
City Attorney

PAYMENT BOND

Page 1

KNOW ALL MEN BY THESE PRESENTS: That WHEREAS, the Parking Authority, City of Sacramento, State of California, has conditionally awarded to (here insert full name and address or legal title of Contractor)

---

---

hereinafter called Contractor, a Contract for the construction of a Type I, cast-in-place parking structure located at the southwest corner of Third and I Streets

in accordance with Drawings and Project Manual prepared therefor, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract, and WHEREAS said Contractor is required under the terms of said contract to furnish a bond in connection with said Contract, providing that if said Contractor, or any of his subcontractors, shall fail to pay for any materials, provisions, provender or other supplies, or equipment used, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or Division 3, of the Civil Code; or for any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board from the wages of employees of the Contractor and his subcontractors pursuant to Section 18806 of the Revenue and Taxation Code with respect to such work and labor, then the Surety on this Bond will pay for the same in an amount not exceeding the sum specified in this Bond, and also, in case suit is brought upon the Bond, a reasonable attorney's fee to be fixed by the court.

NOW, THEREFORE, we the Contractor and (here insert full name and address or legal title of Surety)

---

---

as Surety, hereinafter called Surety, are held and firmly bound unto the Parking Authority, City of Sacramento, State of California (hereinafter called the City) as obligee, in the sum of

DOLLARS

(\$ \_\_\_\_\_), lawful money of the United States for the payment of which sum, well and truly to be made, we the Contractor and Surety bind ourselves, jointly and severally, firmly by these presents.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if said Contractor, his heirs, executors, administrators, successors and assigns,

PAYMENT BOND

Page 2

or his subcontractors, shall fail to pay for any materials, provisions, supplies, or equipment used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or labor, then the Surety on this Bond will pay for the same, in an amount not exceeding the sum specified in this Bond, and also, in case suit is brought upon the Bond, a reasonable attorney's fee to be fixed by the court.

This Bond shall inure to the benefit of any and all persons, companies, corporations, political subdivisions and State agencies, entitled to file claims under the provisions of Section 3181 of the Civil Code of the State of California, as now in effect and as the same may be amended or superceded from time to time, so as to give a right of action to them, or their assigns, if any suit is brought upon this Bond. And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligations of this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, the name and corporate seal of each corporate surety party being affixed hereto and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

SIGNED AND SEALED THIS \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

\_\_\_\_\_  
(Principal) (Seal)

\_\_\_\_\_  
Witness

By \_\_\_\_\_

Title \_\_\_\_\_

\_\_\_\_\_  
(Surety)

\_\_\_\_\_  
Witness

By \_\_\_\_\_  
Attorney-in-fact (Seal)

APPROVED AS TO FORM

Title \_\_\_\_\_

\_\_\_\_\_  
City Attorney

# CERTIFICATE OF INSURANCE

This certifies to Parking Authority, City of Sacramento

that the following described policies have been issued to:

Insured \_\_\_\_\_  
 Address \_\_\_\_\_  
 \_\_\_\_\_

Location of operations insured \_\_\_\_\_  
 \_\_\_\_\_

Description of work (show project name and/or number, if any) \_\_\_\_\_  
 \_\_\_\_\_

POLICIES AND INSURERS	LIMITS		POLICY NUMBER	EXPIRATION DATE
	Bodily Injury	Property Damage		
Workmen's Compensation	Employer's Liability \$ _____			
(insurer)				
Comprehensive General Liability	Each Person	Each Occurrence		
(insurer)	Each Occurrence	Aggregate		
	Combined Single Limit			
Comprehensive Auto Liability	Each Person	Each Accident		
(insurer)	Each Occurrence			
	Combined Single Limit			

All policies are in effect at this time and will not be cancelled, limited, or allowed to expire without renewal until after 30 days written notice has been given to the certificate holder named on the top line.

The following coverages or conditions are in effect:

	Yes	No
<u>Broad Form Property Damage</u>		
<u>Products and Completed Operations</u>		
<u>Contractual Liability</u>		
<u>Professional Liability</u>		
<u>Errors &amp; Omissions</u>		
<u>Legal Liability</u>		
<u>X, C, U Hazards Included</u>		
<u>Named Additional Insured<sup>(1)</sup></u>		
<u>Insurance policy(ies) will be deemed Primary insurance</u>		

\_\_\_\_\_  
 (Date)

\_\_\_\_\_  
 (Authorized Signature) (2)

\_\_\_\_\_  
 (At)

\_\_\_\_\_  
 (Insurance Company)

- (1) City of Sacramento, its officers, employees, and agents  
 (2) Authorized signature may be the agent's if agent has placed insurance through an agency agreement with the insurer. If insurance is brokered, authorized signature must be that of official of insurer.

NOTE: Forward completed Certificate within 15 days of execution of this contract and prior to engaging in any activity set forth in this contract to:  
 CITY OF SACRAMENTO; DEPARTMENT OF FINANCE;  
 915 I STREET, ROOM 100; SACRAMENTO, CA 95814

GUARANTEE

Page 1

We hereby guarantee the \_\_\_\_\_

(Work Guaranteed)

which we have furnished or constructed in the City of Sacramento for the Parking Authority of the City of Sacramento for a period of \_\_\_\_\_

from the date of acceptance thereof by said City in accordance with the guarantee required in the specifications. We agree to repair or replace any or all such work, together with all or any other work which may be displaced in so doing, that may be proven defective in workmanship or material within the applicable guarantee period from the date of acceptance without expense whatsoever to the City, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of our failure to comply with the above-mentioned conditions within five (5) days time after being notified in writing, we collectively or separately, do hereby authorize the City to proceed to have the defects repaired and made good at our expense and will pay the costs and damages therefor immediately upon demand.

Signed:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DATE \_\_\_\_\_

315-B  
0578

SCHEDULE OF VALUES/PAY REQUEST  
(FORMAT)  
Page 1

PROJECT:

COST CENTER:

PURCHASE ORDER:

INVOICE NO:

PERIOD ENDING DATE:

CONTRACTOR:

APPLICATION NO:

CHANGE ORDER SUMMARY:		ADDITIONS	DEDUCTIONS
CHANGE ORDERS APPROVED IN PREVIOUS MONTHS BY CITY TOTAL		\$	\$
SUBSEQUENT CHANGE ORDERS			
NUMBER	DATE		
TOTALS			
NET CHANGE by CHANGE ORDERS			

Original Contract Sum		\$
Net Change by Change Orders	\$	
Total Adjusted Contract to Date		\$
Balance of Contract to Finish	\$	
Total Completed and Stored to Date		\$
Less 10% Retained	\$	
Less Previous Payments	\$	
Current Amount Due		\$

Submitted

By \_\_\_\_\_

Approved

By \_\_\_\_\_

Approved

By \_\_\_\_\_



CONTRACTOR:  
APPLICATION NO:

315-B  
0479

[illegible]

**SCHEDULE OF VALUES/  
PAY REQUEST**  
**Page 2**

Except to the extent modified under the Supplementary Conditions, the General Conditions of these Specifications shall be Sections 1 through 8, inclusive, of the Standard Specifications of the City of Sacramento, adopted by the City Council of said City by Resolution No. 653, dated March 30, 1967.

The City Standard Specifications are subject to the provisions of Chapter 58 of the Sacramento City Code (Ordinance No. 3129, Fourth Series), effective July 15, 1972 (enacted pursuant to Section 251 of the Sacramento City Charter). If there is any conflict between the City Standard Specifications as currently written and Chapter 58 of the Sacramento City Code, the latter shall govern.

A copy of Sections 1 through 8 of the City Standard Specifications may be obtained at the following address:

Mr. William S. Gentry, Senior Engineer  
City of Sacramento  
Department of Engineering  
915 'I' Street, Room 207  
Sacramento, CA 95814

(916) 449-5281

Wherever in the Plans or Specifications for the construction of Interstate 5 Freeway Parking Structure for the City of Sacramento it calls out the City of Sacramento or City it shall mean to be the Parking Authority, City of Sacramento.

SUPPLEMENTARY CONDITIONS

Page 1

1.01 MODIFICATIONS TO GENERAL CONDITIONS

A. General

1. The General Conditions are modified as follows. Where any part of the General Conditions is modified or deleted, unaltered provisions shall remain in effect.
2. References to articles hereafter are those set forth in the Standard Specifications of the City of Sacramento, adopted by Resolution No. 653, dated March 30, 1967.

B. Modifications

1. Article 1-1 through 1-3, Amended:

Delete the abbreviation AASHO and add the following abbreviations:

ACI	American Concrete Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Materials
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
CS	Commercial Standards (U.S. Department of Commerce)
DFPA	Douglas Fir Plywood Association
FS	Federal Specifications
NBFU	National Board of Fire Underwriters
NEC	National Electric Code
NFPA	National Fire Protection Association
RIS	Redwood Inspection Service
SPR	Simplified Practice Recommendations (Bureau of Standards, U.S. Dept. of Commerce)
UL	Underwriters Laboratories, Inc.
UBC	Uniform Building Code (1976 Edition) of the Pacific Coast Building Officials Conference
WCLIB	West Coast Lumber Inspection Bureau
WIC	Woodwork Institute of California

2. Article 1-6, "Bid Affidavit", Deleted:

Delete this article in its entirety.

3. Article 1-9, "City Controller", Amended:

"City Controller" shall mean the Director of Finance of the City of Sacramento.

4. Article 1-12, "Contract", Amended:

Delete this article in its entirety and add the following:

"Contract" shall mean the written Agreement covering the performance of the Work. The Contract Documents form the Contract.

"Contract Documents" shall consist of the Drawings and all the items listed in the Table of Contents for the Project Manual, any Addenda to the Contract, and any other modifications effected in accordance with the terms of the Contract.

5. Article 1-19, "Intention of Terms", Amended:

Delete the second paragraph of this article in its entirety.

6. Article 1-22, "Plans", Deleted:

Delete this article in its entirety and substitute the following:

"Drawings" shall mean working drawings or supplemental drawings, or reproduction thereof, approved by the Engineer which show the location, character, dimensions, and details of the work to be done, and which form part of the Contract.

7. Article 1-26, "Special Provisions", Deleted:

Delete this article in its entirety.

8. Article 1-27, "Specifications", Deleted:

Delete this article in its entirety and substitute the following:

"Specifications" shall mean the technical portion of the Project Manual consisting of the written description of the qualities of materials and/or methods of workmanship to be furnished under the Contract. The Specifications are organized into divisions, sections and articles to enable grouping of the various portions of the Work in a logical format, but this organization does not in any way restrict the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

9. Article 1-28, "State Specifications", Amended:

"State Specifications" shall mean the Standard Specifications, State of California, Business and Transportation Agency, Department of Transportation, dated January 1978.

10. Section 2, PROPOSAL REQUIREMENTS AND CONDITIONS, pages 3, 4, 5 and 6, Deleted:

Delete pages 3 through 6 of the Standard Specifications. Refer to INSTRUCTIONS TO BIDDERS.

11. Article 3-2, AWARD OF CONTRACT, Amended:

Delete this article as written and substitute the following:

"The Council shall either award the Contract or reject any or all bids within 60 calendar days after the date set for opening of bids."

12. Article 3-4, REQUIREMENTS OF PERFORMANCE BOND, Amended:

Change the amount of the Performance Bond from 50% of the contract amount to 100% of the contract amount. The Bond shall be executed by a corporate surety or sureties approved by the Director of Finance. The form of the bond is contained in the Project Manual.

13. Article 3-5, REQUIREMENTS OF LABOR AND MATERIAL BOND, Amended:

Change title to read "PAYMENT BOND." Change the amount of the Payment Bond from 50 percent of the contract amount to 100 percent of the contract amount. The form of the bond is contained in the Project Manual.

14. Article 3-6, BONDSMEN, etc., Deleted:

Delete this article in its entirety.

15. Article 3-7, EXECUTION OF CONTRACT, Amended:

The individual, firm, partnership, joint venture or corporation to whom or to which the contract has been awarded shall sign the necessary agreements entering into the contract and shall furnish the surety bonds required as specified in the Proposal-Bid form.

16. Article 3-8, APPROVAL OF CONTRACT, Deleted:

Delete this article in its entirety and substitute the following:

"No Contract is binding upon the City until it has been executed on behalf of the City by the City Manager."

17. Article 3-10, CONTRACTS ON WORK UNDER THE "IMPROVEMENT ACT OF 1911", etc., Deleted:

Delete this article in its entirety.

18. Article 3-11, FORM OF CONTRACT AND SURETY BONDS, Amended:

For the information of the bidder, enclosed in the "Contract Forms" of the Project Manual are sample forms of the contract and surety bonds to be required to be executed by the successful bidder. The terms and conditions of the contract agreement as set forth in said

sample forms are incorporated into the General and Supplementary Conditions. In the event of a conflict between the terms and conditions as set forth in the sample forms and the terms and conditions set forth in the General and Supplementary Conditions or other related documents, the terms and conditions set forth in the sample forms shall prevail.

19. Pages 8, 9, 10 and 11, Deleted:

Delete Pages 8, 9, 10 and 11 of the Standard Specifications.

20. Article 4-1, INTENT OF PLANS, etc., Deleted:

Delete this article in its entirety.

21. Article 4-2, PLANS AND SPECIFICATIONS MUTUALLY EXPLANATORY, Deleted:

Delete this article in its entirety and substitute the following:

**DRAWINGS AND PROJECT MANUAL MUTUALLY EXPLANATORY**

The Project Manual and the Contract Drawings are intended to be explanatory of each other. Any work indicated in the Drawings and not in the Project Manual or vice versa, is to be executed as if indicated in both. Should any discrepancy appear, or misunderstanding arise as to the import of anything contained in either, the explanation of the Engineer in relation thereto shall prevail. In the event of a dispute between the Contractor and the Engineer, appeals may be taken as provided herein.

The work shall be performed and completed according to the true spirit, meaning, and intent of the Contract.

In addition to the Drawings made a part of this Contract at time of signing, by incorporation or reference, the Engineer shall furnish such additional Drawings from time to time during the progress of the work, as are necessary to make clear and to define in greater detail, as may be necessary, the intent of the Contract and the Contractor shall make his work conform to all such Drawings.

The organization of the Technical Specifications of the Project Manual into divisions, sections and articles, and the arrangement of Drawings shall not control the Contractor in dividing the work among Subcontractors or in establishing the extent of work to be performed by any trade.

SUPPLEMENTARY CONDITIONS

Page 5

22. Article 4-4, CHANGES AND INCREASED OR DECREASED QUANTITIES OF WORK, Deleted.

Delete this article in its entirety.

23. Article 4-7, MAINTENANCE OF TRAFFIC, Deleted:

Delete this article in its entirety.

24. Article 5-4, COORDINATION OF SPECIFICATIONS, PLANS AND SPECIAL PROVISIONS, Deleted:

Delete this article in its entirety and substitute the following:

"The Project Manual, Drawings, and all supplemental drawings and documents are essential parts of the Contract, and a requirement occurring in one is just as binding as though occurring in all. They are intended to be cooperative to describe and provide for a complete Work. In case of conflict between Drawings and the Technical Specifications of the Project Manual, the Drawings shall govern in matters of quantity and the Specifications shall govern in matters of quality. In case of conflict within the Drawings involving quantities or within the Specifications involving qualities, the greater quantity and the higher quality shall be furnished."

25. Article 5-5, COOPERATION OF CONTRACTOR, Deleted:

Delete this article in its entirety and substitute the following:

"The Contractor will be supplied with one complete copy of Contract after its execution by the City. The Contractor will also be supplied with at least 10 copies of the Drawings and Project Manual for his use in prosecuting the Work of the Contract. One each of the Drawings and Project Manual shall be kept at the site of the Work available for use by the Engineer. Additional copies of Drawings and Project Manual may be requested by the Contractor and will be supplied without cost if available, or at the actual cost if their reproduction is necessary."

26. Article 5-6, CONSTRUCTION STAKES, Deleted:

Delete this article in its entirety.

27. Article 5-7, DRAWINGS TO BE FURNISHED BY CONTRACTOR, Deleted:

Delete this article in its entirety.

28. Article 5-16, SUBSTITUTION FOR PATENTED AND SPECIFIED ARTICLES, Deleted:

Delete this article in its entirety.

29. Article 6-2, CERTAIN LAWS AFFECTING THE WORK, Amended:

Delete the following paragraphs:

- a. Ordinance reference: Delete in its entirety.
- c. Alien Labor: Delete in its entirety.
- d. Prevailing Wage: Delete in its entirety and substitute the following:

"The Contractor, Subcontractors and all concerned must comply with the rate of wages per hour as established by the Director of the Department of Industrial Relations under provisions of Sections 1770 and 1773 of the Labor Code of the State of California, or such other rate of wages as may hereafter be established by the Director of the Department of Industrial Relations in compliance with Section 1770 of the Labor Code of the State of California."

- f. Apprentices: Delete in its entirety.
- i. Subcontractors: Delete in its entirety.
- j. Domestic Materials: Delete in its entirety.
- k. Convict-Made Materials: Delete in its entirety.

Add the following:

The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the work. If the Contractor observes that any of the Contract Documents are at variance therewith in any respect, he shall promptly notify the Engineer in writing and any necessary changes shall be adjusted by appropriate modification. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Engineer, he shall assume full responsibility therefor and shall bear all costs attributable thereto.

30. Article 6-3, PERMITS AND FEES, Deleted:

Delete this article in its entirety and substitute the following:

The Contractor shall obtain the building permit, mechanical, electrical, curb cut and any City work permits. These shall be "no cost" to the Contractor. Any and all other permits including permits from the State of California, Fire Sprinkler permits, Government fees and licenses, etc., necessary for the proper execution and completion of the work, shall be secured and paid for by the Contractor.



31. Article 6-6, PUBLIC CONVENIENCE AND SAFETY, Amended:

- a. Materials stored on the work shall be so placed that minimum hazard to the public will result. It is agreed and understood that public safety is a prime consideration and during the progress of the work the protection of the public is to be constantly preserved. The Contractor shall take all necessary precautions for the safety of employees on the work and shall comply with all applicable provisions of Federal, State and Municipal safety laws and building codes to prevent accidents or injury to persons on, about, or adjacent to the premises where the work is being performed. He shall erect and properly maintain all necessary safeguards for the protection of workmen and public, and shall post danger signs warning against the hazards created by such features of construction as protruding materials, hoists, openings and falling materials; and he shall designate a responsible member of his organization at the site of the work, whose duty shall be the prevention of accidents.
- b. The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, facilities, and methods and for any injury to persons or property which may result from their failure or their improper construction, use, maintenance or operation.
- c. The duty of the Engineer, his employees, agents, architects or consultants to conduct, construct, or view the Contractor's performance is not intended to include review of the adequacies of the Contractor's safety measures in, on, or near the construction site. In an emergency affecting the safety of life or of the work or adjoining property, the Contractor, without special instruction or special authorization from the Engineer, is hereby permitted to act at his discretion to prevent such threatened loss or injury, and he shall so act without discretion to prevent such threatened loss or injury, and he shall so act without appeal, if so authorized or instructed. Any compensation claimed by the Contractor on account of emergency work shall be determined by mutual agreement.

32. Article 6-7, BARRICADES AND WARNING SIGNS, Amended:

Change the third sentence of the first paragraph to read as follows:

"Warning signs, lights and devices shall be in accordance with requirements of the Motor Vehicle Code of the State of California and the City Traffic Engineer."

Delete the second paragraph in its entirety.

33. Article 6-8, INDEMNIFICATION OF THE CITY, Deleted:

Delete this article in its entirety.

34. Article 6-9, CONTRACTORS INSURANCE, Deleted:

Delete this article in its entirety.

35. Article 6-16, GUARANTEE, Deleted:

Delete this article in its entirety, and add the following in lieu thereof: "Besides guarantees required elsewhere, the Contractor shall guarantee all work executed by him under this contract or any extra orders to be absolutely free of all defects of workmanship and materials for a period of one (1) year (or such other period as is expressly provided in the Specifications) after final completion and acceptance of the work by the City. The form of guarantee is contained in the Project Manual.

36. Article 7-1, SUBLETTING AND ASSIGNMENT, Amended:

Delete the third paragraph of this article in its entirety.

37. Article 7-2, BEGINNING OF WORK, etc., Deleted:

Delete this article in its entirety.

38. Article 7-4, AVOIDABLE DELAYS, Deleted:

Delete this article in its entirety.

39. Article 7-5, UNAVOIDABLE DELAYS, Deleted:

Delete this article in its entirety.

40. Article 7-12, FAILURE TO COMPLETE WORK, Deleted:

Delete this article in its entirety.

41. Article 8-4, PARTIAL PAYMENTS, Deleted:

Delete this article in its entirety.

42. Article 8-5, FINAL ACCEPTANCE OF THE WORK, Deleted:

Delete this article in its entirety.

43. Article 8-6, FINAL PAYMENT, Deleted:

Delete this article in its entirety.

1.02 ADDITIONS TO GENERAL CONDITIONS

A. Definitions

1. Drawings: Working drawings or supplemental drawings, or exact

reproductions thereof, approved by the Engineer which show location, character, dimensions, and details of the work to be done, and which are considered as a part of the Contract.

2. Project Manual: The manual prepared for the Project, including the Bidding Requirements, Contract Forms, Conditions of the Contract, Technical Specifications, and other related documents.
- B. Warranty: The Contractor warrants to the City that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All work not so conforming to these standards may be considered defective. If required by the Engineer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.
- C. Architects Authority: The Architect will make periodic visits to the site to familiarize himself with the progress and quality of the work and to determine in general if the work is proceeding in accordance with the Contract Documents. On the basis of his on-site observations as an architect, he will keep the Engineer informed of the progress of the work, and will endeavor to guard the Owner against defects and deficiencies in the work of the Contractor. All instructions from the Architect to the Contractor shall be given through the Engineer, and the City will not be responsible for any instruction not so given. The Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work. The Architect will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the work, and he will not be responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents.
- D. Underground Utilities: Except as otherwise provided herein, the Contractor shall send proper notices, make necessary arrangements, perform other services required in the care and maintenance of all public utilities on the project site. The Contractor shall assume all responsibilities concerning same. Contractor shall provide necessary protection to existing public utilities and utility services identified and designated on the Drawings and Project Manual and shall repair any such utilities that are damaged as a result of his operation. The City shall assume the responsibility for the removal, relocation, or protection of existing utilities located on the project site which are identified in the Drawings and Project Manual and are specified therein for removal or relocation by the City. Contractor shall physically inspect the site for utilities not identified in the Drawings and Project Manual and shall assume responsibility for said utilities and delays occasioned by the removal thereof. In recognition of this requirement, the Contractor hereby waives the benefits of Section 4215 of the Government Code of the State of California. If the Contractor while performing the contract, discovers utility facilities not

designated and identified in the Drawings and Project Manual, he shall immediately notify the Engineer in writing and by telephone.

E. TRAINING OF APPRENTICES ON PUBLIC WORKS CONTRACTS

1. Attention is directed to the provisions in Section 1777.5 (Chapter 1411, Statutes of 1968) and 1777.6 of the Labor Code concerning the employment of apprentices by the contractor or any sub-contractor under him.
2. Section 1777.5, as amended, requires the contractor or subcontractor employing tradesmen in any apprenticeable occupation to apply to the joint apprenticeship committee nearest the site of the public works project and which administers the apprenticeship program in that trade for a certificate of approval. The certificate will also fix the ratio of apprentices to journeymen that will be used in the performance of the contract. The ratio of apprentices to journeyman in such cases shall not be less than one to five except where an exception is issued on one of the following conditions:
  - a. In the event unemployment for the previous three-month period in such area exceeds an average of 15 percent, or
  - b. In the event the number of apprentices in training in such area exceeds a ratio of 1 to 5, or
  - c. If there is a showing that the apprenticeable craft or trade is replacing at least one-thirtieth of its journeymen annually through apprenticeship training, either (1) on a statewide basis, or (2) on a local basis.
  - d. If assignment of an apprentice to any work performed under a public works contract would create a condition which would jeopardize his life or the life, safety, or property of fellow employees or the public at large or if the specific task to which the apprentice is to be assigned is of such a nature that training cannot be provided by a journeyman.
3. The contractor is required to make contributions to funds established for the administration of apprenticeship programs if he employs registered apprentices or journeymen in any apprenticeable trade on such contracts and if other contractors on the public works site are making such contributions.
4. The contractor and any sub-contractor under him shall comply with the requirements of Sections 1777.5 and 1777.6 in the employment of apprentices. Noncompliance with Section 1777.5 can result in substantial penalties under Section 1777.7.
5. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

F. Affirmative Action Requirements

1. The City of Sacramento is signatory to the "Greater Sacramento Area Plan," a joint industry-labor-minority representative agreement established for the purpose of increasing the employment of minorities in all phases and at all levels of skill in the building and construction industry within the greater Sacramento area. The City has adopted the "Plan" as its affirmative action program for City construction contracts and requires a contractor and his subcontractors be signatory to the Plan in order to be eligible for an award of a City contract.
2. A copy of the "Greater Sacramento Area Plan" is enclosed herewith for the Contractor's information. Additional information on the "Plan" is available at the headquarters office located at 4320 Stockton Boulevard, Sacramento, California 95820, Telephone (916) 452-5832.

G. Estimates and Payments

1. Scope of Payment: Payment to the Contractor at the lump sum price fixed in the Contract for performing all work required under the Contract, as adjusted for any change orders approved as hereinbefore specified, shall be full compensation for furnishing all labor, materials, equipment and tools necessary to the Work, and for performing and completing, in accordance with the Contract Documents, all Work required under the Contract, and for all expenses incurred by the Contractor for any purpose in connection with the performance and completion of said Work.
2. Progress and Final Payments: The City shall cause payments to be made upon demand of the Contractor (subject to the approvals herein provided) and pursuant to the Contract Documents as follows:
  - a. On or about the 15th day of each month, there will be paid 90% of the value, based on the Contract prices, of labor and materials incorporated in the Work and of materials suitably stored at the construction site, or at other locations approved by the City, up to the last day of the previous month, as estimated by the City in accordance with the cost breakdown prepared therefor, less the aggregate of previous payments.
  - b. Materials suitably stored at other locations to be paid for as above shall specifically include, but not necessarily be limited to major items of electrical and mechanical equipment in bonded warehouses. The City may make payments based upon Contract prices of materials upon order thereof, provided that the City is satisfied, in its sole discretion, that such payments will result in substantial savings and the Contractor agrees to share such savings with the City.

- c. Monthly payments shall be made only on the basis of monthly estimates which shall be prepared by the Contractor on a form approved by the City and filed in final form and in five copies with the City on or before the 5th day of the month during which payment is to be made. Proposed monthly estimates shall be filed in duplicate with the City during the last five working days of the month previous to the month during which payment is to be made.
  - d. No inaccuracy or error in said monthly estimates shall operate to release the Contractor or Surety from damages arising from such work or from enforcement of each and every provision of the Contract Documents, and the City shall have the right subsequently to correct any error made in any estimate for payment.
  - e. The Contractor shall not be paid for any defective or improper work.
  - f. The City shall pay the final 10% of the value of the work done under this Contract, if unencumbered, 35 days after final completion and acceptance of work by the City. Acceptance by the Contractor of said final payment shall constitute a waiver and release of all claims against the City arising under the Contract Documents.
3. Payments Do Not Imply Acceptance of Work: The payment of any progress payment, or the acceptance thereof by the Contractor, shall not constitute acceptance of the work or any portion thereof, and shall in no way reduce the liability of the Contractor, to replace unsatisfactory work or material, though the unsatisfactory character of such work or material may not have been apparent or detected at the time such payment was made.
4. Retention of Sums Charged Against Contractor: When, under the provisions of this Contract, the City shall charge any sum of money against the Contractor, the amount of such charge shall be deducted and retained by the City from the amount of the next succeeding progress estimate, or from any other monies due or that may become due the Contractor on account of the Contract. If, on completion or termination of the Contract such monies due the Contractor are insufficient to pay the City's charges against him, the City shall have the right to recover the balance from the Contractor or his sureties.
5. Release: The Contractor and each assignee under any assignment in effect at the time of final payment shall, if required by the City, execute and deliver at the time of final payment and as a condition precedent to final payment, a release in form and substance satisfactory to, and containing such exemptions as may be found appropriate by the City discharging the City, its officers,

agents and employees of and from all liability, obligations and claims arising under this Contract.

#### H. Schedule

1. Notice to Proceed: Written Notice to Proceed will be given by the City within 15 calendar days from the date of execution of the Contract. In the event the written Notice to Proceed has not been issued within the 15 calendar days, or the last date of any extensions of time agreed upon by the City and the successful bidder, the Contract shall be void, and no liability or obligation shall arise thereunder and Bidder shall not have any claim against the City or their officers, employees, agents or architects because of the failure of the City to issue the Notice to Proceed.
2. Commencement and Prosecution of Work: The Contractor shall commence the work on or before 15 calendar days from and after receipt of written "Notice to Proceed" from the City to the Contractor, and will diligently prosecute the work to final completion. The phrase "Commence the work" means to engage in a continuous program on-site including, but not limited to, site clearance, grading, dredging, land filling and the fabrication, erection, or installation of the Work. Said Notice to Proceed shall be issued following execution of the Agreement and the filing by the Contractor of the required bonds and proof of insurance. The continuous prosecution of work by the Contractor shall be subject only to excusable delays as defined herein.
3. Time of Completion: The time limit for the completion of the Work shall be the number of calendar days indicated on the Agreement, counted from and after the date the Contractor is issued a "Notice to Proceed" by the City (hereinafter called the "Completion Date"), as modified by extensions of time granted in accordance with the Contract Documents. Failure to substantially complete the Work by the completion date and in the manner provided for by the Contract Documents shall subject the Contractor to liquidated damages as hereinafter stipulated. Time is and shall be of the essence in these Contract Documents.
4. Changes in the Work: Changes in the Work made pursuant to approved Change Orders issued in accordance with the Contract Documents and extensions of time of completion made necessary by reason thereof (beyond the completion date) shall not in any way release any guarantee given by the Contractor pursuant to the provisions of the Contract Documents, or the Contract let hereunder, nor shall such changes in the Work relieve or release the sureties on bonds executed pursuant to the said provisions. The sureties, by executing such bonds, shall be deemed to have expressly agreed to any such change in the work and to any extension of time made by reason thereof.

5. Extensions of Time: In the event the City deems it necessary, in its sole discretion, to extend the time of completion of the Work to be done under this Contract beyond the required Completion Date herein specified, such extensions shall in no way release any guarantee given by the Contractor pursuant to the provisions of the Contract Documents, nor shall such extension of time relieve or release the sureties on the bonds executed pursuant to said provisions. By executing such bonds, the sureties shall be deemed to have expressly agreed to any such extension of time. The amount of time allowed in any extension of time shall be limited to the period of the delay giving rise to the same as determined by the Engineer.

6. Excusable Delays

- a. For the purpose of these Contract Documents, the term "Excusable Delays" shall mean, and is limited to, delays caused directly by acts of God; acts of the public enemy, fires, riots, insurrections; epidemics; quarantine restrictions; strikes, lockouts; sitdowns; acts of a governmental agency; priorities or privileges established for the manufacture, assembly or allotment of materials necessary in the work by order, decree or otherwise of the United States or by any department, bureau, commission, committee, agent, or administrator of any legally constituted public authority; changes in the work ordered by City insofar as they necessarily require additional time in which to substantially complete the work; the prevention by City of Contractor from commencing or prosecuting the work because of the acts of others, excepting Contractor's subcontractors; or the prevention of Contractor from commencing or prosecuting the work because of a City-wide failure of public utility service.
- b. Inclement weather shall not be a reason for the granting of an extension of time. City may, however, grant an extension of time for unavoidable delay as a result of extraordinary inclement weather. A delay for extraordinary inclement weather shall then be classified "Excusable Delay."
- c. The term "Excusable Delay" shall specifically not include:
  1. Any delay which would have been avoided by the exercise of care, prudence, foresight and diligence on the part of the Contractor;
  2. Any delay in the prosecution of parts of the Work, which may in itself be unavoidable but which does not necessarily prevent or delay the prosecution of other parts of the Work, nor the substantial completion of the whole Work within the time specified;



3. Any reasonable delay resulting from time required by City for review of plans and submittals required of Contractor and for the making of surveys, measurements and inspections;
4. Any delay arising from an interruption in the prosecution of the work on account of the reasonable interference from other Contractors employed by City, which does not necessarily prevent the substantial completion of the Work within the time specified; and
5. Any delay resulting from ordinary inclement weather.

Excusable Delays, if any, shall operate only to extend the completion date (not in excess of the period of such delay as determined by City) but shall not under any circumstances increase the sum City is to pay Contractor as provided in these Contract Documents.

I. Liquidated Damages

1. Determination of Damages: The actual fact of the occurrence of damages and the actual amount of the damages which the City would suffer if the work were not completed within the specified times set forth are dependent upon many circumstances and conditions which could prevail in various combinations, and, from the nature of the case, it is impracticable and extremely difficult to fix the actual damages. Damages which the City would suffer in the event of delay include expenses of prolonging employment of an architectural and engineering staff; costs of administration, inspection, and supervision; and the loss suffered by the public within the City of Sacramento by reasons of the delay in the construction of the project to serve the public at the earliest possible time. Accordingly, the parties hereto agree, and by execution of the Contract, the Contractor acknowledges that he understands, has ascertained and agrees, that the amounts herein set forth shall be presumed to be the amounts of damages sustained by the failure of the Contractor to substantially complete the entire work within the times specified.
2. Agreed Amount of Damages: The amount of the liquidated damages to be paid by the Contractor to the City for failure to substantially complete the entire work by the completion date (as extended, if applicable) will be the amount indicated on the Agreement for each calendar day continuing to the time at which the work is substantially completed. Such amount is the actual cash value agreed upon as the loss to the City resulting from the Contractor's default.
3. Payment of Damages: In the event the Contractor shall become liable for liquidated damages, the City, in addition to all other remedies provided by law, shall have the right to withhold any and all payments which would otherwise be or become due the Contractor until the liability of the Contractor under this section is finally determined.

The City shall have the right to use and apply such payment, in whole or in part, to reimburse the City for all liquidated damages due or to become due to the City. Any remaining balance of such payments shall be paid to the Contractor only after discharge in full of all liability incurred by the Contractor under this section or otherwise. If the sum so retained by the City is not sufficient to discharge all such liabilities of the Contractor, the Contractor and his sureties shall continue to remain liable to the City until all such liabilities are satisfied in full.

4. Termination After Completion Date: In addition to any other rights it may have, the City may terminate this contract at any time after the completion date as adjusted by any extensions of time for excusable delays that may have been granted. Upon such termination the Contractor shall not be entitled to receive any compensation for services rendered by him before or after such termination, and he shall be liable to the City for liquidated damages for all periods of time beyond such date until the Work is substantially completed.

J. Indemnity and Hold Harmless

1. The Contractor shall assume all responsibility for his activity and operation, shall bear all losses and damages directly or indirectly resulting to him, to any subcontractor, to City, and to City employees that are the result of the performance on character of the operation, unforeseen difficulties, accidents, occurrences or other causes not predicated on active or passive negligence of City. Contractor shall assume the defense of and indemnify and save harmless City and its officers and employees from all claims, loss, damage, cost, injury, and liability of every kind, nature and description directly or indirectly arising from the performance of his operation under this Agreement.
2. Acceptance of the Insurance Certificates required under this Agreement shall not relieve Contractor from liability under this Indemnity and Hold Harmless clause.

K. Insurance: During the term of this Agreement and until final completion and acceptance of the Work required by the Contract Documents, Contractor shall maintain in full force and effect at his own cost and expense (unless otherwise specified) the following insurance coverage:

1. Builder's Risk Insurance

- a. Take out, pay for, and maintain until final completion and acceptance of the Project, All Risk Builder's Risk Insurance, including but not limited to coverage for earthquake, flood and collapse to the maximum extent available at a cost considered to be reasonable by the City. Such insurance (except earthquake and flood insurance

only in the event that it is not fully or reasonably available) shall be in an amount equal to the replacement cost (without deduction for depreciation) and shall be subject to stipulated value in lieu of average clause, of all structures constituting any part of the Project, including the cost of excavations, of grading and filling, and of the land, and except that such insurance (except earthquake and flood insurance) may be subject to deductible clauses not to exceed \$100,000 for any one loss. Earthquake and flood insurance may be subject to deductible clauses not to exceed 5% of such replacement cost for any one loss. Such insurance will not cover loss or damage to the Contractor's equipment, scaffolding or other materials not to be consumed in the construction of the Project.

- b. Said policy shall provide that all proceeds thereunder shall be payable to the City pursuant to a lender's loss payable endorsement substantially in accordance with the form approved by the Board of Fire Underwriters of the Pacific and the California Bankers Association if and to the extent, in the opinion of the City, such endorsement is necessary, and will name the Contractors, subcontractors, and subcontractors of all tiers of the work, as the City may, in its discretion, designate as additional insureds, as their interests may appear.
  - c. The City shall collect, adjust and receive all moneys which may become due and payable under said policy, may compromise any and all claims thereunder, and shall apply the proceeds of such insurance to the repair, reconstruction or replacement of the Project as provided in the resolution authorizing the payment of expenses incidental thereto.
2. Worker's Compensation Insurance: Provide full Worker's Compensation Insurance and Employer's Liability policy or provide evidence of ability to undertake self-insurance. Limits of coverage shall be at least \$1,000,000 for any one person. In the event Contractor is self-insured, he shall furnish a Certificate of Permission to Self-Insure by the Department of Industrial Relations Administration of Self-Insurance, Sacramento.
3. Comprehensive Auto and General Liability Insurance
- a. Comprehensive Auto and General Liability Insurance.
  - b. Products and Completed Operation Liability.
  - c. Broad Form Property Damage Liability.
  - d. Contractual Liability.
  - e. Personal Injury Liability.

The amount of the policy shall be no less than \$1,000,000 Single Limit per occurrence, issued by an admitted insurer or insurers as defined by the California Insurance Code, providing that the City of Sacramento, its officers, employees and agents are to be named insured under the policy, and the policy shall stipulate that this insurance will operate as Primary insurance and that no other insurance effected by City or other named insured will be called on to contribute to a loss covered thereunder.

4. Certificate of Insurance: Contractor will have City's standard Certificate of Insurance completed and filed with the Finance Director within 15 days of the execution of this Agreement and prior to engaging in any work required by this Agreement. Said policies shall provide that no cancellation, major change in coverage, or expiration may be effected by the insurance company or the insured during the term of this Agreement, without first giving to the City 30 days written notice prior to the effective date of such cancellation or change in coverage.

5. Worker's Compensation Certificate: Contractor shall sign and file with the Finance Director the following certification prior to commencing performance of the work of the Contract:

"I am aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of the Code, and I will comply with such provisions before commencing the performance of the Work of this Contract."

L. Failure To Maintain Insurance

1. If, at any time during the performance of this Contract, Contractor fails to maintain any item of the required insurance in full force and effect, Contractor shall immediately discontinue all work under the Contract and City will withhold all contract payments due or that become due until notice is received by City that such insurance has been restored in full force and effect and that the premiums therefor have been paid for a period satisfactory to the Finance Director.
2. Any failure to maintain any item of the required insurance will be sufficient cause for termination of the Contract.

M. Responsibility For Damage

1. Approval of the insurance by the City shall not relieve or decrease the extent to which the Contractor or any subcontractor may be held responsible for payment of any and all damage resulting from his operations.

2. The Contractor shall assume the defense of and indemnify and save harmless the City of Sacramento, the Architect, and the members, directors, officers, agents and employees of any of them, from any and all loss, liability or damage including attorney's fees and from all suits, actions, damages, or claims of every name and description to which they may be subjected or put by reason of injury to persons or property arising out of, in connection with, or incident to the execution of the work or resulting from the active or passive negligence or carelessness on the part of the Contractor, his employees or agents, including any failure to fulfill the terms of all laws and regulations which apply to this Contract together with any infringement or alleged infringement in consequence of the use in or about the said Work of any article or material; and the City shall have the right to estimate the amount of such damage and to cause the Contractor to pay same, and the amount so paid for such damage shall be deducted from the money due to Contractor under this Contract, as may be considered necessary by the City, shall be retained by the City until suits or claims for damages shall have been settled or otherwise disposed of and satisfactory evidence to that effect furnished by the City.

N. Acceptance No Release

1. Contractor shall correct immediately any unfaithful or imperfect work which may be discovered before final acceptance of the entire Work. Any unsatisfactory materials shall be rejected, notwithstanding that they may have been overlooked by the proper inspector. The inspection of the Work shall not relieve the Contractor of any of his obligations to perform satisfactory work as herein prescribed.
  2. Failure or neglect on the part of the City or any of its authorized agents to condemn or reject bad or inferior work or materials shall not be construed to imply an acceptance of such work or materials if it becomes evident at any time prior to final acceptance of the Work; neither shall it be construed as barring the City at any subsequent time from the recovery of damages or of such a sum of money as may be needed to build anew all portions of the Work in which fraud was practiced or improper materials used whenever found.
- O. No Waiver of Remedies: Neither the inspection by the City or its agents, or any order or certificate for the payment of money, nor any payment for, nor acceptance of the whole or any part of the work by the City, nor any extensions of time, nor any position taken by the City or its agents shall operate as a waiver of any provision of this Contract, or of any power herein reserved to the City or any right to damage herein provided, nor shall any waiver of any breach of this Contract be held to be a waiver of any other or subsequent breach. All remedies provided in this Contract shall be taken and construed as cumulative; that is, in addition to each and every other remedy herein provided; and the City shall have any and all equitable and legal remedies which it would in any case have.

- P. No Payment for Delays: No damages or compensation of any kind shall be paid to the Contractor or any subcontractor because of delays in the progress of the work, whether such delays qualify for extension of time or not.

\* \* \* \* \*

GREATER SACRAMENTO AREA  
PLAN  
Page 1

GREATER SACRAMENTO AREA PLAN (GSAP) EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION  
CONTRACT SPECIFICATIONS (Executive Order 11246).

The City of Sacramento is signatory to the "Greater Sacramento Area Plan" (hereinafter referred to as the "Plan") a joint industry-labor-minority representative agreement established for the purpose of increasing the employment of minorities in all phases and at all levels of skill in the building and construction industry within the greater Sacramento area. The City has adopted the "Plan" as its affirmative action program for City construction contracts and requires a contractor and his subcontractors be signatory to the Plan in order to be eligible for an award of a City contract. Additional information regarding the Plan is available at its headquarters office located at 4320 Stockton Boulevard, Sacramento, 95821, Telephone No. (916) 452-5832.

1. As used in these specifications:

- a. "Covered area" means the geographical area within the following counties: Amador, El Dorado, Nevada, Placer, Sacramento, Sierra, and Yolo.
- b. "Director" means Director, of GSAP, or any person to whom the Director delegates authority;
- c. "Minority" includes:
  - (1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
  - (2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race;
  - (3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent or the Pacific Islands); and
  - (4) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is signatory under Part I of the GSAP a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables shall be in accordance with that Plan for those trades which have unions participating in the

Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of the GSAP. Each Contractor or Subcontractor participating in the GSAP is individually required to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:
  - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
  - b. Establish and maintain a current list of minority and female recruitment sources, provided written notification to minority and female recruitment



sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
- d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions, including specific review of these items with onsite supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and where reasonable, provide after school summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR, Part 60.3.
- l. Conduct at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.
11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended and its implementing regulations, by the Office of Federal Contract Compliance Program. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

#### GSAP REPORTING REQUIREMENTS

- (1) All contract and subcontracts (over \$10,000) are subject to the reporting requirements.
- (2) Contractors must submit a CC 257 (Monthly Employee Utilization Report) to the GSAP at 4320 Stockton Boulevard, Sacramento, California 95829.
- (3) If the Contractor is already required to submit CC 257, there is no need to submit an additional form.
- (4) This report must arrive at the GSAP no later than the 5th working day of each month.
- (5) Failure to report is automatic cause to find the Contractor in noncompliance.
- (6) Each report is monitored by GSAP and measured against the specified goals for minorities and women.

\*\*\*\*\*

APPENDIX A

GOALS AND TIMETABLES  
 SACRAMENTO, CALIFORNIA

The following goals and timetables for female utilization shall be included in all construction contracts and subcontracts in excess of \$10,000. The goals are applicable to the contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a covered construction contract or subcontract.

AREA COVERED

Goals for Women apply Nationwide

GOALS AND TIMETABLES

Timetable	Goals (percent)
From April 1, 1978 until March 31, 1979 -----	3.1
From April 1, 1979 until March 31, 1980 -----	5.0
From April 1, 1980 until March 31, 1981 -----	6.9

APPENDIX B

Until further notice the following goals and timetables for minority utilization shall be included in all construction contracts and subcontracts in excess of \$10,000 to be performed in the respective covered areas. The goals are applicable to the contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a covered construction contract or subcontract.

SACRAMENTO, CALIFORNIA

Area covered - Sacramento, Yolo, Amador, Placer, El Dorado, Nevada, and Sierra Counties, California.

GOALS AND TIMETABLES

Timetable	Trade	Goal (percent)
Until further notice	All-----	17.5 to 20.0

\*\*\*\*\*

U. S. DEPARTMENT OF LABOR Employment Standards Administration, OFCCP		MONTHLY EMPLOYMENT UTILIZATION REPORT		1. COVERED AREA (SMSA OR EA)		3. CURRENT GOALS		4. REPORT PERIOD	
This report is required by Executive Order 11246, Sec. 203. Failure to report can result in contracts being cancelled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts of federally assisted construction contracts.				2. EMPLOYERS I.D. NO.		MINORITY: _____ FEMALE: _____		FROM: _____ TO: _____	

				NAME AND LOCATION OF CONTRACTOR				FEDERAL FUNDING AGENCY	
--	--	--	--	---------------------------------	--	--	--	------------------------	--

5.  CONSTRUCTION TRADE	Classifications	6. WORK HOURS OF EMPLOYMENT (Federal & Non-Federal)								9.  TOTAL NUMBER OF EMPLOYEES	10.  TOTAL NUMBER OF MINORITY EMPLOYEES
		6a. TOTAL ALL EMPLOYEES BY TRADE	6b. BLACK (Not of Hispanic Origin)	6c. HISPANIC	6d. ASIAN OR PACIFIC ISLANDERS	6e. AMERICAN INDIAN OR ALASKAN NATIVE	7. MINORITY PERCENTAGE	8. FEMALE PERCENTAGE			
		M    F	M    F	M    F	M    F	M    F					
	Journey worker APPRENTICE TRAINEE  SUB-TOTAL										
	Journey worker APPRENTICE TRAINEE  SUB-TOTAL										
	Journey worker APPRENTICE TRAINEE  SUB-TOTAL										
	Journey worker APPRENTICE TRAINEE  SUB-TOTAL										
	Journey worker APPRENTICE TRAINEE  SUB-TOTAL										
TOTAL JOURNEY WORKERS											
TOTAL APPRENTICES											
TOTAL TRAINEES											
GRAND TOTAL											

11. COMPANY OFFICIAL'S SIGNATURE AND TITLE				12. TELEPHONE NUMBER (Include area code)		13. DATE SIGNED		PAGE _____ OF _____	
--	--	--	--	--	--	-----------------	--	---------------------	--

SECTION 01009 - PROJECT DESCRIPTION

- 1.00 GENERAL: Provide all labor, material and equipment to complete the work indicated on the Drawings and described in the Project Manual.
- 2.00 PROJECT DESCRIPTION:
- A. The structure will be a Type 1, cast-in-place concrete garage combining both reinforced and post-tensioned concrete.
  - B. Items of work required include, but are not limited to: Concrete footings and piles, masonry, waterproofing of pits, roll-up metal door, metal doors and frames, concrete stairs, with metal handrails, automatic parking equipment, painting, and hydraulic elevators. Electrical work consists of lighting, television surveillance, telephone hook-up, and connecting to miscellaneous equipment. Mechanical work consists of toilet room, offices and attendant booth, ventilation and air conditioning. Plumbing work consists of drainage, toilet fixtures, and dry standpipe systems. Landscape work consists of planting, irrigation and maintenance work. Maintenance, relocation, and/or protection of existing landscape, irrigation, freeway drainage, and other existing items which interfere with the work.

END OF SECTION

SECTION 01020 - ALLOWANCES

1.01 GENERAL:

- A. Related Requirements Specified Elsewhere:
  - 1. Construction Schedule - Section 01310.
  - 2. Schedule of Values - Section 01370.
  - 3. Each specification section listed in Paragraph 1.02 of this Section.
- B. Designate in Construction Schedule delivery dates for products under each allowance.
- C. Designate in Schedule of Values quantities of materials specified under unit cost allowances.

1.02 ALLOWANCES FOR PRODUCTS:

- A. Provide and install products under each allowances as directed by Architect/Engineer.
- B. Include following amounts in Bid, for inclusion in Contract Sum:
  - 1. Section 03200 - Concrete Reinforcing: Allow lump sum of three thousand dollars (\$3,000.00) for additional reinforcing steel for the structure, over and above that shown on the Drawings.
  - 2. Section 07910 - Epoxy Injection Crack Repair: Allow lump sum of five thousand (\$5,000.00) for crack repair. Repair work as directed by the Architect/ Engineer may not require materials and methods included in these specifications.
  - 3. Office Security System: Allow Lump Sum of five hundred (\$500.00) dollars for all work required to provide and install security system as directed by the City.
  - 4. Additional painted signs: Allow lump sum of four thousand (\$4000.00) dollars for additional signs as directed by the City.



C. Amount of each allowance includes:

1. Net cost of product, including fabrication.
2. Delivery and unloading at site.
3. Applicable taxes.
4. Handling at site, including uncrating and storage.
5. Protection from elements, from damage
6. Labor, installation, and finishing.
7. Other expenses required to complete installation.
8. Overhead and profit for subcontractors and as described in the Owner-Contractor Agreement.

1.03 SELECTION AND USE OF PRODUCTS:

A. Architect/Engineer's Duties:

1. Consult with Contractor in consideration of products and suppliers.
2. For Item 1.02.B.1, Concrete Reinforcing, provide written instructions to the Contractor directing how and where the additional reinforcing steel is to be used. This additional steel shall not be used without detailed written instructions from the Architect/Engineer.
3. For Item 1.02.B.4, Signs, provide detailed layout showing sign design, typeface, location and support method.

B. Contractor's Duties:

1. Obtain proposals from suppliers when requested by Architect/Engineer.
2. Make appropriate recommendations for consideration of Architect/Engineer.
3. Notify Architect/Engineer of any effect anticipated by selection of product or supplier under consideration:

- a) Construction schedule.
  - b) Contract sum.
  - 4. On instruction from Owner and Architect/Engineer, enter into purchase agreement with designated supplier.
- 1.04 DELIVERY:
- A. Contractor Responsibility:
    - 1. Arrange for delivery and unloading.
    - 2. Promptly inspect products for damage or defects.
    - 3. Submit claims for transportation damage.
- 1.05 INSTALLATION: Comply with requirements of referenced specifications.
- 1.06 ADJUSTMENT OF COSTS: Should actual purchase cost be more or less than specified amount of allowance, Contract Sum will be adjusted by Change Order equal to amount of difference.

END OF SECTION

SECTION 01021 - ALTERNATIVES

1.00 GENERAL:

1.01 DESCRIPTION:

A. Work Included: To allow the Owner to compare total costs where alternate materials and methods might be used, and to enable the Owner's decision prior to awarding the Contract, certain alternatives have been established as described in this Section of these Specifications.

B. Related work described elsewhere:

1. Pertinent Sections of these Specifications describe materials and methods required under the various alternatives.
2. The method for stating the proposed Contract Amount is described on the Bid Form.

1.02 SUBMITTALS: All alternatives described in this Section of these Specifications are required to be reflected in the bid submitted on the Bid Form for this Work.

1.03 PRODUCT HANDLING: If the Owner elects to proceed on the basis of one or more of the Alternatives, make all modifications to the Work required in the furnishing and installation of the selected alternative or alternatives to the approval of the Architect/Engineer and at no additional cost to the Owner except as proposed on the Bid Form.

2.00 PRODUCTS:

2.01 ALTERNATIVE NUMBER ONE: Delete construction of the tunnel under the I-5 Freeway Off Ramp including connecting ramps on each side of tunnel, ramp walls, and freeway off ramp barricades and signs. Delete all tunnel related landscape and irrigation work, electrical work, parking and security equipment, metal railing and painting work. Construct concrete curb from grid line A38 to intersection of new curb and end of retaining wall on Northwest side of proposed tunnel.

3.00 EXECUTION:

- 3.01 ADVANCE COORDINATION: Immediately after award of Contract, and to the maximum extent practicable, thoroughly and clearly advise all necessary personnel and suppliers as to the nature and extent of alternatives selected by the Owner. Use all means necessary to alert personnel and suppliers involved as to all changes in the Work caused by the Owner's selection of alternatives.

END OF SECTION

SECTION 01070 - CUTTING AND PATCHING

1.00 GENERAL:

1.01 DESCRIPTION:

A. Related Requirements Specified Elsewhere:

1. Summary of Work - Section 01010.
2. Excavating and backfilling - Section 02220.
3. Plumbing and Mechanical Work - Section 15400.
4. Electrical - Section 16400.

B. Execute cutting (including excavating), fitting or patching of Work, required to:

1. Make several parts fit properly.
2. Uncover Work to provide for installation of ill-timed work.
3. Remove and replace defective Work.
4. Remove and replace Work not conforming to requirements of Contract Documents.
5. Remove samples of installed Work as specified for testing.
6. Install specified Work in existing construction.

C. In addition to contract requirements, upon written instructions of Owner and/or Architect/Engineer:

1. Uncover Work to provide for Architect/Engineer's observation of covered Work.
2. Remove samples of installed materials for testing.
3. Remove Work to provide for alteration of existing Work.

- D. Do not endanger any Work by cutting or altering Work or any part of it.
- E. Do not cut or alter Work of another Contractor without written consent of Architect/Engineer.

1.02 SUBMITTALS:

- A. Prior to cutting which affects structural safety of Project, or Work of another Contractor, submit written notice to Architect/Engineer, requesting consent to proceed with cutting, including:
  - 1. Identification of Project.
  - 2. Description of affected Work.
  - 3. Necessity for cutting.
  - 4. Affect on other Work, on structural integrity of Project.
  - 5. Description of proposed Work. Designate:
    - a) Scope of cutting and patching.
    - b) Contractor and trades to execute Work.
    - c) Products proposed to be used.
    - d) Extent of refinishing.
  - 6. Alternatives to cutting and patching.
  - 7. Designation of party responsible for cost of cutting and patching.
- B. Prior to cutting and patching done on instruction of Architect/Engineer, submit cost estimate.
- C. Should conditions of Work, or schedule, indicate change of materials or methods, submit written recommendation to Architect/Engineer, including:
  - 1. Conditions indicating change.
  - 2. Recommendations for alternative materials or methods.
  - 3. Submittals as required for Substitutions.



- D. Submit written notice to Architect/Engineer, designating time Work will be uncovered, to provide for observation.
- 1.03 PAYMENT FOR COSTS:
  - A. Costs caused by ill-timed or defective Work, or Work not conforming to Contract Documents, including costs for additional services of Architect/Engineer: party responsible for ill-timed, rejected or nonconforming Work.
  - B. Work done on instructions of Architect/Engineer, other than defective or nonconforming Work: Owner.
- 2.00 PRODUCTS:
  - 2.01 MATERIALS: For replacement of Work removed: Comply with specifications for type of Work to be done.
- 3.00 EXECUTION:
  - 3.01 INSPECTION:
    - A. Inspect existing conditions of Work, including elements subject to movement or damage during:
      - 1. Cutting and patching.
      - 2. Excavating and backfilling.
    - B. After uncovering Work, inspect conditions affecting installation of new products.
  - 3.02 PREPARATION PRIOR TO CUTTING:
    - A. Provide shoring, bracing and support as required to maintain structural integrity of Project.
    - B. Provide protection for other portions of Project.
    - C. Provide protection from elements.
  - 3.03 PERFORMANCE:
    - A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances and finishes.



- B. Execute cutting and demolition by methods which will prevent damage to other Work, and will provide proper surfaces to receive installation of repairs and new Work.
- C. Execute excavating and backfilling by methods which will prevent damage to other Work, and will prevent settlement.
- D. Restore Work which has been cut or removed; install new products to provide completed Work in accord with requirements of Contract Documents.
- E. Refinish entire surfaces as necessary to provide an even finish.
  - 1. Continuous Surfaces: To nearest intersections.
  - 2. Assembly: Entire refinishing.

END OF SECTION

SECTION 01300 - SUBMITTALS

1.00 GENERAL:

1.01 DESCRIPTION:

A. Work Included:

1. To ensure that specified products are furnished and installed in accordance with design intent, procedures have been established for advance submittal of design data and for its review and approval or rejection by Engineer.
2. Make all following submittals to Engineer for approval, in strict accord with provisions of this Section.
  - a) Progress Schedule.
  - b) Schedule of Values.
  - c) Certifications.
  - d) Shop Drawings.
  - e) Product Data/Material Lists.
  - f) Samples.
  - g) Substitutions.
  - h) Maintenance/Operating Manuals.
  - i) Record Drawings.
  - j) Guarantees.

B. Related Work Specified Elsewhere:

1. Test reports: Pertinent Specification Sections.
2. Individual submittals required: Pertinent Specification Sections.
3. Greater Sacramento Area Plan: Conditions of Contract.

2.00 PRODUCTS:

2.01 PROGRESS SCHEDULE:

- A. Prepare and submit estimated progress schedule for Work within 10 calendar days after issuance of Notice to Proceed. Submit up-dated schedules:

1. At mid-point of construction.
  2. When time extensions of more than two weeks are necessary.
- B. Relate progress schedule to entire Project. Indicate the following:
1. Dates for starting and completion of various sub-contracts.
  2. Dates for submission of required submittals.
- 2.02 SCHEDULE OF VALUES:
- A. Before first Application for Payment, submit for Engineer's approval schedule of values of various portions of Work, aggregating total Contract Sum, divided so as to facilitate payments to Subcontractors, prepared in such form as Engineer and Contractor may agree upon, and supported by such data to substantiate its correctness as Engineer may require. Include proper share of overhead and profit with each item in Schedule of Values. This Schedule, when approved by Engineer, shall be used as basis for Contractor's applications for payment.
  - B. Sample Schedule of Values is included with Contract Forms. Breakdown may be adjusted to Contractor's breakdown of portions of Work, as approved by Engineer.
- 2.03 CERTIFICATIONS: Where specifically indicated by pertinent Specification Sections, submit proper certification of recognized producer or association in lieu of testing. Certification shall attest to product's compliance with requirements of Contract Documents.
- 2.04 SHOP DRAWINGS:
- A. Submit all shop drawings as reproducible transparencies--one transparency of each original drawing and two ozalid prints of each transparency. Mark all drawings with name of project and name of Contractor, and number consecutively. Make drawings legible and complete in every respect.
  - B. If shop drawings show variations from Contract requirements because of standard shop practice or other reason, make specific mention of such variations in letter of transmittal, as well as on drawings, in order that (if acceptable) suitable action may be taken for proper adjustment of Contract. Unless specific changes have been noted and approved, no deviations from Contract Documents will be accepted.

- C. Transparencies will be retained by Engineer for his file. If approved, prints will be made by Engineer and distributed as follows: One to Inspector, Four to General Contractor. If not approved, two prints will be made by Engineer and forwarded to General Contractor. Make corrections to original drawings and send new set of transparencies and two sets of ozalid prints to Engineer for checking. Secure final approval prior to commencing work involved.

## 2.05 PRODUCT DATA/MATERIAL LISTS:

- A. Manufacturer's Standard Schematic Drawings:
  - 1. Modify drawings to delete information which is not applicable to Project.
  - 2. Supplement standard information to provide additional information applicable to Project.
- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data:
  - 1. Clearly mark each copy to identify pertinent materials, products or models.
  - 2. Show dimensions and clearances required.
  - 3. Show performance characteristics and capacities.
  - 4. Show wiring diagrams and controls.

## 2.06 SAMPLES:

- A. Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.
- B. Office samples should be of sufficient size and quantity to clearly illustrate:
  - 1. Functional characteristics of product or material, with integrally related parts and attachment devices.
  - 2. After review, samples may be used in construction or project.
- C. Field samples and mockups:
  - 1. Erect at project site at location acceptable to Engineer.

2. Construct each sample or mockup complete, including work of all trades required in finished work.

## 2.07 SUBSTITUTIONS:

### A. Engineer's Approval Required:

1. Contract is based on materials, equipment and methods described in Contract Documents.
2. Engineer will consider proposals for substitution of materials, equipment and methods only when such proposals are accompanied by full and complete technical data and all other information required by Engineer to evaluate proposed substitution.
3. Do not substitute materials, equipment or methods unless such substitution has been specifically approved for this work by Engineer.

### B. "Or Equal":

1. Whenever, in Contract Documents, any material or process is indicated or specified patent or proprietary name and/or by name of manufacturer, such name shall be deemed to be used for purpose of facilitating description of material and/or process desired, and shall be deemed to be followed by words "or equal" and Contractor may offer any material or process which shall be equal in every respect to that so indicated or specified; provided, however, that if material, process or article offered by Contractor is not, in opinion of City Engineer, equal in every respect to that specified, then Contractor must furnish material, process or article specified or one that in opinion of City Engineer is the equal thereof in every respect.

- C. Coordination: Approval of substitution shall not relieve Contractor from responsibility for compliance with all requirements of Drawings and Project Manual, and Contractor shall be responsible at his own expense for any changes in other parts of his own work or work of others which may be caused by approved substitution.

## 2.08 MAINTENANCE/OPERATING MANUALS:

- A. General: Where manuals are required to be submitted covering items included in this work, prepare three (3) copies each such manuals in durable plastic binders approximately 8-1/2" by 11 inches in size with following minimum data:

1. Identification on, or readable through, front cover stating general nature of manual.
2. Neatly typewritten index near front of manual, furnishing immediate information as to location in manual of all emergency data regarding installation.
3. Complete instructions regarding operation and maintenance of all equipment involved.
4. Complete nomenclature of all replaceable parts, their part numbers, current cost and name and address of nearest vendor of parts.
5. Copy of all guarantees and warranties issued.
6. Copy of approved shop drawings with all data concerning changes made during construction.

B. Extraneous Data:

1. Where contents of manuals include manufacturers' catalog pages, clearly indicate precise items included in this installation and delete, or otherwise clearly indicate, all manufacturer's data with which this installation is not concerned.

2.09 RECORD DRAWINGS:

A. General:

1. At time of installation, installed locations of all underground work, including plumbing and electrical, shall be recorded on prints by Contractor, and reviewed with Inspector.
2. Notify Engineer when underground work has been completed. On such notice, Engineer will furnish reproducible ozalid prints to Contractor, who will transfer installed locations to reproducible prints and submit prints for approval by Inspector and Engineer.
3. All information entered on reproducible prints shall be neat, legible and emphasized by drawing "balloons" around changed items. Format of changed items on drawings shall be acceptable to Engineer.
4. Locate and dimension all work, including stubs for future connections, with reference to permanent landmarks or buildings and indicate approximate depth below finish grade.



5. All symbols and designations used in preparing record drawings shall match those used in Contract Drawings.

## 2.10 GUARANTEES:

- A. Standard Guarantee: Guarantee all work executed under this Contract or any extra orders to be absolutely free of all defects of workmanship and materials for a period of one year after completion and acceptance by City of Sacramento. Repair and make good all such defects and repair any damage to other work caused thereby which may occur during same period.
- B. Additional Guarantees: Provide additional guarantees (in excess of one year) where specifically required by pertinent Specification Sections.

## 3.00 EXECUTION:

### 3.01 SUBMISSION REQUIREMENTS:

- A. Schedule submissions at least three (3) weeks before dates reviewed submittals will be needed.
- B. Make submissions within following number of days from issuance of Notice to Proceed:
  1. Items needed in initial stages of Work or requiring long lead-time for ordering: 30 calendar days.
  2. All electrical, mechanical and equipment items: 60 calendar days.
  3. All other items: 90 calendar days.
- C. All submittals shall be accompanied by (a) letter of transmittal addressed to City Engineer. Each submittal transmittal shall:
  1. Be consecutively numbered.
  2. Indicate original submittal number if resubmitted.
  3. Indicate specification section number. (Separate submittals are required for each specification section involved.)
  4. Include proper number of copies. See "G" below.
  5. Contain index of items submitted, properly identified w/drawing numbers, etc.



6. Identify substitution requests and reason for request.
- D. Engineer will check submittals for conformance with design concepts of project and approval by Engineer covers only such conformance. An effort will be made by Engineer to discover any errors, but responsibility for accuracy and correctness of all submittals shall be General Contractors'.
- E. Approval of submittals will be general and shall not relieve Contractor from responsibility for proper fitting and construction of work, nor from furnishing materials and work required by contract which may not be indicated on submittals when approved.
- F. No portion of the work requiring submittals shall be commenced until submittal has been approved by Engineer. All such portions of work shall be in accordance with approved submittals.
- G. Number of Copies Required - Contractor shall submit quantity required for his distribution plus the following number of copies required by City:
  1. Progress Schedule: 3 copies.
  2. Schedule of Values: 2 copies.
  3. Certification: 2 copies.
  4. Shop Drawings: Reproducible transparencies - one transparency of each original drawing, and 2 ozalid prints of each transparency.
  5. Product Data/Material Lists: 4 copies.
  6. Samples: As specifically indicated in pertinent specification section.
  7. Samples for Color/Pattern Selection: One set of manufacturer's complete range for initial selection; and additional samples as requested of selected color/pattern for inclusion in final color schedule.
  8. Substitutions: 3 copies of all required related data and information.
  9. Manuals: 3 copies.
  10. As-Built Drawings: Reproducible transparencies.
  11. Guarantees: 1 copy in City's Standard format.
- H. Submittals shall include (where applicable):
  1. Date and revision dates.
  2. Project title and number.
  3. The names of contractor, subcontractor and supplier or manufacturer.

4. Identification of product or material.
5. Relation to adjacent structure or material.
6. Field dimensions, clearly identified as such.
7. Specification section number.
8. A blank space for Architect's and City's stamp.
9. Contractor's stamp on each, initialed or signed; certifying: review of submittal, verification of field measurements and compliance with contract documents.

3.02 SCHEDULE OF SUBMITTALS:

- A. This "Schedule of Submittals" is intended as an aid to Contractor in preparation and submittal of required data and should not be considered a complete listing.
- B. Where submittals are indicated, they are required even though submitted material is as specified.

C. Schedule:

	Section	Certifications	Shop Drawings	Data/List of Materials	Samples	Manuals	Record Drawings	Guarantee (Over 1 Year)
02100	Demolition & Clearing							
02200	Excavation, Filling & Grading							
02620	Concrete Curbs, Walks, Driveways and Gutters							
02800	Landscaping & Irrigation		X			X	X	
03300	Pile Foundations		X				X	
03100	Concrete Formwork Cast-In-Place Concrete		X					
03200	Concrete Reinforcement	X	X					
03230	Concrete Prestressing	X	X					
03300	Cast-In-Place Concrete	X						
03432	Decorative Cement Coating				X			
04200	Unit Masonry and Brick Paving				X			
05400	Chain Link Fencing		X					
05500	Miscellaneous & Ornamental Metals		X					
07540	Elastomeric Deck Coating			X	X			
07900	Sealants		X		X			
07910	Epoxy Injection Crack Repair			X				
08100	Metal Doors & Frames		X					
08700	Finish Hardware		X					
09300	Ceramic Tile				X			
09650	Resilient Flooring				X			
09900	Painting				X			
10400	Painted and Illuminated Signs		X		X			
10600	Parking Line Painting		X					
10800	Toilet Room Accessories		X					
11101	Safes		X	X				
11850	Parking Equipment		X	X		X	X	
11851	Closed Circuit T.V. & Audio Monitoring		X	X		X	X	

Submittals  
01300-9

Section		Certifications		Shop Drawings		Data/List of Materials		Samples		Manuals		Record Drawings		Guarantee (Over 1 Year)	
14200	Elevator		X		X			X		X		X			
15400	Plumbing & Mechanical Work		X		X				X		X		X		
16400	Electrical		X		X							X			
END OF SECTION															

SECTION 01380 - CONSTRUCTION PHOTOGRAPHS

1.00 GENERAL:

1.01 DESCRIPTION:

- A. Employ a competent photographer to take construction record photographs periodically during the course of the work.

1.02 PHOTOGRAPHY REQUIRED:

- A. Provide photographs taken on the cutoff date for each scheduled Application for Payment.
- B. Provide photographs taken at each major stage of construction:

- 1. Move on site.
- 2. Completion of foundations.
- 3. Completion of major cast-in-place portions of structure. (Ductile frames, stairs, etc.).

C. Views and Quantities Required:

- 1. At each specified time, photograph the Project from three different views, as approved by Architect/Engineer.
- 2. Provide three prints of each view.

D. Negatives:

- 1. Remain property of the photographer.
- 2. Required that photographer maintain negatives for a period of two years from Date of Substantial Completion of the entire Project.
- 3. Photographer shall agree to furnish additional prints to Owner and Architect/Engineer at commercial rates applicable at the time of purchase.



1.03 COSTS OF PHOTOGRAPHY:

- A. Pay all costs for specified photography and prints.
  - 1. Parties requiring additional photography or prints will pay photographer directly.

2.00 PRODUCT:

2.01 PRINTS

- A. Black and White:
  - 1. Paper: Single weight, Neutral black image tone, white base.
  - 2. Finish: Smooth surface, glossy.
  - 3. Size: 8 in. x 10 in.
- B. Identify each print on the back, listing:
  - 1. Name of Project.
  - 2. Orientation of view.
  - 3. Data and time of exposure.
  - 4. Name and address of photographer.
  - 5. Photographer's numbered identification of exposure.

3.00 EXECUTION:

3.01 TECHNIQUE:

- A. Factual presentation.
- B. Correct exposure and focus.
  - 1. High resolution and sharpness.
  - 2. Maximum depth-of-field.
  - 3. Minimum distortion.

3.02 VIEWS REQUIRED:

- A. Photograph from locations to adequately illustrate the condition of construction and the state of the Project.

1. At successive periods of photography, take photographs from each of the same overall views as previously.
2. Consult with Architect/Engineer for instructions concerning the views required.

3.03 DELIVERY OF PRINTS:

- A. Deliver prints as soon as processed, one set each to:
  1. Owner.
  2. Architect/Engineer.

END OF SECTION





SECTION 01400 - QUALITY CONTROL

1.00 GENERAL:

1.01 DESCRIPTION:

A. Inspection:

1. All work and materials shall be subject to the inspection and approval or rejection by the City Engineer.
2. The City Engineer may assign such inspectors as he may deem necessary to inspect the materials to be furnished and the work to be done under this Contract.
3. Properly authorized inspectors shall be considered to be the representatives of the City limited to the duties and power entrusted to them. It will be their duty to inspect materials and workmanship of those portions of the work to which they are assigned, either individually or collectively, under instructions of the City Engineer, and to report any and all deviation from the Contract Documents which may come to their notice. Any inspector may be considered to have the right to order the work entrusted to his supervision stopped, if in his opinion such action becomes necessary, until the City Engineer is notified and has determined and ordered that the work may proceed in due fulfillment of all Contract requirements.
4. The City Engineer may at any time, if he so desires, cause an inspection to be made.
5. The Contractor shall fully cooperate in and shall furnish all reasonable facilities for the inspection of all parts of the work during the progress thereof.



6. Whenever the Contractor arranges to work at night, or at any time when work is not usually in progress, or to vary the period during which work is carried on each day, he shall give the City due notice so that inspection may be provided. Such work shall be done without extra compensation to the Contractor.

B. Testing Services:

1. From time to time during progress of the work, the City may require that testing be performed to determine that materials provided for the work meet the specified requirements; such testing includes, but is not necessarily limited to:
  - a) Soil Compaction
  - b) Asphalt Concret Paving
  - c) Portland Cement Concrete Paving
  - d) Cast-in-Place Concrete
  - e) Mortar
  - f) Stressing Cables.
2. Testing shall be done to such standards as may be described in various sections of these specifications; where no testing requirements are described but the City decides that testing is required, the City may require testing to be performed under current pertinent standards for testing.

2.00 PRODUCTS:

2.01 PAYMENT FOR TESTING SERVICES:

- A. Initial Services: The City shall furnish and pay for all initial testing services required by the Contract Documents. When initial tests indicate non-compliance with the Contract Documents, the cost of initial tests associated with that non-compliance will be deducted by the City from the Contract sum. The Contractor shall furnish samples of materials for testing as may be required by the Engineer. Such samples shall be furnished without cost to the City.
- B. Retesting: When initial tests indicate non-compliance with the Contract Documents, all subsequent retesting occasioned by the non-compliance shall be performed by the same testing laboratory and the cost thereof will be deducted by the City from the Contract sum.
- C. Code Compliance Testing: Inspections and tests required by codes or ordinances, or by a plan approval authority, and made by a legally constituted authority, shall be

the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

- D. Contractor's Convenience Testing: Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

3.00 EXECUTION:

3.01 COOPERATION WITH TESTING LABORATORY:

- A. Representatives of the testing laboratory shall have access to the work at all times; provide facilities for such access in order that the laboratory may properly perform its functions.
- B. Notify laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.

3.02 TAKING SPECIMENS: All specimens and samples for testing, unless otherwise provided in these Contract Documents, will be taken by the testing laboratory; all sampling equipment and personnel will be provided by the testing laboratory; and all deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.

3.03 CERTIFICATES OF COMPLIANCE:

- A. Vendor shall supply, where required, certified copies of test reports prior to delivery of materials. Certified test reports shall show the following:
  - 1. Name of Vendor.
  - 2. Type of material and grade (where applicable).
  - 3. Proposed date of delivery.
  - 4. Quantity to be delivered.
  - 5. Tests performed and results.
  - 6. Signature of vendor under statement that product conforms to requirements of these Specifications.

END OF SECTION

SECTION 01500 - TEMPORARY FACILITIES & CONTROLS

1.00 GENERAL:

1.01 DESCRIPTION:

- A. Work Included: Temporary facilities and controls required for this Work include, but are not necessarily limited to the following:
  - 1. Temporary utilities such as gas, water, electricity and telephone.
  - 2. Field office(s).
  - 3. Sanitary facilities, temporary water, fire protection.
  - 4. Enclosures such as tarpaulins, barricades and canopies.
  - 5. Project sign.
  - 6. Fencing of construction area, dust palliation, construction storage.
  - 7. Parking of vehicles.
- B. Related work specified elsewhere:
  - 1. Utility hookup: Pertinent Specification Sections.
- A. Protection: Use all means necessary to maintain temporary facilities and controls in proper and safe condition throughout progress of work.
- B. Replacements: In event of loss or damage, immediately make all repairs and replacements necessary to approval of Engineer at no additional cost to City.

2.00 PRODUCTS:

2.01 TEMPORARY UTILITIES:

A. General: Furnish water, gas and electricity required during construction and extend temporary service lines to construction areas for use of all subcontractors.

B. Temporary Water:

1. Provide ample supply of potable water for all purposes of construction at point convenient to Project or as shown on Drawings. Pipe water from source of supply to all points where water will be required.
2. Provide sufficient hose to carry water to every required part of construction and allow use of water facilities to subcontractors engaged on work.

C. Temporary Electricity:

1. Electric Service: All electric facilities shall be constructed and maintained in accordance with the Division of Industrial Safety "Electrical Safety Orders" (ESO), the Public Utilities Commission "Rules for Overhead Line Construction" (G.O. 95), and CAL-OSHA. Materials, devices and equipment used for these facilities shall be in good and safe condition but need not be new.
2. Installation of lighting and safety lights for covered pedestrian walkways and chain link fence shall be in accordance with local, State and Federal applicable codes.
3. Conduit: EMT 2" or smaller may be used for exposed work under pedestrian walkway ceiling.
4. Conduits installed in contact with ground or in sand-fill shall be PVC Schedule 40 or galvanized steel with 40 mil thick PVC coating bonded to outer surface of conduit. Bond shall be greater than tensile strength of plastic. All steel couplings and fittings shall be bonded with PVC coating with minimum of 55 mil thickness. A PVC sleeve equal to outside diameter of uncoated conduit shall extend beyond hub or coupling approximately one diameter or 1-1/2", whichever is smaller. All coated material shall be installed and patched according to manufacturer's recommendations. All holidays and tool marks shall be completely coated using past or spray as recommended by manufacturer.

Seal PVC joints with (solvent) joint compound. Coated conduit shall be as manufactured by Occidental Coating Company, OCCAL-40, Robroy "Plasti-Bond," or approved equal.

5. Run a copper ground wire, sized in accordance with NEC, in conduit run, and bond to all steel parts, using approved clamps.
6. Support conduit to wood structure by means of bolts or lag screws in shear. All supports shall be capable of supporting four times actual load.
7. Payment for Electric Energy Used: General Contractor is required to make application for electric service and pay for costs for electric energy used during course of construction and until final acceptance of Work by City.

D. Temporary Heating:

1. Provide heat, ventilation, fuel and services as required to protect all work and materials and to keep humidity down to extent required to prevent corrosion of any metal and to prevent dampness or mildew which is potentially damaging to materials and finishes. In addition, provide heat and ventilation prior to and during the following work operations as follows:
  - a) At all times during construction provide sufficient heat to insure placing, setting and curing of concrete.
  - b) From beginning of application of interior finishes and during setting and curing period, provide sufficient heat to produce temperature in spaces involved of not less than 55° Fahrenheit.
  - c) For period of 7 days previous to placing of interior finish materials and throughout application of finish painting and laying of resilient flooring materials, provide sufficient heat to produce temperature of not less than 70° Fahrenheit.
  - d) After finishing trades are completed and until final acceptance of work, provide temperature of not less than 60° Fahrenheit.



E. Telephone:

1. Maintain telephone in field office for use of Architect, Engineer and Inspectors.
2. Provide and pay for telephone installation and service for each field office. Service shall be maintained for duration of operations under this Contract. Provide loud outside gongs or horns so that telephones may be heard throughout the construction site.

2.02 FIELD OFFICE: Contractor shall provide a temporary field office building for use by himself, his subcontractors, Engineer, Architect and Inspectors, and a separate field office for the City Engineer located as directed by Engineer. Building shall afford protection against weather, shall have a door, at least one window or shutter, plan rack, and shelf for perusal of drawings. Openings shall have suitable locks. Field offices shall be maintained full time during operation of work contract. During cold weather months, field offices shall be suitably insulated and equipped with heating device to maintain 60 degree Fahrenheit temperature during working day. Upon completion of work of Contract, Contractor shall remove building from premises. The Contractor shall provide 1-legal size, five drawer, full suspension, steel file cabinet for use by the City. Filing cabinet shall become City property at the completion of the work.

2.03 SANITARY FACILITIES: Provide proper, adequate, sanitary toilet facilities for use of all workers employed on project, in accordance with State and Local health departments.

2.04 TEMPORARY CONSTRUCTION, EQUIPMENT AND PROTECTION:

- A. Provide, maintain and remove upon completion of work, all temporary rigging, scaffolding, hoisting equipment, rubbish chutes, ladders, barricades, lights and all other protective structures or devices necessary for safety of workers and public and City property as required to complete all work of Contract.
- B. Walkways and Barricades: Provide pedestrian walkway protection and wood barricades conforming to City of Sacramento standards and requirements.
- C. Temporary Fencing: Provide chain link fencing enclosures as required to protect equipment and materials.

- D. Protection: Protect all workers and equipment from power lines and maintain safe distances and protective devices as required by Industrial Safety Commission and CAL-OSHA.
  - E. Temporary Construction and Equipment: All temporary construction and equipment shall conform to all regulations, ordinances, laws and other requirements of City, State and other authorities having jurisdiction, including insurance companies, with regards to safety precautions, operation and fire hazard.
  - F. Pumping: Provide and maintain pumping facilities, including power for keeping site, excavations and structures free of accumulations of water at all times, whether from underground seepage, rainfall, drainage or broken lines. Pond discharge to get rid of sediment prior to discharge into storm drain.
  - G. Damage or Theft: Protect work and materials to be used on Project from damage or loss due to elements, theft, vandalism, malicious mischief, or other causes. Contractor shall be held responsible for such damages or loss which he shall remedy at his expense.
  - H. Temporary Signs and Notices: Contractor shall erect a painted sign approximately 4'x 8' in size containing name of project, Contractor's name and address, Architect's name and address, and others as directed by Engineer. Color, letter style and location of sign shall be as directed by Engineer.
- 2.05 PARKING OF VEHICLES: Contractor shall assume all responsibility for vehicle parking of his and his subcontractors vehicles to assure that they will not be parking in either City or County prohibited areas. Job site parking shall mean areas within bounds of property or other authorized areas to be used for parking for this Project.
- 3.00 EXECUTION:
- 3.01 MAINTENANCE AND REMOVAL: Maintain all temporary facilities and controls as long as needed for safe and proper completion of Work; remove all such temporary facilities and controls as rapidly as progress of Work will permit or as directed by Engineer.

END OF SECTION

SECTION 01700 - PROJECT CLOSEOUT

1.01 GENERAL:

- A. Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the Work.
- B. Related Requirements in Other parts of the Project Manual:
  - 1. Fiscal provisions, legal submittals and additional administrative requirements: Conditions of the Contract.
- C. Related Requirements Specified in Other Sections:
  - 1. Project Description - Section 01009.
  - 2. Allowances - Section 01020.
  - 3. Construction Photographs - Section 01380.
  - 4. Quality Control - Section 01400.
  - 5. Temporary Facilities and Controls - Section 01500.
  - 6. Cleaning - Section 01710
  - 7. Record Documents - Section 01720.
  - 8. Closeout Submittals Required of Trades: The respective sections of the Specifications.

1.02 SUBSTANTIAL COMPLETION: When Contractor considers the Work is substantially complete, he shall submit to Architect/Engineer:

- 1. A written notice that the work, or designated portion thereof, is substantially complete.
  - 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, Architect/Engineer will make an inspection to determine the status of completion.

C. Should Architect/Engineer determine that the Work is not substantially complete:

1. Architect/Engineer will promptly notify the Contractor in writing, giving the reasons therefor.
2. Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion to the Architect/Engineer.
3. Architect/Engineer will reinspect the Work

D. When Architect/Engineer concurs that the Work is substantially complete, he will:

1. Prepare a Certificate of Substantial Completion accompanied by Contractor's list of items to be completed or corrected, as verified and amended by the Architect/Engineer.
2. Submit the Certificate to Owner and Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

1.03 FINAL INSPECTION:

A. When Contractor considers the Work is complete, he shall submit written certification that:

1. Contract Documents have been reviewed.
2. Work has been inspected for compliance with Contract Documents.
3. Work has been completed in accordance with Contract Documents.
4. Equipment and systems have been tested in the presence of the Owner's representative and are operational.
5. Work is completed and ready for final inspection

B. Architect/Engineer will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.

C. Should Architect/Engineer consider that the Work is incomplete or defective:

1. Architect/Engineer will promptly notify the Contractor in writing, listing the incomplete or defective work.
  2. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to Architect/Engineer that the Work is complete.
  3. Architect/Engineer will reinspect the Work.
- D. When the Architect/Engineer finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals.

1.04 REINSPECTION FEES:

- A. Should Architect/Engineer perform reinspections due to failure of the Work to comply with the claims of status of completion made by the Contractor:
1. Owner will compensate Architect/Engineer for such additional services.
  2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ARCHITECT/ENGINEER:

- A. Evidence of compliance with requirements of governing authorities:
1. Certificates of Inspection as required by Governing Authorities.
- B. Project Record Documents: to requirements of Section 01720.
- C. Operating and Maintenance Data, Instructions to Owner's Personnel as required in respective Sections of Specifications.
- D. Guarantees: Submission to Architect/Engineer of required written guarantees on Contractor's Subcontractors, or Material Supplier's own letterhead in form provided in this Project Manual.
- E. Vendor and Mechanic List: Provide Owner with complete list of subcontractors and principal vendors including addresses and telephone numbers.

- F. Keys and Keying Schedule: To requirements of Section 08700--Finish Hardware.
- G. Spare Parts and Maintenance Materials: To requirements and respective Sections of Specifications.
- H. Evidence of Payment and Release of Liens: To requirements of General and Supplementary Conditions.
- I. Certificate of Insurance for Products and Completed Operations.

1.06 FINAL ADJUSTMENT OF ACCOUNTS:

- A. Submit a final statement of accounting to Architect/Engineer.
- B. Statement shall reflect all adjustments to the Contract Sum:
  - 1. The original Contract Sum.
  - 2. Additions and deductions resulting from:
    - a) Previous Change Orders.
    - b) Allowances.
    - c) Unit Prices.
    - d) Deductions for uncorrected Work.
    - e) Deductions for reinspection payments.
    - f) Other adjustments.
  - 3. Total Contract Sum, as adjusted.
  - 4. Previous payments.
  - 5. Sum remaining due.
- C. Owner will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

- 1.07 FINAL APPLICATION FOR PAYMENT: Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

END OF SECTION

SECTION 01710 - CLEANING UP

1.00 GENERAL:

1.01 DESCRIPTION:

A. Related Requirements Specified Elsewhere:

1. Summary of Work - Section 01010.
2. Cutting and Patching - Section 01070
3. Project Closeout - Section 01700.
4. Cleaning for Specific Products or Work:  
Specification Section for that work.

B. Maintain premises and public properties free from accumulations of waste, debris, and rubbish, caused by operations.

C. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave project clean and ready for occupancy.

1.02 SAFETY REQUIREMENTS:

A. Standards: Maintain Project in accord with latest OSHA General Industry Safety and Health Standards and with requirements of Owners insurance carriers.

B. Hazards Control:

1. Store volatile wastes in covered metal containers, and remove from premises daily.
2. Prevent accumulation of wastes which create hazardous conditions.
3. Provide adequate ventilation during use of volatile or noxious substances.

- C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
  - 1. Do not burn or bury rubbish and waste materials on project site.
  - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
  - 3. Do not dispose of wastes into streams or waterways.
- 2.00 PRODUCTS:
- 2.01 MATERIALS:
  - A. Use only cleaning materials recommended by manufacturer of surface to be cleaned. (See respective Sections in Specifications).
  - B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer. (See respective Sections in Specifications).
- 3.00 EXECUTION:
- 3.01 DURING CONSTRUCTION:
  - A. Execute cleaning to ensure that building, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.
  - B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
  - C. Weekly or as required during progress of Work, clean site and public properties, and dispose of waste materials, debris and rubbish.
  - D. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.
  - E. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
  - F. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.



3.02 FINAL CLEANING:

- A. Employ experienced workmen, or professional cleaners, for final cleaning.
- B. In preparation for substantial completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces.
- C. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials, from sight-exposed interior and exterior finished surfaces; polish surfaces so designated to shine finish.
- D. Remove any grease, oil, paint, etc., from floor slabs, resulting from construction operations.
- E. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.
- F. Broom clean paved surfaces; rake clean other surfaces of grounds.
- G. Replace air conditioning filters if units were operated during construction.
- H. Maintain cleaning until project, or portion thereof, is occupied by Owner.
- I. Fixtures and equipment shall be free of dust, dirt, stains or waste material. Equipment and machinery shall be cleaned, serviced and left ready for use.

END OF SECTION

SECTION 02100 - DEMOLITION AND CLEARING

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes all site demolition, clearing, and grubbing.
- A. Work Included: Work includes but is not limited to the following:
1. Demolition of existing paving, walks, walls and curbs, foundations, and underground cisterns, existing within the construction site.
  2. Removal of substructure concrete, if encountered, where interfering with new construction.
  3. Removal of all trees, shrubs, etc., unless indicated to remain. See Plan Sheets L-2 for trees to be transplanted.
  4. Dust control.
  5. Removal of all debris.
  6. Disconnecting all existing utility lines on the site except those designated to remain. Removing all abandoned existing utilities lines which may be hazardous or which interfere with new construction.
  7. Removal of existing light standards, deliver to the Cities Corporation Yard at 5730-24th Street.
  8. Any material, planting, light standards, brackets, lights, parking equipment, signs, etc., shall be delivered to the Cities Corporation Yard (as above).
  9. Relocate existing freeway drainage lines as required to avoid new construction.
  10. Remove portion of existing off ramp and wall as required to construct new tunnel.
  11. The Contractor shall remove existing concrete wheelstops at the beginning of work and salvage for reinstallation at later date.

B. Related Work Specified Elsewhere:

1. Excavation, Grading and Filling - Section 02200.
2. Concrete Curbs, Driveways, Pavement and Gutters - Section 02620.

C. In general, remove all existing objects, except those designated to remain, down to the bottom of the existing Asphalt Concrete Paving, plus such other work as is described in this Section of the Specifications. Existing block wall footings and concrete curbs extending approximately one (1) foot into existing grade shall be removed.

1.02 Comply with all pertinent codes and regulations applying to this type of work and with requirements of insurance carriers providing coverage for this work. Dispose of debris in a legal manner.

1.03 JOB CONDITIONS:

- A. Dust Control: Provide any means required to prevent the spread of dust, causing nuisance to the public and neighbors.
- B. On-site burning will not be permitted.
- C. Use all means necessary to protect existing objects which will remain.

2.00 PRODUCTS:

2.01 Use all required materials as required to complete the work of this Section.

3.00 EXECUTION:

3.01 PREPARATION:

A. Site Inspection:

1. Prior to all Work of this Section, carefully inspect the entire site and all objects designated to be removed and to be preserved.
2. Locate all existing utility lines and determine all requirements for disconnecting and capping.

3. Locate all existing active utility lines traversing or adjacent to the site and determine the requirements for their protection. Provide all required protection.
- B. Clarification:
  1. Before commencing the Work of this Section, verify with the Owner all objects to be removed and all objects to be preserved.
- C. Disconnection of Utilities: Before starting site operations, disconnect or arrange for the disconnection of all utility services designated to be removed, performing all such work in accordance with the utility company or agency involved. Inactive or abandoned utilities, if any, shall be disconnected, removed to, and plugged or capped five (5) feet outside of building lines.
- D. Protection of Utilities: Preserve in operating condition all active utilities traversing the site and designated to remain.
- 3.02 DEMOLITION AND REMOVAL: Demolish and remove all foundations, asphaltic concrete pavement etc., utility lines not required, and all other items within the limit of Work, necessary to be removed prior to construction of this work. Where footings are in close proximity to existing underground utilities or freeway footings, the Contractor shall perform his excavation work with hand-operated equipment, such as Jack Hammers and Pneumatic Spades. Existing lighting standards, parking equipment, booth, and concrete bumpers shall be carefully removed and delivered to the Owner.
- 3.03 CLEARING:
  - A. Tree Removal:
    1. Remove all trees, tree stumps and roots within the limit of work.
    2. In all holes created by tree removal, fill compact to the density specified for fills in Section 02200 of these Specifications.
  - B. Remove asphaltic concrete paving where indicated on Drawings. Curbs, wheel stops, and any other objects encountered which are not to be used for the new structure shall also be removed and salvaged if practical.
- 3.04 REMOVAL OF DEBRIS: Remove all debris from the site and dispose of all removed material legally.

END OF SECTION

Demolition and Clearing  
02100-3

SECTION 02200 - EXCAVATION, FILLING AND GRADING

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes all excavation, fill, backfill, compaction, imported fill material, disposal of excavated and removed materials and all related items necessary to complete the Work covered by the Section.
  - A. Work Included: Work includes but is not limited to the following:
    - 1. Excavation.
    - 2. Shoring, if required.
    - 3. Preparation of existing subgrade.
    - 4. Constructing fills and backfills.
    - 5. Hauling work; dumping work.
    - 6. Supply of acceptable backfill materials
    - 7. All required permits.
    - 8. Layout of work.
    - 9. Rough and fine grading
    - 10. Stockpile adequate topsoil for final 8" lift - see Section 02800.
  - B. Related Work Specified Elsewhere:
    - 1. Trenching and Backfilling for Mechanical Trades:
      - Plumbing - Section 15400
      - Electrical - Section 16400
    - 2. Demolition and Clearing - Section 02100.
    - 3. Asphalt Concrete Pavement - Section 02600.
    - 4. Topsoiling Landscape Work - Section 02800.

1.02 JOB CONDITIONS:

- A. Dust Control: Provide any means required to prevent the spread of dust causing nuisance to the public.
- B. Protection: Use all means necessary to protect existing objects or structures adjacent to site.

2.00 PRODUCTS:

2.01 FILL MATERIAL, GENERAL:

- A. Approval Required: All fill material including use of any on-site materials shall be subject to approval of the Soil Engineer retained by the Owner.
- B. Notification: For approval of imported fill material notify the Soil Engineer at least four (4) working days in advance of intention to import material, designate the proposed borrow area, and permit the Soil Engineer to sample as necessary from the borrow area for the purpose of making acceptance tests to prove the quality of the material.

2.02 OTHER MATERIALS: All other materials not specifically described but required for proper completion of the Work herein described shall be as selected by the Contractor.

2.03 PREPARATION:

- A. Soil Report: A geotechnical report has been prepared by Lowry & Associates, Geotechnical Engineers, P.O. Box 13340, Sacramento, CA 95813, dated March 14, 1980, and a letter describing data for paving design, dated March 27, 1980. This report and letter are bound in for reference at the end of this Section. The foundation details shown on the drawings are based on the Geotechnical Report and are accurate only to the degree made possible by this investigation. It shall be the responsibility of the Contractor to acquaint the Owner with all existing conditions that deviate from those shown on the Drawings.
- B. Examination of Site: Visit the site of the proposed work and review the Geotechnical Report in order to study all conditions under which the work will be done. After examination of the site, notify the Owner of any discrepancies which will require additional work.

- C. Permits and Fees: The Contractor shall obtain all permits and pay all fees required for this Work, including fees made necessary by the removal and dumping of debris.

3.00 EXECUTION:

- 3.01 LAYOUT OF WORK: The Contractor shall be responsible for the accuracy of all layout work and shall retain the services of a licensed surveyor or civil engineer to set lines and grades for all construction.

- 3.02 EXCAVATION: Excavate to the lines and grades necessary for construction of footings, slabs, and other structures.

- A. Excavate, remove and satisfactorily dispose of asphalt concrete, rubble and earth materials. The disposal shall be made off the premises. Where footings are in close proximity to existing underground utilities, the Contractor shall perform his excavation work with hand-operated equipment, such as jack hammers and pneumatic spades.
- B. If it is necessary in the prosecution of the work to interrupt existing surface drainage, sub-surface drainage, conduits, utilities, cables, or similar underground facilities, take necessary precautions to protect them and preserve them or provide temporary services for the same.
- C. Provide excavation for footings as indicated on the Drawings.
  - 1. Footing excavations shall be deepened if necessary to reach firm natural soil or to reach through any dry cracked soils, as directed by the Geotechnical Engineer.
- D. Excavate for slabs and other structures:
  - 1. After removal of existing paving, etc., perform planned rough excavation.
  - 2. Perform additional excavation as necessary to remove any existing fill soils and any disturbed natural soils.
- E. Request Owner's Geotechnical Engineer to examine footing excavations prior to pouring footings.
- F. All foundation excavations shall be hand-cleaned to remove any loosened material prior to pouring concrete.

- G. Footings should be poured immediately after cleaning and inspection to avoid drying and cracking of the foundation soils.
- 3.03 DEWATERING: Keep all excavations free from water at all times. Do not remove pumping equipment from the site until its use is no longer required. Leave sub-grade undisturbed by water and free from materials unsuitable to receive foundations and utilities.
- 3.04 PREPARATION FOR AREAS TO RECEIVE CONCRETE SLAB PAVING: After excavating, scarify the exposed natural soils to a depth of at least six inches, roll with heavy compaction equipment. Any soft areas disclosed by compaction equipment should be excavated and filled with proper fill material. Compact areas to at least 95% of the maximum dry density obtainable by the ASTM Designation D1557-70 method of compaction. Bring the exposed soils to within 2% of optimum moisture content prior to compacting.
- 3.05 FILL AND BACKFILL: Fill and backfill materials shall be approved by the Soils Engineer prior to placement. Do not use insitu soils for fill and backfill without his permission.
  - A. Fill material shall be free from rubbish, rocks, broken concrete, organic materials, and other materials unsuitable for constructing firm backfills. Imported fill and backfill materials shall consist of non-expansive soils having a plasticity index of 12 or less. Source shall be approved by the Geotechnical Engineer.
  - B. After compacting the exposed natural soils, place required fill material in lifts not to exceed 6" compacted thickness with optimum moisture added. Densify each lay, using mobile compaction equipment where possible. Elsewhere use appropriate pneumatic or mechanical compactors. Relative compaction shall be at least 95% as determined by ASTM D-1557-70. Moisture content of the on-site soils at the time of compaction to be brought to between optimum moisture content and 4% over optimum moisture content. Imported granular soils to be compacted at a moisture content varying no more than 2% below or above optimum moisture content. Flooding of fill or backfill will not be permitted.
  - C. The Soils Engineer will make all tests for relative compaction in accordance with ASTM D-1556, in place density.



3.06 GRADING:

- A. Perform all required grading of site to develop paved areas and to allow construction of building to elevations indicated on drawings.
- B. Preparation for plant areas adjacent to the structure is a part of this Contract. Landscaping and landscape irrigation work is a part of this Contract.
- C. Comply with all applicable requirements of the latest Occupational Safety and Health Act, Construction Safety Act, and all other applicable laws and ordinances.

3.07 FIELD TESTS AND INSPECTION:

- A. The Owner will obtain and pay for any and all soil tests required and will also engage the Soils Engineer for field inspections of soil in footings and backfill.
- B. The Soils Engineer will inspect the subgrades for all footings prior to the pouring of concrete and for all paved areas prior to paving with concrete. Do not pour footing concrete until the subgrades for footings have been approved. Do not pave until all subgrades have been approved.

3.08 CLEANING: Upon completion of excavations and backfill, all surplus earth and other debris shall be removed from the site.

3.09 EXISTING UNKNOWN UNDERGROUND CONDITIONS: Existing conditions may be encountered in the course of the work which are beyond the planned scope of work. The following procedure shall be followed if such items are encountered:

- A. The Owner shall be informed and will direct the Soils Engineer to perform work required of him.
- B. After obtaining the Owner's approval to proceed, the Geotechnical Engineer shall make recommendations to correct the situation to the Owner.
- C. The Owner shall issue a change order prior to proceeding with the work in question. In order to maintain schedules or minimize costs the Owner may authorize the Contractor to proceed with the work prior to the issuance of a change order. Such authorization shall be in writing, and shall be followed by an adjustment of the Contract sum and time.

END OF SECTION

Excavation, Filling and Grading  
02200-5



**LOWRY & ASSOCIATES**  
**GEOTECHNICAL ENGINEERS**

December 9, 1980

City of Sacramento  
Engineering Department  
Attention: Bill Gentry  
915 I Street, Room 207  
Sacramento, CA 95814

**INTERSTATE 5 FREEWAY PARKING STRUCTURE**  
2nd, 3rd, I and J Streets  
Sacramento, California  
L & a No. 79-180

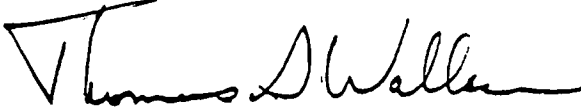
At the request of Lee Szromba in the Oakland office of Conrad Associates, we have reviewed our foundation engineering report of March 14, 1980, with regard to support of retaining walls on the southerly side of the J Street off-ramp. We understand that the vehicular tunnel beneath the J Street off-ramp will be approximately 5 feet lower than the ground surface in the vicinity of the southerly wall of the J Street off-ramp. Retaining walls, therefore, will be required on either side of the tunnel ramp varying in height from approximately 5 feet at the southerly terminus of the tunnel to approximately 2 feet or less near the point where the ramp meets the southerly parking lot grade.

We recommend, on the basis of our previous work, that these retaining walls be supported upon shallow spread foundations extending at least 18 inches below lowest surrounding grade. For design computations, the wall foundations may be designed utilizing maximum allowable soil pressures of 1000 pounds per square foot for dead load, 1500 pounds per square foot for dead plus live load, including consideration of vehicular loads adjacent to the walls, or 2000 pounds per square foot for total load including consideration of seismic forces. These walls should be physically separated from the tunnel structure. The recommendations of our previous report regarding wing wall design should be followed with regard to lateral soil pressures and drainage provisions.

It has come to our attention that an error exists in our previous report with regard to the location of an existing supporting column for the south bound on-ramp to the I-5 freeway from I Street. Due to a surveying error, that column, which is the most westerly column on the southerly side of the J Street off-ramp, is plotted within the area to be occupied by the proposed vehicular tunnel. On Plates No. 1 and 5 of our report, the designated column described above should be disregarded. The I Street on-ramp supporting column is shown on Plates No. 1 and 5 near the southeasterly corner of the proposed tunnel. For the same reason, the first paragraph on page 4 of the text also should be disregarded.

City of Sacramento  
Page 2  
December 9, 1980  
L & a No. 79-180

We would be pleased to answer any further questions which may arise regarding design of the proposed retaining walls or any other soil-related aspects of the construction. Thank you for this opportunity to be of service.

A handwritten signature in black ink, appearing to read "Thomas S. Wallace". The signature is written in a cursive style with a large, stylized initial "T".

THOMAS S. WALLACE  
Registered C.E. No. 13,522

TSW:db

xc: Conrad Associates/Oakland ✓  
Conrad Associates/Van Nuys



**LOWRY & ASSOCIATES**  
**GEOTECHNICAL ENGINEERS**

March 27, 1980

City of Sacramento,  
Department of Engineering  
Attention: Bill Gentry  
915 I Street, Room 207  
Sacramento, California 95814

INTERSTATE 5 FREEWAY  
PARKING STRUCTURE  
2nd, 3rd, I and J Streets  
Sacramento, California  
L & a No. 79-180

A question has arisen regarding design of the ground floor slab of the subject structure. We understand that it is proposed to construct a 4-inch thick concrete slab-on-grade rather than an asphalt concrete pavement section.

An important factor in achieving a suitable floor system is proper compaction of the subgrade. Our report of March 14, 1980 recommended that the upper 6 inches of subgrade be compacted to at least 95 percent of the ASTM D1557-70 maximum dry density. It is anticipated that the subgrade soils will be predominately non-expansive silts; therefore, special provisions to reduce damage from swelling pressures are unwarranted. Construction of the concrete floor slab directly upon the compacted subgrade should suffice. The provision of 6 x 6/W1.4 - W1.4 (formerly 6" x 6"/10 x 10) wire mesh or No. 3 or No. 4 reinforcing steel on 18-inch centers, both directions, could be made, but is not considered mandatory from the standpoint of soil conditions.

A subdrainage system is considered unnecessary upon consideration of the minor excavation anticipated below existing grade.

This letter should be considered a supplement to our previous report of March 14, 1980.

THOMAS S. WALLACE  
Registered C. E. No. 13,522

TSW:sw

xc: Conrad Associates/Oakland  
Conrad Associates/Van Nuys

Prepared

March 14, 1980

GEOTECHNICAL REPORT  
INTERSTATE 5 FREEWAY  
PARKING STRUCTURE  
2nd, 3rd, I and J Streets  
Sacramento, California  
L & a No. 79-180

## TABLE OF CONTENTS

<u>Title</u>	<u>Page</u>
INTRODUCTION	1
General	1
Scope	1
Existing Construction	2
Proposed Construction	3
CONCLUSIONS	3
Existing Conditions	3
Soil Conditions	4
Groundwater	4
Expansive Soils	5
Bearing Capacity	5
Subgrade Qualities	5
Foundation Alternatives	5
RECOMMENDATIONS	6
Site Preparation	6
Foundations	7
Pile Type	7
Pile Capacity	7
Pile Spacing	8
Pile Length	8
Pile Load Testing Program	8
Concreting of Pipe Piles	8
Pile Splicing	9
Tunnel Structure	9
General	9
Structural Mat	9
Piles	10
Tunnel Walls	10
Lateral Pressures	10
Wingwalls	10

TABLE OF CONTENTS  
(continued)

<u>Title</u>	<u>Page</u>
Backfill	11
Temporary Excavations	11
LIMITATIONS	13
	<u>Plate(s)</u>
BORING LOCATION PLAN	1
BORING LOGS	2-3
UNIFIED SOIL CLASSIFICATION SYSTEM	4
J STREET RAMP DETAIL	5
APPENDIX	
GENERAL INFORMATION AND PROJECT DISCUSSION	
FIELD EXPLORATION	
LABORATORY TESTING	
As-Built Plan	A1
Direct Shear Tests	A2
Caltrans Boring and Probing Logs	A3
GUIDE SPECIFICATIONS - PILES	



**LOWRY & ASSOCIATES**  
**GEOTECHNICAL ENGINEERS**

GEOTECHNICAL REPORT  
INTERSTATE 5 FREEWAY  
PARKING STRUCTURE  
2nd, 3rd, I and J Streets  
Sacramento, California  
L & A No. 79-180  
March 14, 1980

INTRODUCTION

General

A study of subsurface soil conditions has been completed at the site of a proposed municipal parking structure to be constructed beneath the existing Westend Viaduct supporting Interstate 5 freeway in the area bounded by 2nd, 3rd, I and J Streets adjacent to Old Sacramento, California. The purposes of this investigation have been to obtain information on the nature and distribution of the soils which will support or influence the proposed construction; to obtain information regarding support of the existing viaduct structures; to provide geotechnical recommendations for the design of specific construction elements; and to set forth procedures for site grading and foundation construction.

Scope

This report presents the results of our investigation, including our findings regarding site, soil and groundwater conditions; opinions pertaining to support of the proposed structure, including the adjacent tunnel; and, recommendations regarding site preparation, foundation design and tunnel design. Pavement section recommendations are not included within the scope of this work.

The locations of subsurface exploration, including both the recent borings by our firm and previous borings and probings by Caltrans, are illustrated on Plate No. 1. The logs of the recent borings by our firm, as well as the results of laboratory testing, are contained on Plates No. 2 and 3. An explanation of the symbols and classification system used on the logs appears on Plate No. 4. The Appendix includes a general discussion of project concepts, design considerations, exploratory methods used during field exploration, and further laboratory test results, as well as a reduced copy of the Caltrans Boring and Probing Logs resulting from field exploration performed between 1960 and 1965, prior to the freeway construction. Guide specifications for driven piling are also appended for use in the preparation of contract documents.



### Existing Construction

The major portion of the site currently is occupied by elevated I-5 freeway structures which support the north- and south-bound lanes of that freeway as well as the north-bound on-ramp from Capitol Mall and the south-bound on-ramp from I Street. In addition, the J Street off-ramp combining traffic from the I-5 freeway and the I Street Bridge bounds the southwesterly and southerly sides of the site. The elevated freeway structures, designated the Westend Viaduct by the Bridge Department of Caltrans, was completed in 1968 and 1969. These structures are predominantly reinforced concrete box girder construction supported upon 4-foot diameter, reinforced concrete columns bearing on 12-inch square precast, prestressed piles designed to sustain 70 tons each, as per the California Standard Plans, Alternative X-Class 70, as shown on Plate B2-5. As-built plans and records of Caltrans indicate that the piles were cast to reach a tip elevation of -50 feet, Sacramento City datum.

The area beneath the freeway presently is a city parking lot which has been paved with asphalt concrete. The surface slopes downward toward the east and south between the general elevation limits of +27.7 feet, near the Second Street entrance, and +22.7 feet, near the southerly termination.

The vertical clearance between the existing surfacing and the bottom of the freeway decks varies due to varying surface and structure grades. Vertical clearance between the main line north-south I-5 structures varies between the approximate limits of 28 and 41 feet. Vertical clearance beneath the north-bound on-ramp from Capitol Mall appears to vary between approximately 34 feet and 43 feet; and, vertical clearance beneath the I Street south-bound on-ramp appears to vary between the limits of approximately 16 and 28 feet. The most restricted vertical clearance appears to be near the northwesterly portion of the site beneath the J Street off-ramp, being restricted to approximately 11 to 26 feet.

The southerly portion of the J Street off-ramp is supported on engineered fill. The portion of that ramp which curves to the east to intersect J Street is constrained laterally on its westerly/southerly side by a pile-supported retaining wall. A detail of this portion of the ramp is included as Plate No. 5. Plate No. A1 in the Appendix is a reproduction of a reduced As-Built Plan for the J Street ramp showing pavement elevations.

Design of the Westend Viaduct included provisions for future construction of a parking structure of up to four levels; thus, the foundations for the Viaduct were sized for additional vertical loading and steel rings were cast in the support columns at the anticipated floor elevations to allow

connections to be made for the new construction. The Caltrans As-Built Plans emphasize that horizontal loads from the parking structure were not to be sustained by the Viaduct structures. Current plans are to provide a free-standing parking structure beneath the existing Viaduct, unrelated to the original concept of transmitting vertical loads to the existing columns. This concept is being pursued for reasons of space utilization and because of code changes which have taken place in the intervening years since the original construction.

#### Proposed Construction

It is indicated at this time that the proposed parking structure will be a four-level, reinforced concrete structure of irregular shape having overall dimensions on the order of 290 feet by 340 feet, but conforming to the lateral restrictions presented by Second Street on the West, 3rd Street on the east, I Street on the north and the J Street off-ramp of Interstate 5 freeway on the south. Parking will be provided for approximately 765 vehicles and access for pedestrians to the various levels will be by means of both elevators and stairways. Structural loads will be transmitted to the foundations by means of concrete columns spaced generally on 17-foot centers and located so as to avoid the columns and foundations supporting the existing Viaduct. A double line of interior columns will be constructed along each bent line of the existing Viaduct.

Preliminary design information from Conrad Associates indicates that the proposed columns will develop dead plus live loading varying from approximately 75 kips to 350 kips.

The ground floor grade is shown to be lowered up to several feet, thus requiring removal of the existing asphalt concrete pavement system on the site.

A tunnel having a maximum width of approximately 26 feet is to be constructed beneath the J Street off-ramp near the southwesterly corner of the structure to provide two-way traffic between the proposed structure and the parking lot to the immediate south of the J Street ramp. Conrad Associates has indicated that the tunnel structure can be constructed with a cut-and-cover operation involving closure of two lanes of the four-lane off-ramp at a time.

#### CONCLUSIONS

##### Existing Conditions

Our borings indicate that the existing pavement system consists of approximately 2½ inches of asphalt concrete overlying 12 to 18 inches of a sand/gravel subgrade. The pavement appears to be in sound condition without evidence of extensive cracking or disruption.



The J Street Ramp Detail, Plate No. 5, illustrates the location of a supporting column for the south-bound on-ramp to I-5 freeway from I Street. The column was not indicated on the Conrad Associates first-level floor plan, which also showed the location of the proposed tunnel. Obviously, the tunnel location must be rotated slightly to prevent interference between the tunnel and the column.

Plate No. 5 also shows elevations for the top of pile cap at the four existing columns adjacent to the proposed tunnel. Preliminary plans indicate the finished grade within the tunnel area will extend up to 5 feet below the top of the highest existing cap. Representatives of Caltrans have stated to our firm that this situation will not impose problems to the existing structure with regard to lateral load resistance, since the original design neglected any contribution of lateral resistance from passive pressure against the pile caps.

#### Soil Conditions

Soils beneath the pavement section are indicated by both the Caltrans borings and our recent exploration to be predominantly loose silty sands, clean sands and sandy silts within the upper 55 to 65 feet. The recent borings indicate approximately 10 feet of existing fill composed of similar materials but containing brick rubble. Below depths of 35 to 40 feet, the soils are indicated to become less silty, cleaner sands, gradually gaining gravel content with depth and becoming medium-dense at depths of approximately 65 to 70 feet. Interbedded sands, gravelly sands and gravel layers of dense to very dense consistency are indicated to be present below the 70- to 75-foot depths. Penetration resistance to probing generally increased directly with increasing depth below the initial contact of dense sands and gravels. The Caltrans borings encountered dense clayey sands and stiff clays between depths of approximately 95 and 100 feet below grade. These materials are probably indicative of the Victor Formation deposits which typically underlie the younger, granular stream channel gravels and sands.

Our borings indicate the soils adjacent to the J Street ramp embankment within the depth to be excavated for the tunnel to be loose to firm silty sands and sandy to clayey silts. Soils within the embankment are indicated to be of similar composition but exist in a compacted condition.

#### Groundwater

Stabilized groundwater levels were measured in the two recent borings at depths of approximately 20 to 21 feet below ground surface (elevation  $+3\pm$  feet, City datum). Groundwater levels typically reflect the stage in the adjacent Sacramento River and thus can be expected to vary with the season and the River stage. When the Sacramento River is at or near flood stage for an extended period of time, records indicate the groundwater table at this site could rise to within 6 or 8 feet of the existing ground surface (elevation  $+16$  to  $+18$  feet, City datum).



Preliminary plans show only minor excavation of the site; therefore, groundwater should not be a major factor in site development. Elevator pits and other subsurface utilities extending below elevation  $+18\pm$  feet could be subjected to very occasional inundation unless provisions are made to exclude groundwater from such facilities.

#### Expansive Soils

The soils encountered in this investigation are indicated to have low to marginal plasticity properties and are considered unlikely to develop significant swelling pressures with variations in moisture content.

#### Bearing Capacity

The upper sands and silts are low-strength materials which are susceptible to significant consolidation if subjected to appreciable pressure increases from new construction. These materials are considered unacceptable for support of the proposed column loads because of the resulting structural settlement which would occur. Beneath the uppermost loose fill, the undisturbed loose sands and silts can contribute significantly to lateral and uplift resistance of deep foundations.

This investigation indicates that the soils immediately beneath the J Street ramp and on either side of the ramp can support relatively low increases in pressure from new construction, without significant resulting settlement. Thus, the tunnel structure may be supported on a shallow foundation.

The dense sands and gravels indicated to be present below a depth of approximately 65 feet (elevation  $-41$  to  $-43$  feet) exhibit high to very high strength properties, generally increasing with depth. These materials are considered competent for support of relatively heavy concentrated loads without significant compression and resulting foundation displacement.

#### Subgrade Qualities

The near-surface silts beneath the existing pavement section have proven to be competent materials to support normal automotive traffic when overlaid by a reasonable pavement section and when properly compacted. During site grading, some rubble or other unsatisfactory materials may be encountered at final subgrade level which would have to be removed and replaced with suitable materials prior to subgrade compaction.

#### Foundation Alternatives

Several considerations enter into a decision regarding the type of foundation to be utilized for support of the parking structure. Primary considerations

are: 1) the limited headroom available beneath the Westend Viaduct structures; 2) the depth and capacity of the foundations supporting the existing structures; 3) the loose consistency of the upper soils on the site; 4) the presence of a perennial groundwater table; and 5) the magnitude of the column loads to be generated by the proposed structure.

Upon consideration of all these factors, we have concluded that the proposed parking structure should be supported upon driven, steel piling achieving support at the same general level as the piling supporting the existing West-end Viaduct structures. Those piles to be driven close to piles supporting the existing structures should be low displacement sections.

The proposed vehicle tunnel could either be supported on a rigid mat foundation, designed as a box culvert with a low unit foundation pressure; or, it could be supported on driven piling, utilizing both new piling and the existing piles presently supporting the portion of the retaining wall to be removed.

## RECOMMENDATIONS

### Site Preparation

Preliminary plans show the building site generally will be lowered, thus requiring removal of the existing pavement and varying depths of underlying soil. During the course of this work, it is anticipated that former construction and/or rubble from former site usage may be encountered.

Following excavation, the site should be cleared of all obstructions, including rubbish, rubble, existing structures, old foundations and walls, concrete slabs, underground cisterns, buried pipelines and any other surface or subsurface debris. Excavations resulting from the removal of these items that extend below the finished subgrade should be cleaned out and backfilled in accordance with the recommendations of this report.

Since heavy equipment undoubtedly will be required to construct the building foundations, we recommend that final subgrade preparation be accomplished after completion of pile driving operations. The upper 6 inches of the final subgrade should be scarified, brought to a uniform moisture condition and recompacted in place to at least 95 percent relative compaction as defined by the ASTM D1557-70 test procedure. Any required engineered fill should be placed in horizontal lifts not exceeding 6 inches in compacted thickness to the above minimum standard.

Existing on-site soils are considered suitable for use in engineered fill construction if free of significant vegetation, rubbish and rubble exceeding 3 inches in maximum dimension. Imported fill, if required, should be non-expansive materials having a plasticity index of 12 or less. The source should be approved by our firm prior to importation of materials to the site.

A representative of this firm should observe the site subgrade following removal of the pavement and soil to be excavated to observe areas possibly requiring additional excavation or clearing. Our representative should be present to observe grading operations and to test the compacted subgrade.

### Foundations

#### Pile Type

It is recommended that the proposed structure be supported upon driven, steel H-piling or pipe piling bearing in the dense sands and gravels below elevation -41 to -43 feet. We recommend either HP 10 x 42 steel piling or pipe piling with a minimum outside diameter of  $9\frac{1}{2}$  inches and a minimum wall thickness of 0.375 inches. Pipe piling, if chosen, should be driven open-ended where located within 15 feet of existing piling and may be driven with a boot plate as a closed-end pile where located more than 15 feet from the existing piling. The intent of this recommendation is to minimize the development of lateral pressures against the existing concrete piling supporting the Westend Viaduct, resulting from displacement of the upper soils during driving of the new piling.

#### Pile Capacity

A maximum allowable design capacity of 70 tons, dead plus live loading, may be assigned to either of the above pile types. The above value may be increased by 1/3 for consideration of total load, including the effect of either seismic or wind loading.

The allowable lateral capacity of either pile type recommended above may be considered to be 5 tons per pile, assuming movement of the pile top on the order of 1/4 inch will occur under that loading. Allowable uplift capacity of 20 tons per pile is recommended for either of the recommended pile types. Batter piles should not exceed a batter of one horizontal to three vertical.

An ultimate passive resistance against one face of each pile cap equal to that exerted by a fluid weighing 300 pounds per cubic foot may be used in design computations of lateral resistance assuming pile movement of the magnitude indicated above. Pile fixity may be assumed at a depth of 5 feet below the top of each pile.

The above allowable pile capacities are recommended with the stipulation that a pile load testing program be performed immediately prior to the commencement of production pile driving and that a representative of this firm be present throughout production pile driving operations to record the driving resistance of each pile. The weight of pile cap concrete extending below grade and the weight of each pile may be disregarded in pile load computations.



#### Pile Spacing

Piles should be spaced no closer than 3 feet on centers. This recommendation applies to new piles as well as to the clearance between new and existing piles. No reductions in pile capacity to compensate for the effect of group action are necessary provided this recommendation is met.

#### Pile Length

We anticipate that the proposed steel piling may have to penetrate deeper than the 12-inch square precast concrete piling supporting the Westend Viaduct, to develop the same design loading. Those piles were cast to reach elevation -50 feet. Review of the available subsurface information indicates that a tip elevation of -55 feet should be reasonable for estimating purposes. We emphasize that the actual pile driving criteria, including minimum tip elevation, must be developed from the results of the pile load testing program accomplished just prior to production pile driving. A single additive-deductive unit price for variations in pile length from the estimated tip elevation should be included in the bidding schedule.

#### Pile Load Testing Program

Three piles of the type to be driven should be installed and tested near the central portion of the proposed site, but outside the location of any existing or proposed pile cap, with a clear distance of at least 10 feet between any portion of the load test setup and an existing or proposed pile. It is anticipated that the piles will be driven to tip elevations on the order of -50 feet, -55 feet and -60 feet. The actual tip elevations for each test pile will be determined at the time of pile installation based upon the penetration resistance developed by each pile. It is intended to test all three piles in compression to failure and provisions should be made to test any of the piles in tension and lateral loading. Required equipment and setup for the testing program are described in the appended piling specifications.

The test pile setup should conform to the applicable portions of the ASTM D1143-74 test method. A plan of the proposed system should be submitted to this firm prior to the installation of piling.

#### Concreting of Pipe Piles

All earth materials should be removed from open-ended pipe piles by a combination of water and air pressure so that a clean pile shaft is evident to the bottom of each pile. Dewatering of piles should be accomplished prior to placement of the pile concrete. The Contractor should effect a tremie seal if necessary. Concrete should develop a 28-day compressive strength of at least 3000 psi.

### Pile Splicing

Piles should be spliced with full penetration welds in accordance with AWS Specification D1.1-80. The welding electrode should be E7018 or approved equal. A representative of this firm should provide full-time observation of weld splicing.

Consideration will be given to alternative splicing procedures and coupling devices provided the contractor submits sufficient evidence that a competent splice would be achieved meeting all requirements of the structural engineer.

## Tunnel Structure

### General

The proposed vehicle tunnel connecting the new parking structure and the existing southerly parking lot may be supported either upon a structural slab or by means of driven piling. The former alternative, while offering simplicity of construction, would require structural independence from piles supporting the existing retaining wall at the J Street off-ramp, because of differential settlement considerations. It is recognized that accessibility and construction sequencing may be major factors affecting the final selection of the structural support system.

### Structural Mat

For this option, the floor of the tunnel may be designed to transfer structural and vehicular loads to a rigid slab which is designed to impart a net, uniform contact pressure not exceeding 650 pounds per square foot, dead plus live load, to the supporting subgrade soils. This value may be increased by 1/3 for consideration of transient forces.

Indirect support by means of piles currently in place beneath the J Street retaining wall must be avoided to eliminate adverse stress concentrations, a situation conducive to differential settlement. Following removal of retaining wall segments and associated pile caps at the northerly end of the tunnel, exposed piles should be cut off to a depth of at least 4 feet below planned finished subgrade level. Excavations created to accomplish this objective should be backfilled with engineered fill, composed of approved materials compacted as recommended above.

A representative of our firm should evaluate subgrade conditions to determine acceptability and continuity of bearing materials; soils deemed by him to be unsuitable should be removed from the construction area.

An elastomeric seal should be provided between the severed ends of the retaining wall section and the adjacent tunnel walls as a precaution against interaction of structural elements supported by different foundation systems.

### Piles

Steel H-piles or pipe piles as previously recommended also may be used for support of the tunnel. In this case, only interfering portions of the retaining wall and associated substructure need be removed as required, and the exposed 50-ton capacity concrete piles may be used for support of the southerly end of the tunnel. The same limitations regarding pile driving, pipe closure and pile proximities are applicable to this alternative. It is anticipated that more piles than necessary for bearing considerations will be necessary, owing to symmetry requirements.

The severed ends of the adjacent retaining wall sections should form a direct structural section with the tunnel walls.

### Tunnel Walls

#### Lateral Pressures

Restoration of grade adjacent to the tunnel walls is expected to produce lateral earth pressures equivalent to those exerted by a fluid weighing approximately 58 pounds per cubic foot. This value is predicated upon the assumption that hydrostatic pressures will not develop adjacent to the tunnel walls. Since the tunnel backfill will support superelevated concrete pavement, it is unlikely that significant water will enter the backfill. As a precautionary measure, weep holes could be provided in the tunnel walls. Weep holes should be located near the bottom of the walls, should be spaced on 6-foot horizontal centers and should be 4 inches in diameter. To prevent piping of wall backfill through the weep holes, it is suggested that two overlapping 1-foot square patches of pervious geotextile fabric or galvanized No. 80 mesh screen be affixed to the rear surfaces of the walls at each weep hole opening.

In addition to the foregoing, surcharge pressures from vehicular traffic on the ramp should be considered in the structural design of the tunnel walls. We recommend that the requirements of Caltrans for surcharge loading be met.

#### Wingwalls

Wingwalls on the northerly end of the tunnel could be subjected to lateral soil pressures equal to an equivalent fluid pressure of approximately 38 pounds per cubic foot, assuming the walls are free to rotate a sufficient distance to establish active pressure conditions (approximately 0.1 percent of the wall height). Consideration must be given in design to surcharge effects from both the sloping embankment above the wall and the vehicular traffic on the ramp. Caltrans should provide design information regarding surcharge loading from traffic. The surcharge effect from the sloping backfill can be approximated by a uniform surcharge equivalent to the average height of the sloping material between the wall and a horizontal distance behind the wall equal to the wall height.



Appropriate drainage provisions could consist of a full-wall drainage blanket adjacent to the wingwalls. The blanket should be at least 12 inches in width and should extend to within 2 feet of the top of wall. Permeable material should conform to Class 2 gradation and quality in accordance with Section 68-1.025 of the Caltrans Standard Specifications, 1978 edition. The drainage blankets should contain slotted or perforated collector pipes at least 4 inches in diameter and placed not more than 6 inches above the wall base line. We recommend that the collector pipes be either galvanized CMP or Schedule 80 PVC, with openings placed down. Slots, if chosen, should be no more than 1/8-inch wide and perforations no more than 1/4 inch in diameter. The collector pipes may discharge accumulated flow into a drop inlet, sump, or other convenient collection point.

Alternatively, wall drainage may be effected by the provision of weep holes as described above.

#### Backfill

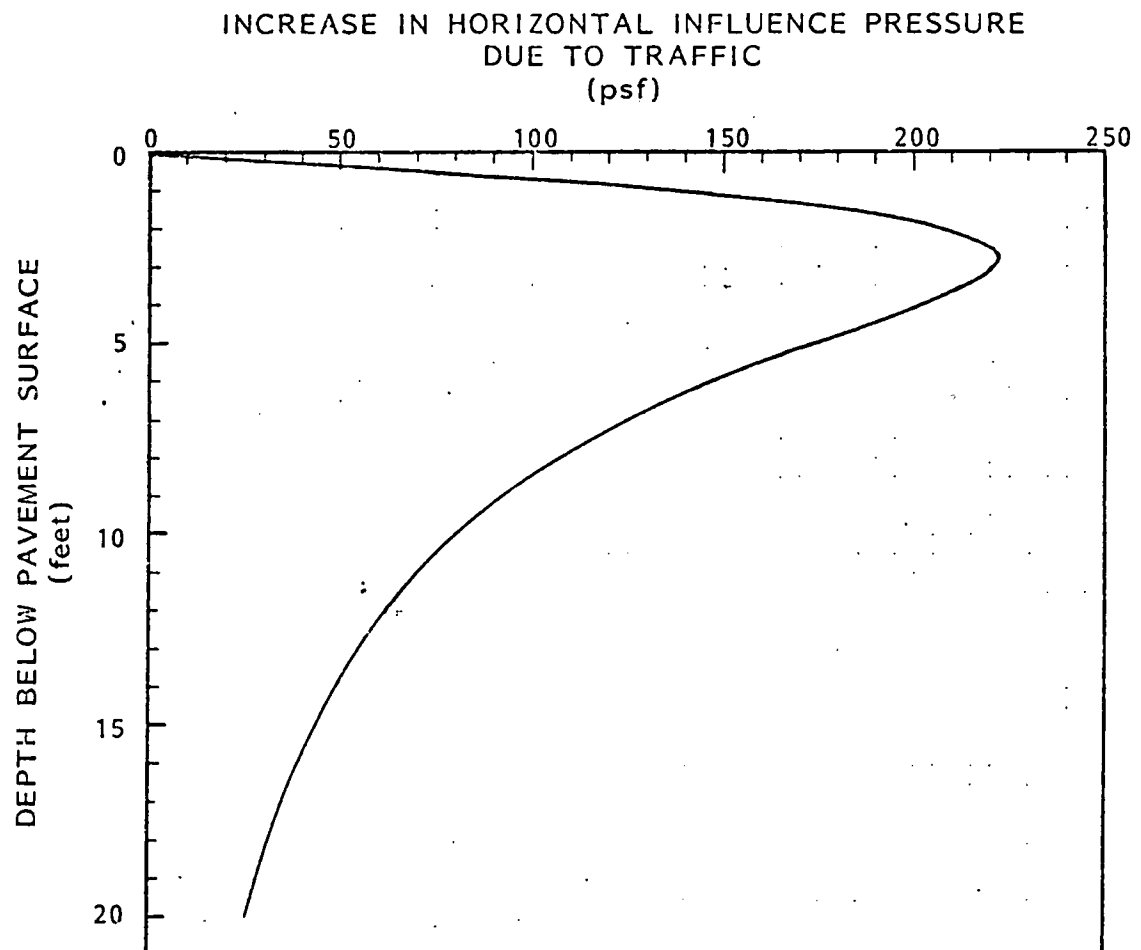
On-site sands derived by excavation for the tunnel may be reserved for use as structural backfill, but any silts encountered should be segregated and either hauled off site or used for supplementary fill for purposes other than structural backfill. Otherwise, structural backfill should consist of imported granular soils — sands, gravels or mixtures of sand and gravel, having Unified Soil Classification SM, SP, GM, GP and not exceeding 3 inches in maximum dimension.

Structural backfill should be placed in level lifts not exceeding 8 inches in compacted thickness, and each lift should be compacted to at least 95 percent of the ASTM D1557-70 maximum dry density. Care should be exercised during the compaction procedure, so as not to impart excessive dynamic pressures to the tunnel walls.

#### Temporary Excavations

Site constraints and continuing traffic flow at the J Street off-ramp dictate that a fully-braced excavation for the temporary face at the center of the ramp is the only viable choice to provide the necessary working space. It is assumed that sloping excavations can be accomplished perpendicular to the flow of traffic or parallel to the proposed tunnel walls. Temporary excavation slopes should be no steeper than  $1\frac{1}{2}$  horizontal to 1 vertical.

It is indicated that a reasonable approach to bracing of the excavation face is a soldier beam and lagging system, with the beams tied back to the existing retaining wall; thus, construction should proceed from the northerly side. The following diagram illustrates horizontal pressures applied to such a bracing system from H-20 design loading, assuming no wheel is closer than 5 feet horizontally from the face of excavation.



In addition to the above pressures, the bracing system should be capable of resisting lateral soil pressures equal to an equivalent fluid pressure of 58 pounds per cubic foot.

We emphasize that both sources of lateral pressure above can actually develop; an appropriate factor of safety should be included in any design. The soldier beam tiebacks should be located within the upper 1/3 of the excavation height. The soldier beams should be placed and the tiebacks

stressed prior to excavation below the tieback level. Lagging must be placed as the excavation is deepened. It is imperative that good construction practices be maintained during excavation and installation of the bracing system if full support of the adjacent ramp pavement is to be provided.

#### LIMITATIONS

The recommendations of this report are based on the information provided regarding the proposed construction as well as the subsurface conditions encountered at the test boring locations. If the proposed construction is modified or resited, or if it is found during construction that subsurface conditions differ from those described on the boring logs, the conclusions and recommendations in this report shall be considered invalid, unless the changes are reviewed and the conclusions and recommendations modified or approved in writing.

This firm would appreciate the opportunity to review the final plans and specifications to determine that the recommendations of this report have been implemented in those documents. The review would be acknowledged in writing.

It is emphasized that this report is applicable only to the proposed construction, as described in the Appendix, and should not be utilized for design and/or construction on any other site.

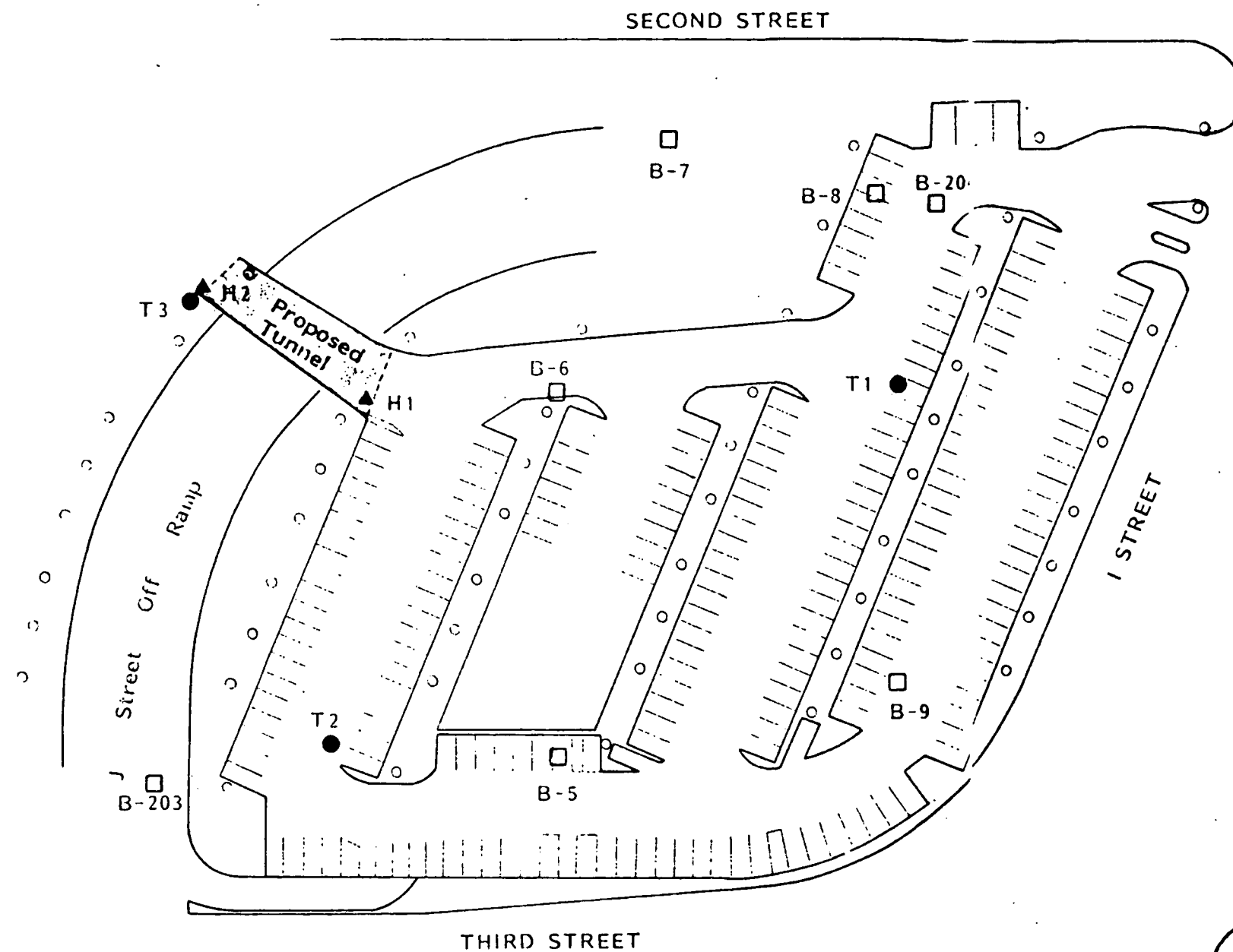
LOWRY & associates



THOMAS S. WALLACE  
Registered C.E. No. 13,522

TSW:cII

xc: (4)  
     (1) Conrad Associates/Oakland  
     (1) Conrad Associates/Van Nuys



# LEGEND

- H2 ▲ Boring completed by hand methods
- T4 ● Boring completed using CME-55 truck-mounted drill rig
- B-7 □ Boring completed by State of California Division of Highways
- Existing pier for I-5 elevated freeway (West End Viaduct)

# NOTES

1. Boring locations shown are approximate only.
2. Prepared from a document entitled:

"GROUND LEVEL PLAN - SCHEME B, INTERSTATE 5 - UNIT 2 PARKING STRUCTURE, CITY OF SACRAMENTO, CALIFORNIA" (scale: 1" = 16"; dated: 6/4/79), prepared by Conrad Associates, Van Nuys, California.



## BORING LOCATION PLAN

**LOWRY & ASSOCIATES**  
GEOTECHNICAL ENGINEERS

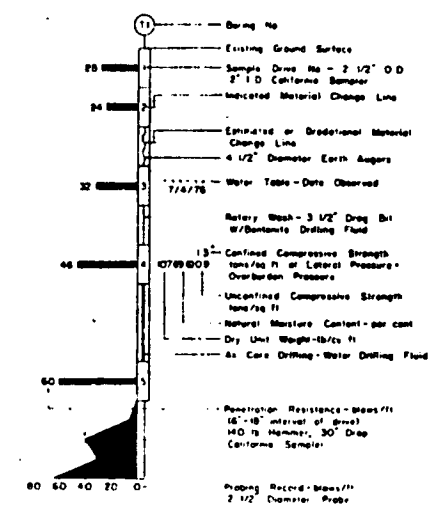
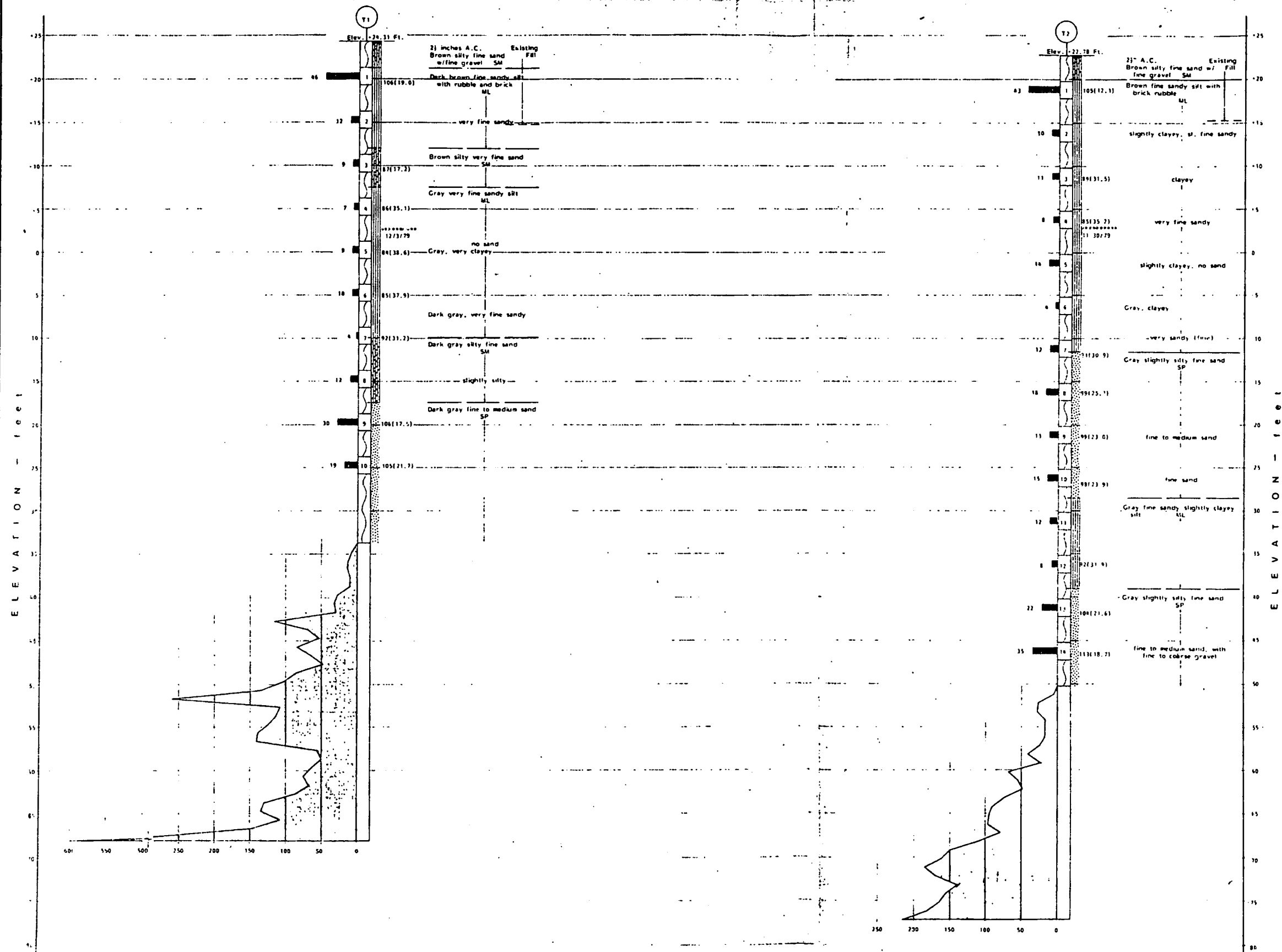
DRAWN BY: G. C. Barmby  
CHECKED BY: W. C. Boli  
SCALE: FEET  
0 32 64

INTERSTATE 5 FREEWAY  
PARKING STRUCTURE  
2nd, 3rd, I & J Streets  
Sacramento, California



PROJECT NO: 79-180  
DATE: 3/80  
PLATE NO: 1





**BORING LEGEND**

**NOTES**

1. An explanation of symbols and classification system presented on Plate No. 1.
2. Date T1 completed: 12/1/79.  
Date T2 completed: 11/10/79.
3. The boring logs show subsurface conditions at the locations and on the dates indicated. It is not warranted that they are representative of subsurface conditions at other locations and times.
4. Elevation determinations by City of Sacramento Survey, made on February 12, 1978, using City of Sacramento datum.

**BORING LOGS**

**LOWRY & ASSOCIATES**  
GEOTECHNICAL ENGINEERS

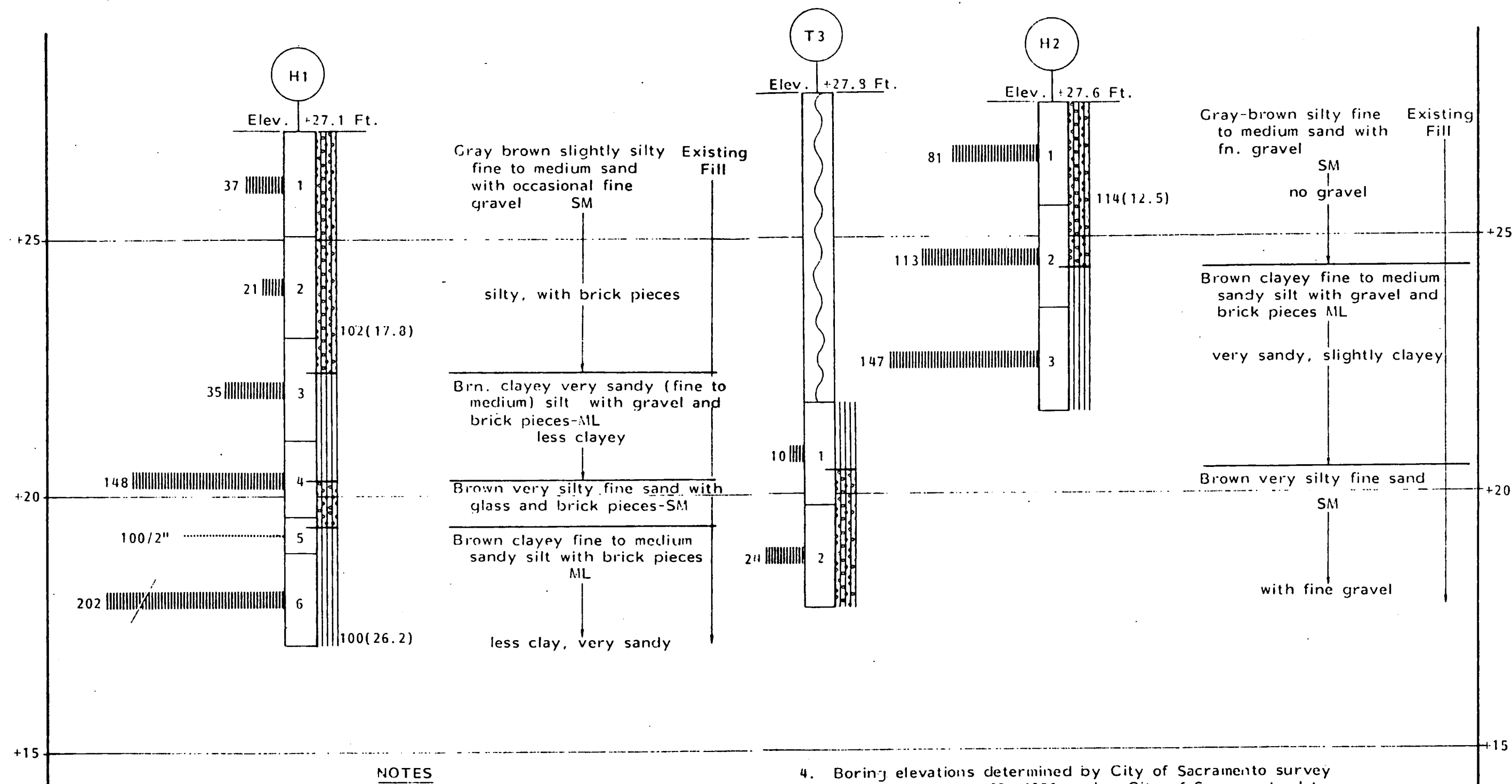
**DRAWN BY:** G.C. Barmby  
**CHECKED BY:** W.C. Boli

**INTERSTATE 5 FREEWAY  
PARKING STRUCTURE**  
2nd, 3rd, I & J Streets  
Sacramento, California



**PROJECT NO:** 79-180  
**DATE:** 3/80  
**PLATE NO:** 2

ELEVATION -- feet



ELEVATION -- feet

# NOTES

1. Boring legend contained on Plate No. 2. An explanation of symbols and classification system presented on Plate No. 4.
2. Borings No. H1 and H2 were advanced using hand methods. Penetration resistance shown for No. H1 and H2 obtained by driving sampler with a 25 pound hammer freely falling 18 inches. Boring No. T3 was completed using CME-55 truck mounted drill rig.
3. Date drilled: 12/14/79.

4. Boring elevations determined by City of Sacramento survey crew on February 22, 1980, using City of Sacramento datum.
5. Free groundwater not observed in borings.
6. The boring logs show subsurface conditions at the locations and on the date indicated. It is not warranted that they are representative of subsurface conditions at other locations and times.

## BORING LOGS


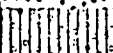

**LOWRY & ASSOCIATES**  
GEOTECHNICAL ENGINEERS

DRAWN BY: G. C. Barmby  
CHECKED BY: W. C. Boli

INTERSTATE 5 FREEWAY  
PARKING STRUCTURE  
2nd, 3rd, I & J Streets  
Sacramento, California



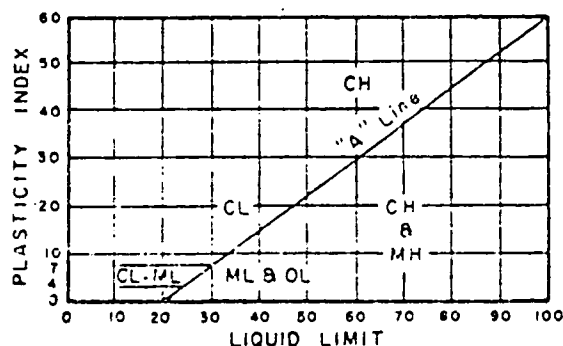
PROJECT NO: 79-180  
DATE: 3/80  
PLATE NO: 3

MAJOR DIVISIONS		SYMBOLS	COLOR CODE	TYPICAL NAMES
COARSE GRAINED SOILS (More than 1/2 of soil > no. 200 sieve size)	<u>GRAVELS</u>  (More than 1/2 of coarse fraction > no. 4 sieve size)	G W		Well graded gravels or gravel-sand mixtures, little or no fines
		G P		Poorly graded gravels or gravel-sand mixtures, little or no fines
		G M		Silty gravels, gravel-sand-silt mixtures
		G C		Clayey gravels, gravel-sand-clay mixtures
	<u>SANDS</u>  (More than 1/2 of coarse fraction < no. 4 sieve size)	S W		Well-graded sands or gravelly sands, little or no fines
		S P		Poorly graded sands or gravelly sands, little or no fines
		S M		Silty sands, sand-silt mixtures
		S C		Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (More than 1/2 of soil < no. 200 sieve size)	<u>SILTS &amp; CLAYS</u>  <u>LL &lt; 50</u>	M L		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		C L		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		O L		Organic silts and organic silty clays of low plasticity
	<u>SILTS &amp; CLAYS</u>  <u>LL &gt; 50</u>	M H		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		C H		Inorganic clays of high plasticity, fat clays
		O H		Organic clays of medium to high plasticity, organic silty clays, organic silts
	HIGHLY ORGANIC SOILS		P t	

## UNIFIED SOIL CLASSIFICATION SYSTEM

COHESIVE SOILS		GRANULAR SOILS	
Description	Blows/ft.	Description	Blows/ft.
Very Soft	< 3	Very Loose	< 5
Soft	3 - 5	Loose	5 - 15
Medium (firm)	6 - 10	Medium Dense	16 - 40
Stiff	11 - 20	Dense	41 - 65
Very Stiff	21 - 40	Very Dense	> 65
Hard	> 40		

### CONSISTENCY CLASSIFICATION



PLASTICITY CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
	coarse (c) 3" to 3/4"	76.2 to 19.1
	fine (f) 3/4" to No. 4	19.1 to 4.76
SAND	No. 4 to No. 200	4.76 to 0.074
	coarse (c) No. 4 to No. 10	4.76 to 2.00
	medium (m) No. 10 to No. 40	2.00 to 0.420
	fine (f) No. 40 to No. 200	0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

### GRAIN SIZE CLASSIFICATION

INTERSTATE 5-FREEWAY  
PARKING STRUCTURE  
2nd, 3rd, I & J Streets  
Sacramento, California

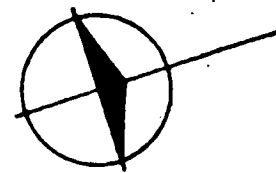


**LOWRY & ASSOCIATES**  
**GEOTECHNICAL ENGINEERS**

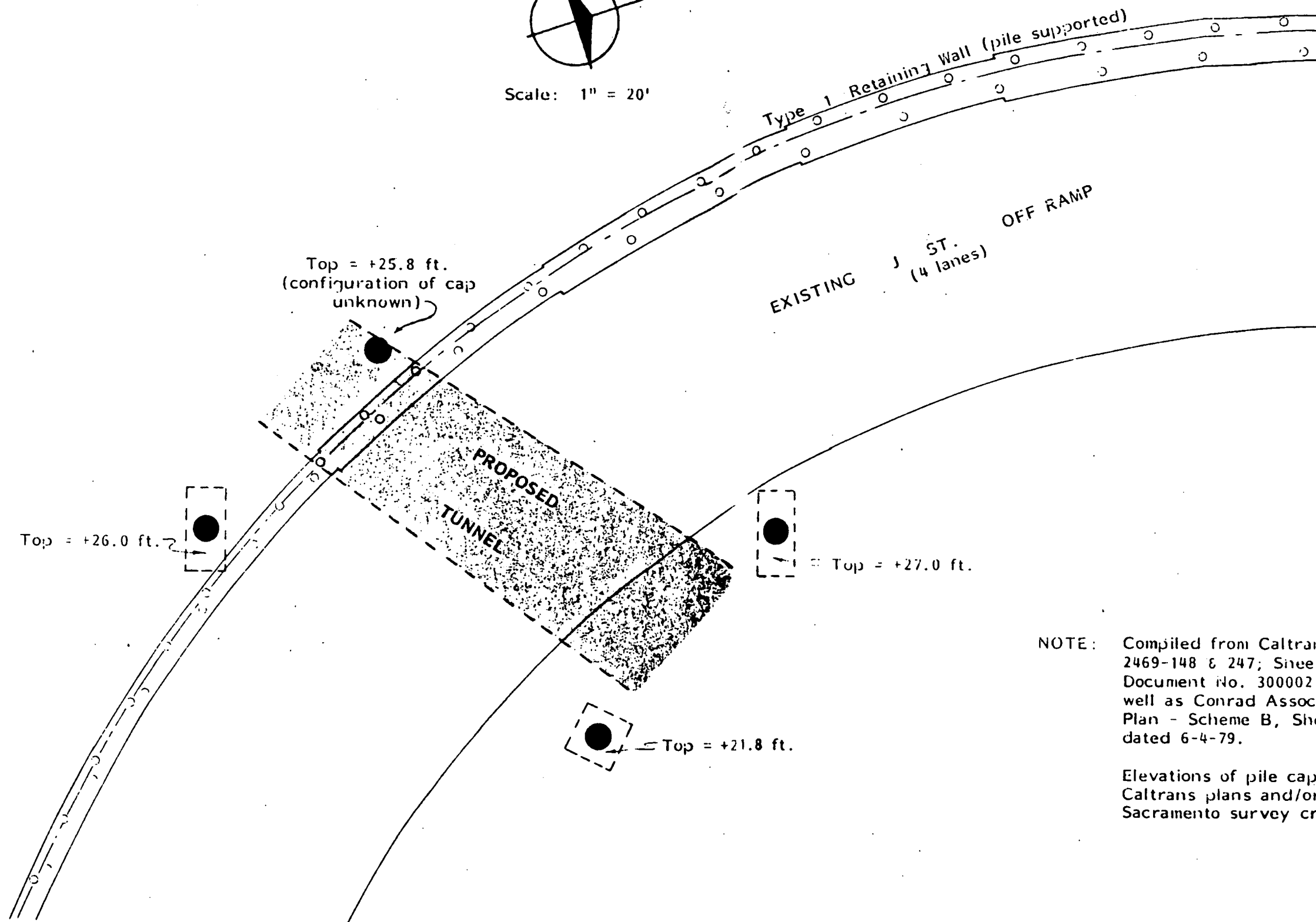
DATE: 3/80

PROJECT NO. 79-180





Scale: 1" = 20'



NOTE: Compiled from Caltrans As-Built Drawings 2469-148 & 247; Sheets 10 & 211 of 281, Document No. 30000217, dated 3-21-69, as well as Conrad Associates' Ground Level Plan - Scheme B, Sheet B1, Job No. 79029 dated 6-4-79.

Elevations of pile cap tops obtained from Caltrans plans and/or verified by City of Sacramento survey crew on 2-22-80.

J STREET RAMP DETAIL

**LOWRY & ASSOCIATES**  
GEOTECHNICAL ENGINEERS

DRAWN BY: G. Barmby  
CHECKED BY: T. Wallace

INTERSTATE 5 FREEWAY  
PARKING STRUCTURE  
2nd, 3rd, I & J Streets  
Sacramento, California



PROJECT NO: 79-180  
DATE: 3/80  
PLATE NO: 5

APPENDIX



## APPENDIX

### GENERAL INFORMATION AND PROJECT DISCUSSION

An investigation of soil conditions was originally authorized by Ronald H. Parker, City Engineer, on April 26, 1979, in response to our proposal letter of April 5, 1979. Performance of the field exploration phase of this work was delayed pending completion of negotiations with Caltrans regarding access problems and permits. Permission was finally received during the latter portion of November, 1979.

The concept of a parking structure beneath the Interstate 5 freeway structures was originally made a portion of the Caltrans plans for the Westend Viaduct structures in 1968. The architectural firm of Starks, Jozens and Nacht and the structural engineering firm of Rumberger & Haines prepared plans showing a four-level parking structure supported vertically by the 4-foot diameter columns which supported the freeway structures. Conrad Associates, Architects, Engineers and Parking Consultants of Los Angeles and Oakland, California, have determined that the original concept of a parking structure supported by the Westend Viaduct structures is no longer desirable due to building code changes and factors related to more efficient utilization of space. The present concept includes a free-standing structure independent of the freeway structures.

We have reviewed both a ground level plan - Scheme B, and a first-level floor plan prepared by Conrad Associates dated 6-4-79, Job No. 79029, during the course of our work. Antonio S. Luisoni, Structural Engineer with the Van Nuys office of Conrad Associates verbally transmitted anticipated column loads to us from which we determined the anticipated pile distribution, assuming use of 70-ton piling. That analysis indicated that 274 piles would be distributed throughout the structure in 150 pile caps as follows: 48 one-pile caps; 76 two-pile caps; and 26 three-pile caps. It is indicated that the structure will be of reinforced concrete flat-slab construction.

The tunnel to be constructed beneath the J Street off-ramp is intended to connect the parking structure with the surface parking lot to the immediate south of that ramp - also located beneath the I-5 freeway structures. This arrangement will allow parking in both areas to be controlled by one access location.

Coordinator of the project for the City of Sacramento is William Gentry. Information regarding the existing Caltrans structures has been obtained from John Hall, located in Room 3442 of 1120 N Street, telephone number 445-8963.

Plate No. A1 is a reproduction of Sheet No. 210 of 281 of the Caltrans plans for the Westend Viaduct showing as-built pavement grades for the J Street ramp. Plate No. A3 is a reduction of the original Caltrans Boring and Probing Logs, Sheet No. 277 of 281.

### FIELD EXPLORATION

Field exploration included the drilling of two deep borings, T1 and T2, and two shallow borings, H1 and H2/T3, at the locations shown on the Boring Location Plan, Plate No. 1. The borings were advanced with 4½-inch diameter continuous flight helical augers powered by a CME-55



truck-mounted drill rig. At various intervals, relatively undisturbed soil samples were recovered from the borings by means of a 2½-inch O.D.-2-inch I.D. California-type sampler which was driven with a 140-pound hammer freely falling 30 inches. The number of blows of the hammer required to drive the 24-inch long sampler each 6-inch interval was recorded, with the sum of blows required to drive the sampler the middle foot (6-inch to 18-inch interval) of each drive denoted the penetration resistance or "blow count" for that particular drive.

The deep borings were advanced beyond the boring termination depths by means of a 2-inch diameter, bullet-nose penetrometer driven with the same energy, and the resulting penetration resistance or "blow count" recorded for every 12-inch penetration interval.

Borings H1 and H2 were accomplished using hand-sampling procedures. The borings were advanced with a 4-inch diameter rotary post hole auger while sampling was accomplished by driving the California-type sampler with a 25-pound hammer freely falling 18 inches. Boring H2 was deepened with the CME truck-mounted drill rig when conditions of virtual refusal to hand sampling were met; thus, Boring T3 actually represents a continuation of Boring H2.

The soil samples were retained in 2-inch diameter by 6-inch long, thin-walled brass tubes contained within the sampler. Immediately after recovery, the samples were visually classified and the ends of the brass tubes were sealed to preserve the natural soil moisture content. Selected samples of the surface soils were obtained in a disturbed condition. All soil samples were taken to the laboratory for classification, with selected samples designated for testing.

The Boring Logs, Plates No. 2 and 3, contain descriptions of the soils encountered in each boring. The soils were classified in accordance with the Unified Soil Classification System. An explanation of that system and other symbols used on the logs appears on Plate No. 4. In addition, the boring logs show a graphical representation of the previously-defined penetration resistance or "blow count" obtained during sampling and probing.

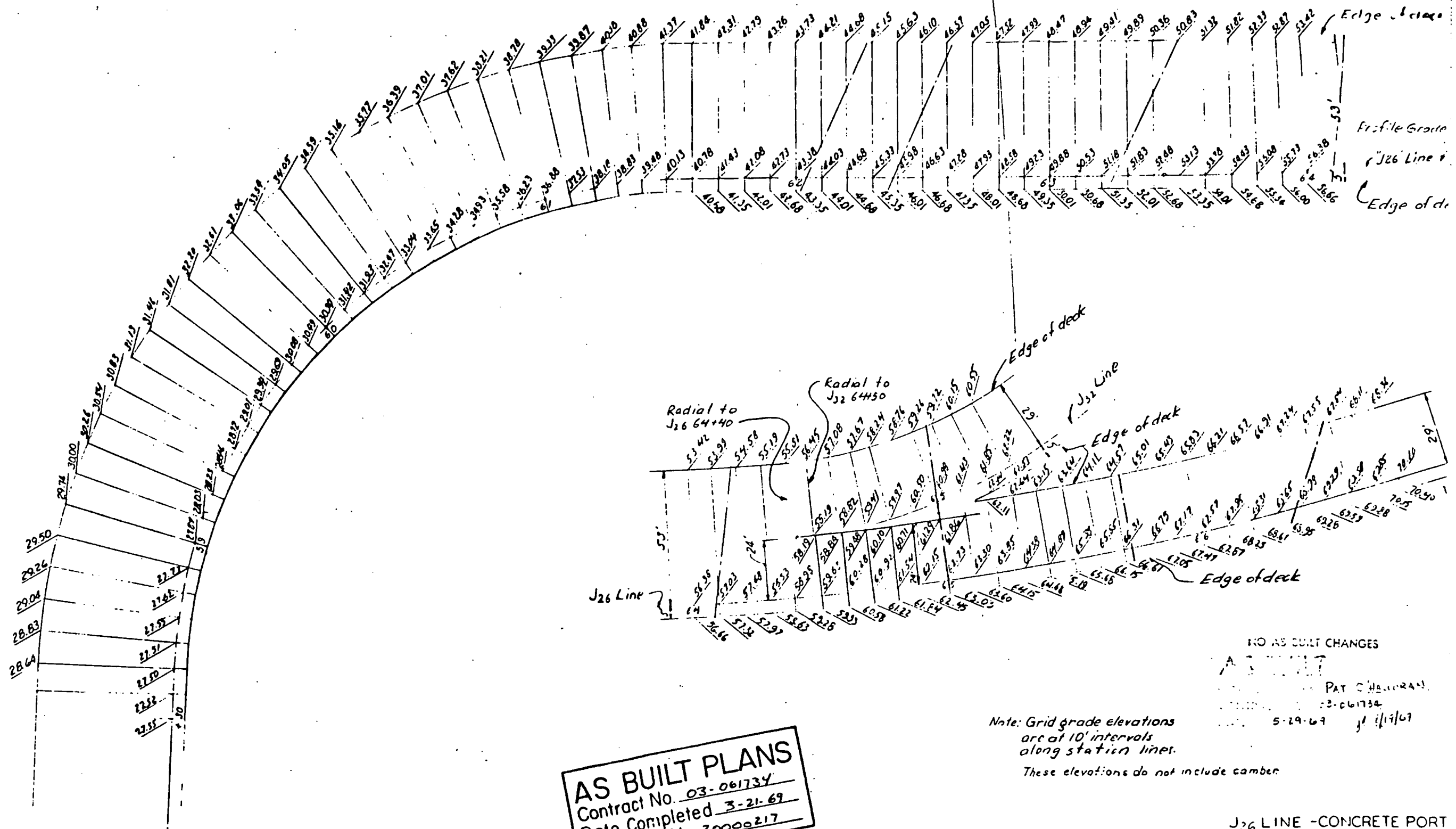
#### LABORATORY TESTING

Selected, undisturbed samples of the soils were tested to determine dry unit weight and natural moisture content (ASTM D2216). The results of these tests are included on the boring logs at the depth from which each sample was obtained.

The internal strength properties of possible foundation soils were assessed by means of direct shear tests (ASTM D3080) performed at normal pressures of 1, 2 and 3 ksf. The results of these tests are tabulated on Plate No. A2.



*Willard*  
December 1



**AS BUILT PLANS**  
Contract No. 03-061734  
Date Completed 3-21-69  
Document No. 30000217

Note: Grid grade elevations are at 10' intervals along station lines. These elevations do not include camber.

NO AS BUILT CHANGES  
A  
PAT CHAIRMAN  
3-061734  
5-29-69 1/19/69

J26 LINE - CONCRETE PORT

BRIDGE DEPARTMENT DESIGN SECTION <b>7</b>		STATE OF CALIFORNIA HIGHWAY TRANSPORTATION AGENCY DEPARTMENT OF PUBLIC WORKS DIVISION OF HIGHWAYS	
DESIGN BY <i>M. E. O. Lane</i>		WEST END VIADUCT PLATE NO.	
DETAILS BY <i>E. J. [unclear]</i>		GRID GRADES NO. 11	
QUANTITIES BY <i>EDWARD YEE</i>		BRIDGE NO. 24-621/L	POST MILE 2469-108
		DRAWING NO. 2469-108	SHEET 210

SAMPLE NO.	DRY DENSITY (LBS. / CU. FT.)	MOISTURE CONTENT		MAXIMUM VERTICAL DEFLECTION (IN. X 10 <sup>-3</sup> )		NORMAL STRESS (LBS. / SQ. FT.)	SHEAR STRENGTH	
		INITIAL (%)	FINAL (%)	(+)	(-)		PEAK	ULTIMATE
		Material: Brown very silty fine sand - SM (existing fill)						
T3-1-I	93	16.8	30.8	5	--	1000	2400	2140
T3-1-I	96	23.6	28.4	2	--	2000	3280	2900
T3-1-II	88	21.3	28.7	--	19	3000	3400	3159

#### TEST DATA

RATE OF STRAIN: 0.05 in/min

SAMPLE CONDITION: Undisturbed

SAMPLE ENVIRONMENT: Submerged

INTERSTATE 5 FREEWAY  
PARKING STRUCTURE  
2nd, 3rd, I and J Street  
Sacramento, California

#### SUMMARY OF DIRECT SHEAR TESTS



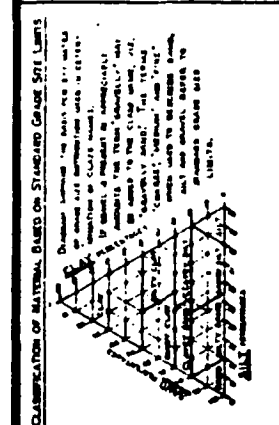
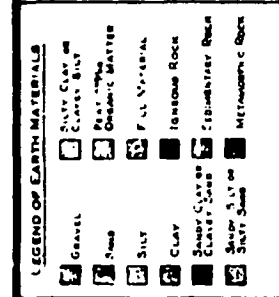
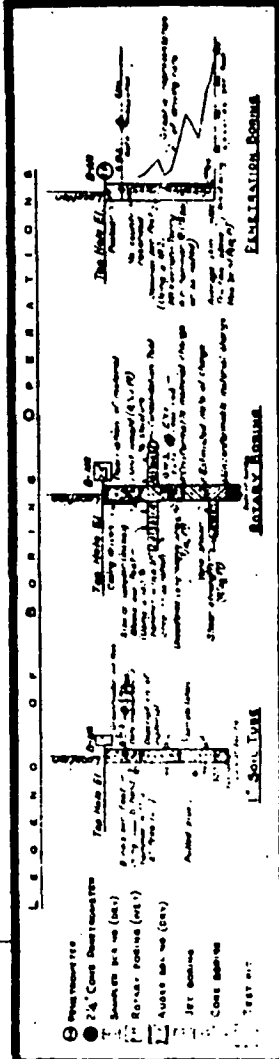
**LOWRY & ASSOCIATES**  
**GEOTECHNICAL ENGINEERS**

DATE: 3/80

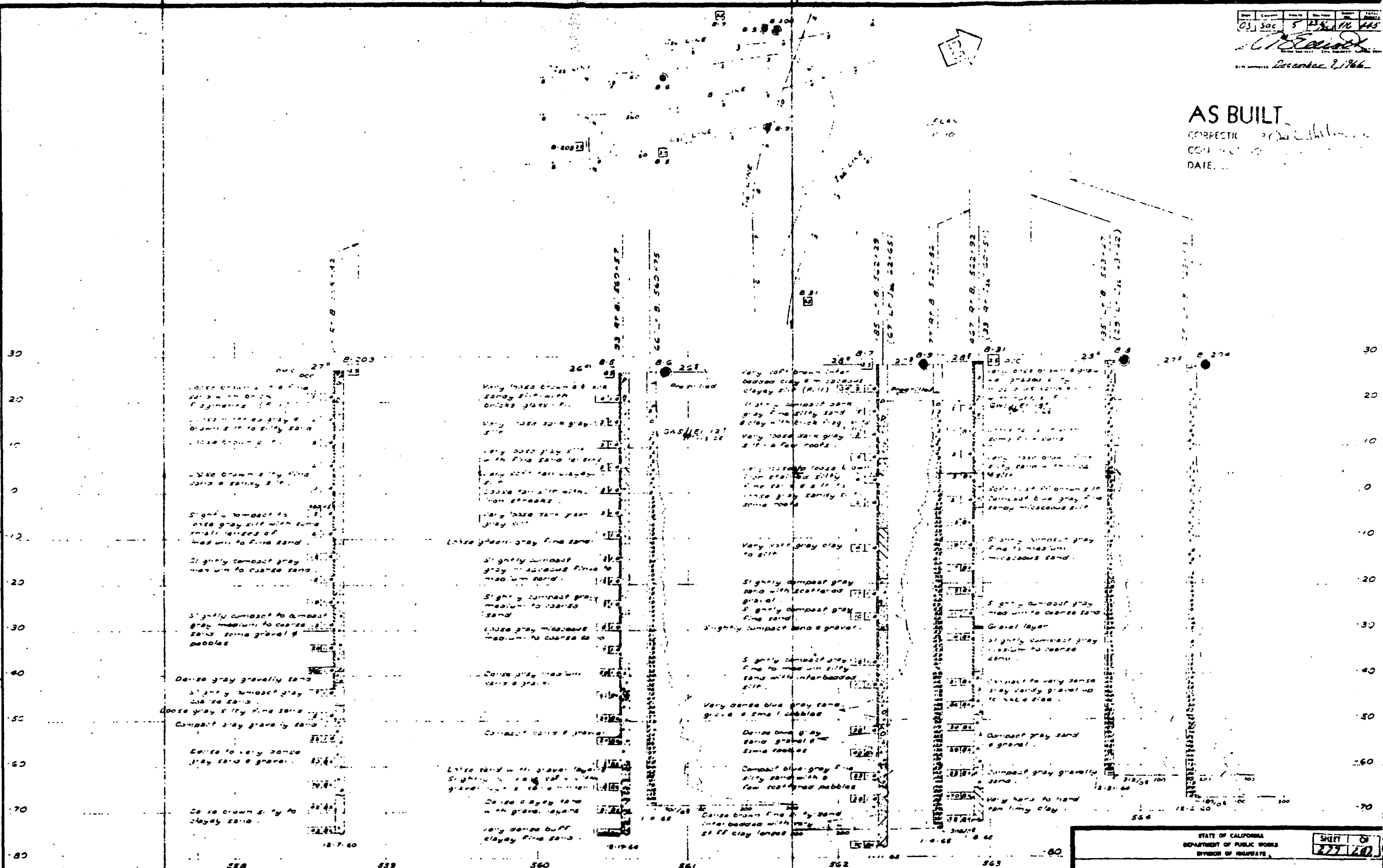
PROJECT No.: 79-180

AS BUILT

CORRECTED  
COMPILED  
DATE



NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.



STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF HIGHWAYS  
WEST END VIADUCT  
LOG OF TEST BORINGS NO. 3  
SCALE 40' HORIZONTAL  
VERT. 1"=10'  
HOR. 2"=100'  
SHEET 275 OF 282  
DATE 12-2-66  
PLATE NO. A3



LOWRY & ASSOCIATES  
GEOTECHNICAL ENGINEERS

GUIDE SPECIFICATIONS  
PILES  
INTERSTATE 5 FREEWAY  
PARKING STRUCTURE  
2nd, 3rd, I and J Streets  
Sacramento, California  
L & a No. 79-180

1. GENERAL

General and Special Conditions shall apply to all work hereunder.

2. SCOPE

Furnish all labor, materials, tools, and equipment required to install complete in place all piling shown on Drawings and specified herein, including complete load testing program.

3. WORK NOT INCLUDED UNDER THIS SECTION

- 3.1 Concrete pile caps: Section \_\_\_\_\_.
- 3.2 Excavations: Section \_\_\_\_\_.
- 3.3 Shoring and bracing of earth banks: Section \_\_\_\_\_.
- 3.4 Site Dewatering: Section \_\_\_\_\_.

4. GENERAL REQUIREMENTS

4.1 All piles shall be installed by a piling contractor, hereinafter designated the Contractor, qualified to install the type of pile to be driven in accordance with the Drawings and Specifications, and under conditions existing at the site. The minimum requirements for qualification shall be five (5) years pile driving experience and evidence of the satisfactory completion of ten (10) pile installations comparable in scope to the work specified hereunder.

4.2 A Foundation Engineering Report (dated March 14, 1980; L & a No. 79-180) has been prepared by LOWRY & associates, Geotechnical Engineers. This report is available for review at the City Engineer's

office and at LOWRY & associates' office (telephone 916-929-9012).

4.2.1 The Owner does not guarantee that the information contained in the Foundation Engineering Report is correct nor that the conditions revealed at the actual boring locations will be continuous over the entire site. This report was obtained for purposes of design only. Making the report available to Contractors shall not be construed in any way as a waiver of this provision. The Contractor shall be responsible for any conclusions to be drawn from the report. Should he prefer not to assume such risk, he is under obligation to employ his own experts to analyze available information and/or to make his own tests upon which to base his conclusions and to determine the actual conditions to be encountered. Should any conditions not mentioned in the report be found to exist, the Contractor shall furnish any additional equipment and shall use any special methods necessary to drive piling to the specified criteria without addition to the contract price.

4.3 Before any piles are driven, the Contractor shall examine all excavation faces from the standpoint of stability during pile driving. If, in his opinion, the excavation faces would be unstable, he shall inform the General Contractor of that opinion and shall not proceed until corrective action has been taken.

4.4 Work shall comply with all Municipal, State and Federal regulations regarding safety, including the requirements of the Williams-Steiger Occupational Safety and Health Act of 1970.

## 5. PILE TYPES

5.1 Piling shall be HP 10 x 42 steel H-piles or concrete-filled steel pipe piles having a minimum outside diameter of nine and one half inches (9½" O.D.)

and a minimum wall thickness of three eighths (0.375) inches.

5.2 Steel H-piles shall meet the applicable requirements of ASTM A-6, General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use.

5.3 Steel pipe piles shall meet the requirements of ASTM A252, Welded and Seamless Steel Pipe Piles, or equivalent ASTM specification for steel pipe, if approved by the Foundation and Structural Engineers.

6. PILE LOADING TESTING PROGRAM

6.1 General: Prior to driving any load-bearing piles, the Contractor shall drive and test piling of the type to be used on the project but with various tip elevations for purposes of determining final pile driving criteria. The driving and testing of the piles shall be performed immediately prior to driving of permanent piles and shall conform to the following criteria.

6.1.1 Three (3) piles shall be driven and tested in accordance with the following requirements.

6.2 Test Pile Location: The testing program shall be carried out near the center of the building area but outside the location of any proposed or existing pile cap, with at least ten feet (10') horizontal clearance between any test or reaction pile and any existing pile or pile cap, at a location determined by LOWRY & associates, Geotechnical Engineers, hereinafter designated the Foundation Engineer. The test piles and reaction piles shall be abandoned upon completion of the testing program and shall be cut off at least twenty-four inches (24") below final subgrade. Test piles and reaction piles shall not be incorporated into the structure.



6.3 Test Pile Driving: The test piles shall be driven with the same hammer that will be used in driving the production piling.

6.3.1 Final tip elevation of test piles will be determined by the Foundation Engineer who will record and analyze the penetration resistance of each pile during installation. For estimating purposes, it can be assumed that the test piles will be driven to tip elevations -50, -55 and -60 feet, City of Sacramento datum.

6.4 Reaction System: The Contractor shall provide a reaction system capable of safely sustaining three hundred (300) tons resistance in axial compression, eighty (80) tons resistance in axial tension and twenty (20) tons resistance to lateral loading at the pile top, when those loads are individually applied to and maintained upon any of the test piles. Installation of reaction piling and construction of the reaction system shall be the responsibility of the Contractor. The array of reaction and test piles shall conform to the applicable provisions of the ASTM D1143-74 Test Method. A plan of the proposed system shall be submitted to the Foundation Engineer prior to installation of piling. It is intended to load all three (3) test piles to failure in compression, and one or more test piles to at least twice allowable design capacity in tension and lateral loading.

6.5 Testing: The Contractor shall provide all equipment necessary to perform the testing program, including calibrated hydraulic jacks, an independent reference beam system acceptable to the Foundation Engineer, dial gauges reading directly to one-thousandth inch (0.001"), necessary steel plates and shims, a manifold system using an electrical or nitrogen-operated pressure control system, flood lights for night testing, and an overall canopy to protect the reaction beam, reference beam, and testing equipment

from sunlight, excessive thermal expansion or contraction, and rainfall.

The Contractor shall submit to the Foundation Engineer calibration charts for all the hydraulic jacks to be used in the load testing program. The jack calibration shall be performed by an independent testing agency within six (6) months prior to commencement of testing. A representative of the Contractor shall be available for help in moving equipment during daylight hours, and shall be on-call throughout the other periods of the testing program.

6.5.1 The Foundation Engineer will provide all engineering personnel for performance of the testing and evaluation of the results.

#### 7. PILE SPLICING

7.1 Piles shall be spliced with full penetration welds in accordance with AWS Specification D1.1-80. The welding electrode shall be E7018 or approved equal. A representative of the Foundation Engineer shall provide full-time observation of weld splicing.

7.2 Proposed alternative splicing procedures and coupling devices must be submitted to the Foundation Engineer and the Structural Engineer for approval along with supporting evidence that a competent splice would be achieved meeting all loading requirements.

#### 8. CONCRETING AND PIPE PILES

Open-ended pipe piles shall have all earth materials removed by a combination of water and air pressure so that a clean pile shaft is evident to the bottom of each pile. Dewatering of piles shall be accomplished prior to placement of the pile concrete. The Contractor shall effect a tremie seal if necessary. Concrete shall develop a 28-day compressive strength of at least three thousand pounds per square inch (3000 psi).

9. INSPECTION OF PILE MANUFACTURING PROCESS

9.1 Manufacturer's certified mill analysis and test reports for each heat per ASTM A6 or ASTM 252, as applicable, shall be submitted at the direction of the City of Sacramento.

9.2 If those documents are not available and the steel cannot be identified; sampling and testing of the steel must be accomplished as specified by the applicable ASTM designation above, as ordered by the City of Sacramento.

10. PILE DRIVING REQUIREMENTS

10.1 All piles shall be driven to the tip elevations specified by the Foundation Engineer.

10.2 Pile driving equipment shall be in first class condition with piles properly held in correct position while being driven. The hammer shall develop at least fifteen thousand foot-pounds (15,000 ft-lbs) of energy per blow. Steam or air hammers shall have boiler or compressor of sufficient capacity to continuously maintain recommended pressure at hammer intake.

10.3 Driving and Observation: All piles shall be driven straight and true in the locations shown on the Drawings.

10.3.1 Driving of piles shall not be undertaken within ten feet (10') of concrete cured less than three (3) days.

10.3.2 Pipe piles shall be driven open-ended if located within fifteen feet (15') of piles supporting the Westend Viaduct structures.

10.3.3 Pipe piles may be driven with a boot plate if located more than fifteen feet (15') from the Westend Viaduct piling.

10.3.4 Heads of piles shall be protected during driving with an approved cushion head block, which shall be maintained in good condition during the entire driving operation.

10.3.5 Pile driving shall proceed only in the presence of the Foundation Engineer, who shall make a continuous record of the penetration resistance, behavior during driving and elevation of cutoff of every pile.

10.3.6 Each pipe pile shall be observed and approved by the Foundation Engineer or his representative prior to concreting.

10.4 Alignment and Tolerances: All piles shall be driven so that the center of the pile head is not more than three inches (3") from the design location shown and no pile shall be more than two percent (2%) of its length out of plumb. Piles exceeding these tolerances shall be corrected as directed by the City of Sacramento or the Structural Engineer and at no increase in cost to the City.

10.5 Pile Damage and Replacement: Distortion, splitting, bending, or other damage sustained by piles during driving shall be corrected as directed by the City or Structural Engineer, without cost to the City.

10.5.1 Additional piles required by the City or Structural Engineer to replace damaged or misaligned piles shall be driven and all changes in pile cap design and construction, including costs of form work, steel, concrete and labor shall be accomplished without cost to the City.

10.6 Heaving: Survey level readings shall be taken on individual piles during at least the initial portion of pile driving at locations designated by the Foundation Engineer. If it is determined that piles have become unseated, redriving of affected piles and all subsequent piles so affected shall be accomplished at no cost to the City.

10.7 Cutting Off: Tops of all piles projecting above cutoff elevation after driving shall be cut off at the proper elevation, following approval of the Foundation Engineer, and ends removed from the jobsite.

11. CLEANUP

Upon completion of pile driving, remove all equipment, excess materials, etc. and leave site clean and free of debris.

12. BASIS OF PAYMENT

12.1 For bidding purposes, the Contractor shall include in his bid a lump sum for all work embraced by this section, complete, based upon the number and length of piles as shown on the drawings, and including the load testing program.

12.2 The contract sum will be subject to adjustment up or down depending upon the actual lineal footage of piles driven, and accepted.

12.3 For purposes of adjusting the contract sum, the Contractor shall submit one unit price per lineal foot for furnishing and driving.

12.4 Payment for extra piles ordered by the City or Structural Engineer for purposes other than replacement of damaged or misaligned piles shall be in accordance with the above unit price.

12.5 The unit price shall include all costs for performing the described work, including all incidental items necessary to drive the piles in the proper positions and to the elevations required.

LOWRY & associates

SECTION 02620 - CONCRETE CURBS, WALKS,  
DRIVEWAYS AND GUTTERS

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes all miscellaneous on-grade concrete structures.
  - A. Work includes but is not limited to the following:
    - 1. Construction of concrete curbs and raised concrete traffic islands.
    - 2. Construction of concrete walks, curbs, gutters, driveways.
    - 3. Permits, drawings, etc., as required.
  - B. Related Work Specified Elsewhere:
    - 1. Concrete Formwork, Ast-In-Place Concrete - Section 03100.
    - 2. Reinforcing Steel - Section 03200.
    - 3. Cast-In-Place Concrete - Section 03400.
    - 4. Construction of Concrete Work shown Section 02800 and Plan Sheets L-1, L-2, and L-3.
- 1.02 REFERENCE STANDARDS: Comply with all pertinent codes and regulations.
- 2.00 PRODUCTS:
  - 2.01 Concrete material shall conform to other applicable sections of this Specification.
- 3.00 EXECUTION:
  - 3.01 All construction to be staked by a licensed surveyor or licensed civil engineer.
  - 3.02 All work to be in accordance with the Drawings. All curbs, gutters, and sidewalks adjacent to streets shall be constructed in accordance with City Standards and Section 02800.

3.03 CEMENT FINISHES AND MISCELLANEOUS DETAILS:

- A. Curbs: Smooth finish. Expansion joints at 20 feet o.c. maximum.
  - B. Brick and concrete walks shall be constructed in accordance with the Drawings and City Standards.
- 3.04 Provide expansion joint material where concrete slab on grade abbutts vertical surfaces that are not doweled to slab.

END OF SECTION

SECTION 02800 - LANDSCAPING & IRRIGATION

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 SCOPE: This work consists of furnishing all labor, materials, equipment, and appliances necessary to complete Irrigation System, Landscaping, walkways and related work as indicated.
- It includes connection to water and electrical sources, all tubing, piping, valves, sprinkler heads, fittings, trenching, testing and backfilling, including but not limited to PVC Pipe; Irrigation Controller, Quick Coupling Valves, Remote Control Valves; Gate Valves; Shrub Heads, Manual Control Valve.
- It includes all soil preparation, planting, staking, and/or guying.
- Plant establishment and maintenance period of thirty (30) calendar days.
- Remove debris, prepare and clean up site as necessary for landscape work.
- Rough and finish grade site as necessary. Stockpiled topsoil placed on all planted areas with 8" depth topsoil.
- It includes concrete flatwork, brick paving, and other brick work.
- Relocate, repair, and otherwise maintain existing planting and irrigation system as may be required to allow for the new work.
- 1.02 RELATED WORK: Striping, curbs, gutters, drainage system. Electrical connection, 120 V to timeclock location. Sleeves for irrigation work.
- 2.00 Irrigation System shall consist of furnishing and installing system as shown on the plans and in accordance with these Special Provisions.
- Irrigation system shall include all appurtenances, incidentals and accessories required for proper installation and operation of the system.



The irrigation system as presented on the Plans is diagrammatic only. Before pipeline trenches are backfilled, the irrigation system shall be checked and modified if necessary to obtain complete and uniform coverage.

2.01 Manufacturer's warranties, guarantee, instruction sheets and parts lists, which are furnished with certain articles or materials incorporated in the work, shall be delivered to the Engineer before acceptance of the contract.

2.02 GUARANTEE: The entire sprinkler system work shall be guaranteed for a period of one (1) year from date of final acceptance. Should any trouble develop within the time specified above due to faulty workmanship or materials, the trouble shall be corrected by the Contractor without expense to the City.

Any settling of backfilled trenches which may occur during the one (1) year period after completion shall be repaired by the Contractor without expense to the City including the complete restoration of all damaged property.

2.03 RECORD DRAWINGS: The Contractor shall furnish the Engineer with "as-built" drawings showing any changes in Plans, location of pipe and valves, depth, etc. The irrigation system will not be accepted until "as-builts" are furnished and accepted.

2.04 Repaving Trenches shall conform to Paragraph 25-8 of the Standard Specifications except that the trenches shall be backfilled to the full depth with sand.

2.05 Payment shall be at the contract lump sum price bid for irrigation which price shall include full compensation for survey work necessary to installation.

2.06 EQUIPMENT AND MATERIAL

A. Conduit shall conform to the provisions in Section 32-9 "Conduit" of the Standard Specifications of the City of Sacramento, except that conduit required under pedestrian paving 10 foot wide or less may be (PVC) Class 200 solvent weld pipe conforming to the Pipe Section of these Special Provisions.

B. Valve Manifolds shall be constructed of PVC Schedule 80 pipe with either Schedule 80 fittings and Galvanized fittings as indicated.

C. Quick Coupling Valve shall be Buchner 3LT to accommodate Buchner 3C Coupler, or approved equal. Quick Coupling Valve shall be installed a minimum of one foot (1') from curbs and sidewalks. Quick Coupling Valve shall be installed with swing joint assemblies as indicated.

D. Swing Joint Assemblies for Type A Sprinklers and quick coupling valves shall be constructed of Galvanized Steel pipe and fittings as shown on drawings. All joints shall be tightened one turn beyond hand tight. Joints shall be coated with non-hardening compound or teflon tape.

E. Spray Head Riser Assemblies shall be as indicated.

F. Omitted.

G. Omitted.

H. Omitted.

I. All Spray Heads shall be made theft-resistant by applying "Loctite Retaining Compound No. 3, Catalog No. 35-31" on all pipe threads down to the first elbow underground. Mating threaded surfaces shall first be primed with "Locquic Primer T." This compound shall only be applied on male threads to prevent excess compound from entering the working mechanism of the spray heads.

All Spray heads, including risers and stakes shall be painted gray.

- J. Valve Boxes shall be precast Portland cement concrete boxes or polyolefin plastic boxes. Boxes shall be installed six inches (6") below finish grade.

- 2.07 Electrical consists of furnishing and installing conduits, conductors, pull boxes, circuit breakers and all other appurtenances as required to supply electrical service to the irrigation sprinkler controllers as shown on the Plans.

The work shall be done in accordance with the applicable portions of Section 32 of the Standard Specifications and as indicated on the Plans.

- 2.08 ELECTRICAL AUTOMATIC CONTROL SYSTEM: Electrical automatic controller, electric remote control valves, electrical wiring and the installation thereof shall conform to the provisions in Section 32 "Electrical" of the Standard Specifications of the City of Sacramento and the following special provisions. All electrical automatic controllers and electric valves shall be of the same manufacturer. Electrical equipment requiring modifications to conform to the specified requirements shall have such modifications made at the factory before shipment to the project.

- A. The Electrical Automatic Controller shall operate on 120 volt, single phase, alternating current and shall be provided with a transformer which will supply a 24 volt current for operation of the electric remote control valves. In addition, the controller shall be equipped with or shall be capable of the following:

1. Full automatic operation capable of operating a complete seven (7) day minimum irrigation program.
2. Switch controls on face of control panel for "ON-OFF" and "MANUAL-AUTOMATIC."
3. Fuse or circuit breaker protection for the controller and the 24 volt transformer.
4. Variable timing to a maximum of thirty (30) minutes at each station.
5. Omitting any station by simple adjustment.
6. Manual operation of any single station.
7. Resetting to start of irrigation system at any time and advancement from one position to another.
8. Permit any remote control valve to remain in operation until manually turned off with the controller in "MANUAL" operation.

9. Repeating the entire cycle of operation upon completion of initial cycle.
10. Timing adjustments and clock settings capable of being made without inserting or removing pins.

The controllers shall be as indicated on drawings. Enclosure shall be a weatherproof, bonderized metal box with baked enamel finish and shall have a door lock to which four (4) keys shall be provided. The enclosure and accessories shall be installed in conformance with the manufacturer's instructions and recommendations.

- B. Electric Remote Control Valves shall have a brass or bronze body with straight pattern. Valves shall be normally closed and shall be the same size as the pipeline which they are to control. Valves shall be completely serviceable from the top without removing the valve body from the system and with a wheel or nut type manual adjustment with packing gland feature to regulate flow from fully open to closed. The adjustment shall remain in set position when the valve is operated manually or automatically. The adjustment feature shall regulate automatic closing time to not less than four (4) seconds. Each valve solenoid shall be designed for operation on a 24 volt AC circuit at 6.5 watts maximum.
- C. Control Conductors shall be underground feeder type (UF) No. 14 AWG, with 4/64 inch minimum thickness of TW Grade polyvinyl chloride insulation of any color except white. Neutral conductor shall be No. 12 AWG with white insulation of the same thickness and compound specified above for control conductors. One neutral conductor shall be required for every three control clocks installed when clocks are mounted in a common housing. Each independent clock shall have separate neutral.

Conductors shall be buried directly in the ground a minimum of eighteen inches (18") below the surface and shall follow irrigation supply lines wherever possible, except that, where conductors pass under paved areas or through a pipe conduit the conductors shall be installed in conduit conforming to the provisions in Paragraph 3 of this item.

Conductors shall be run continuous without splices from controller enclosure to the valve boxes. Splices shall be soldered and sealed with waterproof "Pen Tite" connectors with resin.

At least two feet (2') of slack shall be left in each conductor at each splice in RCV box. No other splices permitted.

Conductors from controllers to valves shall be wrapped together with electrical tape at five foot (5') intervals.

- D. Electric Controller Enclosure shall be Nema 3 "weathertight," semi-dusttight and tamperproof design. Enclosure shall be a standard catalogue item of a manufacturer regularly engaged in the manufacture of tamperproof pedestals. Enclosure shall be fabricated from 12 gauge cold rolled steel removable mounting pan fastened to welded stubs. Joints shall be seam welded and external welds ground smooth to a minimum 1/8" radius. All metal surfaces shall be phosphatized by a 4 stage process and coated with a baked on poly-porc plastic. Color to be City of Sacramento Ranch Green.

## 2.09 PIPE

- A. Galvanized Steel Pipe and Fittings shall be hot dip galvanized steel conforming to the specifications of ASTM Designation A120, standard weight.

All pipe shall be cut straight and true. After cutting the ends shall be reamed out to the full inside diameter of the pipe.

Male pipe threads on galvanized steel pipe shall be coated with a joint compound that is non-hardening and non-corrosive or teflon tape. The compound may consist of seventy percent (70%) of 200 mesh lead, white lead, red lead, graphite, cement dust or talc inert fillers in non-volatile hydrocarbon or raw linseed oil vehicles.

- B. Plastic Irrigation Pipe shall be extruded from 100 percent (100%) virgin material, approved by the National Sanitation Foundation and shall conform to Commercial Standard CS256.

Plastic irrigation supply line two inches (2") or larger on the supply side of the control valve shall be polyvinyl chloride PVC 1120 plastic pipe Class 160 ring-tite; one and one-half inch (1½") plastic pipe on the supply side of the control valve shall be PVC 1120 plastic pipe Class 315 solvent weld type; plastic irrigation line on the discharge side of the control valve shall be PVC 1120 plastic pipe Class 200, solvent weld type and shall conform to the requirements in ASTM Designation D1785.

Plastic irrigation line Class 315 and 200, solvent weld type galvanized steel pipe shall be placed in trenches at sufficient depth to provide eighteen inches (18") of cover over the top of the pipe.

Plastic pipe supply line Class 160 ring-tite shall be placed in trenches at sufficient depth to provide twenty-four inches (24") of cover over the top of the pipe.

Fittings for PVC plastic pipe shall be Schedule 40, Type II, high impact fittings and shall be solvent weld type. Plastic fittings shall be Schedule 40.

Pipe shall be cut with a fine tooth hacksaw and any burrs shall be removed. The outside surface of the pipe and the inside surface of fittings shall be wiped with a clean cloth to remove all dirt and moisture before the cement solution is applied. The cement solution shall be applied to the pipe and fitting socket with a brush having a width approximately three-quarters ( $3/4$ ) of the depth of the socket. The cement solution shall be applied freely with a light wiping action to spread the cement uniformly over the surface. The pipe surfaces or fitting socket shall not be rubbed with the brush any more than is necessary to spread the cement. If the cement thickens, it shall be discarded. Solvent weld connections on the supply side of valves shall first be cleaned with weld-on solvent No. 660 or equal. Cement solution shall be weld-on solvent No. 715.

Immediately after the cement has been applied to the surfaces to be joined, the pipe shall be inserted into the fitting with a twisting motion to the full depth of the fitting socket. Immediately after joining is completed, any excess cement shall be thoroughly wiped from the pipe and fitting. The jointed members shall be allowed to cure for at least five (5) minutes before they are handled. An additional fitting or pipe section may be added to the completed joint within three (3) minutes if care is exercised in handling so that strain is not placed on the previous joint.

The male pipe threads of all threaded connections on PVC plastic pipe shall be coated with a joint compound suitable for use with plastic pipe. Swing joint connections shall be coated with non-hardening compound.

All joints between fittings and ring type pipe shall be sealed with rubber rings. Fittings shall be the same joint design as the pipe as recommended by the manufacturer. Ring type plastic pipe and fittings shall be assembled with a non-toxic lubricant as recommended by the manufacturer.

Portland cement concrete thrust blocking shall be provided at each change in alignment and at the ends of plastic pipe (ring type) supply lines. Concrete for thrust blocking shall be Portland cement concrete Class "D" and shall conform to Section 10-5 of the Standard Specifications.

Plastic pipe, including fittings and thrust blocks, shall be installed according to the manufacturer's directions and as directed by the Engineer.

Foreign material shall be prevented from entering the irrigation system during installation. Immediately prior to assembling all pipes, valves and fittings shall be cleaned. All unattached ends of pipe, fittings and valves shall be plugged or capped pending the attachment of additional pipe or fittings. All lines shall be thoroughly flushed out prior to attachment of terminal fittings.

Before any portion of the pipeline is backfilled, water shall be turned in that portion of the line and maintained at full static pressure for a period of not less than four (4) consecutive hours after all air has been expelled from the line. Any leaks that develop in the portion of the system installed by the Contractor shall be repaired and all defective materials shall be replaced by him. The pipe shall be plugged or capped where sprinklers are to be installed while making this test. The entire system shall then be checked for uniform and complete coverage after installing sprinklers.

The four (4) hour pressure test specified above shall be performed on the plastic pipeline on the supply side of the control valve. A similar test shall be performed on the plastic pipeline on the discharge side of the control valve, except that the test shall be for a duration of one (1) hour.

PVC plastic pipe placed in a trench shall be laid on level, undisturbed or well compacted earth and shall be snaked from side to side in the trench at intervals of approximately fifty feet (50'). Pipe shall be held down between joints with small mounds of earth to prevent movement. After completing the pressure tests on the pipelines and before any backfill is placed, water shall be run through the entire line until the pipe has been cooled to the supply water temperature. The trench shall be immediately backfilled, covering the pipe with soft earth to prevent damage to the pipe from rocks or clods.

- 3.00 Landscape Planting shall consist of preparing and planting areas as shown on the plans and as specified in these Special Provisions.
- 3.01 Certificate of Compliance. A Certificate of Compliance must be furnished to the Landscape Architect with each lot of material delivered to the work and the lot so certified must be clearly identified in the certificate.

All materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis of a Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating material in the work which conforms to the requirements of the Plans and Specifications and any such material not conforming to such requirements will be subject to rejection whether in place or not.

3.02 Measurement of Quantities shall be determined by the Landscape Architect based on delivery tags presented to the Landscape Architect at time of delivery. The Contractor shall give twenty-four (24) hours notice of all delivery dates and times. Materials delivered at such times that the Landscape Architect is not present will not be counted.

3.03 MATERIALS

- A. Sod shall be defined as living, growing blue grass consisting of blades, crowns, rhizomes, roots, and attached soil. Density of sod shall be such that the sod slabs may be handled, lifted, and moved without substantial breaking or tearing. Sod shall be essentially free of weeds and injurious insects when delivered. Sod shall be cut from mature, healthy turf fields with a sod cutter in even sized slabs which may be rolled or folded for transport; the slabs shall be reasonably uniform in thickness, and the turf evenly mowed prior to harvest. Average thickness of sod shall be three-fourths inch ( $3/4$ " ) to one inch (1").

Blue grass sod shall be Warren's A-3/4 Blue Grass.

- B. Plants shall be the variety and size shown on the Plans and shall conform to the requirements of these specifications.

The Contractor shall place an order for the required number of plants including a reasonable number of replacement plants, within ten (10) working days after he has received notice of approval of the contract. A copy of the order showing the number of plants ordered, from whom ordered and the anticipated date for delivery shall be submitted to the Landscape Architect within twenty (20) working days after he has received notice of an approval of contract.

All plants shall comply with Federal and State laws requiring inspection for plant diseases and infestations. Any inspection certificates required by law shall accompany each shipment of plants and certificates shall be delivered to the Landscape Architect.

The Contractor shall obtain clearance from the County Agricultural Commissioner as required by law before planting plants delivered from outside the County. Evidence that such clearance has been obtained shall be filed with the Landscape Architect.

All plants furnished by the Contractor shall be true to type or name as shown on the Plans and shall be tagged in accordance with the standard practice recommended by the American Association of Nurserymen.



Plants furnished by the Contractor shall be healthy, shapely and well rooted and roots shall show no evidence of having been restricted or deformed at any time. Plants shall be well grown, free from insect pests and disease.

No plants shall be transported to any planting area that is not thoroughly wet throughout the ball of earth surrounding the roots.

Plants shall be inspected by the Landscape Architect prior to planting. Any plants rejected shall be removed from the site and replaced by the Contractor at his expense.

Plant schedules shown on the drawings are for the Contractor's convenience only. The Contractor shall confirm all quantities and shall plant as required by the Planting Plan when discrepancies exist.

- C. Soil Amendment shall be composted bark composed of ninety-five percent (95%) of the material passing through a one-fourth inch ( $\frac{1}{4}$ " ) screen, fifty percent (50%) through a one-eighth inch ( $\frac{1}{8}$ " ) screen. Material shall be stabilized with Nitrogen ( $\frac{1}{2}$  lb. ACT) and shall not contain more than 5,000 p.p.m. soluble salt. Material shall weigh a minimum of 450 pounds per square yard by dry weight.

Chemical analysis shall be as follows: Nitrogen 1 - 1.2%; Phosphoric Acid 2%; Potash .25%. Adapted dry weight per cubic yard shall be a minimum of 600 pounds or Composted Rice Hulls such as solar soil.

- D. Commercial Fertilizer shall be uniform pelleted form, shall comply with the chemical analysis specified in these special provisions and shall conform to the requirements of the Agricultural Code of the State of California.

Commercial fertilizer shall have the following guaranteed chemical analysis:

<u>Ingredient</u>	<u>Percentage</u>
Nitrogen	6
Phosphoric Acid	20
Water Soluble Potash	20

- 3.04 WEED CONTROL: Bermuda grass and other weeds in areas to be planted with shrubbery shall be completely killed and then shall be removed. After planting, above areas shall be treated with Pre-Emergent.

Before applying any chemicals, the Contractor shall obtain from the Engineer written approval of the material to be used, the

rate of application, method of application, name of applicator and area to which material is to be applied. If special permits are required for the materials to be used, they shall be obtained from the County Agricultural Commissioner and submitted with the request for the use of the materials.

- 3.05 PREPARING PLANTING AREAS: Holes shall be excavated and prepared as specified on the plans. Water shall not be used for preparation of holes. Backfill material for the holes shall be a mixture of soil amendment, iron sulfate, and soil. The proportion of material per hole shall be designated on the plans and sufficient soil added so that after settlement, the backfill material in the hole will be even with finish grade. The materials shall be thoroughly mixed to the bottom of the hole so that they are evenly distributed and without clods or lumps.

After irrigation system has been installed and approved for use, no further work shall be done in planting areas except that the soil shall be kept wet for a period of seven (7) days. Allow area to dry to a workable condition, spread soil amendment at a rate of 3 cubic yards per 1,000 square feet, and cultivate until the soil is in a loose and fine-textured condition to a depth of six inches (6"). Special attention shall be given to insure loosening of compacted soil, such as found in construction roadways.

The use of rubber-tired equipment will be permitted for cultivating operations, provided that the equipment used completely eradicates, to the satisfaction of the Landscape Architect, any compaction caused by the tires.

The work involved in preparing planting areas shall be so conducted that the existing flow line will be maintained.

Soil in planting areas adjacent to curbs or paved areas shall be reviewed and approved by the Landscape Architect before any planting is started. Contractor shall schedule a grade inspection with the Landscape Architect giving him twenty-four (24) hours notice.

- 3.06 PLANTING PLANTS: No planting will be allowed until all soil amendment delivery tags are received and quantities used are approved by the Landscape Architect.

Plants shall be planted in accordance with the following provisions and as directed by the Landscape Architect.

Plants shall be planted in such a manner that the roots will not be restricted or distorted. Soil shall not be compacted around the roots or ball of the plant during or after planting operation.

Any plant which has settled deeper than specified in the above paragraph shall be raised back to the required level or re-placed at the option of the Contractor.

Planting areas that have been compacted for any reason, either before or after planting, shall be re-cultivated by the Contractor at his expense.

At the time the trees are planted, stakes shall be placed and the plants shall be tied thereto. The size of stake and number of ties to be installed shall be as shown on the plans. Stakes shall be placed against but not through the plant ball and shall be placed on the side toward the prevailing wind unless otherwise directed by the Landscape Architect. Steel stakes will be supplied by City.

Ties shall be a cotton webbing material one inch (1") wide and approximately one-eighth inch (1/8") thick or rubber ties. The webbing shall be placed as shown on the plans.

All trees shall be watered immediately after planting. Water shall be applied to a moderate stream until the backfill soil around and below the roots or ball of earth around the roots of each plant is thoroughly saturated. When watering is done with a hose, a metal or plastic pressure-reducing device approved by the Landscape Architect shall be used.

After planting plants and before start of maintenance, planting areas shall be fertilized with 30 pounds of fertilizer per 1,000 square feet.

- 3.07 SOD INSTALLATION: Sod slabs shall be laid promptly after delivery to job site. In hot, dry, or windy weather stacked sod at job site shall be lightly sprinkled with water to prevent slab edges from excessive drying. Sod slab ends and sides shall be butted together for a close fit without overlapping and they shall be staggered. Sodded areas shall be lightly rolled after a light initial watering, then irrigated heavily to assure water penetration in the soil to a depth of eight inches (8"). In hot, dry, or windy weather the initial watering shall be carried out on conveniently large areas, before entire area is sodded, to prevent newly installed sod from excessive drying.

Fertilizer shall be applied at the rate of fifteen (15) pounds per 1,000 square feet.

- 3.08 START OF MAINTENANCE PERIOD INSPECTION: After all planting work is completed, the Contractor shall verbally schedule an inspection with the Landscape Architect. The Landscape Architect shall test the irrigation system for coverage and review all plant materials for proper installation. The written approval of the completed work by the Landscape Architect shall establish the beginning of the maintenance period. No partial approvals will be given.

3.09 Plant Establishment Work shall consist of caring for the landscape planting portion of the project.

The maintenance period shall be thirty (30) calendar days minimum or until the first mowing and shall begin after all work has been completed. Lawns shall be mowed when grass is three inches (3") high and shall be cut to a height of one and one-half inches ( $1\frac{1}{2}$ "). Lawn shall be mowed as often as necessary to maintain a maximum height of one and one-half inches ( $1\frac{1}{2}$ "). Maintenance shall continue until final acceptance of the total project.

The time required for plant establishment work shall be considered as included in the total time limit specified for the contract.

The Contractor will be required to water plants as needed, replace unsuitable plants, and do weed, rodent, and other pest control work as determined necessary by the Landscape Architect.

Surplus earth, papers, and trash and debris which accumulate in the planted areas shall be removed and disposed of and the planted areas shall be so cared for as to present a neat and clean condition at all times.

Water from facilities within the limits of the project may be obtained free of charge.

Precautions shall be taken to prevent water from wetting vehicles, pedestrians, and pavement. Any erosion or slippage of the soil caused by watering shall be repaired by the Contractor at his expense.

Compliance with the provisions in this section shall not relieve the Contractor of his responsibility for the replacement of plants. Any additional watering measure required to maintain the plants in a growing condition shall be furnished by the Contractor at his expense.

All plant material or seed that shows signs of failure to grow at any time or which are injured or damaged as to render them unsuitable for the purpose intended, as determined by the Landscape Architect, shall be removed and replaced. The Landscape Architect will inspect the work once each week or at longer intervals at his discretion and will mark or otherwise indicate all plant materials to be replaced. The Contractor shall complete replacement within one (1) week of such inspection.

Replacement plants shall be furnished and planted by the Contractor at his expense. The Contractor and the Landscape Architect may agree to the substitution of alternative species of plants to be used as replacements.

Any damage to the finish grading caused by re-planting operations and/or vandalism shall be repaired and re-planted by the Contractor at his expense. Damage caused by premature or heavy use of facilities before final acceptance will be negotiated.

Lawn damage caused by vandalism or premature use shall be repaired and reseeded before final inspection but will not cause extension of the maintenance period.

Lawn failure caused by improper maintenance practices and/or weather shall be re-planted, and the maintenance period shall be extended to thirty (30) days after the re-planting or as required by the Landscape Architect.

- 3.10 PRE-FINAL INSPECTION: Three (3) weeks after the start of maintenance inspection, the Landscape Architect will conduct a pre-final inspection. The Assistant Parks Superintendent and the maintenance personnel who will be responsible for the project will be present to acquaint them with the operational requirements of the project. At this time, all systems will be tested, and a punch list will be prepared and presented to the Contractor.
- 3.11 FINAL INSPECTION: One (1) week after the pre-final inspection or at a later date as requested by the Contractor, a final inspection will be held. If all items listed on the punch list are corrected and no other problems have developed, the project will be accepted and the Contractor will be relieved of responsibility for the work except for warranties or guarantees. The Contractor shall verbally schedule the final inspection with the Landscape Architect, giving him forty-eight (48) hours notice.

At the time of acceptance of the project, all lawn areas shall be in a neatly mowed condition. All planting areas shall be fertilized with 10 pounds of commercial fertilizer per one thousand (1,000) square feet.

Payment shall be at the lump sum price bid for landscape planting, which price shall include full compensation for all labor, tools, and equipment necessary for installation.

- 4.00 BRICK & CONCRETE FLATWORK: Unless otherwise noted below, all work shall be in accordance with Section 02620 - Concrete Curbs, Walks, Driveways and Gutters.
- 4.01 Furnish all labor, materials and equipment as necessary to complete walkways as indicated, including but not limited to flatwork, brick headers, and brick pavement.

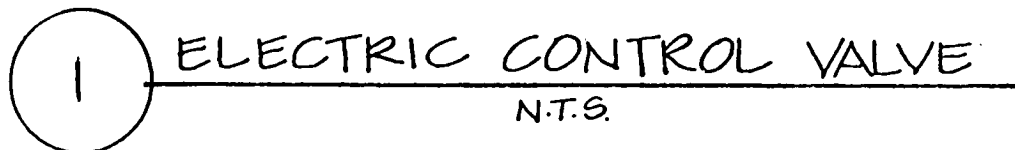
- 4.02 All concrete shall conform to the requirements of the concrete work section.
- 4.03 Brick Headers with mortar joints:
- A. Materials:
1. Brick and mortar shall be as indicated on Drawing.
- B. Installation:
1. Pour concrete sub-base as shown in accordance with the provisions of the Concrete Section.
  2. Brick shall be drenched with water, allowed to drain, and shall be damp when laid. Each brick shall be shoved into a full mortar bed and all joints shall be filled, leaving no voids. Where bricks are laid against concrete, metal work or waterproofing, the joints next to same shall be slushed or grouted full as each course is laid.
  3. All exposed joints shall be tooled with half round depressions.
  4. On completion of the work, all brick shall be cleaned down, removing excess mortar, mortar stains, etc. If acid is used, it shall be muriatic (hydrochloric) and not stronger than one volume of the commercial acid to nine volumes of water. The brickwork shall be thoroughly wet down before the acid solution is applied, hosed with water afterward and all acid removed. All work connecting with the face brick shall be carefully and adequately protected against contact with the acid solution.
- 4.04 CONCRETE FLATWORK: Unless otherwise noted below all work shall be in accordance with Section 02620 - Concrete Curbs, Walks, Driveways and Gutters.
- A. Materials:
1. Color to be metallic oxide as manufactured by Frank Davis, Conrad Sovig or approved equal.
  2. Concrete to be Class A.
- B. Installation:
1. Prepare concrete slabs by screeding to the required level and then by tamping with special tools for forcing the coarse aggregate away from the surface. Mechanical float to produce a true surface. Construct, cure and protect in accordance with Concrete Section.
- Slope or warp for drainage where indicated. Slabs shall not vary more than 1/4" in 10'-0" in any direction. Finish areas shall drain properly with no areas of standing water.

2. Medium broom finish concrete with neat even pattern as directed by Engineer, with pattern parallel to cross headers of walkway.

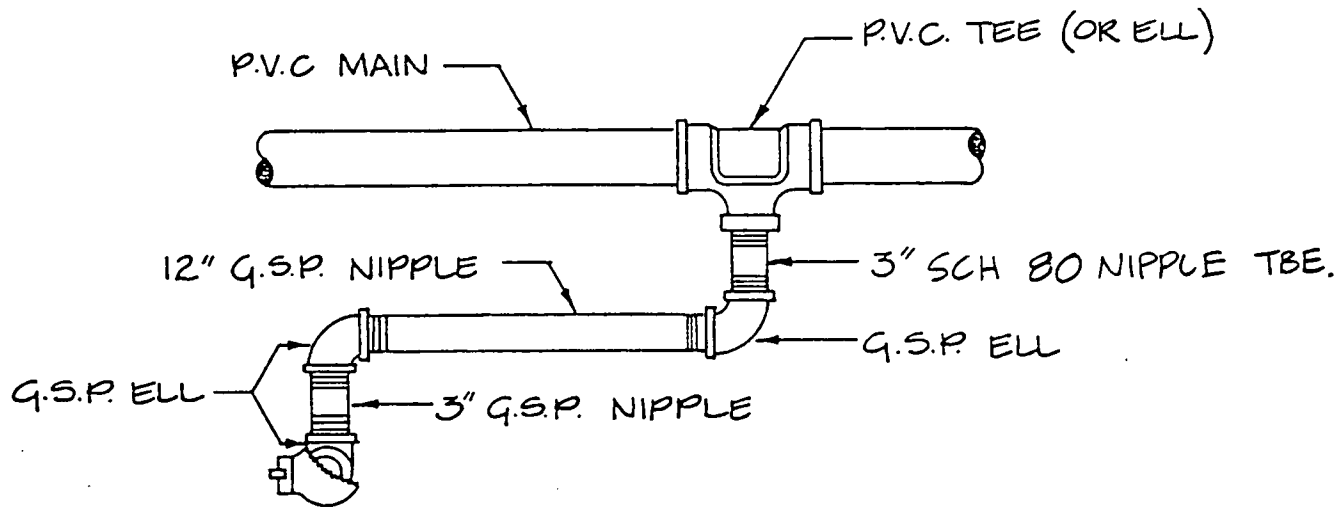
C. Submittal:

1. Contractor shall submit a twenty-four inch (24") square sample of medium broom finish flatwork as specified for approval fourteen (14) days prior to actual pour.

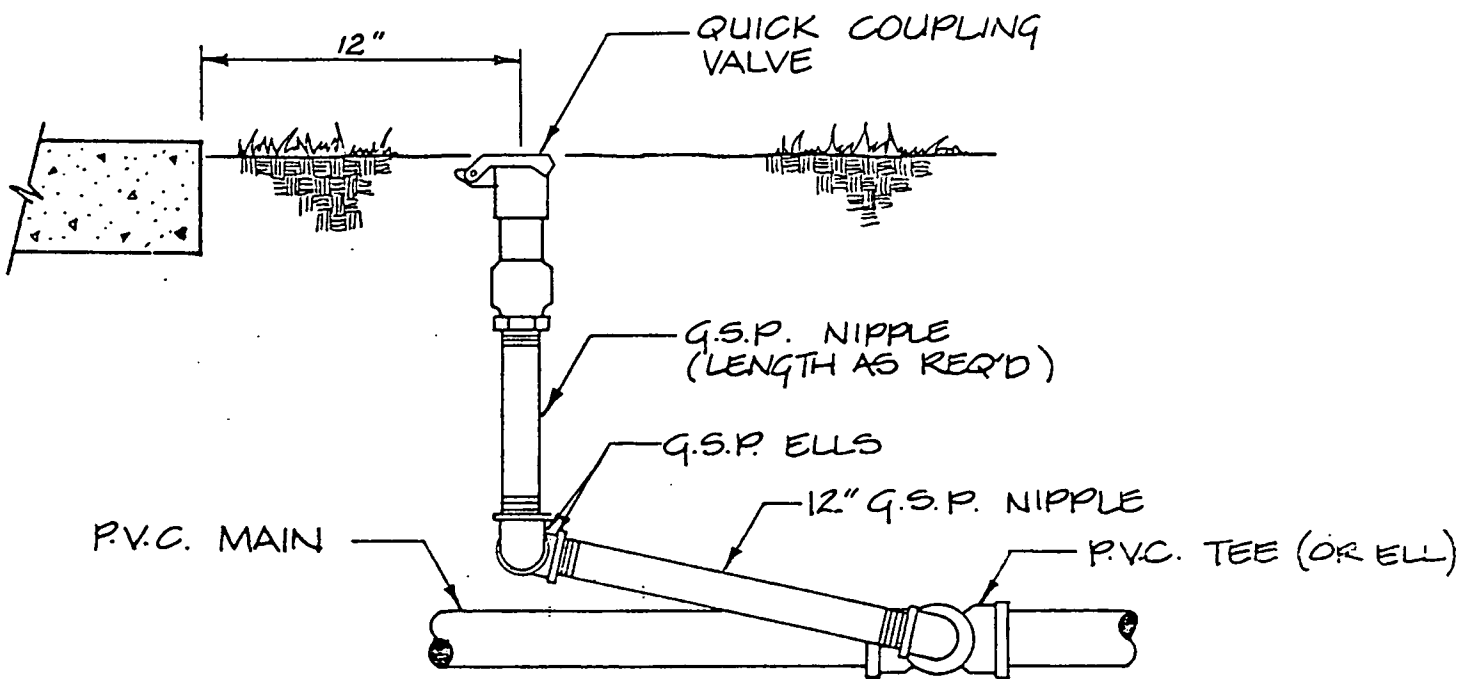
END OF SECTION





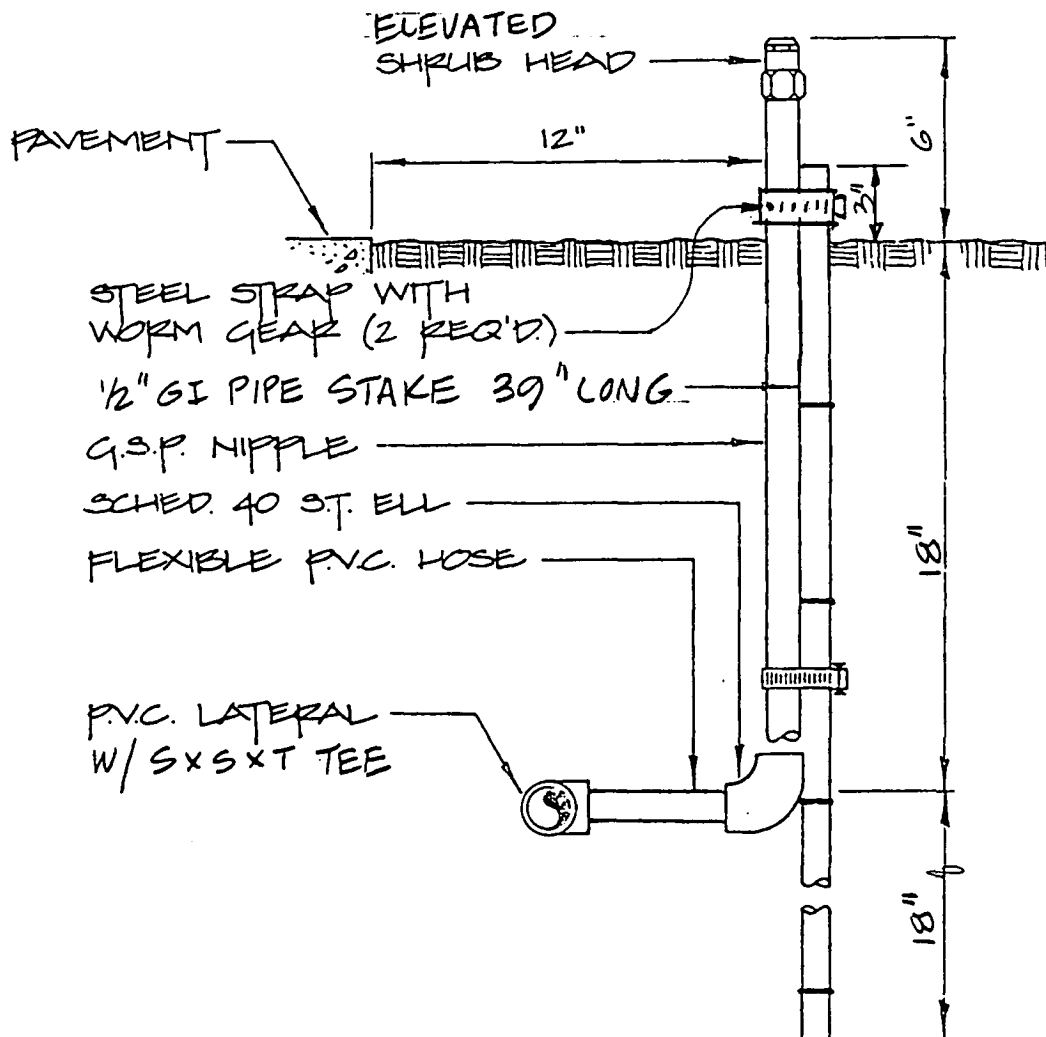


PLAN



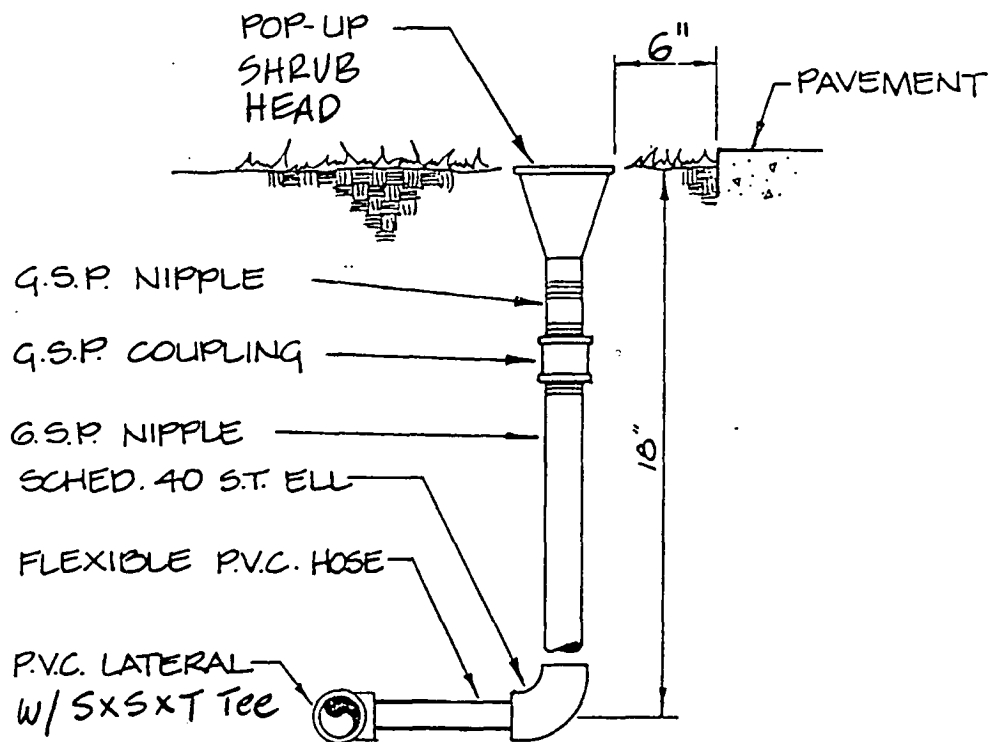
ELEVATION

2 QUICK COUPLING VALVE  
N.T.S.



### 3 ELEVATED SHRUB HEAD

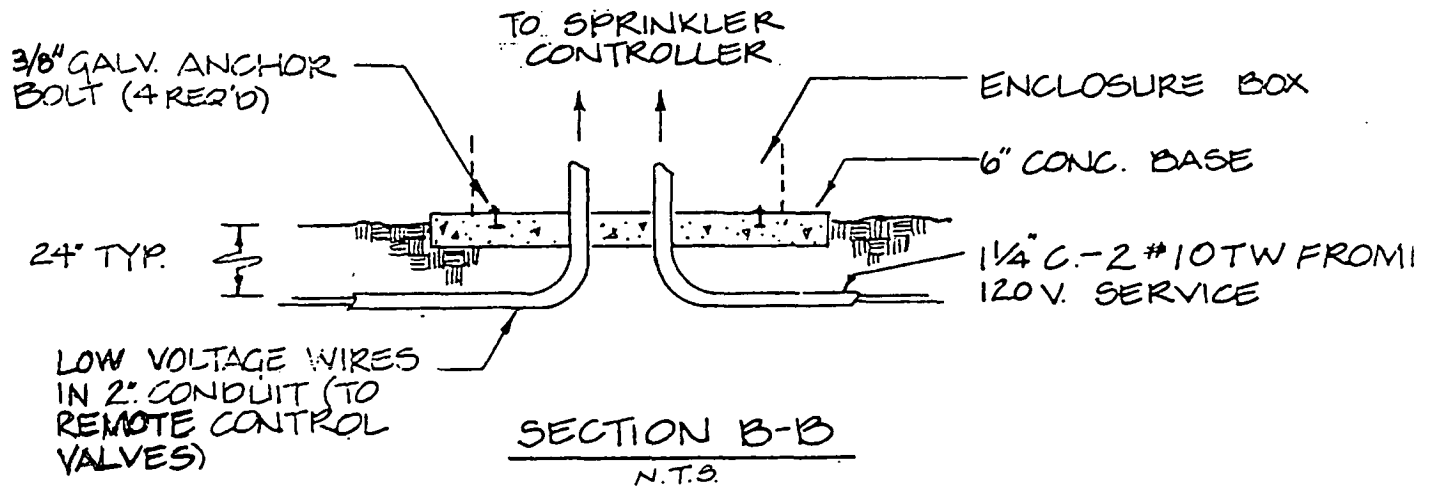
N.T.S.



4

## SPRINKLER DETAIL

N.T.S.



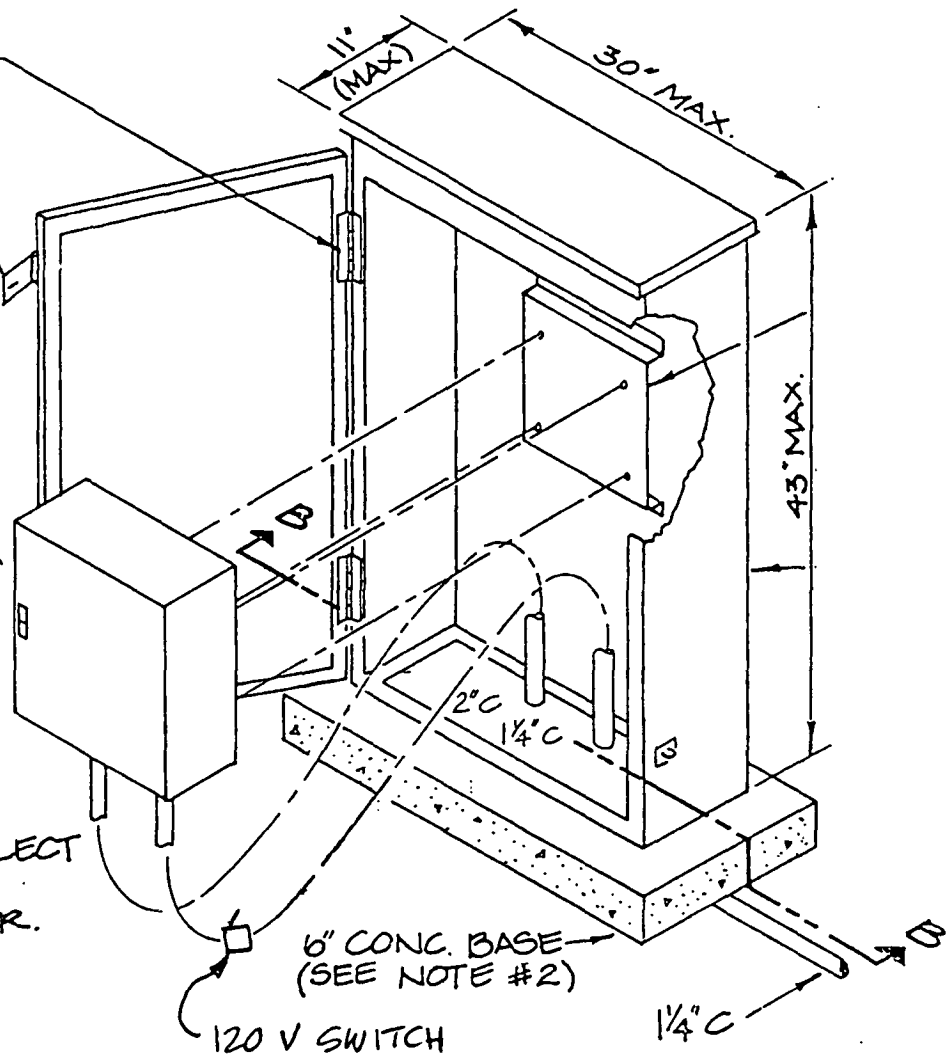
SEMI-CONCEALED STAINLESS STEEL HINGE (2 REQ'D)

PADLOCK HASP 1/4" THICK TASCOS-#H-3 (2 REQ'D)

SPRINKLER CONTROLLER (SEE SPECS.)

NOTE:

1. CONTRACTOR SHALL SELECT ENCLOSURE SIZE TO FIT SPRINKLER CONTROLLER.
2. 6" CONC. BASE SHALL EXTEND 6" (MIN.) ALL AROUND ENCLOSURE.



# 5 SPRINKLER CONTROLLER & ENCLOSURE DETAIL N.T.S.

SECTION 03000 - PILE FOUNDATIONS

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes all work required to complete, in place, all piling as shown on the Drawings and specified herein, including load test program.
- A. Work Includes, but is not limited to, the following:
    - 1. Pile Material.
    - 2. Driving Piles.
    - 3. Load Test.
  - B. Related Work Specified Elsewhere:
    - 1. Excavation, Filling and Grading - Section 02200.
    - 2. Concrete Formwork - Cast-In-Place Concrete - Section 03100.
- 1.02 GENERAL REQUIREMENTS:
- A. All piles shall be installed by a contractor qualified to install the type of pile specified under the conditions existing at the site. Minimum requirements for qualifications shall be five (5) years pile driving experience and evidence of satisfactory completion of ten (10) pile installations comparable in scope to this project.
  - B. A Foundation Engineering Report (dated March 14, 1980; L & a No. 79-180) has been prepared by LOWRY & associates, Geotechnical Engineers. This report is included in this Specification at the end of Section 02200-4 Excavation, Filling and Grading.
  - C. The Owner does not guarantee that the information contained in the Foundation Engineering Report is correct nor that the conditions revealed at the actual boring locations will be continuous over the entire site. This report was obtained for purposes of design only. Making

the report available to Contractors shall not be construed in any way as a waiver of this provision. The Contractor shall be responsible for any conclusions to be drawn from the report. Should he prefer not to assume such risk, he is under obligation to employ his own experts to analyze available information and/or to make his own tests upon which to base his conclusions and to determine the actual conditions to be encountered. Should any conditions not mentioned in the report be found to exist, the Contractor shall furnish any additional equipment and shall use any special methods necessary to drive piling to the specified criteria without addition to the contract price.

- D. Before any piles are driven, the Contractor shall examine all excavation faces from the standpoint of stability during pile driving. If, in his opinion, the excavation faces would be unstable, he shall inform the General Contractor of that opinion and shall not proceed until corrective action has been taken.

2.00 MATERIALS:

2.01 PILE TYPES:

- A. Piling shall be HP 10 x 42 steel H-piles or concrete-filled steel pipe piles having a minimum outside diameter of nine and one-half inches (9 1/2" O.D.) and a minimum wall thickness of three eighths (0.375) inches.
- B. Steel H-piles shall meet the applicable requirements of ASTM A-6, General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use.
- C. Steel pipe piles shall meet the requirements of ASTM A252, Welded and Seamless Steel Pipe Piles, or equivalent ASTM specification for steel pipe, if approved by the Foundation and Structural Engineers.

2.02 PILE LOADING TEST PROGRAM:

- A. General: Prior to driving any load-bearing piles, the Contractor shall drive and test piling of the type to be used on the project but with various tip elevations for purposes of determining final pile driving criteria. The driving and testing of the piles shall be performed immediately prior to driving of permanent piles and shall conform to the following criteria.

1. Three (3) piles shall be driven and tested in accordance with the following requirements.
2. Test Pile Location: The testing program shall be carried out near the center of the building area but outside the location of any proposed or existing pile cap, with at least ten feet (10') horizontal clearance between any test or reaction pile and any existing pile or pile cap, at a location determined by LOWRY & Associates, Geotechnical Engineers, hereinafter designated the Foundation Engineer. The test piles and reaction piles shall be abandoned upon completion of the testing program and shall be cut off at least twenty-four inches (24") below final subgrade. Test piles and reaction piles shall not be incorporated into the structure.
3. Test Pile Driving: The test piles shall be driven with the same hammer that will be used in driving the production piling.
4. Final tip elevation of test piles will be determined by the Foundation Engineer who will record and analyze the penetration resistance of each pile during installation. For Estimating purposes, it can be assumed that the test piles will be driven to tip elevations -50, -55, and -60 feet, City of Sacramento datum.
5. Reaction System: The Contractor shall provide a reaction system capable of safely sustaining three hundred (300) tons resistance in axial compression, eighty (80) tons resistance in axial tension and twenty (20) tons resistance to lateral loading at the pile top, when those loads are individually applied to and maintained upon any of the test piles. Installation of reaction piling and construction of the reaction system shall be the responsibility of the Contractor. The array of reaction and test piles shall conform to the applicable provisions of the ASTM D1143-74 Test Method. A plan of the proposed system shall be submitted to the Foundation Engineer prior to installation of piling. It is intended to load all three (3) test piles to failure in compression, and one or more test piles to at least twice allowable design capacity in tension and lateral loading.
6. Testing: The Contractor shall provide all equipment necessary to perform the testing program, including calibrated hydraulic jacks, an independent reference beam system acceptable to the Foundation Engineer, dial gauges reading directly to one-thousandth inch (0.001"), necessary steel plates and shims, a manifold system using

an electrical or nitrogen-operated pressure control system, flood lights for night testing, and an overall canopy to protect the reaction beam, reference beam, and testing equipment from sunlight, excessive thermal expansion or contraction, and rainfall. The Contractor shall submit to the Foundation Engineer calibration charts for all the hydraulic jacks to be used in the load testing program. The jack calibration shall be performed by an independent testing agency within six (6) months prior to commencement of testing. A representative of the Contractor shall be available for help in moving equipment during daylight hours, and shall be on-call throughout the other periods of the testing program.

7. The Foundation Engineer will provide all engineering personnel for performance of the testing and evaluation of the results. Cost for engineering work shall be paid for by the Owner.

### 3.00 EXECUTION:

#### 3.01 PILE SPLICING:

- A. Piles shall be spliced with full penetration welds in accordance with AWS Specification D1.1-80. The welding electrode shall be E7018 or approved equal. A representative of the Foundation Engineer shall provide full-time observation of weld splicing.
- B. Proposed alternative splicing procedures and coupling devices must be submitted to the Foundation Engineer and the Structural Engineer for approval along with supporting evidence that a competent splice would be achieved meeting all loading requirements.

#### 3.02 CONCRETING AND PIPE PILES: Open-ended pipe piles shall have all earth materials removed by a combination of water and air pressure so that a clean pile shaft is evident to the bottom of each pile. Dewatering of piles shall be accomplished prior to placement of the pile concrete. The Contractor shall effect a tremie seal if necessary. Concrete shall develop a 28-day compressive strength of at least three thousand pounds per square inch (3000 psi).

#### 3.03 INSPECTION OF PILE MANUFACTURING PROCESS:

- A. Manufacturer's certified mill analysis and test reports for each heat per ASTM A6 or ASTM 252, as applicable, shall be submitted at the direction of the City of Sacramento.



- B. If those documents are not available and the steel cannot be identified; sampling and testing of the steel must be accomplished as specified by the applicable ASTM designation above, as ordered by the City of Sacramento.

#### 3.04 PILE DRIVING REQUIREMENTS:

- A. All piles shall be driven to the tip elevations specified by the Foundation Engineer.
- B. Pile driving equipment shall be in first class condition with piles properly held in correct position while being driven. The hammer shall develop at least fifteen thousand foot-pounds (15,000 ft.-lbs) of energy per blow. Steam or air hammers shall have boiler or compressor of sufficient capacity to continuously maintain recommended pressure at hammer intake.
- C. Driving and Observation: All piles shall be driven straight and true in the locations shown on the Drawings.
- D. Driving of piles shall not be undertaken within ten feet (10') of concrete cured less than three (3) days.
- E. Pipe piles shall be driven open-ended if located within fifteen feet (15') of piles supporting the Westend Viaduct structures.
- F. Pipe piles may be driven with a boot plate if located more than fifteen feet (15') from the Westend Viaduct piling.
- G. Heads of piles shall be protected during driving with an approved cushion head block, which shall be maintained in good condition during the entire driving operation.
- H. Pile driving shall proceed only in the presence of the Foundation Engineer, who shall make a continuous record of the penetration resistance, behavior during driving and elevation of cutoff of every pile.
- I. Each pipe pile shall be observed and approved by the Foundation Engineer or his representative prior to concreting.
- K. Alignment and Tolerances: All piles shall be driven so that the center of the pile head is not more than three inches (3") from the design location shown and no pile shall be more than two percent (2%) of its length out of plumb. Piles exceeding these tolerances shall be corrected by the contractor at no increase in cost to the City.

- L. Heaving: Survey level readings shall be taken on individual piles during at least the initial portion of pile driving at locations designated by the Foundation Engineer. If it is determined that piles have become unseated, redriving of affected piles and all subsequent piles so affected shall be accomplished at no cost to the City.
- M. Cutting Off: Tops of all piles projecting above cutoff elevation after driving shall be cut off at the proper elevation, following approval of the Foundation Engineer, and ends removed from the jobsite.
- 3.05 CLEANUP: Upon completion of pile driving, remove all equipment, excess materials, etc., and leave site clean and free of debris.
- 3.06 BASIS OF PAYMENT:
  - A. For bidding purposes, the Contractor shall include in his bid a lump sum for all work embraced by this section, complete, based upon the number and length of piles as shown on the drawings, and including the load testing program.
  - B. The contract sum will be subject to adjustment up or down depending upon the actual lineal footage of piles driven, and accepted.
  - C. For purposes of adjusting the contract sum, the Contractor shall submit one unit price per lineal foot for furnishing and driving.
  - D. Payment for extra piles ordered by the City or Structural Engineer for purposes other than replacement of damaged or misaligned piles shall be in accordance with the unit price.
  - E. The unit price shall include all costs for performing the described work, including all incidental items necessary to drive the piles in the proper positions and to the elevations required.

END OF SECTION

SECTION 03100 - CONCRETE FORMWORK

CAST-IN-PLACE CONCRETE

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes all work required to complete the forming for cast-in-place concrete work. Include all necessary accessory elements such as temporary bracing, shoring, etc., as may be required to complete the work in a safe manner.
- 2.00 PRODUCTS:
- 2.01 MATERIALS:
  - A. Plywood for all concrete shall be plastic coated high density plywood, or equal. Any form coating used shall be certified by the manufacturer to be compatible with paint, plaster, or any other material applied to the surface of the concrete.
  - B. Form Sealer: Shall be such that any surface treatment specified for concrete will not be impaired; Nox-Crete Co., or equal.
  - C. Round Column forms shall be seamless Sonotube Fibre or equal.
- 3.00 EXECUTION:
- 3.01 PREPARATION: Form Coating: To be approved by the Architect before application. Apply in accordance with manufacturer's recommendations.
- 3.02 WORKMANSHIP:
  - A. All forms shall be of the best type for the purpose, substantially constructed, rigidly supported and made to shapes and dimensions required to form the lines and design indicated and providing for special built-in features as shown.

Concrete Formwork  
Cast-In-Place Concrete  
03100-1

- B. Forms shall have sufficient strength to withstand all pressures resulting from forces such as those due to concrete placement, vibration of concrete, concrete temperature changes, tensioning and detensioning. Forms shall be designed to prevent undue restraint to movements due to concrete shrinkage and shall have sufficient rigidity to maintain the specified tolerances..
- C. Members shall be adequately supported to prevent dead load deflections at all times prior to hardening of the concrete and/or the application of prestress forces.

### 3.03 INSTALLATION:

#### A. Wood Forms:

- 1. Construct wood forms, free from cupping, warpage, large and loose knots. Break joints and double nail.
- 2. Plywood: When concrete walls, slabs or soffit surfaces are exposed, or are to receive no finish other than paint, build forms with plywood form material. Use plywood in as large panels as is practicable, and treat as hereinafter specified.
- 3. Joints between form panels on exposed faces of exterior walls shall be sealed by buttering with a material manufactured for this use, such as "Famoglaze," distributed by Concrete Tie, or equal.

- B. Used form materials may be reused if they will produce finished surfaces equal to finished surfaces when new form materials are used. Before reuse, thoroughly clean, recoat, recondition in every respect, suitable for their reuse purpose.

- C. Construction: Erect plumb, straight and true to line, shape and dimensions, and in precise position to form the lines and designs indicated, suitable for removal without prying against the concrete. Make forms tight, without cracks or holes, and prevent the leakage of mortar or loss of fine particles from the concrete. Knots that have loosened, leaving holes, holes that are not used and cracks that have opened up shall be covered with sheet metal for concrete not exposed to the exterior.

- D. Walls and studding shall be of adequate size, strength and spacing to prevent bulging or sagging of forms. Space studding not over 12" on centers.



- E. Beam and girder bottoms shall be constructed as required, uniform in thickness and sized on edges to required width. Make side forms removable, without disturbing soffits or shores.
- F. If approved by the Soils Engineer, footings may be poured against firm and neatly trimmed earth banks, if the banks are substantial enough to maintain the concrete in its indicated size and shape.
- G. Shores shall be substantially constructed and so located and installed as to preclude perceptible deflection on the members supported, under the loadings superimposed thereupon, and shall be double-wedged at bottom on bearing blocks of sufficient size to satisfactorily distribute the construction loads. Wedges shall be kept tight during pouring of concrete.
- H. Special Features: Build into forms as the character and requirements of the work dictate:
  - 1. Openings: Provide for cleaning out the forms. Provide ports at the bottom of columns and do not fasten the bottom board in wall forms until just ahead of placing of the concrete.
  - 2. Pouring Strips: Place pouring strips in the forms wherever horizontal construction joints are made in exposed concrete. Place pouring strips level, and pour concrete flush with the top of this pouring strip. After cleaning concrete surfaces, and just ahead of placing of subsequent concrete, remove pouring strip and tighten form ties to conceal shrinkage.
  - 3. Chamfers or Bevels: Provide bevels on all exposed external corners. Provide bevels on exposed internal corners, where indicated on the drawings. Bevel corners shall be 3/4" x 3/4" in size.
  - 4. Reglets, Seats and Pockets: Form as indicated or required to receive or engage the work of others. These include provisions for door tracks, dovetail anchor slots, flashings, anchors, etc. Verify dimensions details. Do not permanently cast wood in concrete.
  - 5. Openings, Chases and Recesses: Form as indicated or required to receive, pass and clear other work. Verify sizes with the mechanical and electrical trades, before forming. Give close cooperation in the location of boxes, cans, and sleeves for others.



- I. Alternate Methods and Materials: Alternate methods and materials may be used for forming. The intent of this specification is not to limit materials and methods that may be employed by this Contractor. The selection of methods, materials, etc., are at the discretion of the Contractor as long as they are applied in conformance to all applicable codes and provide the required results.
- J. Finished Concrete Surfaces:
  - 1. Concrete Walls, Beams, Columns, and Slab Bottom: Exterior surfaces shall have fins, projections and ties removed and areas ground smooth. Fill gravel pockets and voids. Care shall be taken in construction forms to provide for the desired finish.
- K. Tolerance: In general, tolerances shall be as noted in the "ACI Standard Recommended Practice for Concrete Formwork," (ACI 347-63) "Tolerance for Reinforced Concrete Buildings," unless noted otherwise on the Drawings.

END OF SECTION



SECTION 03200 - CONCRETE REINFORCEMENT

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: Provide all labor, materials, tools, equipment, transportation, fabrication drawings, and any services necessary to furnish and install all concrete reinforcement of the shape and dimensions shown on the Drawings. Include furnishing but not installing of masonry reinforcement.
  - A. Related Work Specified Elsewhere:
    - 1. Concrete Prestressing - Section 03230.
    - 2. Cast-In-Place Concrete - Section 03300.
    - 3. Allowances - Section 01020.
    - 4. Quality Control - Section 01400.
- 1.02 REQUIREMENTS OF REGULATORY AGENCIES:
  - A. Testing Agencies: To be retained by Owner.
  - B. Samples for Testing: Certified mill test reports on each heat of reinforcing steel delivered showing physical and chemical analysis shall be submitted to the Architect/Engineer. Each bundle of reinforcing steel shall be tagged at the mill with an identifying tag showing the name of the mill and the heat number. Samples for testing shall be taken from each size and grade of reinforcing steel at the place of distribution prior to shipment. Not less than two samples shall be taken out of each 20 tons or fraction thereof of each size and grade of steel reinforcing used. Each sample shall be properly identified as to its heat number. The length of each sample shall be such that tests for compliance with these specifications can be properly conducted.
- 1.03 SUBMITTALS:
  - A. Shop Drawings: Reinforcing fabrication and placing drawings shall be submitted in accordance with the General Conditions prior to fabricating any steel. Shop Drawings shall:

1. Be prepared by a professional detailer.
2. Be coordinated with the Prestressing Steel Shop Drawings.

1.04 PRODUCT HANDLING:

- A. Marking and Shipment of Reinforcement: Each bundle of reinforcing steel shall be properly tagged for identification and to facilitate its sorting and placing. A sufficient supply of tested and approved reinforcing steel shall be kept at the job site to avoid delays in the work

1.05 ALLOWANCES: Additional reinforcing steel to be provided as required in Allowances - Section 01020 of these Specifications; use only as directed by the Architect/Engineer.

2.00 PRODUCTS:

2.01 MATERIALS:

- A. Reinforcing steel shall be new bars conforming to "Standard Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement," ASTM A615 of grade or grades shown on the Drawings.

1. Ductile Frame: Longitudinal Reinforcement in Columns and Beams: The actual yield stress, based on mill tests, shall not exceed the minimum specified yield stress, by more than 18,000 psi. In addition the ultimate tensile stress shall not be less than 1.33 times the actual yield stress based on mill tests.

- B. Welded wire fabric shall be new fabric conforming to "Standard Specifications for Welded Steel Wire Fabric for Concrete Reinforcement," ASTM A185 of the gauge and size shown on the Drawings.

- C. Wire reinforcing shall be new wire conforming to "Standard Specifications for Cold-Drawn Steel Wire for Concrete Reinforcement," ASTM A82 of the gauge shown on the Drawings.



- 2.02 FABRICATION: Fabrication of reinforcing steel shall be in accordance with "The Manual of Standard Practice for Reinforced Concrete Construction," published by the Concrete Reinforcing Steel Institute unless otherwise shown on the Drawings. Reinforcing steel shall not be bent or straightened in a manner that will injure the material. Heating of reinforcing steel for bending shall not be permitted unless so required on the Drawings. Reinforcing steel with kinks or bends not shown on the Drawings shall be rejected.
- 3.00 EXECUTION:
- 3.01 PREPARATION:
- A. Cleaning: Prior to placing concrete, the reinforcing steel shall be free of oil, dirt, loose mill scale, loose rust, and any other deleterious substance.
- 3.02 PLACING:
- A. General: The placing of reinforcing steel shall conform to the recommended practices of the manual, "Placing Reinforcing Bars," published by the Concrete Reinforcing Steel Institute.
- B. Securing in Place: All reinforcing steel, including dowels, shall be securely tied to prevent displacement during the concrete placing operations. The tie wire used shall be at least 16 gauge, black annealed wire.
- C. Spacing and Concrete Cover: The spacing and concrete cover of reinforcing steel shall conform to the requirements of the specified building code or as shown on the Drawings. Reinforcing steel shall be maintained in place during the placing of concrete.
- D. Placing Floor Reinforcement: Floor reinforcing steel shall not be placed until the concrete in walls and columns below has been placed and the forms and projecting steel have been thoroughly cleaned.
- E. Splicing: Splicing of reinforcing steel shall conform to the requirements of the specified building code and to the recommended practices of the manual, "Splicing Reinforcing Bars," published by the Concrete Reinforcing Steel Institute. Splices shall be permitted only where shown on the Drawings or as approved in the Shop Drawings.

- F. Welding: The welding of reinforcing steel shall be performed in accordance with the "Recommended Practices for Welding Reinforcing Steel, Metal Inserts and Connections for Reinforced Concrete Construction (AWS D12.1)," published by the American Welding Society. Welders shall be qualified by tests as prescribed in the "Standard Qualification Procedures (AWS B3.0)," published by the American Welding Society.
- 3.03 STANDARD PRACTICE: Details of concrete reinforcement not covered in these Specifications or Drawings shall be in accordance with "The Manual of Standard Practice for Reinforced Concrete Construction," published by the Concrete Reinforcing Steel Institute.

END OF SECTION

SECTION 03230 - CONCRETE PRESTRESSING

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This work shall consist of prestressing, cast-in-place concrete by a generally accepted post-tensioning system. This work shall include the furnishing of all labor, material, services, supplies and equipment required in conjunction with or incidental to the particular prestressing system used, including but not limited to anchorage assemblies, sheathing, and couplers.
- A. Related Work Specified Elsewhere:
1. Concrete Reinforcement - Section 03200.
  2. Cast-In-Place Concrete - Section 03300.
  3. Quality Control - Section 01400.
- 1.02 QUALITY ASSURANCE:
- A. Workmanship:
1. The installation of the post-tensioning system shall be performed by an organization that has successfully performed previous installations of a major nature similar to the one involved in this Contract.
  2. All post-tensioning work shall be under the immediate control of a person experienced in this type of work. He shall exercise close check and rigid control of all operations as necessary for full compliance with all requirements.
- B. Testing Agencies: To be retained by Owner.  
See "Quality Control - Section 01400.
- C. Tests:
1. Prestressing Steel: Certified mill test reports on the prestressing steel used shall be submitted to the Architect/Engineer and will show the ultimate strength

the modulus of elasticity and percent elongation at rupture. These values shall conform to latest revisions of pertinent ASTM specifications.

2. Anchorage: Reports on three individual tests performed in accordance with the following criteria shall be submitted for approval by the Architect/Engineer.

- a) Static Tests - Stressing anchorages shall develop at least 95 percent of the minimum specified ultimate strength of the prestressing steel without exceeding anticipated set. The total elongated under ultimate load of the tendon shall not be less than 2 percent measured in a minimum gauge length of 10 ft. The tendon assembly shall be tested in such a manner as to allow accurate determination of the yield strength, ultimate strength and percent elongation of the complete tendon to insure compliance with this specification. The specimen used for the static test need not be one that has been subjected to dynamic loading.
- b) Dynamic tests shall be performed on representative specimens, and the tendons shall withstand, without failure, 500,000 cycles from 60 percent of the minimum specified ultimate strength, and also 50 cycles from 40 percent to 80 percent of the minimum specified ultimate strength. The test tendons shall duplicate the behavior of the full size tendon and generally shall not have less than 10 percent of the capacity of the full size tendon.

#### 1.03 SUBMITTALS:

##### A. Shop Drawings:

1. Shop drawings showing complete details of strand profile, anchorage components, and stressing procedures including anticipated friction and wobble coefficients shall be submitted for approval by the Architect/Engineer.
2. Detailed computations indicating the minimum forces required, the specified prestressing losses, the final working stress and the stressing sequence shall be submitted with the shop drawings before commencing fabrication or installation of any post-tensioning materials.

3. Once approved, no changes or deviations from shop drawings shall be permitted without the approval of the Architect/Engineer.
4. The Architect/Engineer's approval of details of construction will not relieve the contractor of his responsibility for performing the work in accordance with the contract documents.
5. The Prestressing Steel Shop Drawings shall be coordinated with the Reinforcing Steel Shop Drawings.

2.00 PRODUCTS:

2.01 MATERIALS:

- A. Prestressing Steel: Prestressing steel shall be 1/2 inch diameter high-tensile strand conforming to "Standard Specifications for Uncoated Seven-Wire Stress-Relieved Strand for Prestressed Concrete," ASTM A416-Grade 270.
- B. Anchorage:
  1. Materials for anchorage devices shall conform to "Standard Specifications for Structural Steel," ASTM, A36, to "High-Strength Steel Castings for Structural Purposes," ASTM A148 or higher strength materials as required to meet stress requirements.
  2. All anchorages shall meet the minimum requirements as set forth in the "Tentative Specifications for Post-Tensioning Materials" as prepared by the Prestressed Concrete Institute.
  3. Strands shall be secured at the ends by means of approved anchoring devices which shall be of such nature that wires will not kink, break down, or otherwise be damaged.
  4. Anchorage devices shall hold the strands without slip of more than 1/8 inch at a load equal to the applied load on the strand at prestressing.
  5. Distribution plates shall consist of welded steel or cast steel bearing assemblies that will permanently support and distribute the load from the anchoring devices as follows:





- a) The maximum concentrated bearing stress in the concrete shall not exceed  $6/10$  of the compressive strength of the concrete at the time of prestressing.
- b) Bending stresses in the plates induced by the pull of the prestressing steel shall not exceed 27,000 psi for structural steel, and 15,000 psi for cast steel, except as experimental data may indicate the higher stresses are satisfactory. For higher strength steel, corresponding higher stresses may be permitted with prior approval of the Architect/Engineer.
- c) Design, fabrication, and erection shall meet the latest AISC Standards; Welding AWS Standards, including Qualification Test of Welders.

C. Strand Coating:

Strands shall be coated with a rust preventative and lubricant compound that will remain ductile and free from cracks and shall not become fluid over the entire operating temperature range. The compound shall be chemically stable, and be nonreactive to cement, chlorides, and the material used for sheathing.

D. Sheathing:

The sheathing shall be extruded plastic impervious to cement paste and must allow slippage of the strand. The sheathing shall not rupture due to normal temperature changes, coiling or normal field handling.

2.02 FABRICATION:

- A. Broken strands and strands showing severe fabrication defects shall be removed and replaced, or the member may be rejected.
- B. All strands within every group of the same type of members, shall be of the same heat where practicable. All strands shall be assigned a heat number and tagged accordingly.
- C. Spacer bars for strands shall not be less than No. 3, at 3'-6" o.c. in each direction.

3.00 EXECUTION:

3.01 INSTALLATION:

- A. Concrete prestressing shall be performed after the concrete has attained the minimum compressive strength shown on the Drawings.
- B. All strands shall be stressed by means of hydraulic jacks, equipped with accurate reading calibrated hydraulic pressure gauges to permit the stress in the strands to be computed at any time. A certified calibration curve shall accompany each jack. If inconsistencies between the measured elongation and the jack gauge reading occur, the jack gauges shall immediately be recalibrated.
- C. Jacking from each end of the tendons shall be required when, in the opinion of the Architect/Engineer, there is excessive friction between the strands and the sheathing. Proper allowance shall be made in any case for friction losses and one strand shall be checked for friction losses at the start of the prestressing operations.
- D. No tensioning shall be permitted until it is demonstrated that the strand is reasonably free and unbonded in the sheathing. Evidence that the strand will be considered satisfactory if inward movement of the strand is observed at one end when a nominal pull is applied to the other end of the strand, when an auxiliary mild steel wire placed in the sheathing for the full length of the enclosure can be pulled intact from the sheathing, or when the difference between observed and calculated elongation after stressing is no more than 5%.
- E. The strands shall be anchored at an initial or anchor force that will result in the ultimate retention of a working or effective force equal to 24.8 kips. The anchor force shall be 70% of the ultimate strength of the strand. The maximum temporary force shall not exceed 80% of the ultimate strength of the strand.
- F. All tapered strand grippers at one end of a group of strands shall be set to the same depth in the anchorage device, after the strands are stressed and the grippers are set.



- G. End bearing forces shall be uniformly distributed, or an end block properly designed and reinforced for induced stresses shall be provided.
- H. All prestressing shall be done in the presence of an inspector qualified to inspect such work.
- I. Safety precautions shall be taken to prevent workers from standing directly behind, above, or in front of the jacks.
- J. Stressing Sequence: Stressing operation shall be started at the middle of each slab and proceeded toward both ends simultaneously, stressing alternate strands. Not more than one-half of strands in one direction shall be stressed prior to stressing all strands in the other direction. Strands requiring stressing from both ends shall be stressed simultaneously from each end.
- K. Rust Preventative: Two heavy coats of rust preventative material approved by the Architect/Engineer shall be applied to all exposed metal parts including strands and anchorages immediately after the stressing operations. Concrete surfaces shall be masked to avoid coating concrete.
- L. Drypacking: All stressing holes and pockets shall be drypacked to provide required fire protection.

END OF SECTION

SECTION 03300 - CAST-IN-PLACE CONCRETE

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This work shall consist of providing all labor, materials, tools, equipment, transportation, and services necessary to furnish and place the cast-in-place concrete as indicated on the Drawings and specified herein. This work shall include, but is not limited to providing the concrete, forms, inserts, shoring and concrete finish.
  - A. The Contractor shall acquaint himself with the work of all other crafts whose work abuts, adjoins or is in any manner affected by the Work under this Section and shall coordinate such so as to avoid omissions and delays.
  - B. Related Work Specified Elsewhere:
    - 1. Concrete Prestressing - Section 03230.
    - 2. Concrete Reinforcement - Section 03200.
    - 3. Concrete Formwork Cast-In-Place Concrete - Section 03100.
    - 4. Quality Control - Section 01400.
- 1.02 QUALITY ASSURANCE:
  - A. Requirements of Regulatory Agencies:
    - 1. Testing Agencies: To be retained by Owner, see Quality Control, Section 01400.
    - 2. Tests:
      - a) Tests of materials shall be made by an approved agency in accordance with the requirements of these specifications and the governing code specified on the Drawings.
      - b) Portland cement: Shall be mill tested and identified cement. Otherwise sample at mixing site by representative of Testing Laboratory and test for each 200 barrels or

fraction thereof. Test according to ASTM C-150 to comply with requirements for Type II, low alkali, (less than 0.6 percent). Furnish mill test reports and certificates of compliance for each shipment of mill tested cement used in the work.

- c) Aggregate - required tests for mix designs: Once for job unless character of material changes, material is substituted, or at request of Architect. Sample from conveyor belts or batching gates at ready-mix plant.
  - 1. Sieve analysis in accordance with ASTM C-136 and to form to Grading tables.
  - 2. Specific gravity in accordance with ASTM C-127 and C-128.
  - 3. Natural sand and rock aggregate shall conform to ASTM C33, for Hard Rock concrete and to ASTM C-330 for Lightweight concrete.
  - 4. Laboratory shall sample all aggregates intended for shrinkage class M concrete for conformance with cleanliness value and sand equivalent value no more than 2 days prior to mixing concrete. Lab shall continue to sample these aggregates during production at the rate of once every 200 cubic yards.
- d) Aggregate - optional tests: Only if required by the Architect because of questionable material.
  - 1. Soundness in accordance with California Highway Department Modification of ASTM C-88.
  - 2. Abrasion of coarse aggregate by L. A. Machine, in accordance with ASTM C-131.
- e) Testing laboratory design mixes: After approval of aggregate and whenever character of source of materials is changed, an independent testing laboratory shall furnish mix designs in accordance with ACI 211. Provide laboratory mix designs for all of the mixes shown in Section 3.01A, except slabs on grade.

All laboratory design mixes shall exceed the f'c by at least 15% or 500 psi. If mix designs fail to meet shrinkage requirements, they shall be adjusted prior to placement in final structure.
- f) Molded concrete cylinders: One set of three (3) molded cylinders, each sampling in compliance with ASTM C-172 shall be made by the Inspector for each 150 cubic yards of each days pour of structural concrete or fraction thereof.

B. Standards:

a) Concrete work shall comply with requirements of all specifications and standards (i.e. ACI, ASTM, etc.) referenced herein, including:

1. ACI-201-72 (Rev.1973) - Specifications for Structural Concrete for Buildings.
2. ACI-302-69 Recommended Practice for Concrete Floor and Slab Construction.
3. ACI-304-73 Recommended Practice for Measuring, Mixing Transporting, and Placing Concrete.
4. ACI-305-72 Recommended Practice for Hot Weather Concreting.
5. ACI-306-66 Recommended Practice for Cold Weather Concreting.
6. ACI-211.1-74 Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete.
7. Maintain at least one copy of ACI Publication SP-15, "Field Reference Manual" in project field office at all times.
8. "Supplementary Recommendations for Control of Shrinkage of Concrete" published by the Structural Engineers Association of California.

b) Any questions regarding concrete work not covered by these specifications will be answered by Architect by reference to these ACI Standards and Building Code; in case of conflict the strictest requirements will apply.

1.03 JOB CONDITIONS:

A. Protection: Protect finished surfaces from stains or abrasion. No fire shall be permitted in direct contact at any time, and adequate protection shall be provided against injurious action by sun or wind. Fresh concrete shall be thoroughly protected from heavy rain, flowing water and mechanical injury. No paint shall be mixed or handled where finished surfaces can be marred. All slab areas shall be protected from oil dripping from equipment or from Contractor's or private vehicles. A minimum of one inch clearance is to be provided between any existing freeway pile caps or other concrete foundations, etc., and any new concrete.

2.00 PRODUCTS:

2.01 MATERIALS:

A. Portland Cement shall be a standard domestic brand conforming to ASTM C-150, Type II low alkali cement. When concrete is mixed at the site of the work, cement shall be delivered in sacks with the type and name of the manufacturer clearly marked thereon. Unless otherwise authorized, the brand of cement shall not be changed.

B. Aggregate for Lightweight Concrete shall conform to ASTM C-330. Manufacturer - Rocklite, Baselite, or approved equal. Maximum aggregate size: 1/2 inch.



- C. Aggregate for Hard Rock Concrete: ASTM C-33 and as follows, from approved pits. Use non-shrinking aggregates.
1. Coarse aggregate: Uniformly graded between maximum size (not over 1-1/2" and not less than 3/4") and minimum size (No. 4) crushed rock or washed gravel. Coarse aggregates shall have a minimum cleanliness value (C.V.) of 75.
  2. Fine aggregate: Clean, natural washed sand of hard and durable particles varying from fine to particles passing 3/8" screen, of which at least 12% pass 50 mesh screen. Fine aggregates shall have a minimum sand equivalent (S.E.) value of 75.
- D. Water shall be clean, free from strong acids, alkalis, oil or organic matter, and suitable for human consumption.
- E. Admixture: To reduce water-cement ratio and increase workability, an admixture approved by the Architect/Engineer may be added to concrete mix, The type, quantity per sack of cement and the method of using the admixture shall be in accordance with the recommendations of the manufacturer and the laboratory furnishing the design mix. The amount of admixture to be added to the concrete mix shall be varied in proportion depending on the concrete temperature at time of placing concrete. The proposed admixture shall be submitted with back-up material indicating its successful use with all proposed concrete ingredients for a period of at least two years.

## 2.02 CONCRETE DESIGN STRENGTH AND PROPORTIONS:

- A. Design Strength: Concrete shall be machine mixed and shall be proportioned and designed to produce the compressive strength indicated on the Drawings.
- B. Proportions:
1. The concrete mixture shall be designed by an approved testing agency.
  2. For each batch, the fine aggregate coarse aggregate cement, and water shall be weighed separately so that the proportions can be accurately controlled and easily checked.
  3. Mix designs shall include 28-day compressive strengths of test cylinders and shall be submitted to the Architect/Engineer for approval before use.

- C. Changing the Proportions: No change from the proportions established by the testing agency shall be made without written approval of the Architect/Engineer.
- D. If concrete develops less than the required minimum strength, the mix proportions shall be adjusted by redesigning the mix, so that the resulting concrete will comply with the strength requirements.
- E. Water: The predetermined amount of water shall not be exceeded because of slowness of discharge from the mixer or any other reasons, but water shall be reduced to the minimum necessary to produce concrete that will work readily into corners and angles of forms and around reinforcements without free water collecting on the surface.
- F. Slump: Unless otherwise authorized by the Architect/Engineer, the maximum concrete slump measured in accordance with ASTM C143 shall be as follows:
1. Foundations, walls and columns ---- 4"
  2. Slab on grade----- 3-1/2"
  3. Elevated slabs, beams and girders --3"
- G. Shrinkage:
1. Shrinkage class shall be "M" for elevated slabs, beams and girders; "N" for slabs on grade, columns, and walls; and no requirements for foundations.
  2. Maximum permissible drying shrinkage after 21 days of drying shall be as follows:
- |                                       | <u>Lab Cast</u> | <u>Field Cast</u> |
|---------------------------------------|-----------------|-------------------|
| a) Slabs on grade, columns and walls. | .048%           | .064%             |
| b) Elevated slabs, beams and girders. | .036%           | .048%             |
- H. Control joint sealers and fillers:
1. For sealing joints in exposed concrete slabs use "Epibond 585" manufactured by Furane Plastics or "Colma Joint Sealer" manufactured by Sika Chemical Company, "Hornflex Pourable", manufactured by W.R. Grace Company. Gray in color.
- I. Waterstops: Vulcan Metal Products, Inc., "Vulco" ribbed PVC with center bulb No. 8019 or as required. Equivalent substitutions may be submitted to the Architect for approval.

2.04 CEMENT GROUT:

- A. Cement grout for use at the beginning of placing concrete on previous cold pour shall be composed of cement and sand in the same proportions as the regular concrete mix, plus one-half of the amount of the coarse aggregate in the regular mix. The materials shall be dry-mixed and sufficient water added to make the mixture flow under its own weight. Grout shall be approximately 2" thick and shall be placed not more than 20 minutes prior to placing of regular mix thereon.
- B. Cement grout for use under steel members shall consist of one part portland cement and two parts sand measured by volume with only sufficient water to permit packing and shaping.
- C. Cement grout used at floor slab joints may include an amount of "White" cement used in the mix to provide a close color match to the surrounding concrete.

2.05 DRYPACK: Drypack shall consist of one part portland cement, and one part sand, measured by volume with only sufficient water to make the mix placeable.

3.00 EXECUTION:

3.01 CONDITION OF SURFACES:

- A. Debris: Foreign matter accumulated in forms shall be removed and ports and openings left in the formwork shall be tightly closed immediately prior to starting concrete pour.
- B. Reinforcement: Embedded metal shall be cleaned of oils, mill scale, and other encrustations or coatings that might reduce the bond of concrete.
- C. Wetting: Wood forms shall be sufficiently wet to tighten up cracks. Other materials shall be sufficiently wet to reduce suction and maintain the workability of the concrete mix.
- D. Equipment: Tools used in transporting, placing and consolidating the concrete shall be thoroughly cleaned immediately after each pour.
- E. Inspection: Forms and reinforcements shall be inspected and approved before concrete is placed.

### 3.02 MISCELLANEOUS CONCRETE WORK:

- A. In structural concrete, no embedded piping other than electrical conduit shall be permitted, unless shown on the Drawings. Conduit shall be located so as to maintain the strength of the structure at a maximum. Refer to U.B.C., Chapter 26, "Conduits and Pipes Embedded in Concrete," for requirements, unless otherwise shown on the Drawings.
- B. Bolts, inserts and other items required to be embedded in the concrete shall be accurately secured in such a way that they will not be displaced during the placing and compacting of the concrete. Embedded bolts and sleeves for fans, motors, pumps and other equipment on concrete slabs, bases and foundations shall be set to template in accordance with layouts or shop drawings of the manufacturer. The size, length, and location of anchor bolts and the location of electric conduit with respect to motor supports shall be verified.
- C. Inserts in prestressed concrete shall be accurately installed and secured in place. This shall include all prestressing items such as enclosures, tubes, ducts, spacer bars, anchorages, etc., as well as inserts required for attaching electrical, mechanical, and other items of equipment. Hand drilled inserts will be the only type of attachment allowed to the existing freeway. Prior to placement of any inserts in the existing freeway the existing reinforcing steel must be located, in order to miss it. In no case may embedded inserts be attached to the prestressing strands and care shall be exercised so as not to move strands from their designed positions.
- D. Pits for elevators, transformers, sumps, valves, trenches and other miscellaneous detailed concrete work, shall be carried out under the requirements of these specifications.

### 3.03 CONVEYING:

- A. Handling of concrete from the mixer to the location of placing shall be done as rapidly as practicable, avoiding separation or loss of ingredients and rehandling.

- B. Any approved transportation method may be used. Pumping may be used with properly designed concrete mix and ingredients.
- C. A free fall of more than six feet (6') in placing concrete in carts or forms shall not be permitted.
- D. Elephant trunk spouts shall be used for placing of concrete in vertical elements. Spacing shall be at not over ten foot (10') centers.

3.04 PLACING CONCRETE:

- A. Placing of concrete under water, shall not be permitted unless approved, in writing, by the Architect/Engineer.
- B. Wherever conditions make puddling difficult, or where reinforcement is congested, cement grout shall be deposited in the forms at the start of concrete placement. Batches of cement grout shall be deposited in the forms and the operation of filling with the regular mix shall be carried on at such a rate that the mix is plastic and flows readily into the spaces between bars.
- C. Concrete shall be thoroughly vibrated and worked around reinforcement, embedded fixtures, and into corners and angles of forms by spading, rodding and tamping, to exclude rock pockets, air bubbles, and "honey-combs" and to obtain the required density and strength. Care shall be exercised to avoid overvibration that might cause separation of ingredients.
- D. Approved mechanical vibrators shall be used to consolidate each layer with that previously placed, to completely embed reinforcing and fixtures, and to bring fine material to the faces and top surfaces to produce the proper finish. At least one workman shall be assigned at each location where concrete is being placed, to vibrate and consolidate the concrete in the forms. Vibrators shall not be left in anyone spot longer than 30 seconds and shall be kept constantly in motion.
- E. Surface of concrete shall be kept level throughout with a minimum of concrete allowed to flow from one position to another. Concrete in formed walls shall not be placed at a rate faster than two feet per hour vertically. Placing of concrete shall be a continuous operation until the placing of each section or panel is completed.

- F. When placing and finishing concrete during hot climatic conditions, all concrete surfaces shall be fogged with a Super Fine Water Fog Nozzle to maintain a surface sheen. No puddling of water shall be permitted. No "washing of the surface" shall be permitted. All dry spots shall be fogged to maintain a sheen. It has been found helpful to place a fog nozzle on one end of a 10' length of 1/2" diameter pipe connected to a hose. The pipe can be held in the air upwind of the finishing operation and the surface properly fogged.

Curing compound shall be applied approximately six feet behind final finishing operations.

Using the fog nozzle, water droplets shall be maintained on the top of the curing compound until sunset.

If cracks appear while the concrete is still plastic, they should be closed by either hand or machine troweling.

- G. A record showing the date and time of placing concrete in each portion of the structure shall be maintained and made available for inspection at the job site.
- H. Four hours shall elapse as a minimum, after depositing concrete in walls and columns, before concrete can be placed in supported floors. Beams, girders, brackets, capitals and haunches shall be considered a part of the floor system.
- I. Floor and roof slabs shall be shaped to the slopes, drains, and other grades indicated, and accurately pitched or graded to the drainage fittings and fixtures occurring therein. Edges of construction joints shall be slightly rounded with an edging tool. Reinforcing shall extend through construction joints.
- J. Reinforced concrete slabs of thickness indicated shall be placed over subgrade which has been brought to proper elevation, thoroughly compacted and made ready for concrete and finishing. The Contractor shall submit a layout showing location of construction joints and pouring sequence for Architect/Engineer's approval before placing concrete. See Drawings for specific requirements.

### 3.05 CURING AND PROTECTION:

- A. Curing of the concrete shall be done by wetting forms thoroughly, including the exposed portions of concrete, and maintaining a thoroughly moist condition until the forms are removed, but not less than fourteen consecutive days from time of placing concrete. Concrete shall be kept continuously wet between the hours of 8 a.m. and sunset each day, including Saturdays, Sundays, and holidays, for the first ten days, and not less than three times daily for the four remaining days.
- B. As an alternate method, curing may also be done by sealing the exposed surfaces with an approved membrane or curing compound. The Architect/Engineer shall be informed as to the type of curing employed.
- C. Exposed surfaces of concrete shall be adequately protected from damage due to temperature and the elements.

### 3.06 REMOVAL OF FORMS:

- A. When to Remove Forms: Forms on standard reinforced concrete work shall be removed only when concrete has developed sufficient strength to safely sustain its own weight and the superimposed loads above. After concrete is placed, the following minimum time period or approval of the Architect/Engineer shall elapse before the removal of forms:

Wall forms and beam sides	- 2 days
Column forms	- 4 days
Forms (but not shoring) for floor slabs	- 7 days
Forms (but not shoring) for soffits and beam bottoms	-10 days
One-half of shoring for soffits, floor and beam bottoms	-14 days

Remainder of shoring for standard reinforced concrete work shall remain in place until 14 days after placing of concrete in next slab above. In other words, the last one-half of the shoring supporting the first floor must remain in place until fourteen days after placing

of concrete on the second floor. The first one-half of the shoring supporting the second floor may be removed at the same time. Shoring for prestressed work shall remain in place until prestressing operations are completed. In the event construction loads from floors above are to be carried by any prestressed floor, such floor shall be adequately shored.

- B. The Contractor shall keep accurate records of the dates of all concrete pours and the exact location thereof, and of the dates of removal of forms and removal of shores. These records shall be kept on the job and available to the Architect/Engineer or his representatives at all times; and at the completion of the concrete work, the Contractor shall deliver to the Architect/Engineer two copies of these records.
- C. Removal of Ties and Spreaders: Tie wires and nails in exposed concrete surfaces shall be out back at least 1/2 inch from the finished surface. Rods, cone ties, separators and similar devices used shall be entirely removed. See Formwork Section for special conditions.

### 3.07 FIELD QUALITY CONTROL:

- A. Portland Cement: Certified mill test reports on the cement used showing compliance with "Standard Specifications for Portland Cement," ASTM C150 shall be submitted to the Architect/Engineer. Portland cement shall be tagged for identification at the mill.
- B. Aggregate: Certified mill test reports on the aggregates used showing compliance with "Standard Specifications for Concrete Aggregates," ASTM C33 for hardrock concrete; and with "Standard Specifications for Lightweight Aggregates for Structural Concrete," ASTM C330 for lightweight concrete, shall be submitted to the Architect/Engineer.
- C. Concrete: Concrete shall be sampled and tested as follows:
  - 1. In accordance with the Uniform Building Code requirements for Concrete Quality, Chapter 26.
  - 2. Test Cylinders: Test cylinders shall be made at the job site in accordance with the Uniform Building Code requirements for Concrete Quality Control, Chapter 26.



3. Below-Strength Concrete: Should the strength of concrete as indicated by these tests, fall below the required minimum, then additional tests of the concrete, which the unsatisfactory samples represented, may be required. Such tests shall be made in accordance with the Uniform Building Code. Holes made by cutting cores shall be filled with "dry-pack." Any defective concrete shall be removed and replaced with new concrete of required strength, at the Contractor's expense.

3.08 PATCHING:

- A. Patching Concrete: Pockets, "honeycombs" and holes resulting from the removal of the nails, rod and cone ties, separators and core samples, unless otherwise noted on the drawings, shall be filled with mortar formed of cement and fine aggregate, in the proportion used in the concrete mix, using a pressure gun. Defective areas shall be chipped away to solid concrete, forming perpendicular edges or slightly undercut edges. Area of patch and surrounding area shall be drenched with water. A thin coat of cement grout shall be brushed onto the base and edges of the patch area and then packed full with mortar. Match surrounding concrete surfaces in color and texture by using part white Portland cement if concrete is green. Exposed exterior surfaces of Architectural Concrete shall be neatly patched, ground smooth and sacked as required to result in the specified finish.
  - B. Defective Concrete: Finished concrete work shall be considered defective if it is not formed as indicated on the Drawings; is not true to alignment; is not plumb or level; is not true to grades and levels; has voids or rock pockets, has sawdust, wood, or debris embedded in it; or does not fully conform to the documents. When directed, such defective work shall be removed and replaced with work that conforms with the indicated requirements.
- 3.09 CLEANING: Upon completion of the Work specified, all surplus and waste materials resulting from the operation, including disused implements of service employed therein, shall be removed from the premises and the entire structure and involved portions of the site, insofar as the work of this Section is concerned, shall be left in a neat, clean and acceptable condition as approved by the Architect/Engineer.

### 3.10 CONSTRUCTION JOINTS:

- A. Location: Construction joints shall be located so as to least impair the strength and appearance of the structure. Approval of layout showing proposed location of construction joints or saw cuts shall be obtained from the Architect/Engineer before starting work.
1. Horizontal Joints in Walls: Excess water and laitance shall be removed from the surface of the concrete. After the concrete has hardened, surfaces shall be cleaned and roughened, and weak concrete removed. Just before placing additional concrete, the old concrete shall be thoroughly drenched with water and the surface covered with a layer of cement grout. Whenever possible, horizontal construction joints in exterior walls shall be made at sills, heads of openings, or at rustications when indicated, unless otherwise indicated on Drawings.
  2. Vertical Joints in Walls: Vertical joints in walls shall be made with a mortar tight dam and beveled 2"x 4" in the center of the wall. Joints shall be staggered at least one bay between subsequent placings. The flow surfaces of the freshly poured concrete shall be left level whenever placing of concrete is stopped. Vertical joints shall be made at rustications or as indicated on Drawings.
  3. Joints in Slabs: Construction joints in supported floor slabs shall be made only as shown on the Drawings.
- B. Contact Surfaces: Exposed surfaces of construction joints shall be kept continuously moist from the time of initial set until subsequent placing of concrete against them, but not to exceed the curing period. The contact surfaces shall be cleaned thoroughly by chipping the entire surface not earlier than five days after the initial placing. As an alternate, jet washing the surface not less than 3 1/2 hours, nor more than 6 1/2 hours after the concrete is placed, and in such manner as to expose clean aggregate solidly embedded in the mortar matrix, may be allowed. Wash water shall be entirely removed from the surface. Other treatments may be used with written approval of the Architect/Engineer.

1. Foreign Coating: In the event a contact surface becomes coated with foreign materials of any nature, after being cleaned, such surface shall be completely re-chipped to a suitable condition. Before concrete placing is resumed, horizontal contact surfaces shall be covered with cement grout deposited to a depth of two (2) inches and the additional concrete embedded therein.

### 3.11 CONCRETE FINISHES:

- A. Floor Finish: Floors shall be magnesium float finished to produce a medium rough swirl finish across traffic flow as directed by the Architect.
- B. All interior concrete to be painted shall be finished the same as non-painted concrete.
- C. All interior concrete not painted shall be left as formed except that rock pockets shall be filled and fins shall be knocked off. Minor imperfections, blemishes, off-sets, etc., will be acceptable. Off-sets and fins not over 1/16" will be acceptable. Final acceptable finish shall be as approved by the Architect/ Engineer.
- D. Exterior concrete finish shall be free of fins, off-sets, bulges or grain transfer. See Section 03100, Concrete Formwork.
- E. Slab topping shall be applied where indicated on the drawings. Topping may consist of 1 part Portland Cement, 3 parts silica sand, "Concrete Glue" (to manufacturer's recommendations) and minimum water to make a workable mix. Paint surface with "Concrete Glue", then apply topping. Finish to match adjacent surfaces.

END OF SECTION

SECTION 03432 - DECORATIVE CEMENT COATING

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes the furnishing of all labor and material to complete the installation of decorative cement coating on concrete as indicated on the Drawings and these Specifications.
  - A. Work includes but is not limited to the following:
    - 1. Preparation of base material.
    - 2. Application of finish coats including texture.
- 1.02 QUALITY ASSURANCE: The applicator shall be thoroughly familiar with this type of work, and be approved by the manufacturer of the materials used.
- 1.03 SUBMITTALS: Provide sample of color and texture selected by the Architect/Engineer. Sample shall be on concrete panel, constructed to simulate a 4 foot long portion of the concrete spandrel.
- 2.00 MATERIALS: Materials listed below for decorative cement coating shall be manufactured by Standard Dry Wall Products, "Thoro System Products," or equal.
  - A. Patching material shall be "Water Plug" or "Thorite".
  - B. Key coat shall be "Thoroseal."
  - C. Finish coat shall be a mixture of "Thoroseal Plaster Mix," and "Acryl 60."
- 3.00 EXECUTION:
  - A. Preparation, mixing, patching, and application shall be in accordance with the manufacturer's latest printed specifications.

- B. Finish shall be a sand finish with fine vertical grooves similar to brush marks. Provide samples for selection of finish. Color shall be selected by the Architect/Engineer.
- 3.01 GUARANTEE: Provide a one-year guarantee as to adherence, fading, chipping, or peeling of the decorative cement coating.

END OF SECTION

SECTION 04200 - UNIT MASONRY

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes all work required to complete all concrete block masonry work shown on the Drawings.
- A. Work includes, but is not limited to the following:
1. Concrete block.
  2. Installing reinforcing steel for concrete block.
  3. Setting and incorporating into the masonry, bolts, anchors, metal attachments, sleeves, inserts, and other items necessary for work under other sections of these Specifications.
  4. Grouting as indicated on Drawings.
  5. Cement wash or block cap at top of masonry walls as indicated on Drawings.
  6. Clean-up and disposal.
- B. Related Work Specified Elsewhere:
1. Cast-In-Place Concrete - Section 03300.
  2. Concrete Reinforcement - Section 03200.
  3. Miscellaneous Metal - Section 05500.
  4. Plumbing and Mechanical - Section 15400.
  5. Electrical Conduit and Fixtures - Section 16400.
- 1.02 SUBMITTALS:
- A. Concrete Block: Provide three (3) sections of block face, minimum 4"x 4".
- B. Manufacturer's data on non-shrink admix.

Unit Masonry  
04200-1

1.03 JOB CONDITIONS:

- A. Standards: Materials and workmanship shall conform to the requirements of the building code specified on the Drawings.
- B. Coordination and Sequencing: Coordinate with other trades to determine locations of all required bolts, inserts, anchors, and miscellaneous attachments.

2.00 PRODUCTS:

2.01 MATERIALS:

- A. Concrete blocks shall be of 8"x 8"x 16" or the size, grade and strength specified on the Drawings, conforming to the "Standard Specifications for Hollow Load-Bearing Concrete Masonry Units," ASTM C90, Grade "N," Type II. In addition, concrete blocks shall comply with the following requirements:
  - 1. Linear Shrinkage: Maximum of 0.06 percent from the saturated to the over-dry condition.
  - 2. Block shall be standard grey color, smooth finish.
- B. Cement shall be a standard domestic brand of portland cement conforming to ASTM C150, Type II.

2.02 MORTAR AND GROUT:

- A. Mortar shall be of a Type specified on the Drawings and shall conform to the requirements of ASTM C270. Aggregate for mortar shall conform to requirements of ASTM C144. Hydrated lime shall conform to the requirements of ASTM C207, Type "S". Color to match concrete block.
- B. Grout for filling cells shall have the compressive strength specified in the Drawings and shall be a fluid consistency so as to cause the grout to flow into all voids without segregation of the constituent parts. Aggregate for grout shall conform to the requirements of ASTM C404. Include a non-shrink admix such as "Grout- Aid" by Sika Chemical Corporation, used in accordance with manufacturer's instructions.
- C. Measurements: Materials for mortar and grout shall be accurately measured in suitable calibrated devices. Shovel measurements will not be acceptable. Allowance for bulking of sand when measured damp loose shall not exceed 20%.

- D. Mixing: The sand, cement and water shall be placed in the mixer in that order for each batch of mortar or grout and shall be mixed as long as needed to secure a uniform mass, but in no case less than ten minutes. The lime for the mortar shall be added after the initial two minutes of the mixing time. Enough water shall be used with the grout mix to cause it to flow into all joints in the masonry work. Only paddle-type mixers of at least one-sack capacity shall be used. Batches requiring fractional sacks will not be permitted unless the cement is weighed for each such batch to determine the correct proportions of the materials used. Mortar and grout awaiting the mason's use shall be turned and re-mixed as required to maintain a workable mix. Retempering of grout shall not be permitted. Retempering of mortar shall be done only by adding water into a basin made with the mortar and the mortar carefully worked into it. Retempering by dashing water over the mortar shall not be permitted. Any mortar or grout which is unused within one hour after the initial mixing shall be removed from the work. Mortar shall be mixed and maintained on the boards to a slump of 2-3/4", plus or minus 1/4", using a truncated cone 4" to 2" in diameter, 6" high.

3.00 EXECUTION:

- 3.01 SCAFFOLD AND PROTECTION: All scaffolds, staging, and forms of protection necessary for execution of the work specified herein shall be provided, installed, maintained and shall be substantially constructed.
- 3.02 SHORES AND CENTERING: All shores and centering required for the work shall be provided and constructed true to required shape, size and form, well braced and made rigid in all parts, and capable of supporting and sustaining the loads to which subjected. Shores and centering shall be left in place until the masonry has sufficiently set to safely carry its own weight and the added loads of construction.
- 3.03 WORKMANSHIP: All masonry work shall be executed in accordance with the best standards of practice for the trade. Work shall be erected plumb, square, straight and true to indicated lines, position and dimensions, in full beds of mortar and with vertical joints and voids filled full.
- A. The work shall be well bonded, with no fractional parts of masonry units permitted in the work where whole units can be used. The chinking of interstices with fragments and batts will not be permitted.



- B. Reinforcing steel shall be straight except for bends around corners or where bends or hooks are detailed on the Drawings. Vertical bars shall be fixed in position at each end of the bar and at such intervals as is necessary to prevent displacement. Splices in reinforcing steel shall be lapped a distance sufficient to develop the stress in the bar, but not less than forty (40) bar diameters. Dowels shall be accurately placed to match reinforcing in filled cells.
  - C. Unless otherwise indicated on the Drawings, all cells shall be filled with grout. The grout shall be puddled and tamped to ensure filling of all voids.
  - D. Cleanout opening shall be provided at the bottom of all cells to be filled at each grout pour where such grout pour is in excess of 4 feet in height. Any overhanging mortar or other obstruction or debris shall be removed from the insides of such cell walls. The cleanouts shall be sealed before grouting, after inspection.
  - E. All cells shall be filled solidly with grout. Grout shall be poured in lifts of 8 feet maximum height. All grout shall be consolidated at time of pouring by puddling or vibrating and then reconsolidated by again puddling later, before plasticity is lost. When total grout pour exceeds eight (8) feet in height, the grout shall be placed in 4-foot lifts and special inspection during grouting shall be required. Minimum cell dimension shall be 3 inches.
- 3.04 JOINTING: At the time of jointing, all interstices between blocks and other materials shall be solidly filled. Cut out and repoint defective joints. Those joints having holes made by line pins shall be cut and repointed.
- A. Horizontal and vertical mortar joints shall be 3/8" thick, unless otherwise indicated or specified, with full mortar, coverage of the face shells in both horizontal and vertical joints. Vertical joints shall be shoved tight. All concrete block masonry shall be installed running bond.
  - B. The joints shall be tooled to a dense surface slightly concave. The surfaces of the wall shall be kept clean and free from mortar splashes and all joints shall be made with straight, clean lines.

- 3.05    CLEANING: Upon completion of the masonry work and as required during the work, all exposed surfaces shall be thoroughly washed and cleaned with stiff fiber brushes, and well rinsed with clean water. All stains, mortar, efflorescence, and other defects shall be removed from all masonry surfaces.
- 3.06    ANCHORS, BOLTS, FRAMES, INSERTS, ETC.: As furnished by others, shall be set accurately to dimensions indicated on Drawings.
- 3.07    ELECTRICAL WORK: It is required that electrical conduit run within masonry walls. Coordinate with other trades as required to produce the desired results.
- 3.08    Masonry units indicated as extending to the bottom of concrete slabs or beams may be placed with one face shell removed, in order to dry pack and grout top block, and then face shell installed. Finished work shall present a neat, clean appearance without fragments and batts.

END OF SECTION

SECTION 05400 - CHAIN LINK FENCING

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes the furnishing of all work required to complete the installation of all chain link fencing, railings, or barriers as shown on the Drawings.
  - A. Work includes, but is not limited to the following:
    - 1. Galvanized chain link fencing, including posts, fabric and all other items required for a complete installation.
- 1.02 QUALITY ASSURANCE: Chain link work shall be installed by trained contractors using equipment and materials manufactured specifically for this type of work.
- 1.03 SUBMITTALS: Submit Shop Drawing showing pertinent details and manufacturer's printed specifications for material used.
- 2.00 MATERIALS:
  - 2.01 FABRIC: Hot-dipped galvanized after weaving, 9 gauge, 2" mesh. Top and bottom selvage knuckled. Galvanize with an average of 2.0, oz of zinc per square foot of surface area.
  - 2.02 POSTS AND RAILS: Standard pipe galvanized, as shown on the drawings.
  - 2.03 FITTINGS: Provide all required, aluminum alloy, or hot-dipped galvanized.



- 2.04 MISCELLANEOUS EQUIPMENT: Provide any other item called for on the drawings or herein specified normally provided by this Contractor.
- 2.05 Standard products of other approved fence material manufacturers meeting or exceeding the structural and visual requirements listed above will be approved.
- 3.00 EXECUTION:
- 3.01 ON CONCRETE SLAB: Anchor posts to concrete slab as shown on the Drawings.

END OF SECTION

SECTION 05500 - MISCELLANEOUS AND ORNAMENTAL METALS

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes but is not limited to all shop fabricated metal items incorporated or attached to the structure, and not specifically included in another Section.
  - A. Work Included in this Section: Work includes, but is not limited to the following:
    - 1. Structural shapes, shop prime coat for field paint.
    - 2. All guard railings and handrails, shop prime coat for field paint.
    - 3. Metal thresholds, as detailed.
    - 4. All bolts, nuts and inserts required, plated or primed to match surrounding metal work.
    - 5. Miscellaneous clips, angles, closures, etc., including elevator sill angles and miscellaneous items required for elevator installation, shop prime coat and field paint, unless otherwise called for galvanized on the Drawings.
    - 6. Pipe guards, shop prime coat for field paint.
    - 7. Gratings and pit covers with frames as required, galvanized, where not supplied under other Sections of this Specification.
  - B. Related Work Specified Elsewhere:
    - 1. Distribution Plates and Anchorages for Postensioning - Section 03230.
    - 2. Setting Items into Concrete - Sections 03100, 03101, 03200, 03300 and 03400.
    - 3. Setting Items into Masonry - Section 04200.

#### 4. Painting - Section 09900.

- 1.02 QUALITY ASSURANCE: Qualification of Welders: Welders shall be certified in accordance with latest AWS Standards.
- 1.03 SUBMITTALS:
  - A. Shop Drawings: Show all details and all information necessary to describe shop work.
  - B. Product Data:
    - 1. Submit manufacturer's printed specifications for shop primer.
    - 2. Submit manufacturer's printed specifications for non-shrink grout.
- 1.04 JOB CONDITIONS:
  - A. Coordination and Sequencing: Supply all items to be embedded in concrete or concrete block which require installation, in time to prevent delays in construction. Supply all necessary setting templates.
- 2.00 PRODUCTS:
  - 2.01 GENERAL: Where not covered, materials shall be of new stock of the highest grade available. Where two or more identical articles or items of fabricated material are required, they shall be the same manufacture.
  - 2.02 STRUCTURAL SHAPES AND PLATES: ASTM A-36.
  - 2.03 STEEL PIPE: Standard weight (Schedule 40), ASTM A-120, shop prime.
  - 2.04 BOLTS AND NUTS: ASTM A-307, Grade B.
  - 2.05 STUD ANCHORS: "Kwick-bolt," as manufactured by McCulloch Industries, Inc., "Red Head," as manufactured by Phillips Drill Company, Inc., or equal, as approved by the Architect/Engineer.
  - 2.06 GALVANIZING: Do not galvanize items to be painted unless otherwise specified. Use hot-dip process for all items requiring galvanized finish except for stud anchors, bolts and inserts which shall be zinc plated.

- A. ZINC: ASTM B6, Grade Prime Western.
- B. Coating Requirements: Determine weight of coating in accordance with ASTM A-90. Minimum weights shown below are in ounces per square-foot of surface area.

Material

Steel Shapes, Tie Rods, Handrails, & Miscellaneous Items.....	A-123	2.0
Bolts, Screws, Nuts and Washers.....	A-153	1.25
Steel Pipe.....	A-120	1.80
Steel or Iron Sheets.....	A-525	0.63

- 2.07 PRIMER: All metal work not galvanized shall be furnished primed for paint. Use a rust-inhibitive metal primer as specified in Section 09900, "Painting." Any primed surface damaged during installation shall be touched up prior to finish painting.
- 2.08 NON-SHRINK GROUT: As manufactured by Hallemite "Por-Rok," Master Builders "Embeco," Sika Chemical Inc., or equal.
- 2.09 Thresholds shall be aluminum.
- 2.10 Metal roof and floor drains, as detailed, shall be of all welded construction, galvanized after fabrication. Any field drilled holes etc., shall be coated to cover any exposed raw metal. Provide pipe stub.
- 2.11 Guard railings and hand rails to be steel sections, as detailed, with shop prime coat and field paint.
- 3.00 EXECUTION:
- 3.01 GENERAL: Except for any modifications indicated on Drawings and specified herein, the AISC Code of Standard Practice for Steel Buildings and the AWS Code for Fusion Welding and Gas Cutting and Building Construction, both



as amended to date, shall govern all materials, fabrication, and erection of all work under this Section.

3.02 FIELD MEASUREMENTS: Secure all field measurements required for the proper and adequate fabrication and installation of all Work covered in this Section. Exact measurements are the Contractor's responsibility. Field alterations which become necessary as a result of inexact dimensions will not be permitted without approval of the Architect/Engineer.

3.03 WORKMANSHIP:

- A. Workmanship shall be in accordance with best standard practices of the trade and shall be done by mechanics skilled in the type of work required. Insofar as possible, work shall be fitted and shop assembled, ready for erection. Exposed joints shall be even and smooth and any welded exposed joints shall be ground flush, even and smooth.
- B. Welding: Shall be by qualified welders. Steel shall be welded by the shielded-arc method. Reference is made to the current edition of the "Welding Handbook," published by the American Welding Society, as a guide for general procedure and for qualification of welders. Welding shall be done on the unexposed sides to prevent pitting, discoloring, weld-halo and other surface imperfections. Surfaces to be welded shall be thoroughly cleaned and welds shall show a uniform section and reasonable smoothness without any distortion. Exposed surfaces of welded joints shall be dressed and finished. Welding alloys shall be finished in the same color and character as the surfaces of the metals joined.
- C. Holes: Holes of the proper sizes and in correct locations as required for attachment of work of other trades shall be provided. All cutting, tapping, and drilling shall be done, as required. Damaged or distorted material will not be acceptable. Holes for exposed screws shall be countersunk, except as otherwise indicated.
- D. Field Repair of Galvanizing: Coat with "Galvalloy," "Galvicon," or equal. A zinc rich coating containing at least 95% zinc will be considered as an alternate. Provide samples and manufacturer's specifications to the Architect/Engineer for approval.

3.04 MISCELLANEOUS ITEMS:

- A. Steel Handrails and Guardrails: To be flush type with joints welded and ground smooth and flush with surrounding metal. Include all hangers, bolts, angles and installation.
- B. With exceptions as specified, furnish, fabricate, and install all miscellaneous angles, channels, bent plate, clips, anchors, and other miscellaneous and ornamental metal work required for the complete job as indicated on the Drawings. Such items shall be formed as detailed, or if not detailed, as required for the location and purposes served, in accordance with applicable provisions specifically mentioned herein or in other sections, but which are customarily considered as part of the Work, the same as if fully specified herein and detailed on the Drawings.
- C. Sleeves through concrete walls and footings shall be furnished and installed, as required, and shall be standard weight steel sections of a size sufficient to allow 1/4" clearance all around between the sleeve and item to be inserted. Pipe sleeves in connection with mechanical and electrical work are included in the respective mechanical and electrical sections.
- D. Anchors, hangers, brackets, cable connectors, and plates of suitable size shall be furnished and installed, where required, in connection with steel, iron, masonry, and concrete construction, and shall be of sizes, shapes and locations indicated, all complete.

- 3.05 BUILT-IN ANCHORAGE: All bolts, eyebolts, dowels, anchors, inserts, and other miscellaneous steel or iron fastenings that are to be installed in forms before concrete pouring, or built into masonry, shall be provided as indicated on the Drawings, details, and schedules. Contractor shall examine and check the drawings for the number, type and location of such items.

END OF SECTION

SECTION 06000 - CARPENTRY

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 SCOPE: This Section includes all work required to complete the installation of laminated plastic covered counter at office.
- 1.02 QUALITY ASSURANCE: Only skilled journeymen and experienced shop personnel shall be used for this work.
- 1.03 SUBMITTALS: Provide shop drawing for review and laminated plastic samples for pattern selection.
- 1.04 PRODUCT HANDLING: Protect counter before, during, and after installation. Replace any damaged material at no extra cost to the City.
- 2.00 PRODUCTS: Plywood shall be 3/4" thick, waterproof type, surfaced to receive laminated plastic finish. Laminated plastic shall be Wilsonart, Formica, or equal, general purpose Grade 10. Color and finish shall be selected from the manufacturer's standard lines.
- 3.00 INSTALLATION:
  - 3.01 Counter shall be plumb, square, and stable.
  - 3.02 Provide 4-inch wide laminated plastic on plywood edges at all exposed sides. Plywood shall be shoulder mitered and glued.

END OF SECTION

SECTION 07530 - WATERPROOFING AND DAMPPROOFING

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 SCOPE: This Section includes all caulking and sealing not specified in other sections.
  - A. Work Included in this Section: Work includes, but is not limited to the following:
    - 1. Waterproofing at pits.
    - 2. Dampproofing.
- 1.02 GUARANTEE: Provide 2-year guarantee against defective materials, workmanship and leakage.
  - A. All waterproofing shall be applied by an applicator licensed or approved by the manufacturer of the material. A certificate from the manufacturer indicating his current approval of the applicator shall be submitted with the manufacturer's specifications for the Architect/Engineer's review.
- 2.00 PRODUCTS:
- 2.01 DELIVERY: Deliver to job site in unopened factory-labeled containers.
- 2.02 WATERPROOFING: Asphalt-Emulsion Membrane System; Flintkote Specification No. "E-M-W" and "MW-430-FM"; equivalent products manufactured by Johns-Manville, Celotex, or equal, will be acceptable.
- 2.03 DAMPPROOFING: Cold applied emulsion system, as manufactured by Flintkote, Johns-Manville, or equal.

- 3.00 EXECUTION:
- 3.01 SURFACE PREPARATION: Surfaces shall be clean, dry and free of rust, scale, oil, wax, or other contamination. Sand-blast to remove contaminants, if required.
- 3.02 WATERPROOFING APPLICATION:
- A. Apply to exterior or interior surface of pits as specified by the manufacturer to provide a waterproof condition.
  - B. Install in strict compliance with manufacturer's specifications. Submit to the Architect/Engineer manufacturer's specifications and recommendations for review prior to installation of the waterproofing.
  - C. Provide all required waste slabs, corner reinforcement, flashing and caulking at pipes through walls, as required to provide a complete waterproof condition.
  - D. Provide protection course, if required, over wall membrane in solid coating of asphalt. Protection board shall be of material and thickness as recommended by the manufacturer of the waterproofing materials. Material shall be 1/4" minimum thickness.
- 3.03 PROTECTION: Carefully protect adjoining surfaces from staining, using masking tape where necessary or directed. Immediately remove any material on surfaces not to receive caulking and restore the finish as required. Where cleaning and restoration is not acceptable, remove affected work and provide new work conforming to applicable requirements as directed, at Contractor's expense.
- 3.04 CLEANING AND PATCHING: Upon completion of work of this Section, remove any spillage, spatter spots and other misplaced materials in a manner which will not damage surfaces. Perform any patching, touch-up and repair necessary. Leave work in clean, weathertight and watertight condition.
- 3.05 DAMPPROOFING APPLICATION:
- A. Apply to all exterior concrete surfaces where the interior finish surface is below final exterior grade adjacent to landscaped areas.
  - B. Apply two coats of dampproofing material in strict accordance with the manufacturer's printed specifications. Allow additional curing time before backfilling.
- 3.06 PROTECTION AND CLEANING: Carefully protect adjoining surfaces from staining from Work of this Section. Remove excess material and restore the finish as required by the Architect/Engineer. Where cleaning and restoration is not acceptable to the Architect/Engineer, remove the affected work and provide new work conforming to applicable specification requirements at no additional cost to the Owner.

END OF SECTION

SECTION 07540 - ELASTOMERIC DECK COATING

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes all elastomeric deck coating as shown on the Drawings and specified herein.
- A. Work Included in this Section: Work includes but is not limited to the following:
1. Elastomeric traffic coating at all unstressed areas exposed to the sky and other areas indicated on the Drawings. Unstressed areas include but are not limited to, stressing pockets, pour strips, cast-in-place reinforced concrete floors, which are not post-tensioned, areas around roof drains, and other areas indicated on Drawings.
  2. Elastomeric roof coating over elevator shaft and offices.
  3. Clean-Up.
- B. Related Work Specified Elsewhere:
1. Sealants - Section 07900.
- 1.02 GUARANTEE: Provide a one (1) year guarantee against defective materials, workmanship and leakage. Coating which leaks, delaminates, blisters, peels, cracks, and fails to give and work with normal building movement, shall be considered defective. Coating which wears out, under normal use, during the guarantee period shall be considered defective. All defective work shall be replaced or repaired.
- A. All elastomeric deck coating shall be applied by an applicator licensed or approved by the manufacturer of the material. A certificate or letter from the manufacturer indicating his current approval of the applicator shall be submitted with the manufacturer's printed specifications for the Architect/Engineer review.

- 1.03 SUBMITTALS: Submit samples on plywood, 3"x 4", showing approximately applied thickness, texture and color.
- 1.04 DELIVERY: Deliver to job site in unopened factory labeled containers.
- 2.00 PRODUCTS:
  - 2.01 ELASTOMERIC COATING: Fluid applied waterproofing system. As manufactured by Pacific Polymers, Grove Specialties, Inc., Advanced Coatings, Inc., Multi-Chemical Products, Inc., or equal. Product shall be specially formulated, designed, and applied to provide a waterproof deck subject to continual vehicular traffic and extremes of weather, or roof deck as required.
  - 2.02 Aggregate shall be 20 mesh crystalline silica sand.
- 3.00 EXECUTION:
  - 3.01 SURFACE PREPARATION: Surfaces shall be clean, dry and free of rust, scale, oil, wax, or other contamination. Sandblast to remove contaminants, if required. Surface shall be acceptable to the Architect/Engineer and to the coating applicator. Start of work shall constitute acceptance by the applicator.
  - 3.02 The Contractor shall acquaint himself with the manufacturer's recommendations concerning the application of material and related items such as concrete finishes, sealers, etc., prior to bidding. All coatings shall be installed in strict accordance with the manufacturer's printed specifications to obtain the desired performance.
    - A. Protect adjacent surfaces with drop cloths or other masking material. Do not allow coating to cover sealants used for expansion joints.
    - B. Provide and install, per manufacturer's specifications, all related items such as primers, base and top coats, and aggregate. Minimum dry film thickness shall be 70 mils, plus or minus 10 mils.
    - C. Color of top coat and aggregate shall be selected by the Architect/Engineer.
    - D. Provide protection for finished surfaces while curing. Clean stains from adjacent surfaces with a non-flammable cleaner recommended by the manufacturer.

- 3.03 CLEANING AND PATCHING: Upon completion of work of the Section, remove any spillage, spatter spots and other misplaced materials in a manner which will not damage surfaces. Perform any patching, touch-up and repair necessary. Leave work in clean, weathertight and watertight condition.
- 3.04 Elastomeric coating shall extend a minimum six (6) inches beyond the edges of non-stressed concrete., Edges of coating shall be visibly straight.

END OF SECTION



SECTION 07600 - FLASHING AND SHEET METAL

1.00 GENERAL:

General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all sub-contractors of the provisions thereof.

- .01 SCOPE: This Section includes all sheet metal work not specified in other sections.

a. Work Included in This Section: Work includes, but is not limited to the following:

- (1) Miscellaneous sheet metal to complete entire project, including all flashing.
- (2) Caulking where indicated and required, adjacent to sheet metal.

b. Related Work Specified Elsewhere:

- (1) Miscellaneous & Ornamental Metals, Section 05500.
- (2) Sealants, Section 07900.
- (3) Painting, Section 09900.

- .02 SAMPLES AND SHOP DRAWINGS: Show typical jointing, material thicknesses, connections and fastenings for sheet metal. Show specification information on caulking material.

2.00 MATERIALS:

- .01 GALVANIZED IRON OR STEEL SHEETS: "Federal Specification for Steel Sheets, Carbon, Zinc-coated," QQ-S-775a, May 27, 1960; Type 1 Flat; Class d - ordinary zinc-coated (commercial) and shall be 24 gauge unless otherwise specified or noted on drawings.
- .02 FASTENINGS: Rivets and other fastenings shall be iron or steel with rust-inhibitive coating. Rivets shall be soft iron or steel and shall be trimmed. Other fastenings shall be zinc-coated.



- .03 SOLDER METAL: ASTM B-32, Standard Brand, Grade A solder of equal parts lead and tin, with name of manufacturer, grade and class of solder metal cast on each bar or ingot.
- .04 FLUX: Raw muriatic acid or approved brand strong acid soldering paste.
- .05 CAULKING MATERIAL: See Section 07900 for caulking and sealants.

### 3.00 EXECUTION:

#### .01 WORKMANSHIP:

- a. Accurately form to dimensions and shapes detailed. Finish molded and broken member with true, straight, sharp lines and angles. Cope to an accurate fit and securely solder intersecting members. Turn back exposed edges of sheet metal 1/2". Form, fabricate, and install to adequately provide for expansion and contraction; finish water and weathertight throughout. Make soldered flat lock and lap seams at least 1/2" wide.
  - b. Soldering: Thoroughly clean and tin joints prior to soldering. Solder with heavy well-heated coppers of blunt design, properly tinned before use. Heat seam thoroughly and completely fill with solder. Make exposed soldering with finish surfaces neatly full, flowing and smooth. Thoroughly wash flux with a soda solution after soldering.
- .02 PROTECTION: Protect sheet metal work until acceptance of building. Repair defective or damaged work as required. Unauthorized patchwork is not acceptable. Provide suitable protection of adjoining surfaces damaged due to work of this section, as approved, at no additional cost to Owner.
  - .03 CAULKING: Caulk where required. Conform to requirements of Section 07900.
  - .04 DETAILS: It is not the intent of the drawings to provide details for every sheet metal condition, but to show the general extent of the work. This Contractor shall provide required material and details for all required work. In general, all work indicated but not detailed on the drawings shall meet the requirements of the "Architectural Sheet Metal Manual," prepared by the Sheet Metal and Air Conditioning Contractors National Association, Inc.

SECTION 07900 - SEALANTS

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes all sealing as indicated on the Drawings and where not specified in other Sections.
  - A. Work Included: Work includes, but is not limited to the following:
    - 1. Preparing surfaces, and saw cutting edges as required for expansion joints.
    - 2. Furnishing and placing back-up materials, as required.
    - 3. Priming, as required.
    - 4. Installing sealants.
    - 5. Cleaning up.
- 1.02 SUBMITTALS:
  - A. Submit samples of cured materials and manufacturers printed specifications.
  - B. Manufacturers certification stating that the details and dimensions indicated are acceptable to his processes and compatible with his materials.
- 1.03 COLORS: As selected by Architect/Engineer from manufacturer's standard colors.
- 1.04 DELIVERY & STORAGE: Deliver to jobsite in unopened factory-labeled containers.
- 1.05 GUARANTEE: Provide one year guarantee against defective materials, workmanship and leakage.
- 2.00 PRODUCTS:
  - 2.01 BACK-UP MATERIALS: Polyethylene foam of type approved or recommended by manufacturer of sealants. Provide bond breaker as required and as recommended by sealant manufacturer.



- 2.02 SEALANTS: Material as manufactured by Tremco Manufacturing Company, Products Research & Chemical Corporation, Pacific Polymers, Mameco International, Grove Specialties, Inc. or equal. Furnish the following sealants:
- A. For General caulking at sheet metal, doors, small joints, etc.:

PRC "5000," Tremco "mono," or equal.
  - B. For parking and traffic deck slabs requiring a self-leveling material:

PRC "3105," Tremco "THR/900," Pacific Polymers, Inc., #5639, Maneco Vulkem 205, or equal. Material must be suitable for installation where automobile and pedestrian traffic occur. Material to be machine mixed and machine placed. Place immediately from the machine using a two component mixing head machine.
  - C. For overhead and vertical joints:

PRC "210," Tremco "Dymeric," or equal.

    - 1. When in doubt as to the proper material to use, the Architect/Engineer shall be contacted for his recommendations.
- 2.04 PRIMER: As recommended by manufacturer for each type of sealant or caulking.
- 3.00 EXECUTION:
- 3.01 SURFACE PREPARATION: Surfaces shall be clean, dry, and free of rust, scale, oil, wax, or other contamination. Sawcut concrete assure true edges, then sandblast to remove contaminants. Metal surfaces may be solvent cleaned, and primer applied as required. Provide bond breaker where called for on Drawings or as recommended by manufacturer. Manufacturer and Applicator to approve surfaces prior to application. Start of work constitutes acceptance by the Manufacturer and the Applicator.
- 3.02 APPLICATION: Apply sealants in accordance with manufacturer's instructions by manufacturer-approved. Provide technical field assistance by manufacturer to insure proper mixing, clean, and application of materials.



- 3.03 PROTECTION: Carefully protect adjoining surfaces from staining, using masking tape where necessary or directed. Remove material on surfaces not to receive caulking and restore the finish as required.
- 3.04 CLEANING AND PATCHING: Upon completion of Work of this Section, remove any overspray, spillage, spatter spots and other misplaced materials in a manner which will not damage surfaces. Perform any patching, touch-up and repair necessary. Leave work in clean weathertight and watertight condition.

END OF SECTION



SECTION 07910 - EPOXY INJECTION CRACK REPAIR

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes but is not limited to all epoxy injection work required to repair concrete cracks.
  - A. Work Included in This Section: Work includes but is not limited to the following:
    - 1. Repair of cracks as required in any area as directed by the Architect/Engineer.
  - B. Related Work Specified Elsewhere:
    - 1. Allowances - Section 01020.
- 1.02 QUALITY ASSURANCE:
  - 1. All work shall be done by contractors who are authorized applicators of a process which has been successfully used on at least three (3) similar repair projects.
  - 2. Provide a 2-year guarantee against defective materials, workmanship, leakage, or reopening of cracks.
- 1.03 SUBMITTALS: Provide for approval manufacturer's printed specifications for materials and installation procedures.
- 2.00 PRODUCTS:
  - 2.01 EPOXY MATERIALS: Materials shall be manufactured within the shelf life limitations set forth by the manufacturer. Epoxy shall be a two-part epoxy adhesive containing 100% solids, expressly formulated for repair of structural concrete cracks.
- 3.00 EXECUTION:
  - A. Provide adequate precautions to prevent escape of epoxy to surrounding area. Clean joint of contamination prior to injection.

- B. All equipment used for this work shall be designed for this type of work. Provide standby equipment if required to provide continuous injection.
- C. Seal all ports as necessary to prevent dripping or run outs.
- D. Surface of sealed cracks shall be finished flush with adjacent concrete surfaces and shall present a neat appearance. Remove excess material on adjacent surfaces.

END OF SECTION



SECTION 08100 - METAL DOORS AND FRAMES

1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.

1.01 DESCRIPTION:

A. Work includes, but is not limited to the following:

1. Furnishing and installing hollow metal doors and frames.
2. Installing finish hardware.
3. Cleaning up.

B. Related Work Specified Elsewhere:

1. Finish Hardware - Section 08700.
2. Sealants - Section 07900.
3. Painting - Section 09900.

1.02 SUBMITTALS: Submit shop drawings for each type of door and frame, supplemented by suitable schedules. Provide manufacturer's printed specifications for shop primer. Where required by code, provide U.L. labels for doors and frames. Special conditions, such as pairs of label doors requiring astragals, special reinforcement for special hardware, etc., must be indicated on the submittal.

1.03 GUARANTEE: Provide one year guarantee against defects in materials, workmanship and improper installation.

1.04 QUALITY CRITERIA:

A. Manufacturers: Hollow metal work shall be manufactured by one of the following or equal, as approved by the Architect:

Steelcraft Manufacturing Co.  
Overly Manufacturing Co.  
Krieger Steel Products Co.  
Security Metal Products Corp.

2.00 PRODUCTS:

2.01 BASIC MATERIALS:

- A. Frame: Sheet steel shall be hot rolled prime quality carbon steel.
- B. Doors: Sheet steel shall be cold rolled stretcher level sheet steel.
- C. Primer: As specified in Section 09900 - Painting.

2.02 FRAMES: Frames shall be a combination buck, frame and trim type.

- A. Minimum Gauge: 16 - gauge.
- B. Break-form Steel Sheets: Provide profiles and shapes free of warp, buckles or other defects. Form stops integral with frame.
- C. Corners and Connections: Miter and Weld. Grind exposed welds flush and smooth.
- D. Silencers: Shall be provided on each door frame. (3 per door.)

2.03 DOORS:

- A. Face Sheets: 16-gauge steel.
- B. Vertical Edges of Face Panels: Join and weld on maximum 6-inch centers. Grind smooth and fill with mineral filler to cancel seams.
- C. Top and Bottom Rails: 16-gauge continuous channels full width of door. Spot weld on maximum 6-inch centers. Cap all doors at top.
- D. Sound Deadening: Treat or fill interior of doors with sound deadening material to eliminate metallic ring.
- E. Hinge Reinforcement: Minimum 10-gauge steel.
- F. All other Reinforcement: Minimum 12-gauge steel.

3.00 EXECUTION:

- 3.01 INSTALLATION OF FRAMES: Hold head level and maintain jambs plumb and square. Leave frame spreader bars intact until frames are set perfectly square and plumb.
- 3.02 INSTALLATION OF DOORS: Installation of labeled doors shall conform to requirements of building code. Apply hardware in accordance with manufacturer's templates and instructions. Remove hardware, with exception of prime coated items; tag, box, and reinstall after finish paint work is completed.
- 3.03 PRIME COAT TOUCH-UP: Sand smooth damaged areas immediately after erection and touch up with same primer as applied in shop. Remove rust prior to apply primer.
- 3.04 ROLL-UP SERVICE DOOR: As manufactured by Overhead Door Corporation, Model FN-3, or equal. Clear opening size 10 feet wide x 7 feet high. Face mounted, crank operated. Complete with galvanized curtain, 24-gauge galvanized hood, steel guides, and standard locking means suitable for Owner padlock. All non-galvanized ferrous surfaces shall be shop primed.

END OF SECTION

SECTION 08700 - FINISH HARDWARE

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION:
- A. Work Includes but is not Limited to the Following:  
Provide all labor, materials, tools, plant equipment, transportation, and perform all operations necessary for and reasonably incidental to proper execution and completion of furnishing all Finish Hardware, whether specifically mentioned or not; all as indicated, specified herein, and/or implied.
  - B. Related Work Specified Elsewhere:
    - 1. Miscellaneous and Ornamental Metals - Section 05500.
    - 2. Metal Doors and Frames - Section 08100.
- 1.02 QUALITY ASSURANCE: All hardware shall be furnished and installed in compliance with requirements of the Underwriters' Laboratory and all State and Local Building Codes and Ordinances. Notify the Architect/Engineer in case of a conflict between the Specifications and applicable codes.
- 1.03 SUBMITTALS: Hardware list: As soon as feasible after award of Contract, submit Hardware List as required by Section 01300 - Submittals to Architect/Engineer for approval. Identify each hardware item by manufacturer, manufacturer's catalog number, and exact location of work. Approval of hardware schedule does not relieve hardware supplier of responsibility of furnishing job complete.
- 1.04 PRODUCT DELIVERY, STORAGE AND HANDLING: Packing, Marking and Delivery: Individually package each unit of hardware, as hereinafter specified, complete with proper fastenings and appurtenances. Mark each package to show contents and specific location in work. Except where otherwise specified, deliver hardware to jobsite.

- 1.05 JOB CONDITIONS: Templates: Furnish template hardware where in connection with hollow metal doors and/or metal frames. Deliver templates or physical hardware items to the manufacturer concerned sufficiently in advance to avoid delay.
- 1.06 GUARANTEE: Provide one (1) year guarantee against defects in materials, workmanship, or operation.
- 2.00 PRODUCTS:
  - 2.01 DOOR BUTTS: Hager, McKinney, Stanley, or equal. Prime coat finish, size as required to clear trim, and provide adequate support for door.
  - 2.02 DOOR CLOSERS: Sargent Power glide or L.C.N. 4110 Series, or equal. Size closers per manufacturer's recommendations.
  - 2.03 HARDWARE: Schlage "D" Series, PLA design; Sargent "LB" design; Corbin 835, "Richmond" design, or equal, as required by Owner and approved by Architect.
  - 2.04 DOOR STOP: Floor or wall stops as required for each door.
  - 2.05 FINISH: Shall be as indicated in the Hardware List. Finish of any exposed hardware not indicated shall match other hardware within the area.
  - 2.06 SCHEDULES AND TEMPLATES:
    - A. All hardware for application of metal doors and metal frames shall be fabricated to template. Hardware supplier shall promptly submit to the Architect/Engineer for approval, full and complete schedule of hardware, indicate the quantity, part number, installation, location and finish of each item required. Approval of this schedule does not relieve the supplier of responsibility for furnishing all finish hardware items required, even though some may have been inadvertently omitted from this schedule. Upon receipt of approval, the hardware supplier shall promptly furnish an approved copy to metal frames' and door suppliers with all necessary templates. Templates shall show all and only those functions specifically called for in the Hardware Schedule.



- B. All hardware shall be furnished with suitable screws for proper application, harmonizing with the hardware in materials and finish. All hardware fastened to masonry or concrete walls or floors shall be furnished with machine screws and approved expansion shields.
- C. Before shipment to the job, each item of hardware shall be placed in an individual container clearly identified as to content and location as shown on the approved Hardware Schedule.

2.08 KEYING:

- A. All locks shall be security keyed, as directed by the Owner. Furnish six (6) keys.
- B. For the protection of the Owner, all locks and cylinders shall be keyed at the factory of the lock manufacturer where permanent records shall be established and maintained, for use by the building Owner or his agent at any time.

2.09 HARDWARE SCHEDULE:

HDG 1

SGL DOOR TO STORE ROOM

3'-0" x 6'-8" x 1-3/4 HM x HM

3 each	BUTTS	TA2714 4-1/2 x 4-1/2	600	UL
1	LOCKSET	8G04 LB	626	S
1	CLOSER	1240 Series	EN	S
1	STOP	WC 12X	630	BBW

HDG 2

SGL DOOR TO ELEVATOR EQUIPMENT ROOM

3'-0" x 6'-8" x 1-3/4 HM x HM HM

3 each	BUTTS	TA2714 4 1/2 x 4 1/2	600	UL
1	LOCKSET	8G05 LB	626	S
1	CLOSER	1240-P Series	EN	S
1	STOP	WC 12X	630	BBW

HDG 3

1 SGL DOOR TO OFFICE

3'-0" x 6'-8" x HM x HM

3 each	BUTTS	TA 2714 4-1/2 x 4-1/2	600	MC
1	LOCKSET	15-7743 LB	626	S
1	CLOSER	1240 Series	EN	S
1	STOP	WC 12X	630	BBW
1	DEAD BOLT			
1	SECURITY VIEWER			

HDG 4

1 SGL DOOR BETWEEN OFFICES

3'-0" x 6'-8" x HM x HM

3 each	BUTTS	TA 2714 4-1/2 x 4-1/2	600	MC
1	LOCKSET	15-7743 LB	626	S
1	CLOSER	1240 Series	EN	S
1	STOP	WC 12X	630	BBW
1	DEAD BOLT			
1	SECURITY VIEWER			

HDG 5

1 SGL DOOR TO TOILET

3'-0" x 6'-8" x HM x HM

3 each	BUTTS	TA 2714 4-1/2 x 4-1/2	600	MC
1	LOCKSET	8U04 LB	626	S
1	CLOSER	1240 Series	EN	S
1	STOP	WC 12W	630	BBW

END OF SECTION

SECTION 08800 - WOVEN WIRE PARTITIONS

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes the furnishing of all work required to complete the installation of woven wire partition and gate as shown on the Drawings.
- 1.02 QUALITY ASSURANCE: Partition work shall be installed by trained workmen using equipment and materials manufactured specifically for this type of work.
- 1.03 SUBMITTALS: Submit shop drawings showing pertinent details and manufacturer's printed specifications for materials used.
- 2.00 MATERIALS:
  - 2.01 FABRIC: 1-1/2" Diamond No. 10 Wire, factory paint finish; color as selected by the Owner.
  - 2.02 STRUCTURAL FRAME: 1-1/4" x 3/8" "C" type channel verticals, 1" x 1/2" channel horizontals. 2-1/4" x 1" channel top reinforcement.  
  
1-1/4" x 1/2" x 1/8" channel door frames. Include all other miscellaneous items as required for a complete installation. All items to have factory paint finish, color as selected by the Owner.
  - 2.03 Door shall be provided with standard locking hardware.
  - 2.04 Partition and door material shall be as manufactured by Miller Wire Works Inc., No. 100 M- Standard Partition; Woven Wire Products Association, Standard Partitions; Acorn Wire & Iron Works, Inc., No. 130A; or approved equal.

3.00 EXECUTION:

- 3.01 Partition shall be 7' high and shall be arranged as shown on the drawings.
- 3.02 All work shall be visually plumb and true and shall be installed in a rigid, substantial manner. All work shall be in accordance with approved shop drawings.

END OF SECTION

SECTION 09300 - CERAMIC TILE

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 SCOPE: This section includes all work required to complete the installation of ceramic tile as indicated on the Drawings.
  - A. Work Included: This section includes, but is not limited to the following:
    - 1. Ceramic tile at floor and walls at toilet room.
- 1.02 QUALITY ASSURANCE:
  - A. Qualifications of installers:
    - 1. For cutting, installing, and grouting of ceramic tile, use only thoroughly trained and experienced journeyman tile setters who are completely familiar with the requirements of this work and the recommendations contained in the referenced standards.
    - 2. In acceptance or rejection of installed ceramic tile, no allowance will be made for lack of skill on the part of tile setters.
  - B. Codes and Standards: In addition to complying with all pertinent codes and regulations:
    - 1. Manufacture all ceramic tile in accordance with the provisions of USAS A-137.1-1967;
    - 2. Install all ceramic tile in accordance with the recommendations contained in "1975 Handbook for Ceramic Tile Installation," of the Tile Council of America, Inc.
- 1.03 SUBMITTALS:
  - A. Samples: Before any ceramic tile is delivered to the job site, submit to the Engineer three (3) samples of all available colors and patterns of ceramic tile in the specified groups of the manufacturer selected.

- B. Master Grade Certificates: Prior to opening ceramic tile containers, submit to the Architect/Engineer a Master Grade Certificate, signed by an officer of the firm manufacturing the ceramic tile used, and issued when the shipment is made, stating the grade, kind of tile, identification marks for tile containers, and the name and location of the project.

#### 1.04 PRODUCT HANDLING:

##### A. Delivery and Storage:

1. Deliver all materials of this Section to the job site in their original unopened containers with all labels intact and legible at time of use.
2. Store all materials under cover in a manner to prevent damage and contamination; store only the specified materials at the job site.

- B. Protection: Use all means necessary to protect ceramic tile materials before, during, and after installation and to protect the installed work and materials of all other trades.

- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect/Engineer and at no additional cost to the Owner.

#### 2.00 PRODUCTS:

##### 2.01 CERAMIC TILE:

- A. Ceramic tile shall be: 4-1/4"x4-1/4: matte glazed for walls and 1"x2" unglazed natural clay ceramic mosaics for floors. Base shall be matte glazed cover base to match wall tile. All tile shall be from one manufacturer, Romany-Spartan, American Olean Co., Mosaic Tile Co., or equal.
- B. Design: All accessory tiles shall be in matching size except for stretcher units which may be the standard size of the manufacturer; all accessory tiles shall be as required for dry set, Portland Cement Mortar installation.
- C. Colors: All ceramic tiles shall be in colors selected by the Architect/Engineer from the manufacturer's range of standard colors and patterns in the specified products; colors will be limited to a maximum of one per room and a total of two for this work.

2.02 MORTAR: Dry set mortar: ANSI A118.1-1967 and be prepared under Tile Council Formula 759.

2.03 GROUT:

A. Type: All grout for ceramic tile shall be a good grade commercial latex cement grout especially manufactured for this purpose and specified in the referenced standard, subject to approval of the Architect/ Engineer.

B. Color: Add coloring agent to permanently tint all grout to a color matching the tile against which it is placed.

2.04 OTHER MATERIALS: All other materials, not specifically described but required for a complete and proper tile installation, shall be as selected by the Contractor subject to approval of the Architect/Engineer.

3.00 EXECUTION:

3.01 SURFACE CONDITIONS:

A. Inspection:

1. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

2. Verify that ceramic tile may be installed in accordance with the original design, all pertinent codes and regulations, and the referenced standards.

B. Discrepancies:

1. In the event of discrepancy, immediately notify the Architect/Engineer.

2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 INSTALLATION:

A. Floor Tile: Install all floor tile in strict accordance with Installation Method F113-75 (over concrete subfloors).

- B. Wall and Base Tile: Install all wall and base tile in strict accordance with Installation Method W243-75 (over gypsum board), and W212-75 (over masonry).
  - C. Provide aluminum trim piece at exposed tile edge at door.
- 3.03 CLEANING UP: Upon completion of all ceramic tile installation and grouting, thoroughly clean and polish the exposed surfaces of all ceramic tile.

END OF SECTION



SECTION 09500 - SUSPENDED ACOUSTICAL CEILING

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 SCOPE: This Section includes all work required to complete the installation of acoustical ceilings as indicated on the drawings.
  - A. Work Included in This Section: Work includes, but is not limited to the following:
    - 1. Suspension system.
    - 2. Acoustic Tile.
- 1.02 QUALITY ASSURANCE:
  - A. Qualifications of Installers:
    - 1. For the actual fabrication and installation of the suspended acoustical ceiling system, use only personnel who are thoroughly trained and experienced in the fabrication and erection of the selected system.
    - 2. In acceptance or rejection of installed suspended acoustical ceiling, no allowance will be made for lack of skill on the part of installers.
  - B. Codes and Standards: In addition to complying with all pertinent recommendations published by The Ceilings and Interior Systems Contracting Association.
- 1.03 SUBMITTALS:
  - A. Shop Drawings: Before any suspended acoustical ceiling materials are delivered to the job site, submit complete

Shop Drawings to the Architect/Engineer; show all conditions where suspended acoustical ceiling will interface with the work of other trades, details of all methods of suspension proposed to be used, layout of the grid system, and all lateral restraint details.

- B. Manufacturer's Certification: Upon completion of this portion of the Work, and as a condition of its acceptance, deliver to the Architect/Engineer two (2) copies of a letter signed by an officer of the firm manufacturing the acoustical ceiling boards and stating that the acoustical ceiling boards will retain their dimensional stability for a period of not less than five years following installation.

#### 1.04 PRODUCT HANDLING:

- A. Protection: Use all means necessary to protect suspended acoustical ceiling materials before, during, and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect/Engineer and at no additional cost to the Owner.

#### 2.00 PRODUCTS:

##### 2.01 "T" GRID SYSTEM:

- A. Manufacturers: All "T" grid systems shall be in the pattern indicated on the Drawings and shall be one of the following or an approved equal:
  - 1. Donn Products, Inc.: "DV" series
  - 2. Flangeklamp Corp.: "S" series
  - 3. National Rolling Mills: "Standard hook-and-twist"
- B. General: The system shall be complete with all supporting members, anchors, wall cornices, and adapters for light fixtures and ceiling grilles, plus all accessories of every nature required for a complete installation.

##### 2.02 ACOUSTICAL CEILING BOARDS:

- A. Manufacturers: All acoustical ceiling boards shall be one of the following or an approved equal:

- |                 |                       |
|-----------------|-----------------------|
| 1. U.S. Gypsum: | "Acoustone F"         |
| 2. Armstrong:   | "Travertone Fissured" |
| 3. Gold Bond:   | "Travacoustic"        |

B. General: All acoustical ceiling boards shall be the product of one manufacturer, nominally sized 24 inches by 48 inches by 3/4 inches and properly dimensioned to fit the grid pattern shown on the Drawings, shall have a Noise Reduction Coefficient (NRC) of .80 in a number seven mounting, and a flame spread index of 0-25 in accordance with Class I requirements of Federal Specification SS-S-118a.

2.03 OTHER MATERIALS: All other materials, not specifically described but required for a complete and proper installation of suspended acoustical ceiling, shall be as selected by the Contractor subject to the approval of the Architect/Engineer.

3.00 EXECUTION:

3.01 SURFACE CONDITIONS:

A. Inspection:

1. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
2. Verify that suspended acoustical ceiling may be installed in accordance with the original design, all codes and regulations, and the approved Shop Drawings.

B. Discrepancies:

1. In the event of discrepancy, immediately notify the Architect/Engineer.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 INSTALLATION OF "T" GRID:

A. General:

1. Erect metal "T" members in the pattern shown on the Drawings, or if not shown, spacing members symmetrically about the centerline of areas in both directions. Allow for minor building movement at wall angle.

2. Space hanger wires a maximum of four feet on centers along main runners.
  3. Accurately level all main runners; space main runners a maximum of four feet on centers.
  4. Space cross "T" members accurately and secure to main runners and wall angles in accordance with the approved Shop Drawings.
  5. Securely anchor all wall angle members in place; provide and install hold-down clips for all ceiling boards.
- B. Tolerances: Make all grid level within a tolerance of one in 500 and straight within a tolerance of one in 1000. All ceilings shall be visibly flat.
- 3.03 LATERAL BRACING:
- A. General:
1. Furnish and install lateral bracing consisting of at least twelve gage wire, splayed at 45 degrees, in the following locations:
    - a) At the midpoint of all unsupported partitions exceeding twelve lineal feet.
    - b) At twelve feet on center each way in all large ceiling areas not restrained by partitions.
- B. Method of Attachment: Secure all lateral bracing to structural members; secure at right angles to the direction of the partition and four way in large ceiling areas.
- 3.04 INSTALLATION OF ACOUSTICAL CEILING BOARDS: Install all acoustical ceiling boards in the exposed "T" grid system so that linearity of facing is in one direction only, and to the approval of the Architect/Engineer.
- 3.05 CLEANING UP: Completely remove all finger prints and traces of soil from the surfaces of grid and acoustical ceiling boards, using only those cleaning materials specifically recommended for the purpose by the manufacturer's of the materials cleaned. Replace any damaged material as directed by the Architect/Engineer.

END OF SECTION

SECTION 09650 - RESILIENT FLOORING

- 1.00 GENERAL: General Condition, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 SCOPE: This Section includes all work required to complete the installation of resilient flooring and top set base.
  - A. Work Included in This Section: Work includes, but is not limited to the following:
    - 1. Resilient flooring at offices.
    - 2. Top set base.
- 1.02 QUALITY ASSURANCE:
  - A. Qualifications of Installers:
    - 1. Use only skilled and experienced resilient flooring installers for preparation of substrate and actual installation of resilient flooring.
    - 2. Helpers and apprentices used for such work shall be under full and constant supervision at all times by thoroughly skilled resilient flooring installers.
    - 3. In the acceptance or rejection of installed resilient flooring, no allowance will be made for lack of skill on the part of installers.
  - B. Manufacturers' Recommendations: The manufacturers' recommended methods of installation, when approved by the Architect/Engineer, shall be the basis for acceptance or rejection of actual installation methods used on this Work.

1.03 SUBMITTALS:

- A. Materials List: Before any resilient flooring materials are delivered to the job site, submit to the Architect/Engineer a complete list of all materials proposed to be furnished and installed under this portion of the Work, stating manufacturer's name and catalog number for each item.
- B. Manufacturer's Recommendations: Accompanying the materials list, submit copies of the manufacturer's current recommended method of installation for each item.

1.04 PRODUCT HANDLING:

- A. Protection: Use all means necessary to protect resilient flooring materials before, during, and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

2.00 PRODUCTS:

2.01 VINYL-ASBESTOS FLOOR TILES:

- A. General: All vinyl-asbestos floor tiles shall be the product of one manufacturer and shall, to the maximum extent possible, be of a single batch number.
- B. Acceptable Products: All vinyl-asbestos floor tiles shall be one of the following or an equal approved in advance by the Architect/Engineer:
  - (1) Amtico: "Metropolitan Color-Thru,"  
12" x 12" x 1/8"
  - (2) GAF: "Marbleized," 12" x 12" x 1/8"
  - (3) Armstrong: "Standard," 12" x 12" x 1/8"
- C. Colors and Patterns: All colors and patterns shall be as selected by the Architect/Engineer from the standard range of colors and patterns of the selected manufacturer; colors and patterns will be limited to not more than one per room or space and not more than a total of two colors or patterns in the total work.

2.02 BASE:

- A. General: All base in this portion of the Work shall be topset rubber cove base and shall be the product of one manufacturer.
- B. Acceptable Products: Rubber cove base, 4 inches high, Burke, or equal.
- C. Colors and Accessories:
  - 1. All colors shall be as selected by the Architect/Engineer from the standard range of colors of the selected manufacturer.
  - 2. Provide premolded inside and outside corners for all conditions at which such corners may be used; job mitering of corners will not be permitted.

2.03 OTHER MATERIALS: All other materials, including adhesives, not specifically described but required for a complete and proper installation of resilient flooring, shall be only as recommended by the manufacturer of the material to which it is applied and shall be subject to the approval of the Architect/Engineer.

3.00 EXECUTION:

3.01 SURFACE CONDITIONS:

A. Inspection:

- 1. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- 2. Verify that resilient flooring may be installed in accordance with the original design and the manufacturer's recommendations.

B. Discrepancies:

- 1. In the event of discrepancy, immediately notify the Architect/Engineer.
- 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02    INSTALLATION:    Install all resilient flooring in strict accordance with the original design and the manufacturers' recommendations.

3.03    CLEANING AND PROTECTION:

    A.    Cleaning:

1.    Upon completion of the installation, immediately remove all surplus adhesive from adjacent surfaces.
2.    As soon as possible after installation, and in accordance with the timing recommended by the manufacturers, clean the entire resilient flooring surface using the materials recommended for that purpose by the manufacturers of the materials being cleaned.

    B.    Protection:    Provide a non-staining paper pathway taped to the resilient flooring in direction of foot traffic throughout the Work.

                    END OF SECTION



SECTION 09900 - PAINTING

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes the furnishing of all labor, materials, equipment, scaffolding, etc., required to complete all painting and finishing as shown in the Drawings, Plans and Specifications.
- A. Work includes (but is not limited to) the following:
1. Preparation of surfaces for painting, including touch-up of shop primed surfaces, as required.
  2. Application of paint on the following exposed surfaces:
    - a) Concrete Block Wall surfaces.
    - b) Concrete Wall surfaces and tunnel walls and ceiling except those surfaces with decorative cement finish.
    - c) Interior Concrete columns and Beams.
    - d) Exposed ferrous and galvanized metal such as metal trim, sheet metal, elevator doors, hollow metal doors, guard rails, stair rails, and light poles at roof.
    - e) Exposed storm drain lines and exposed horizontal and vertical piping.
- B. Related Work Specified Elsewhere:
1. Traffic Line Painting - Section 10600.
  2. Miscellaneous Metal - Section 05500.
  3. Painted Signs - Section 10400.
- C. Work not Required to be Painted:
1. Materials with a complete factory finish.

2. Finish hardware.
3. Concrete floors.
5. Interior slab soffits.

1.02 QUALITY ASSURANCE:

- A. The applicators for paint and for concrete stain shall be approved by the manufacturer prior to bidding the work.
- B. The manufacturer's representatives shall certify that application procedures and quantities conform to the manufacturer's requirements.

1.03 SUBMITTALS:

- A. Material List: Submit a complete list of materials proposed for use for approval of the Architect/Engineer. Materials list shall be in the same form as the Paint Finish Schedule printed herein. No materials will be allowed on the project which have not been approved. Include manufacturer's installation procedures and coverage requirements.
- B. Colors and Samples:
  1. Colors shall be as selected by the Architect/Engineer's from the manufacturer's standard line of colors.
  2. Prepare and submit to the Architect/Engineer, using materials approved for the project, three (3) 8 1/2" x 11" samples of each color and paint finish.
  3. Each coat of paint shall be of a slightly different shade from the finish coat, so that each coat may be identified. At the completion of each coat on each item, approval to proceed on the following coat shall be obtained from the Architect/Engineer. Failure to obtain such approval shall require the application of additional coats of paint until the number of approved coats equal the number of coats specified.
- C. File a "Job Report and Warranty Application" with the manufacturer, completing all information necessary to receive the product performance warranty.

1.04 MATERIAL STORAGE AND HANDLING: Materials shall be stored and mixed only in such rooms or areas as will be designated for that purpose by the General Contractor, and

such space shall be kept clean and in orderly storage. This Contractor shall take every precaution to prevent fire. Empty containers, dirty and oily and thinner soaked rags shall be removed from the job site at the end of each days' work.

1.05 JOB CONDITIONS:

- A. Acceptance of Surfaces: Before commencing, carefully examine all surfaces. Report any unsatisfactory conditions to Contractor. Notify the Architect/Engineer of any deviation in form or surface from that called for in the Construction Documents.

2.00 MATERIALS:

- 2.01 All materials shall be first quality and delivered to the site of work in unopened original containers with labels intact, thereby completely identifying the product, and stored where designated by the Contractor.
- 2.02 Materials necessary to complete the painting and finishing as herein specified and listed by material names and numbers are taken from the stock list of Architectural finishes of the Sinclair Paint Co., Los Angeles, CA.
  - A. Products of equal quality and performance to Sinclair Paint Co., Dunn-Edwards Corp., Kelly-Moore, and PPG Industries, may be submitted to the Architect/Engineer for approval for use. Material submittal shall be in the same form as the Paint Finish Schedule printed herein.
- 2.03 Bids will be based on manufacturer's coverage rates.
- 2.04 Paint materials used on the project shall conform to local air pollution control regulations governing the use of same.

3.00 EXECUTION:

- 3.01 PREPARATION OF SURFACES: All surfaces shall be prepared in a proper manner to permit finished work of first class appearance and durability and in accordance with paint manufacturer's instructions for the application of his product.
  - A. Ferrous metal not provided with a shop prime shall be cleaned free of rust, mill scale, oil, grease, and foreign matter by wire brushing, scraping, or sandblasting as necessary. Ferrous metal provided with shop

prime shall be cleaned of oil, grease, and foreign matter. Scratched and abraded areas shall be primed with the specified primer.

- B. Galvanized metal shall be solvent cleaned with mineral spirits and then pretreated with Sinclair's No. 7113 Vinyl Wash Primer. Cleaned and pretreated galvanized metal shall be primed with Sinclair's No. 25 Zinc Dust Primer the same day that cleaning has been performed.
- C. Concrete and Masonry Surfaces: All surfaces must be dry prior to application. Clean off all dust, dirt, and dirt and other foreign materials which may affect the painting of the surface. Immediately prior to application fill all cracks or other minor imperfections using a paste compound of the finish paint mixed with fine silica sand, brushing the material into the voids with a stubbly bristle brush.

3.02 PROTECTION: Protect all surfaces and objects, inside and outside of the building, adjacent properties and surfaces, against damage due to execution of this Work. The painting and staining contractors shall be responsible for any damage resulting from their failure to comply with these instructions during the execution of his work. Provide all drop cloths and other protections necessary to prevent damage from painting and staining. When necessary to remove protection of other trades, replace in original condition and assume full responsibility for any and all damage.

3.03 WORKMANSHIP: All work shall be executed by skilled craftsmen, with supervision by qualified foremen. All work to be of the highest standards and methods.

- A. Brush Washes: Keep all brush washes outside paint of storage area and remove all brush washes from job site daily.
- B. Weather Conditions: Perform all work under favorable weather conditions suitable for production of first class work.

3.04 CLEAN-UP: Upon completion of Work of this Section, remove all paint and finish spots from surfaces adjacent to those painted or finished. Remove rubbish, paint cans and accumulated materials resulting from Work of this Section. Leave work clean and in acceptable condition.

3.05 PAINT FINISH SCHEDULE: Surfaces shall be finished in accordance with the following procedure for the surface and finish desired thereon. Catalog names and numbers refer to products as manufactured by the Sinclair Paint Co., Los Angeles, CA., except as otherwise specified. Manufacturer's specifications shall be followed as to all paint applications, including paint thickness.

A. Metal - Ferrous

1st Coat: 15 Chrome Oxide  
2nd Coat: 248 Sash & Trim Primer  
3rd Coat: 250 Sash & Trim Enamel (Oil-Alkyd, High Gloss)

Metal Galvanized:

Pretreatment: 7113 Vinyl Wash Primer  
1st Coat: 25 Zinc Dust Primer  
2nd Coat: 248 Sash & Trim Primer  
3rd Coat: 250 Sash & Trim Enamel  
(Oil-Alkyd, High Gloss)

C. Concrete:

1st Coat: 16 Stuc-O-Bond Primer (Oil Alkyd)  
2nd Coat: 1300 Stuc-O-Life (100% Acrylic)

D. Masonry:

1st Coat: 1010 Vinyl Block Primer and Block Filler  
(Vinyl Acrylic Emulsion)  
2nd Coat: 1300 Stuc-O-Life (100% Acrylic)

3.06 Miscellaneous items and material not specified but required to be painted shall be painted in accordance with the paint manufacturer's instructions. Elevator and hollow metal doors and frames shall be color coded. Interior concrete columns shall have 1'-6" wide color code band. Architect will provide color schedule.

3.07 GUARANTEE: Provide a one year guarantee as to adherence and quality of finish, such as, fading, blistering, peeling, chalking, or any other noticeable defect.

3.08 Carefully examine all Drawings as well as Specifications to determine the areas requiring paint finishes.

- 3.09 Surfaces to be painted which have imperfections, such as "bug holes," offsets, etc., shall have such imperfections filled and painted where required by the Architect/Engineer.

END OF SECTION

SECTION 10400 - PAINTED AND ILLUMINATED SIGNS

1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.

1.01 DESCRIPTION:

A. Work includes but is not limited to:

1. Layout work.
2. Fabricating signs and backboards.
3. Painting signs.
4. Installing and hooking up signs.

B. Related work specified elsewhere:

1. Painting - Section 09900.
2. Electrical - Section 16400.
3. Allowances - Section 01020.

1.02 QUALITY ASSURANCE:

A. All work to be done by persons skilled in the particular tasks required for accurate, artistic layout work, precise letter painting and professional quality fabrication and installation work.

1.03 SUBMITTALS:

- A. Shop Drawings showing fabrication of painted signboards, illuminated signs, and installation methods.
- B. Full size layouts of signs where indicated on the Sign Schedule. Schedule to be supplied by the Architect.

1.04 JOB CONDITIONS:

- A. Allowances: In addition to the signs listed here, provide painted and illuminated signs as required in Section 01020 of these specifications.
- B. A sign schedule will be provided by the Architect showing the design and location of each sign. Should actual costs vary from that specified as in Allowance, the Contract Sum will be adjusted by Change Order.

2.00 PRODUCTS:

- 2.01 Paint material on sheet metal, walls, columns, doors, or other elements of the structure shall be as specified in Section 09900 "Painting." Paint on floors shall be as specified in Section 10600.
- 2.02 Sheet steel for painted signs will be 24-gauge, from rolls or sheet. Sheet steel may be prepainted at the Contractor's option.
- 2.03 Materials for illuminated signs will be as indicated on details to accompany the Sign Schedule.
- 2.04 Chain, anchor bolts, and other exposed metal parts not painted shall be corrosion resistant metal, stainless steel or plated.
- 2.05 Plastic chain covers shall be black P.V.C.
- 2.06 Electrical materials will be as required on details and in Section 16400 - Electrical.

3.00 EXECUTION:

3.01 CONSTRUCTION:

- A. Hanging or wall mounted painted signs shall be two (2) pieces of 24-gauge sheet metal back-to-back with edges turned and lapped 3/4". Rivet together along edges at six inches maximum, or provide an aluminum edging.
- B. Where hanging signs are indicated they shall be hung by corrosion resistant chain, securely fastened to sign and construction above. Chain shall be enclosed with snug fitting P.V.C.



- C. Illuminated signs shall be constructed as indicated on details to accompany the Sign Schedule.
- D. Signs painted on concrete and color coding on concrete shall be installed using methods which will leave clear sharp edges, with no smears or spatters on adjacent surfaces. All chalk, etc., rough out marks will be removed.

### 3.02 SIGN INFORMATION:

- A. Architect will supply drawings indicating location of signs and color coding.
- B. Architect will supply schedule indicating sign information, size and type.
- C. Length of sign shall be the responsibility of the Contractor. Letter style shall be as designated on Sign Schedule. Prior to fabrication, submit the complete alphabet and numbers in specified type for approval.
- D. Colors shall be as noted on the Schedule.
- E. Lettering indicated on the sign types is to indicate the general style and proportions required. Specific sign information is to be taken from the schedule. Wherever possible to Architect/Engineer shall inspect full size templates or sketches prior to actual production; minor revisions may be made at this inspection.
- F. Hanging or wall mounted signs may be of pre-painted metal stock with background shop painted.
- G. Signs and color coding painted on doors walls, columns and beams at the job site may be hand painted or silk screened.

### 3.03 INSTALLATION:

- A. Locations for signs shown on the Drawings are approximate. Exact location of each sign shall be determined by the Architect/Engineer. A job meeting shall be held, at which time, each sign shall be located. Provide (7) seven calendar days notification to concerned parties prior to the job meeting.

B. All signs including door and wall graphics shall be true to the letter style specified. Lettering not true to the specified letter style shall be removed and the sign replaced or repainted. Minor deviations from specified letter style may be allowed if the Architect/Engineer's approval is obtained prior to painting.

C. Only signs listed on the schedule will be required.

3.04 ILLUMINATED STREET SIGNS:

A. Provide two (2) street signs as shown on the drawings. Sign information shall be as detailed on the drawings.

B. Provide complete shop drawings. Indicate structural connections and calculations, design of enclosure, materials and electrical components.

C. Front face shall be two layers of 1/4" thick plexiglass, color as selected.

D. Sign shall be rigid and plumb. Blackout sign shall be effective in normal daylight operation.

END OF SECTION

NOTE: Schedule of Signs on following page.

# GRAPHICS SCHEDULE

REF.	CAPITAL LETTER SIZE	MOUNTING OR TYPE	INFORMATION	COLOR		QUANTITY
				LETTER	BACKGROUND	
1	6"	SEE DWG'S. DETAIL VAS	CLEARANCE 6'-10"	White	Black	
2	6"	"	EXIT ONLY	"	"	
3	6"	"	← EXIT	"	"	
4	6"	"	EXIT →	"	"	
5	6"	"	NO EXIT	"	"	
6	6"	"	EXIT ↑	"	"	
7	6"	"	← PARKING ↑	"	"	
8	6"	"	↑ PARKING →	"	"	
9	6"	"	ENTRANCE	"	"	
10	6"	"	ELEVATOR →	"	"	
11	6"	"	← ELEVATOR	"	"	
12	6"	"	← STAIR TO ELEVATOR	"	"	
13	6"	A	EXIT → TO 'I' STREET	"	"	
14	6"	B	EXIT ← → (FOR EXIT #7. MOUNT ON COLUMN)			

I-5 Parking Structure  
City of Sacramento

CONRAD ASSOCIATES

BY: A.O. CHKD: L.S. DATE: 79029 JOB NO.: 10400-5

I-5 Parking Structure  
City of Sacramento

**JOB**

CONRAD ASSOCIATES

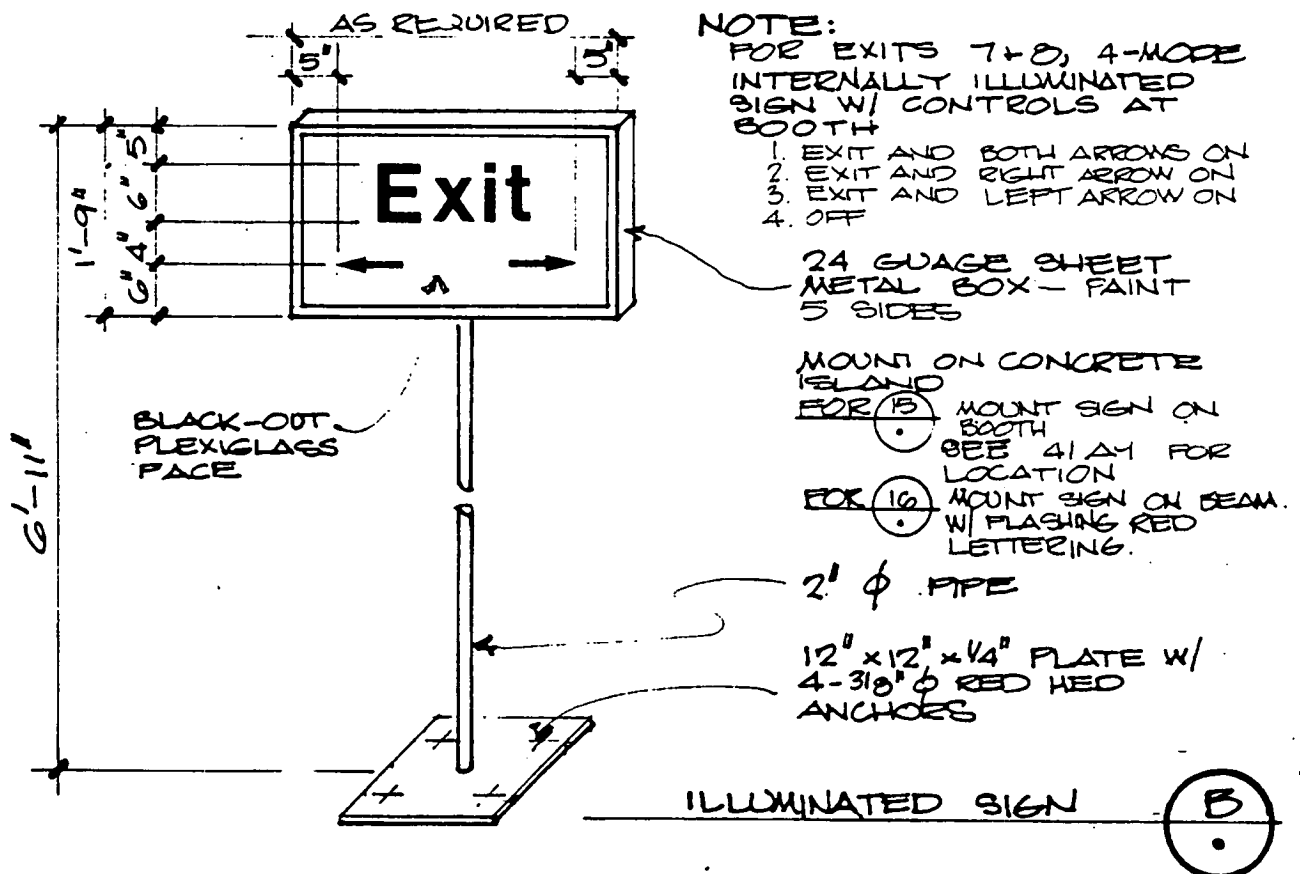
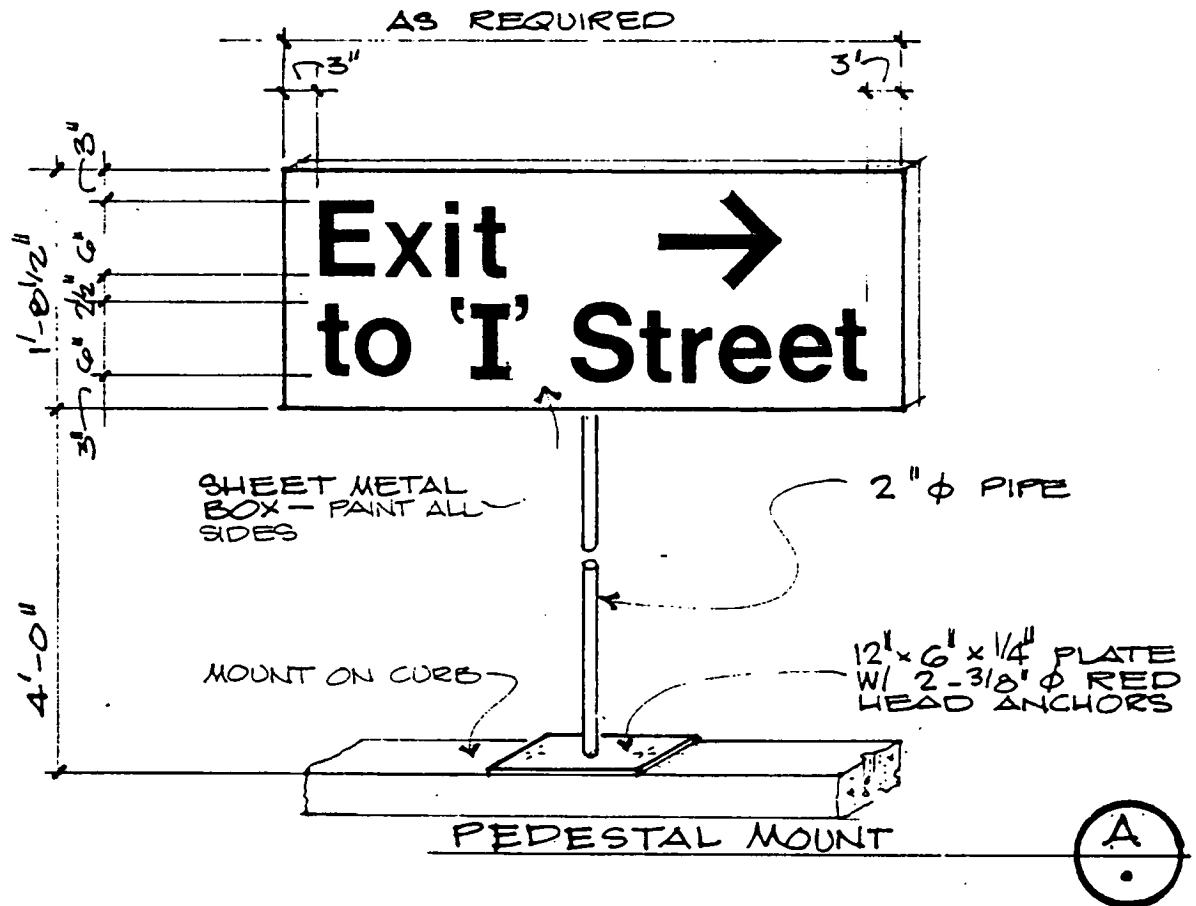
BY A O

3  
ckd.

DATE \_\_\_\_\_

79029  
JOB NO.

70400-6  
ST. OF



SECTION 10600 - PARKING LINE PAINTING

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes all parking line striping and pavement marking, as indicated on the Drawings.
  - A. Work included in this Section: Work includes, but is not limited to the following:
    - 1. Preparing surfaces for painting.
    - 2. Furnishing stencils or other devices for pavement marking.
    - 3. Laying out lines and details.
    - 4. Painting.
    - 5. Protecting painting until dry.
  - B. Related Work Specified Elsewhere:
    - 1. Painting - Section 09900.
- 1.02 QUALITY ASSURANCE: Work shall be performed by skilled personnel who have had and can demonstrate previous successful experience in parking lot striping and marking.
- 2.00 PRODUCTS:
  - 2.01 PAINT: AS manufactured by Sinclair Paint Co., "#70 Traffic Lacquer," or equal. Paint shall be specifically formulated for striping on concrete and color shall be white, or as selected by the Owner. Prepare sample area for Owner and Architect's review of color selection.
- 3.00 EXECUTION:
  - 3.01 LAYOUT: Lay out all lines with a snap line or similar. The entire parking layout, pedestrian striping, corners, etc., shall be inspected and approved prior to painting. Painting not approved by the Architect/Engineer and not

in accordance with the general intent of the Drawings shall be removed by sandblasting or ther approved method and replaced as directed by the Architect/Engineer.

- 3.02 Slight Adjustments in parking layout may be made during the inspection of the snap-line layout.
- 3.03 Paint marking other than striping as indicated on the Drawings. Contractors standard stencils for painted signs on concrete may be used in lieu of detail shown if they are, in the opinion of the Architect/Engineer, substantially equal to that detailed. Approval shall be obtained prior to painting.
- 3.04 Paint shall be applied to obtain complete opacity. Apply a minimum of two (2) coats of paint or more to obtain opacity. Minimum dry film thickness shall be .12 mils.

END OF SECTION

SECTION 10800 - TOILET ROOM ACCESSORIES

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 SCOPE: This Section includes all Toilet Room Accessories as indicated on the drawings and specified herein.
  - A. Work Included; Work includes but is not limited to the following:
    - (1) Toilet Room Accessories.
    - (2) Back-up and anchoring devices.
    - (3) Coordination with other trades.
    - (4) Clean-Up.
- 1.02 SUBMITTALS: Provide Shop Drawings indicating size, mounting heights, materials, finishes, features, and any other pertinent data relevant to this project.
- 2.00 PRODUCTS:
  - 2.01 All equipment shall be manufactured by Bobrick Washroom Equipment Inc., Accessory Specialties, Inc., Architectural Metalcraft Industries, Inc., Charles Parker Co., or equal.
  - 2.02 Equipment specified below is manufactured by Bobrick Washroom Equipment Inc., and shall be used as the standard of quality required.
    - A. Surface Mounted Combination Paper Towel Dispenser and Waste Receptacle: B-3699, Paper Towel Dispenser shall have capacity for 350 C-Fold or 475 Multifold paper towels without adaptors or trays. Waste container capacity 2 gal., in removable stainless steel insert.



- B. Surface Mounted Toilet Tissue Dispenser: B-288, capacity for two rolls of toilet tissue.
  - C. Toilet Seat Cover Dispenser: B-221, capacity for 250 seat covers.
  - D. Surface Mounted Feminine Napkin Disposal: B-270, with removable liner.
  - E. Surface Mounted Feminine Napkin-Tampon Vendor: B-2802, operation shall be by coin (dime) \$.10.
  - F. Mirror and Shelf: B-166 1824, with stainless steel frame and shelf and concealed vandal proof locking screws. Mirror shall be No. 1 quality, 1/4" plate glass.
  - G. Grab Bars: Horizontal bar with 90° bend, B-460. Provide concealed anchor devices as manufactured by the manufacturer of the bar. Anchoring device shall be suitable for the intended use. Grab bar, when installed shall be capable of withstanding forces in excess of 900 lbs.
  - H. Powdered Soap Dispenser: B-32.
- 2.03 All equipment shall have vandal proof mounting. All removable liners, fillers, doors, panels, etc., shall have key locking mechanism. Equipment shall be manufactured from Type 304, 22 gauge minimum stainless steel with satin finish.
- 3.00 EXECUTION:
- 3.01 PREPARATION: Coordinate with other trades in providing backup plates and anchoring devices for equipment.
- 3.02 All equipment mounted on tile walls shall be secured by anchors specifically designed for this type of installation.
- 3.03 Equipment shall be installed plumb and true, and flush with walls. Equipment damaged prior to, or during installation, shall be replaced with new like equipment.
- 3.04 Mounting heights shall be as required for the handicapped, and shall be so indicated on the Shop Drawings.

END OF SECTION

SECTION 10850 - BICYCLE STORAGE EQUIPMENT

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 SCOPE: Work under this section covers the installation of bicycle racks and lockers as specified herein and indicated on the drawings.
  - A. Work Included: Work includes but is not limited to the following:
    - 1. Bicycle rack.
    - 2. Bicycle storage lockers.
- 2.00 PRODUCTS:
- 2.01 BICYCLE RACK: Formed and welded anodized aluminum 3/8"x 2-1/2" steel plate rack with heavy duty coating to resist the elements and protect bicycle finishes. Rack shall provide for frame and rear wheel security and a front wheel shroud.
  - A. Racks shall be "Rally Rack RR-300," as manufactured by Rally Enterprises, Inc., Mill Valley, California, or equal.
- 2.02 BICYCLE STORAGE LOCKER: Constructed to completely enclose and secure bicycle, with weather resistant materials.

- A. Lockers shall be approximately 39-1/4" wide, 74-1/4" long, and 45" high and provide enclosure for two (2) bicycles, as manufactured by Bike Lockers, Ltd., North Highlands, California.
  - B. Lockers shall have hasp locks. Exterior surface shall be 5/8" thick particle board with phenolic binder with pressure and heat laminated acrylic film exterior and high density phenolic overlay interior. Doors shall have continuous hinge. Framing shall be 60-63-75, anodized aluminum extrusions.
- 3.00 EXECUTION:
- 3.01 INSTALLATION OF BICYCLE RACKS: Racks shall be installed in accordance with the manufacturer's printed specifications. Rear and front units shall be bolted to concrete with zinc plated bolt, protective collar, washer and breakaway nut. Bolt shall be anchored with non-shrink grout. All installation equipment shall be provided by the manufacturer of the rack in an "installation kit." Installation shall be plumb, secure, free from rattles, and be capable of securely holding and protecting bicycles.
- 3.02 INSTALLATION OF BICYCLE STORAGE LOCKERS: Lockers shall be installed in accordance with the manufacturer's printed instructions. Anchors and bolts shall be corrosion resistant materials. Installation shall be plumb, secure, free from rattles, and shaking. Doors shall open and close without binding.

END OF SECTION

SECTION 11101 - SAFES

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 SCOPE: This section includes all safes as indicated on the Drawings and specified herein..
  - A. Work Included: Work includes, but is not limited to the following.
    - 1. Floor safes at attendant's booths.
    - 2. Security office safe.
  - B. Related Work Specified Elsewhere:
    - 1. Attendant's Booth, Section 11850.
- 1.02 SUBMITTALS: Shop Drawings: Provide manufacturer's printed specifications indicating cut-away view, material, size, finish, and any pertinent feature.
- 1.03 QUALITY CRITERIA: Manufacturers: Safes shall be manufactured by Johnson Safe Company, distributed by Herman Pacific Safe Co., San Francisco, California.
- 2.00 PRODUCTS:
  - 2.01 Floor Safes: One each booth, Herman JP Safe Model No. "128", Gary C215, or equal. Safe shall allow for outside deposit without opening the door. Door shall be key operated. Approximate inside dimensions shall be 11" high and 8" in diameter.
  - 2.02 Security Office Safe shall be Gary Model D7000 with all standard equipment. Provide a rotary hopper deposit device through the wall to allow for safe night deposits similar to J.P. Hopper Model RH-11 extension through the wall.

- 2.03 Mini-Safe: One each booth, Gary "Mini-Safe" No. 4610, approximate size 6"x 4"x 10".
- 2.04 Finish: All safes shall be factory finished with the manufacturer's standard finish, multicolored lacquer, or equal; grey or brown.
- 3.00 EXECUTION:
- 3.01 INSTALLATION:
- A. Floor safes in attendants booths shall be secured to concrete by two anchor bolts through the bottom of the safe. Anchor bolts shall be provided by the safe manufacturer for this use, or be as specified by the safe manufacturer and indicated on the shop drawings. Exact location shall be determined by the City.
  - B. Security office safe shall be installed in location directed by the Owner. Provide two anchor bolts through the bottom of the safe into concrete. Anchor bolts shall be as provided for this use by the safe manufacturer. Night depository drop apparatus shall be provided for attendant access to safe through interior office wall.

END OF SECTION

## SECTION 11850 - PARKING CONTROL SYSTEM

### 1.00 Scope of Work

- 1.01 The work of this contract consists of furnishing and installing a complete and operable parking access and revenue control system in Lot "P" parking facility located in the city of Sacramento, California.

The work shall be performed in accordance with all plans, specifications and contract terms and conditions of the project.

### 1.02 Work Not Included In This Section

- A. Furnishing and installing conduit to be performed under the electrical section of the general contract.
- B. Electrical power at each control lane, the connection panels and the booth to be supplied under the electrical section of the general contract.
- C. Signs: refer to sign section of these specifications, except Traffic Controller warning signs as specified in this section.

### 2.00 Intent Of The System

The intent of the parking control system is to provide accurate revenue control, a smooth flow of traffic into and out of the facility as well as convenience and ease of parking.

### 3.00 General

- 3.01 This Section includes the furnishing of all labor and material required to install all parking and revenue control equipment and to coordinate with other trades work incorporated into parking and revenue equipment.
- A. Work includes, but is not limited to, the following:
    - 1. Entrance-Exit control equipment including card readers, gates, ticket dispensers, loop detector assemblies, booths, and intercom units.
    - 2. Cashier consoles coupled to fee indicators and loop detectors for vehicle presence operation.
    - 3. Capacity counter inputs at each control lane and tunnel.
    - 4. Management Control Center including the central card control console, master intercom, lane and space status monitoring console.

5. Ticket and card supplies.
6. Wiring between control equipment items at each control location, the management control center, and connection to electrical power source at each control location.
7. Supervise installation of power supply location by Electrical Sub-Contractor and verify suitability for parking control equipment system
8. Set equipment and hook up according to specifications.
9. Provide system preventative and breakdown maintenance to include all necessary labor and parts for two years from date system is accepted by the owner as specified under maintenance section.
10. Install intercom speakers in parking equipment.
11. Install Sabre Tooth Traffic Controllers and Signs as indicated on the drawings.
12. Unless directed, specified or indicated otherwise, install all materials, equipment, etc., in strict accordance with the manufacturer's recommendations, the approved Shop Drawings, the Architect's instructions, and the requirements of this specification section.

B. System Description

1. The system shall control transient parker ingress and egress to the facility.
2. The system shall control contract parker ingress and egress.
3. The system shall control shopper validation revenues and provide reports pertinent to that function.
4. All messages and alarms which are displayed in the cashier consoles, shall be in English text, alpha numeric format.
5. The system and its individual components shall operate efficiently and reliably under the environmental conditions existing in and about the City of Sacramento.
6. The equipment shall perform properly under the environmental conditions found in Sacramento Parking Garages.

- a. Operating Environment: Equipment shall operate 24 hours per day, 7 days per week under continuous power, without the need to open covers or for any manual attention other than for planned preventive maintenance, or normal operating access.
7. The power input to all equipment shall be 115 VAC, 60 hz. from power sources indicated on the drawings.

It shall be the responsibility of the equipment supplier to properly protect the equipment and system from electrical power surges, spikes or power deficiencies by furnishing power regulators or other means of assuring reliable system performance under adverse power conditions.

8. All equipment containing volatile memory shall have constant trickle charged battery back up designed to prevent memory loss for a minimum of 24 hours in the event of a primary power interruption or loss.

#### 4.00 Functional Description

##### 4.01 Control Lanes:

###### A. Entrance Control Lanes:

1. Each entrance control lane shall be equipped with a ticket dispenser capable of issuing man readable tickets, a barrier gate, a contract card reader, a two-way voice intercom and appropriate vehicle detectors. (See equipment listing.) All equipment shall be located as indicated on the drawings.
2. In the lane "closed" mode all equipment shall be inoperative except the bi-directional vehicle detection system and the contract card system, i.e.: the ticket dispenser shall be inoperative.
3. In the lane open mode, as each vehicle enters the lane, in the proper direction, the vehicle detection system shall "arm" the Ticket Issuing/Card Reader logic. If the parket is a contract customer, he must insert his contract ID card into the card reader slot. If the card meets system validity requirements, the ticket dispenser shall be disarmed, no ticket shall be issued and the gate arm shall raise, permitting entry. If



the parker is not a contract customer, he will press the push-button which shall then issue a man readable ticket in less than two (2) seconds from the time of vehicle detection. By removing the ticket from the dispenser, the gate arm shall automatically raise permitting ingress. In either situation, the gate arm shall be automatically lowered as a result of the vehicle leaving the "closing" vehicle detector.

4. The vehicular counting system shall store the appropriate count, either contract entry or transient entry as well as update the space status system.
5. "Opening" and "closing" of each entrance lane shall be accomplished by the operation of an on/off switch located within each entrance gate housing.
6. System logic shall prohibit the issuance of more than one ticket per transient vehicle entering the facility.
7. Vehicular traffic traveling in the wrong (exiting) direction shall be detected and an audio alarm shall be generated at the management control center as well as storage of the count data.

B. Exit Control Lanes:

1. Each exit control lane shall be equipped with an attendant booth, a cashier terminal capable of operating in a man readable/man enter mode an external fee display, a barrier gate, a contract card reader, a two-way voice intercom manual switch controlled EXIT signs and appropriate vehicle detectors (See equipment listing).

All equipment shall be located as indicated on the approved shop drawings.

2. In the lane "closed" mode all equipment shall be inoperative except the bi-directional vehicle detection system, ie: the cashier terminal shall be inoperative, the barrier gate arm shall be set either in "UP" or "DOWN" position (as selected by manangement) and the card reader shall not operate the gate if the arm is down; however, vehicles traveling in either direction shall be detected which shall cause an audio alarm to occur in the management control center and appropriate counts shall be stored in the counting system.

3. Each individual exit lane shall be opened as a result of either of the following steps:
  - (a) Insertion of a valid cashier ID card plus password into the cashier terminal.
  - (b) Insertion of a valid supervisory ID card in addition to entry via keyboard of the valid supervisory password.
4. In the lane open mode, as each vehicle enters the lane, in the proper direction, the vehicle detection system shall "arm" the card reader/cashier console logic.

If the exiting driver is a contract customer he must insert his contract ID card into the card reader slot. If the card meets systems validity requirements, the gate arm shall automatically raise permitting the driver to exit the facility. If the driver is a ticket holder he will present the ticket to the cashier who shall inspect the ticket for "MERCHANT VALIDATION" information or special transaction categories (non-revenue, special rates, etc.)

If the ticket is a "regular fee" ticket the cashier shall insert it into the "TICKET" slot on the cashier console and enter via the console keyboard the "IN" time stamped on the ticket. Fee calculation shall be performed automatically by the cashier terminal. The fee due shall be simultaneously displayed on the cashier console and the external fee display. The response time for the transaction, from the time of ticket insertion to the time of simultaneous display shall not exceed one (1) second.

Instantly, when the fee is displayed the internal printer shall print the following data on the ticket:

- (a) sequential transaction number (this number shall be reset at 0000 hours each day).
- (b) exit date in Julian calendar, exit time in military time.
- (c) exit lane ID
- (d) net cash value
- (e) when validations are indicated-
  - 1) - gross value of ticket
  - 2) - value of validations
  - 3) - net cash received

(f) when debit transactions occur-

- 1) -gross value of ticket
- 2) - tendered amount
- 3) - amount of the shortage

(g) when non-Revenue transaction occurs -

- 1) - indication of non-revenue transaction
- 2) - gross value of ticket

The cashier shall depress the gate raise button on the console keyboard which shall automatically cause the gate arm to raise permitting the driver to exit. The "TRANSACTION COMPLETE" function shall not operate prior to the completion of the ticket printing process. Only one transaction per car shall be permitted, i.e., the system shall not function twice in a single transaction. System shall permit "OPEN" cash drawer operation.

5. Insufficient Funds: (debit transaction)

If the driver does not have sufficient funds to pay the amount due, the cashier shall manually advise the cashier console of an "insufficient funds transaction" followed by manually entering the amount of cash received.

The cashier console shall retain the shortages in a separate file record for the cashier on duty. The ticket shall be imprinted with the total fee due, the amount tendered and the cash shortage.

6. Validations:

The owner shall assign each store or validation issuer a discrete three (3) digit number. This number shall appear on all validations issued by the individual store or issuer. When an exiting driver presents a ticket containing one or more validation indications to an exit cashier, the cashier, prior to inserting the ticket into the printer slot, shall indicate to the console (by manually depressing a key, etc.) that this transaction contains validation data. Next the cashier shall enter the store number (into the console keyboard) and the quantity of validation indications for that store ID.

In lieu of the three (3) digit discrete number previously referred to, the owner will give special consideration to a separate row of ten (10) button validation buttons whereby each store will be assigned its own dedicated button.

Each additional store ID and its quantity shall then be entered via the keyboard. After all validation data has been entered the ticket shall be inserted into the slot on the cashier console. Excess validations shall be accounted for by quantity and dollar value for each store.

The console shall compute the fee due and display, as before, the NET CASH amount. The net cash amount shall be the regular fee less validation amount.

Each validation indication shall have a pre-established value programmed into the individual cashier console by the appropriate program techniques.

The quantity of validations and dollar value by individual issuer (store) ID shall be stored by each individual cashier console.

7. Lost Tickets:

"Lost ticket" forms of a color to be specified by the City, but of the same size as the parking tickets shall be pre-printed with serial numbers and data to indicate lost ticket transactions. When an exiting parker claims to have lost the ticket issued at the entrance the cashier shall substitute a lost ticket form (information concerning parker ID shall be established by management). The cashier shall insert the form into the slot of the cashier console, depress the lost ticket key, permitting the cashier to enter time or date data as required for the transaction. The quantity of lost ticket transactions and their dollar value shall be stored by each individual cashier console by individual cashier/supervisor ID. Preprinted forms shall be supplied under this contract in the quantity specified by the City. (Refer to Material List).

8. Non-Revenue:

Non-revenue transactions occur as a result of emergency vehicles, police, etc., using the facility. Every vehicle (other than contract parkers) must receive a ticket when entering the facility. At time of exit these tickets must be identified and the lack of revenue accounted for.

When it has been established that it is a non-revenue transaction, the cashier shall indicate to the console that this will be a non-revenue transaction, then the ticket is inserted into the slot on the cashier console. The fee displays (console and external) shall indicate that no cash is due (either displaying zeros or English text message). However, the console shall compute the regular fee due and store the dollar value as well as transaction quantity by cashier/supervisor ID.

9. Receipt:

A receipt shall be issued only by command from the cashier. A receipt shall be capable of being issued at any time after the fee is displayed and as long as the exiting vehicle is in the field of the arming vehicle detector loop.

The receipt shall contain the following format:

THANK YOU

City of Sacramento

LOT P

followed by the Net Revenue and the date of exit.

Only one receipt shall be issued for each exiting vehicle. Non-revenue transactions shall indicate no revenue collected, validation transactions shall indicate net cash paid by the parker. Receipts shall be issued within five (5) seconds of depressing the receipt key.

10. The closing of an individual exit lane shall be accomplished by the insertion of the cashier or supervisor's ID card followed by the appropriate password. No ID other than the one which opened the lane shall close the lane except an emergency closing by a qualified supervisor.

Instantaneously upon closing the lane, the cashier console shall:

- (a) Summarize and store, in the cashier console, the closing cashier's data:
- 1) - Total quantity of transactions, (same as total tickets processed).
  - 2) - Total quantity of lost ticket transactions
  - 3) - Total quantity of non-revenue transactions
  - 4) - Total quantity of validations
  - 5) - Total quantity of validation transactions
  - 6) - Total quantity of debits (transactions short money)
  - 7) - Gross business in dollars
  - 8) - Net cash received
  - 9) - Lost ticket dollars
  - 10) - Validation dollars
  - 11) - Debit or shortage dollars
  - 12) - Non-revenue dollars

Note: The total of lines 8 thru 12 shall equal line 7.

11. By supervisory command on the cashier console keyboard, any or all of the data, 1 thru 12, shall be caused to be printed by the receipt printer in English text, alpha numeric format as follows:

DATE (Julien)	256
TIME	1830
LANE	P3X
CASHIER ID NUMBER	34280
QTR	147
QLT	2
QNR	0
QVA	16
QVT	1
QD	0
GR\$	\$336.45
NT\$	\$306.00
LT\$	\$ 2.00
VA\$	\$ 0.00
DL\$	\$ 4.45
NRS	\$ 0.00

12. All individual cashier summaries shall be stored in individual cashier consoles until reset by management command from the individual cashier consoles by local supervisory command. Storage shall be provided for 36 cashiers in each console for a period of 72 hours.
13. Exit control lanes P7X and P8X shall each be equipped with 2 manually controlled illuminated EXIT signs located as indicated on the drawings. The 2 signs located adjacent to lane P7X shall be controlled by individual switches conveniently located inside the P7X booth. The 2 signs located adjacent to lane P8X shall be controlled by individual switches conveniently located inside the P8X booth.

#### 4.02 Management Control Center:

- A. Equipment Required: The management control center shall contain the following equipment:
- 1) - card control console
  - 2) - card control printer
  - 3) - lane and space status monitoring console
  - 4) - intercom master and tunnel monitoring intercom



#### 4.03 Tunnel

- A. The tunnel permits ingress and egress between LOT "P" and LOT "P-1", it is the only means of entering and leaving LOT "P-1".
  - 1. The bi-directional count station, detector loops, FULL sign, and intercom "talk-back horn" shall be located as indicated on the drawings.
  - 2. A space status counter (up/down counter) and two non-resettable totalizer counters shall be provided on the display panel located in the Management Control Center.
  - 3. When all the spaces are full in LOT P-1, the FULL sign at the tunnel entry from LOT "P" shall be illuminated.
  - 4. The non-resettable totalizers shall indicate the number of vehicles entering and leaving Lot "P-1"
  - 5. Vehicles entering Lot P-1 via either tunnel lane shall be accurately counted out of Lot P and into Lot P-1, likewise vehicles leaving Lot P-1 via either tunnel lane shall be accurately counted out of Lot P-1 and into Lot P.
  - 6. The talk-back horn in the tunnel shall be in a monitor mode at all times.

#### 5.00 General Requirements

##### 5.01 Qualifications

Parking and revenue control equipment and systems shall be manufactured by a firm regularly engaged in the manufacture of such equipment for a period of at least five years unless specifically approved by the City. To be considered as eligible, the supplier shall submit a list of major parking structure installations for which it has furnished parking control systems, which operated successfully within two years prior to submission of bids.

##### 5.02 Guarantees

- A. It is the intent of this specification guide to describe a complete Access and Revenue Control System and furnish the City with a complete, accurate and functional garage operation.
- B. All items furnished under this contract shall be guaranteed to be of first quality, new and un-used of the latest state of the art.



- C. All components of the total system, whether hardware or software related, shall operate consistently with less than 1% margin of error.
- D. All items furnished under this contract shall be guaranteed to be free from defects in material and workmanship. If defects in material or workmanship occur during the first two years after final acceptance by the City, such defects shall be corrected or defective material replaced at no cost to the City.

5.03 Licenses/Permits

It shall be the responsibility of the successful bidder to furnish any and all licenses or permits required to legally perform the work of this contract.

5.04 Submittals

- A. Bidders shall include brand names, model numbers and two copies of technical data sheets describing the equipment proposed.

5.05 Shop Drawings

- A. Submit copies of Shop Drawings, brochures and descriptive data to the Architect for approval and commence no fabrication or installation on the site prior to receipt of the Architect's approved submittals.
- B. Upon completion of work but prior to final acceptance by the City, Furnish As Built Drawings complete in every respect, with all dimensions, shapes, sizes, methods of fabrication and assembly etc., shown and noted, and all details of installed items.

5.06 Maintenance Manual

- A. Furnish the City with three (3) sets of complete operating and maintenance instruction manuals and spare parts lists for each piece of equipment as well as the entire system.

5.07 Subcontracting

- A. If a bidder intends to subcontract any portion of the work to be done, the names and addresses of the proposed subcontractors together with a description of work to be subcontracted, shall be included in the bidder's submittal.

#### 5.08 Training

- A. At the time of final system acceptance by the City, the successful bidder shall thoroughly train the City's designated employees in the complete operation of the system and spend such time as is necessary to assure optimum system performance for the purpose intended.

#### 5.09 Testing/Final Acceptance

Upon completion of the installation of all the equipment, the supplier shall perform a series of operational system tests in the presence of the City or the City's designated representative. These tests shall be performed at various times of the day and night agreed to by the supplier and the City as representative of actual operating times and conditions. The tests shall include the operational performance of each individual piece of equipment as well as the overall system to insure performance as specified.

#### 5.10 Disclosures

- A. The Supplier shall not provide any equipment to which it claims proprietary rights of a nature such that it will refuse to provide technical data necessary for others to maintain such equipment. The Supplier shall provide all equipment and wiring diagrams with the equipment furnished. All such technical data shall become available to City for maintenance purposes upon execution of The Supplier's standard non-disclosure agreement by City or the Third party designated for maintenance.

#### 6.00 Maintenance Specifications

- A. The parking equipment contractor shall provide full maintenance service for the parking equipment for a period of two years, after acceptance of the parking equipment by the City. This service shall consist of furnishing labor and materials as required, regular examinations, adjustments and lubrication for keeping equipment in proper working order. All work shall be performed by competent employees during regular working hours of regular working days 8:00 a.m. to 5:00 p.m. Monday through Friday and shall include emergency 24 hour call back service. This service shall not cover adjustment for repairs due to negligence, misuse, abuse or accidents caused by persons other than maintenance personnel. Only genuine parts and supplies as used in manufacture and installation of the original equipment shall be used. Emergency service shall be prompt, not exceeding a 4-hour response time. A prime consideration in the award of the contract will be local service capability.

- B. The parking equipment contractor shall furnish a cost quotation for full maintenance as required under paragraph A above, for an additional year following the expiration of the two year maintenance. Cost quotation shall be furnished to City prior to award of the contract.
- C. Preventive maintenance shall mean the scheduled inspecting, cleaning, lubricating, adjusting and replacement of parts deemed necessary as a result of normal wear and tear. All damaged or broken parts or items inoperative as a result of malicious or accidental damage shall be repaired or replaced on a time and material basis.
- D. The Contractor shall not be responsible for, and charges shall be made on a time and material basis for, the replacement of fuses, lamps, gate arms, inking ribbons, sign faces, lenses, clearing of ticket jams, setting or changing time and/or date of clocks, clearing coin jams, restocking tickets, re-setting counters. Such services shall be performed during preventive maintenance call whenever possible.
- E. Service calls as a result of power failure or removal of primary power for any reason or failure of interconnect wiring shall be on a time and material basis and not considered a routine service call under the terms of this agreement.
- F. Maintenance requirements other than preventive maintenance shall be available during normal hours of 8:00 am and 5:00 p.m. Monday through Friday.
- G. Maintenance requested at other than normal working hours (after 5:00 P.M., before 8:00 A.M. or Saturdays, Sundays or Holidays) can be provided at the prevailing premium time rates.

#### 7.00 Equipment List

- A. The parking facility consists of eight (8) primary entrance-exit lanes controlling four (4) levels of parking and one (1) surface lot.
- B. Control Lane Designation shall be:
 

P1E	Entrance from "I" Street
P2E	Entrance from "I" Street
P3X	Exit Lane to "I" Street
P4X	Exit Lane to "I" Street
P5E	Entrance from Third Street
P6E	Entrance from Third Street
P7X	Exit Lane to Third Street
P8X	Exit Lane to Third Street
P9T	Tunnel

## 7.01 Control Lane Equipment:

### A. Control Lane 1 (P1E) Entrance from "I" Street

- 1A -loop detector assembly, arming for card reader and push button activated Ticket Dispenser.
- 1B -Card reader, mounted in ticket dispenser
- 1C -Ticket dispenser, push button activated with intercom
- 1D -Gate
- 1E -Bi-directional logic
- 1F -loop detector assembly, closing (2 required)
- 1G -Intercom

### B. Control Lane 2 (P2E) Entrance from "I" Street:

- 2A -loop detector assembly, arming for card reader and push button activated ticket dispenser.
- 2B -Card reader, mounted in ticket dispenser
- 2C -Ticket dispenser, push button activated, with intercom
- 2D -Gate
- 2E -Bi-directional logic
- 2F -loop detector assembly, closing (2 required)
- 2G -intercom

### C. Control Lane 3 (P3X) Exit to "I" Street:

- 3A -loop detector assembly, arming for card reader and cashier console
- 3B -card reader, weather proof housing and stand
- 3C -booth, 6'x10' with intercom master incl. tunnel monitoring
- 3D -cashier console
- 3E -external fee display
- 3F -Gate
- 3G -Bi-directional logic
- 3H -loop detector assembly, closing (2 required)
- 3I -validation control unit (alternate, can be part of 3D)

### D. Control Lane 4 (P4X) Exit to "I" Street:

- 4A -loop detector assembly, arming for card reader and cashier console
- 4B -card reader, weather proof housing and stand
- 4C -booth, 4'x 6' with intercom
- 4D -cashier console
- 4E -external fee display
- 4F -gate
- 4G -bi-directional logic
- 4H -loop detector assembly, closing (2 required)
- 4I -validation control unit (alternate, can be part of 4D)

E. Control Lane 5 (P5E) Entrance from Third Street:

- 5A -loop detector assembly, arming for card reader  
and push button activated Ticket Dispenser
- 5B -card reader, mounted in ticket dispenser
- 5C -ticket dispenser, push button activated with intercom
- 5D -gate
- 5E -bi-directional logic
- 5F -loop detector assembly, closing (2 required)
- 5G -intercom
- 5H -electric warning sign
- 5J -traffic controller

F. Control Lane 6 (P6E) Entrance from Third Street

- 6A -loop detector assembly, arming for card reader and  
push button activated Ticket Dispenser.
- 6B -card reader, mounted in ticket dispenser
- 6C -ticket dispenser, push button activated with intercom
- 6D -gate
- 6E -bi-directional logic
- 6F -loop detector assembly, closing ( 2 required)
- 6G -intercom
- 6H -electric warning sign
- 6J -traffic controller

G. Control Lane 7 (P7X) Exit to Third Street:

- 7A -loop detector assembly, arming for card reader and  
cashier console
- 7B -card reader, weather proof housing and stand with  
intercom
- 7C -booth, 4'x6' with intercom
- 7D -cashier console
- 7E -external fee display
- 7F -gate
- 7G -bi-directional logic
- 7H -loop detector assembly, closing (2 required)
- 7I -validation control unit (alternate, can be part of 7D)
- 7J -exit sign (controlled by switch inside booth)
- 7K -exit sign (controlled by switch inside booth)

H. Control Lane 8 (P8X) Exit to Third Street:

- 8A -loop detector assembly, arming for card reader and  
cashier console
- 8B -card reader, weather proof housing and stand with intercom
- 8C -booth, 4'x6' with intercom
- 8D -cashier console
- 8E -external fee display
- 8F -gate
- 8G -bi-directional logic
- 8I -validation control unit (alternate, can be part of 7D)
- 8J -exit sign (controlled by switch inside booth)
- 8K -exit sign (controlled by switch inside booth)

I Control Lane 9 (P9T) Tunnel:

- 9A -loop detector assembly (4 required)
- 9B -bi-directional logic (2 required)
- 9C -housing containing loop detectors and bi-directional logic
- 9D -intercom, talk back horn

7.02 Management Control Center:

- A. contract card console
- B. contract card printer
- C. lane and space status monitoring console
- D. intercom master
- E. tunnel monitoring intercom

7.03 Additional Equipment and Supplies:

1. Access Cards: 1000 white laminated vinyl with a core of magnetic material which shall be coded with a level code and unique serial number, or equal systems as approved by the City. Card to have custom print in Green. City to provide copy from which supplier will make camera ready artwork. Card size to be 2-1/8" x 3-3/8". (Standard credit card size).
2. Parking Tickets: 500,000 - 2-1/2" x 5" tickets. Light Green with black custom print. Man-readable serial numbers 001-500,000. Tickets to be fan-folded, tab card stock of a thickness no less than .007 (7 point). Sprocket drive holes shall be provided as required. City to provide copy and logo for printing.
3. 10,000 - 2-1/2" x 5" lost ticket form - White with black custom print (copy to be supplied by City) Man readable serial numbers.
4. 16 spare 10' gate arms.

8.00 Equipment Specifications

8.01 Ticket Dispenser:

- A. The ticket dispenser shall be capable of stand alone operation. All control logic, associated electronic circuitry, power supplies, ticket drive and time/date imprinter shall be modular in construction with plug connected inter-cabling.
- B. Man readable printing shall consist of sharp, clear alpha numeric characters legible under the ambient lighting conditions available in the exit booths. Entry time shall be in military time, date shall be Julian.



- C. Samples of the exact printing format shall be included in the submittal for approval by the Engineer.
- D. The mechanism shall be one complete assembly with plug connected cables between primary power and control logic.
- E. To prevent rust and corrosion, all mechanism components shall be plated. All mounting bolts, hardware, etc., shall also be plated.
- F. The ticket shall be cut off before being issued; no portion of the ticket shall be visible or in a position permitting handling before it is cut off completely.
- G. Circuit logic shall prohibit issuing any additional tickets as long as a ticket remains in the throat of the dispenser. When the supply of tickets reaches a predetermined level, an indicator lamp shall be lit on the front of the housing.
- H. Circuit logic shall remove power from the issuing mechanism (but not from the clock) when the ticket supply is exhausted.
- I. The ticket issue push button shall be of a different color than the intercom push button. A label shall read "Push For Ticket".
- J. The housing shall be weatherproof and constructed of heavy gauge steel, not less than 16 gauge. All seams and joints shall be electric bead welds, no spot welds shall be acceptable for housing construction.
- K. The base of the housing shall be provided with risers which shall keep the floor of the dispenser off the mounting surface. This clearance provides air circulation beneath the housing, thereby drying water or dampness which could cause rust. This feature shall be provided to lengthen the life of the housing.
- L. The finish shall have at least two (2) coats of color selected by the Engineer applied over a cured and primed surface. The ticket magazine shall be removable in order to speed re-stocking of tickets. The capacity of the ticket magazine shall be 4000 fan-folded, loose or bundled tickets.
- M. The intercom and the card reader shall be mounted in the ticket dispenser in a manner satisfactory to the City.
- N. The intercom pushbutton shall be of a diameter of no less than 3/8" and shall be mounted on the front panel of the hood. A sign shall read "PRESS TO CALL." (The push button for the intercom shall be of a different color than any other buttons or controls.)



- O. All signs on the front panel shall be pressure sensitive, silver mylar with black letters no less than 3/4" high.
- P. The housing shall contain two (2) separately locked compartments; the bottom compartment containing the tickets and the top compartment containing the issuing mechanism, time and date head and all control circuitry. Separate high security locks shall be provided.
- Q. The lid or top section of the housing shall be hinged for easy access to the mechanism and electrical connections.
- R. All electrical connections shall be made in the top compartment only.
- S. It shall be the responsibility of the supplier to provide easy access to the various interior sections of the housings regardless of the proximity of columns, booths, etc.

#### 8.02 Gate Specifications:

##### A. General Description:

- 1. Entrance and exit gates shall be completely interchangeable. The mode of operation shall be changed via wiring jumpers. Gate arm shall be articulated if required by low head room.

##### B. Housing:

- 1. The housing shall be weatherproof and constructed of heavy gauge steel of not less than 16 gauge. All seams, joints and supports shall be electric bead welded (spot welds are not acceptable for housing construction.)
- 2. Access to the interior of the housing shall be provided by a key locked door. The door shall be designed to retard unauthorized entry, tampering and vandalism. An opening in the floor of 6"x12" for entrance of conduits shall be provided.
- 3. The finish shall consist of at least two (2) coats of baked enamel applied over a cured and primed surface. Color to be selected by Engineer.

##### C. Control Circuitry:

- 1. All control Circuitry, logic, motor starting circuitry, etc., shall be contained in one (1) easily removable semi-sealed housing. All connections to the control circuitry assembly shall be made by plugs and cables.

2. One (1) standard control logic assembly shall be capable of providing all system logic as well as manual functions and be interchangeable in all gates of the system regardless of the mode of operation. Operational mode changes shall be accomplished by jumpers on a terminal strip. No circuitry changes, modifications, additions or deletions shall be required to accomplish these mode variations.

D. Gear Motor:

1. The gate arm drive assembly shall be driven by a 1/3 HP motor. Belt, pulley, or chain shall be acceptable. The motor shall be instantly reversible electrically via bi-directional solid state AC switches driven by solid state trigger circuits located inside the control logic assembly. Relays or motor contractors shall be acceptable if these components are heavy duty industrial units suitable for the application intended. Vertical and horizontal gate arm stopping positions shall be independently adjustable by micro-switches. The micro-switch assembly shall be located on the gear motor. Provisions must be made for easy field adjustment.

E. Accessories:

1. All gates shall be equipped with a rebound system which will provide immediate reversal of the gate arm should it strike a vehicle during its descent. The rebound logic shall have a variable timer circuit capable of holding the arm in the raised position between one second and ten seconds before automatically lowering it.
2. The gate shall have provision for manual raise and lower in the event of detector malfunction via an "up/down" switch on the front of the controller.
3. The gate arm shaft shall be held to the actuating mechanism by a mild steel shear pin which will prevent damage to the drive mechanism should the gate arm be forced past its normal up or down limits.
4. Articulating gate arm assemblies shall be provided where required for handroom clearance; verify each location.
5. All gates shall be equipped with a quick change arm clamp assembly and a knife edge to determine the breaking point. Each gate shall come with one 10'-0" wood gate arm. One additional (extra) arm shall be provided with each gate specified herein.

8.03 Fee Indicator:

- A. The fee indicator shall be a single face display unit with universal mount in an all-steel weather proof case. Recessed in the booth side as indicated on the drawings. The character size shall be minimum .75". A polarized face plate shall be part of this unit to eliminate glare and light reflections. Each fee displayed shall be automatically reset to zero by the cashier console logic when the transaction is complete. Fee indicators shall be located in rough-in boxes as provided by the booth manufacturer. Suitable covers, approved by the city shall be provided by the equipment supplier.

8.04 Loop Detector

- A. The loop detector shall be modular construction; all power, loop and associated wiring shall be plug connected.
- B. The oscillator circuit shall be designed to maintain a high level of stability and prevent detector interaction or "cross-talk." Detector interaction must be prevented in order to eliminate erroneous counts or "phantom" malfunction of equipment. Crystal controlled or digital reference circuitry shall be acceptable.
- C. The detector circuitry shall be all solid state with a built-in power supply.
- D. For accurate tuning and rapid visual check of detector performance, a visible tuning indicator shall be provided on the front panel of the detector.
- E. Signal output protection shall be provided by a built-in output relay which shall interface the detector with associated equipment. The relay shall be capable of providing both normally open and normally closed contacts.

8.05 Bi-Directional Logic:

- A. The system shall employ Bi-Directional Recognition Characteristics which shall reliably detect the movement of and distinguish between vehicles traveling in either direction.
- B. The system shall consist of loop detectors as specified under Detector Section of the Specification.
- C. The Bi-Directional logic shall be designed specifically for traffic speeds and movement relationship within the parking facility.

- D. The direction of vehicles traveling at speeds between one foot and one hundred feet persecond must be accurately recognized.

8.06 Cashier Console:

- A. The Cashier Consoles shall be interchangeable between any exit control lane. The consoles shall be micro processor based and be capable of complete operation in stand-alone mode. All decisions, computations, and data summarizing shall be performed locally by each individual Cashier Console.
- B. Each Cashier Console shall have the capability of operating and retaining data as described in Section 4.01 B. for a minimum of thirty-six (36) cashiers (including supervisors). Operating status shall be as follows:

1. Cashier status shall permit operating the console for all routine cashiering functions. The cashier shall be restricted from setting date or time, viewing his or any cashier data, programing tasks, selecting rate tables or changing or correcting any data entered.
2. The supervisory status shall permit entering or deleting cashier ID's as well as all programing tasks necessary for the console. The supervisory status shall also be capable of routine cashiering functions.

Cashier and supervisory ID numbers shall be entered and deleted via the console keyboard. Changes shall only be accomplished by superior status levels.

- C. Memory storage capacity shall be \$9999.99 for each cashier category.
- D. The parking rates established by the City are:

0600 to 1800	\$.25 per hour*	no maximum
1800 to 0600	\$.25 per hour	maximum \$1.00
24 hour maximum		\$5.35

An example follows:

Day Rate	14:15 - 15:15	.25				
	15:15 - 16:15	.25	.25			
	16:15 - 17:15	.25	.25	.25		
	17:15 - 18:15	.40	.25	.25	.25	
Nite Rate	18:15 - 19:15	.40	.40	.25	.25	.25
	19:15 - 20:15	.40	.40	.45	.25	.25
	20:15 - 21:15	.20	.20	.35	.40	.25
Maximum Fee @ nite		1.00	1.00	1.00	1.00	1.00
Total Fee		2.15	1.75	1.50	1.25	1.00



\*During the first 3 hours, then \$.40 per hour thereafter. However, it shall be required that rate changes be performed at the supervisory status level via the keyboards of the individual Cashier Consoles. The rate table shall be linear in nature with provision for differences according to time, or day of the week. Maximums shall be established according to blocks of time established at the time of entering rate table data.

- E. The Cashier Console shall be manufactured and installed in such a manner that it shall be impossible for unauthorized personnel to tamper with, make changes to or in any way alter the normal and desirable performance of the console or the associated system. All cashier consoles shall contain integral cash drawers.
- F. Each Cashier Console shall contain an English text (alpha numeric) display which shall display appropriate messages:
  - a) LANE OPEN
  - b) LANE CLOSED
  - c) TIME & DATE
  - d) Cashier data when requested by supervisor
  - e) Cashier prompting as required
  - f) Visual indication of data entered
- G. Booth dimensions are shown on the drawings. Cashier console and associated equipment shall be installed within these dimensions. Any modifications required for the installation of the equipment shall be the responsibility of the equipment supplier/installer.

#### 8.07 Booths:

Provide and properly install four (4) prefabricated cashiers booths. Booths shall be as manufactured by William D. White Company, Oakland, California.

- A. Booths shall be of welded steel construction with 2" x 2" steel tube framing, 14-gauge steel exterior panels, 18-gauge steel interior panels. Roof shall be 14-gauge steel, floor shall be 1/8" diamond embossed steel tread plate.
- B. Doors shall be sliding with locking device. Frame shall be 1"x1" steel. Glass shall be tempered.
- C. Windows shall be of extruded anodized aluminum frames with tempered glass. Openable windows shall have locking device.
- D. All ferrous metal parts shall be primed with rust inhibitive primer and two coats of exterior enamel paint color as selected by the City.

- E. Three booths shall be 4' x 6' with one cashier shelf with drawer and two rear shelves. Shelves shall be 16 gauge steel. Booth shall have three duplex outlets, one two-lamp, 48-inch, fluorescent light fixture, one 100 amp load center, one 1200 watt heater. Provide for ventilating system, and floor safe. Provide cabinet below cashiers shelf with lockable doors. Provide for inter-communication between all booths and main office.
- F. One booth shall be 6' x 10' with approximately 16 lineal feet of shelf, four duplex outlets, two two lamp, 48" fluorescent light fixture, and 1500 watt heater. All other items as per 5 above.
- G. All work shall conform to code. All wiring shall be concealed.
- H. Provide booth leveling devices. Installed booth shall be plumb, level and rattle free.
- I. Provide a flush mounted rough-in box to accomodate the external fee display located in the center of the lane side approximately 2" under the cashiering window. The dimensions of the rough-in box shall be determined by the equipment supplier.

#### 8.08 Traffic Controller

- A. The traffic controller shall be model TC-12 shallow frame flush mounted sabre tooth controllers as manufactured by Delta Scientific Corporation, Burbank, California.
- B. The traffic controller frames shall be provided with plaster mesh on bottom surface to permit installation of the frame in the deck pour.

#### 8.09 Warning Signs

- A. The traffic controller warning signs shall be model WS101 fluorescent electric warning signs as manufactured by Delta Scientific Corporation, Burbank, California.
- B. The signs shall be double faced with message W108-1 on the side facing the interior of the facility and message W108-2 on the side facing the entering traffic.

#### 8.10 Contract Card System:

- A. The contract card system shall utilize a dedicated micro processor based console.
- B. The contract card system shall have a capacity for 1,000 individual serial numbers. The deletion of a serial number shall not reduce the memory capacity, the system shall always contain its initial serial number capacity.

- C. Entering and deleting serial numbers shall be performed on the controller keyboard.
- D. The system shall prohibit using a card at the entrance unless its last use was at an exit, or vice versa of this facility. Control of this function shall be by a centralized on-line program of the contract card system. Antipassback or recycling performed at individual card readers shall not be acceptable. This function shall not have the effect of reducing serial number capacity.
- E. The contract card readers shall be 100% solid state. They shall not contain permanent magnets, locking plates or other mechanical methods of operation. The readers shall be capable of operating in a stand alone mode in the event of a central controller failure or loss of communications. During that period of time, the readers shall deny access to all cards except those cards authorized to enter this facility. The reversion to stand alone mode shall be automatic. An alarm shall be generated at the management control center to notify of system malfunction.
- F. The system shall have the capability of assigning a minimum of sixteen (16) time zones and four (4) status levels.

Time zones shall permit the use of an individual card during specified days or time periods, i.e.: 0800 to 1800 Monday through Friday, the card shall not be denied use at all other times. Status levels restrict the use of a card at a particular reader location.
- G. All card readers shall be mounted and located as indicated on the drawings.

#### 8.11 Lane Monitor/Space Status

The space control system shall be designed so that every vehicle traveling in the correct direction or reverse direction in every control lane of the facility shall be accurately counted.

- A. The lane monitoring/space status display panel shall be located in the Management Control Center as indicated on the drawings.
- B. Count data shall be derived from bi-directional logic output or count qualification logic of control lane equipment. It shall not be acceptable to generate count data directly from loop detectors.



- C. The space status system shall automatically control the garage "FULL" signs according to vehicular loading of the facility.
  - 1. When zero (0) spaces are available in Lot P-1 (paragraph H-4) the FULL sign mounted at the Lot P side of the tunnel shall be automatically illuminated as well as an indicator lamp on the display panel.
  - 2. When zero (0) transient spaces are available in Lot P and total spaces in Lot P-1 (paragraphs H-1 and H-4) or the total for the combined facilities (paragraph H-5) the FULL sign mounted at the entrances, as indicated on the drawings, shall be automatically illuminated as well as the appropriate FULL sign indicator lamps on the display panel.
  - 3. Provisions shall be made to manually illuminate or extinguish each FULL sign from switches mounted on the display panel.
- D. Entrance lane monitoring shall provide visual indications of vehicular entry sequence beginning with a vehicle in the field of the ticket dispenser arming loop, a ticket in throat of the dispenser, the gate arm in the up position, a vehicle in the field of the closing loop configuration.
- E. Exit lane monitoring shall provide visual indication of a vehicle in the field of the exit lane "arming" loop, the gate arm in the up position, a vehicle in the field of the closing loop configuration.
- F. An audio alarm on the display panel shall be sounded if a vehicle attempts to use a closed lane or if a vehicle travels, at any time, in the wrong direction in a lane.
- G. The display panel shall contain the following non-resettable totalizers for counting:
  - 1. Card entry lanes P1E, P2E, P5E, P6E.
  - 2. Tickets issued P1E, P2E, P5E, P6E
  - 3. Total vehicles entered P1E, P2E, P5E, P6E
  - 4. Card exit lanes P3X, P4X, P7X, P8X
  - 5. Ticket transaction lanes P3X, P4X, P7X, P8X
  - 6. Total vehicles exited lanes P3X, P4X, P7X, P8X
  - 7. Total vehicles entering Lot P-1
  - 8. Total vehicles exiting Lot P-1

- H. The display panel shall contain the following differential (up/down) counters:
1. Transient - Lot P
  2. Card users
  3. Total vehicles - Lot P
  4. Total vehicles - Lot P-1
  5. Total for combined facilities
- I. The differential (up/down) counters shall be capable of indicating either spaces available or vehicles in the designated areas.
- J. The differential (up/down) counters shall be capable of being set or re-set to desired quantities. The setting or re-setting shall be controlled by the operation of a tumbler type key switch conveniently located on the front panel.
- K. When zero (0) spaces are available, in either or both main entry categories (H-1 and/or H-2 above), the appropriate entry equipment shall be automatically disabled and remain disabled until space in that entry category is available.

#### 8.12 Intercom

- A. The intercom system shall consist of the main entry/exit two-way audio communication system and a subsystem to constantly monitor the tunnel.
- B. Master intercom control units shall be located in the Management Control Center and in the booth of Control lane P3X.
- C. Remote stations shall be located in the ticket dispenser housings at control lanes P1E, P2E, P5E, P6E.
- D. Remote stations shall be located in the booths at control lanes P4X, P7X, P8X and at the card readers at control lanes P7X and P8X. The card reader intercom and booth intercom for lanes P7X and P8X shall operate in parallel.
- E. When the Management Control Center is staffed by personnel all originating calls shall be annunciated and answered by the master intercom control unit. When the M.C.C. is closed all originating calls shall be annunciated and answered by the master intercom control unit located in the booth at lane P3X.
- F. A separate single station intercom unit located in the Management Control Center shall constantly monitor the talk-back horn located in the tunnel. When the M.C.C. is closed the constant monitor function shall be switched to a similar unit in the booth at lane P3X.



SECTION 11851 - CLOSED CIRCUIT T.V. & AUDIO  
MONITORING SYSTEM

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: This Section includes the furnishing of all labor and materials required to provide a complete monitoring system as shown on the drawings and specified below.
- A. Work includes, but is not limited to the following:
1. Closed circuit T.V. monitoring of Entry-Exit Lanes No. 5, 6, 7 and 8, and tunnel and monitor console located in the business office.
  2. Audio intercom at Entry-Exit Lanes No. 1, 2, 5, 6, 7, and 8; tunnel, and elevators. Monitor console located in the business office and at main booth at Exit Lane No. 3.
  3. Interconnection and coordination with parking equipment electrical installations and elevators as required.
  4. Shop Drawings indicating equipment, conduit and wiring, cabinets, etc.
- B. Related work specified elsewhere:
1. Parking Equipment - Section 11850.
  2. Electrical - Section 16400.
- 1.02 SYSTEMS DESCRIPTION:
- A. Closed Circuit T.V. cameras shall be fixed to column or soffit as directed by the Owner. Cameras shall be in a tamper proof enclosure. The video monitor shall be wall or ceiling mounted on suitable brackets. Monitor controls shall be remote and shall provide for sequential display and a system for identifying the location of an incoming signal.

- B. Audio System: Two-way intercom from each ticket dispenser to business office and to booth at Exit Lane No. 3. Two-way intercom from tunnel to business office and to booth at Exit Lane No. 3. Audio monitor at tunnel shall be normally in a "listening" mode, with talk-back capability from both the business office and the booth at Exit Lane No. 3. Two-way intercom from each elevator to business office and to booth at Exit Lane No. 3. Pushing the alarm bell or emergency stop button within the elevator shall activate an alarm bell to be located on the exterior of the business office and activate the two-way intercom with the audio monitor within the elevator normally in the "listening" mode. The elevator system shall be capable of being activated from the business office and/or the booth at Exit Lane No. 3. Intercom console shall be provided at the business office and at the booth at Exit Lane No. 3, and shall include a system for identifying the location of an incoming call.
- 1.03 QUALITY ASSURANCE: Equipment manufacturer and the installer of the equipment shall have been engaged in this type of work for at least five years and shall have provided equipment and installation work in the City of Sacramento which has been in successful operation for at least two (2) years. Provide job references for Owner's review.
- 1.04 SUBMITTALS: Shop Drawings shall be submitted showing equipment, details of connection to other systems, mounting, conduit runs, and wiring requirements. Provide necessary drawings for use by electrical contractor relative to the installation of conduit, power, and wiring.
- 1.05 GUARANTEES: Upon completion and acceptance of the system the contractor shall guarantee all material and workmanship for a period of one year, during which time he shall provide maintenance service on a 24-hour, 7-day week basis.
- 2.00 PRODUCTS:
- 2.01 VIDEO CAMERA: RCA Model TC 2011/U Series or equal with appropriate lens, in tamper-proof enclosure. Coordinate power requirements.
- 2.02 VIDEO MONITOR: 9" diagonal measure, RCA Model TC 1209 or equal, with all required accessories.

- 2.03 SEQUENTIAL SWITCHER: Six camera input, RCA Model TC 1400, or equal.
- 2.04 Mounting brackets, vandal and/or weather resistant housings, wiring, conduit, transformers, and any other miscellaneous required hardware as may be required for complete installation.
- 2.05 Audio Control Station at business office and supervisor booth shall be Executone Inc., Model 121ADH or equal.
- 2.06 Audio Staff Station at ticket dispenser shall be Executone Inc., Model 12ALYY or equal.
- 2.07 Audio Staff Stations at exit booths (except supervisors booth) shall be Executone Model 12AL or equal.
- 2.08 Audio Station in each elevator shall be Executone Model C198 or equal.
- 2.09 Power supply shall be Executone Model M217 or equal.
- 2.10 Audio Station at tunnel shall be Executone Model C750/J629W42. Provide wire or metal strap guard over speaker.
- 2.11 Junction assembly shall be Executone Model J52 or equal.
- 3.00 EXECUTION:
- 3.01 Prior to starting work, inspect the work of other, and coordinate with other trades. The work of this section and that of Section 11850 - Parking Equipment, shall be installed so as to be operated together.
- 3.02 All work shall be installed in accordance with all applicable codes and ordinances. Do not splice wire for video work.
- 3.03 After completion of work, demonstrate equipment operation to the Owner's maintenance personnel. Provide maintenance manual covering all installed equipment.

END OF SECTION

SECTION 14200 - ELEVATORS

1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.

1.01 SCOPE:

A. Provide all materials, equipment, labor, services and incidentals required for the complete installation of the elevator plant, all as shown on the drawings and as hereinafter specified and as necessary to complete the Contract.

B. Related Work Specified Elsewhere:

1. Suitable light and convenience outlets in machine room with light switches located within 18" of lock jamb side of machine room door.
2. A fused Mainline switch or circuit breaker in the machine room per the National Electric Code with feeders from Mainline switch to Controller.
3. A fused 120 volt, A/C, 20 amp. single phase, power supply to each controller.
4. Adequate supports for rails brackets, including separator beams in hoistway between elevators.
5. Sill supports for hoistway entrances and grouting full length and width after sills are set in place.
6. Telephone connection at the controller in machine room.
7. Construction of complete legal hoistways, Pit and Machine Room.
8. Provide necessary pockets in walls for corridor control boxes, fixtures, switches, etc.

9. Intercom system and wiring from elevator controller.  
(Elevator contractor to run wires from Elevator Unit to elevator controller as specified hereinafter.)
10. Provide square hole in pit floor to depth necessary for setting jack and concreting in after jack is set.
11. Grout around elevator jambs after entrances have been set in place by elevator contractor.
12. Pit ladders in each elevator pit.

1.02 QUALITY ASSURANCE:

A. Qualification of Supplier:

The elevator subcontractor shall be regularly engaged in the business of manufacturing, installing and servicing elevators of the type required by this Section of these Specifications.

B. Qualification of Workmen:

Furnish at least one person who shall be thoroughly trained and experienced in the installation of the selected equipment and who shall be present at all times during execution of the Work of this Section and who shall direct the entire elevator installation.

C. Codes and Standards:

The elevators shall conform to A17.1 latest edition of the American National Standards Institute Safety Code for Elevators (hereinafter designated the ANSI Code), the National Electrical Code, and all applicable State and Municipal Codes.

D. Permits and Inspection:

Obtain and Pay for necessary Municipal and State Inspections and permits, and make such tests as are called for by the regulations of such authorities. Make these tests in the presence of the authorized representatives of such authorities and the Engineer.

E. Definitions:

All Terms in this specification shall have the meaning defined in the latest Elevator Safety Code as approved by the American National Standards Institute, and hereinafter referred to as the ANSI Code, including all revisions and authorized changes to date.



F. Guarantee:

The Elevator Contractor shall guarantee that the materials and workmanship of the apparatus installed by him under these specifications are first-class in every respect and that he will make good any defects, which may develop within one (1) year from the date of completion and acceptance for public usage.

G. Performance:

Upon completion of the elevator installation and prior to acceptance by the owner, satisfactory operation equalling performance criteria specified shall be demonstrated to the owners.

1.03 SUBMITTALS:

A. Shop Drawings:

Within 35 days after award of Contract, and before any elevator materials are delivered to the job site, submit complete Shop Drawings to the Architect/Engineer in accordance with the General and Supplemental General Conditions.

B. Wiring Diagrams and Parts Leaflets:

Two complete sets of as-built wiring diagrams of the "Straight" type shall be furnished upon completion of the installation. The diagrams will include and identify all parts of the control and dispatching system. Two sets parts leaflets on the various components furnished shall also be furnished. These shall include but not be restricted to door operators, pumping plant, etc. Printed description of operation and suggested maintenance procedures shall be provided.

C. Technical Data:

Contractor shall not provide any equipment to which it claims proprietary rights of a nature such that it will refuse to provide technical data necessary for others to maintain such equipment. Contractor shall provide all equipment and wiring diagrams with the equipment furnished. All such technical data shall become available to City for maintenance purposes upon execution of Contractor's standard non-disclosure agreement by City or the Third party designated for maintenance.

1.04 PRODUCT HANDLING:

A. Protection:

Use all means necessary to protect elevator materials before, during and after installation and to protect the installed work and materials of all other trades.

## 2.00 PRODUCTS

### 2.01 ELEVATOR:

#### A. General:

The work of this Section comprises the furnishing and complete installation of Two Electric Oil Hydraulic Elevators as manufactured by Dover Corporation, Otis Elevator Company, Westinghouse Elevator Company, or U.S. Elevator Company.

#### B. Equipment Outline:

1. Control: Alternating current.
2. Capacity: 2500 pounds net, minimum.
3. Speed: 125 feet per minute, minimum, UP.
4. Operation: Duplex Selective-Collective.
5. Platform Size: Nominal outside platform dimensions 7'-0" wide by 5'-0" deep.
6. Machine Location: To rear at lowest landing.
7. Hoistway Doors: Power operated center-opening 3'-6" x 7'-0".
8. Door Operation: Power-car and hoistway doors simultaneously.
9. Travel: Ground to 3 level. Approximately 20'-0".
10. Landings: Three.
11. Openings: Three per elevator (in line).
12. Power Supply: 208 volts, three phase 60 Hertz for 25 horsepower motor.
13. Signals: Car position indicators in car, illuminated car and hall buttons. Car direction arrows in each entrance column of elevator. Car buttons to be color-coded to match floor color designations.
14. Car enclosure:

- a. Walls: removable panels - with applied rigidized stainless steel of selected pattern.
  - b. Ceiling: removable translucent plastic lenses in an anodized aluminum frame.
  - c. Front returns: stainless steel.
  - d. Base: stainless steel.
  - e. Transom: stainless steel.
  - f. Doors: baked-on enamel of selected color.
  - g. Car sills: extruded aluminum.
  - h. Handrails: three sides 3/8 x 2" stainless steel.
  - i. Lighting: fluorescent lighting.
  - j. Ventilation: key-operated exhaust blower ventilation shall be provided.
  - k. Communication: telephone cabinet with requisite wiring to elevator controller shall be furnished - instrument by others. Executon-type provisions including wiring from car to controller shall be furnished. Actual communication devices by others.
  - l. Emergency lighting: complete emergency (power failure) equipment including battery, bell, lights and charger shall be furnished.
  - m. Finished floor: one-piece vinyl floor as selected by architect shall be furnished and installed.
15. Car Frame and Platform: The car frame which supports the elevator platform and enclosure shall be made of structural steel members. Platform shall consist of a steel frame filled with a suitable sub-floor to receive the finished floor. Underside of platform shall be properly fire-proofed. All steel platform is acceptable as an alternate.
16. Car Doors: The car entrance shall be provided with horizontal sliding doors. Panel rigidity to be obtained by suitable steel reinforcements. Doors shall be hung on sheave hangers with polyurethane tires and sheaves not less than 3-1/4" diameter running on a polished steel track, and guided at the bottom by non-metallic shoes sliding in a smooth threshold groove.
17. Photo Cell Door Protection: The car shall be equipped

with dual photo electric cell(s) actuated by a light ray across the entrance to the car. Interruption of the light ray shall prevent the doors from closing or cause them to stop and reopen if they are in the process of closing. The photo cells shall cause the doors to remain open as long as the flow of traffic continues and permit them to close shortly after the last person passes through the door opening. Location of the rays shall be approximately 6" and 36" above sill level.

18. Photo Cell Cut-Out Switch: A (key operated) photo cell cut-out switch shall be provided to deactivate the photo cells in case of malfunction.
19. Guide Rails: Guides for the elevator car shall be planed steel elevator guide rails, properly fastened to the building structure with steel brackets.
20. Car Roller Guide Shoes: Roller Guides shall be provided for the car and shall be mounted at the top and bottom of the car frame. Each roller guide shall consist of rubber tired wheels running on the three rail surfaces. Each wheel shall be equipped with ball-bearings and arranged to maintain constant contact with the rail surfaces. Roller guides shall operate on dry, unlubricated, clean rails.

## 2.02 OTHER MATERIALS:

All other materials, not specifically described but required for a complete and proper installation of the elevator system, shall be furnished. Some of the features to be included are:

- A. Power Unit especially designed and manufactured for this service. Include a constant displacement rotary screw-type pump, motor, V belt drive assembly, oil reservoir, hydraulic control unit, fill strainer, tank strainer in the suction line, oil level gauge and drip pan.
- B. Control valves including safety check valve, up direction valve with high pressure relief including up leveling and soft stop features, lowering valve including down leveling and manual leveling feature shall be mounted in a compact unit assembly. Control valves shall be solenoid operated and designed to open and close gradually to give smooth control. All valves shall be readily accessible for adjustment.
- C. Automatic Two-Way Leveling device shall be provided so that the car will approach landing stops at reduced speed from either direction of travel. The leveling device shall, within its zone, be entirely independent of the operating device and

shall automatically stop and maintain the car approximately level with the landing, regardless of change in load.

- D. Plunger shall be accurately ground and polished seamless steel. The bottom of the plunger shall be fitted with a heavy steel disc welded in place and provided with a suitable extended edge to provide a positive stop designed to prevent the plunger from leaving the cylinder. The top of the plunger shall be provided with an internal welded steel disc drilled and tapped for fastening plunger to the car platen plate.
- E. Cylinder shall be machined from steel pipe with a machined flange at the upper end and a heavy steel bulkhead welded in the lower end. The cylinder shall be provided with a suitable steel fitting for connecting to oil line and with an air bleeder. Heavy steel brackets suitable for mounting to elevator pit channels shall be welded to the cylinder. A safety bulkhead shall be provided in the cylinder, designed to safely lower the car in the event of failure of the bottom cylinder bulkhead.
- F. Packing Gland (steel) with bronze guide bearing, wiper ring and packing especially designed for hydraulic elevator service shall be provided. An oil collector ring and drain hole shall be furnished.
- G. Protective wrap of polyethylene tape (double wrap) bonded to the cylinder with a special corrosion resistant bonding agent. This wrap shall be designed to provide long term underground protection.
- H. Piping shall be provided from power unit to cylinder complete with necessary fittings. Oil of proper grade for this service shall be provided.
- I. Excavation of a hole shall be provided to accommodate the plunger and cylinder. The Elevator Contractor shall include the cost of drilling this hole based on information in the Soil Report. If underground obstructions are encountered, the Elevator Contractor will follow procedures outlined in Section 02200.
- J. Hydraulic muffler shall be provided in the oil line near the power unit. The muffler shall be designed to reduce pulsation and noise which may be present in the flow of the hydraulic fluid.
- K. The platen plate shall be mounted on suitable sound dampeners designed to isolate the platen plate from the car frame.
- L. The power unit shall be mounted on vibration sound dampeners designed to isolate the unit from the building structure.
- M. Power Unit Accessories: Power unit shall be equipped with a

14-gauge sheet panel sheave guard. Furthermore, the power unit shall be totally enclosed with sound insulating panels. A pit shut off valve shall be provided in the oil line designed to shut off the flow of oil between the cylinder and the power unit. A hydraulic oil viscosity control system shall be provided to maintain a minimum oil temperature of 100°F. (+5%).

- N. The Controller shall be of the electro-magnetic type, designed to control starting, stopping and prevent damage to the motor from overload or excess current and to automatically cut off the power supply and bring the car to rest in the event of the operation of any of the safety devices. The controller shall be enclosed in a sheet metal cabinet with louvered door, designed for floor or wall mounting.

O. Duplex Selective-Collective Operation:

1. The momentary pressing on one or more car buttons shall send the car to the designated landings in the order in which the landings are reached by the car, irrespective of the sequence in which the buttons are pressed. During this operation the car shall also answer calls from the landings which are in the prevailing direction of travel and each landing call shall be cancelled when answered.
2. With the momentary pressing of a hall button above the car, the car shall start up and answer any up calls as they are reached by the car irrespective of the sequence in which the buttons are pressed. The car shall not stop at floors where down buttons only are pressed. Similarly, the car shall start down to answer calls below the car and shall not stop where up calls only are registered. When traveling up, the car shall reverse at the highest call and proceed to answer calls below it. Similarly, when traveling down, the car shall reverse at the lowest call and answer calls above it.
3. Should both an up and a down call be registered at an intermediate landing, only the call corresponding to the direction in which the car is traveling shall be cancelled upon the stopping of the car at that landing.
4. When a hall call is registered behind the moving car, the second elevator will respond. A standardized duplex operation shall be furnished.

P. Access and Top-of-Car Inspection Devices:

1. Furnish and install access and top-of-car inspection devices in accordance with requirement of the 1971 Edition of the American National Standard Safety Code for Elevators, Dumbwaiters and Escalators, including all revisions.

The following equipment shall be furnished:

- a. A key operated inspection switch with two positions, "Normal" and "Inspection" located in the car.
  - b. A key operated, spring return access switch with three positions, UP, OFF, and DOWN mounted in the door frames at the top terminal landings without exposed faceplates or screws and only the collar of the key switch exposed.
  - c. A key operated access switch as described above located at the lower terminal landing and mounted in the same manner.
  - d. An operating box on the top of the car located between car cross head and hoistway door, complete with an Emergency stop switch, a Selection switch, Safety button and UP and DOWN operating buttons.
  - e. An emergency stop switch in the pit.
2. The operation shall be as follows:
- a. To gain access to the top of the car, the car shall be run to the top terminal landing by means of the regular operating device. With the doors open, the inspection switch in the car is turned to the Inspection position which modifies the normal operation of the car as follows:
    - (1) Normal operating devices (car and landing) made ineffective.
    - (2) Access switches made effective.
    - (3) Power door operation cut out.
    - (4) Automatic leveling cut out.
    - (5) Car speed reduced.
  - b. The top terminal access switch shall then be turned to the DOWN position and the car with the hoistway door open at that landing shall proceed to move in the DOWN direction to the desired distance to gain access to the top of the car.
  - c. With the key operated access switch released to the OFF position, and the key removed, it shall then be permissible to gain access to the top-of-car operating device.
  - d. Similar operation of the lower terminal access device shall permit access to the pit.
  - e. To operate the top-of-car operating device, the selection

switch must be turned from "Manual" to "Top-of-Car." This makes the access switches inoperative and transfers operation to top of car. Movement of the car shall then be by simultaneous, continuous pressure of the appropriate direction button and the safety button.

- f. Operation from the top of the car shall not be permissible unless all electric door contacts are closed.
  - g. A zoning device shall be provided to limit the down motion of the elevator at the top terminal landing.
3. Night Shutdown Switch: A key-operate shutdown switch for each elevator shall be furnished in a panel with stainless steel faceplate at the ground level. These switches shall, upon operation, call the respective car to the ground floor, open the doors so that the attendant can check the elevator car, and then close the doors and shut down the elevator from further operation. When the switch is turned "on" the elevator shall return to normal operation. The switch shall be properly labeled and the keys shall be unique.
- Q. An electric signal bell shall be provided in the hoistway and in the parking structure office. This bell shall be connected to the alarm button and emergency stop in the car operating panel.
- R. Sound Surveillance System:
- Provide six shielded pair and one signalling pair of wires in traveling cable from elevator car to elevator controller. Signalling pair to be connected to dry set of contacts on elevator "Stop" and "Alarm" buttons to car station and then to controller. Elevator Contractor to provide mounting and grille in car control panel for Executone Recessed Elevator System.
- S. Arrangements for Physically Handicapped:
- 1. To conform with Section 4455.5 of Government Code relating to access to public facilities by handicapped persons, provide stainless steel plates approximately 5/8" high attached with rivets or tamperproof fastenings on both elevators as follows:
  - 2. To the right of each floor button in car station, embossed with braille symbol and engraved with arabic numeral, to indicate floor designation for that button.
  - 3. To right of emergency stop switch and alarm button, embossed with braille to designate "Emergency" and "Alarm" respectively.
  - 4. On entrance jambs at each side of elevator entrance, at a height of 42" above floor, embossed with braille and engraved with arabic numeral, to indicate the pertinent floor designation.



T. Earthquake Requirements:

Elevators shall be designed for seismic applications as required by the State of California, Industrial Safety Commission.

U. Fireman's Control Feature:

A key operated switch to be provided at the main floor closest to the grade level. The key shall be removable in the "on" or "off" position. When the switch is in the "on" position, the elevator will return non-stop to the main floor and the doors will open and remain open. Proper signs of an owner-approved design shall be installed at each landing as required by State of California.

V. Hollow Metal Elevator Entrances:

1. The Contractor shall furnish and erect the metal entrances. Each entrance shall be 3'-6" wide x 7'-0" high. The entrances shall include frames, doors, sills, fascia plates, toe guards, headers, struts and closer angles, tracks, hangers and hardware. The following specifications shall apply:

- a. Unit Frames: Frames shall be bolted for a one piece unit assembly and shall be made from #14 gauge steel and shall comprise head and jamb sections with integral casing or trim bolted to form one piece unit frames. All frames shall be securely fastened to sills and hanger supports and shall be returned on the hoistway side to present a neat appearance.
- b. Doors: Doors shall be of the center-opening type flush door construction. The door panels shall be formed of not lighter than #16 gauge steel and all joints shall be welded.
- c. Bottom of doors shall be provided with removable laminated phenolic guides which run in the sill slots with minimum clearance. All doors to be reinforced and provided with hoistway door unlocking devices and service keys as required to conform to code requirements. Doors shall be reinforced for separate hangers or built to include integral hangers.
- d. Sills: The sills shall be extruded aluminum with approved non-slip wearing surface. Grooves for the door guides shall have minimum clearance for the guides. The sills shall be supported on steel anchors securely fastened to the floor construction.
- e. Fascia Plates: Fascia plates shall be of #14 gauge steel reinforced to insure a flat even surface throughout and shall be securely fastened to hanger housings and sill above.
- f. Toe Guard: Toe guards, made of #14 gauge steel, shall be supplied for the lowest landing and they shall be gradually beveled to the wall.

- g. Headers: Headers shall be constructed of sufficient size and thickness to provide support for the frame and hangers and shall be securely bolted to the strut angles or closer support angles.
- h. Strut and Closer Angles: Steel angles shall be furnished of sufficient size to accommodate the door closers. Angles to be continuous and securely bolted to the sills and building beams above or bracketed from a point above the header to the guide rails.
- i. Non-Vision Wings: All hoistway landing doors shall be equipped with approved metal non-vision wings finished to match the doors. They shall be installed in a manner to reduce to a minimum the clearance between the doors of the hoistway and car and conceal the hoistway and car beyond the door openings.
- j. Hardware: Entrances shall include hoistway door unlocking devices and service keys to meet local code requirements.
- k. All hardware shall be satin finish.
- l. Finish: Frames, doors, fascias, and other exposed parts shall be thoroughly cleansed of oil, grease, and other foreign substances in preparation for finishing. Materials shall then receive a rust-preventing treatment such as "Bonderizing" or the equal followed by a baked-on primer coat.
- m. All exposed surfaces of the doors and frames shall receive application of mineral filler with each application baked and sanded to insure a smooth surface. This shall be followed by a heavy coat of baked enamel primer or surfacer which is sanded and rubbed smooth. Final coats shall be baked enamel, color-coded to floor level.
- n. All structural members shall receive a shop coat of black paint.
- o. Erection: Sills, struts, hanger supporter, and unit frames shall be erected after the erection of rough walls and set in proper relation to the elevator car guides. Doors, fascias, and toe guards shall be installed after the walls are finished. Unit frames shall have a protective covering for finished surfaces.

W. Door Hanger & Tracks:

Furnish and install for each hoistway entrance necessary hangers and tracks complete. Hangers shall be of sheave

type arranged for two point suspension of the doors. Hanger brackets shall be integral with the door or applied. Sheaves shall be steel with flanged groove and include resilient sound absorbing tires of approved material. Sheaves and rollers shall include ball bearings.

X. Maintenance Service:

1. General: The Elevator subcontractor shall furnish maintenance and call-back service on the elevator after it is completed and placed in operation, for a period of twelve (12) months following acceptance of the elevators for public usage.
2. Extent of Service:
  - a. All maintenance shall be performed by trained employees of the elevator subcontractor during regular working hours of the trade.
  - b. Service shall include all required examinations, adjustments, lubrications, cleaning, supplies, and parts to keep the equipment in proper operation, except such adjustments, parts, or repairs made necessary by abuse, misuse, or any other such causes beyond the control of the elevator subcontractor.
  - c. Emergency call-back service at any hour at no additional cost to owner shall be provided.
  - d. The maintenance shall not be assigned or transferred to any agent or subcontractor.

Y. Shop Painting:

1. All Ferrous Metal Work, except as otherwise specified for exposed and finished parts, shall be given a coat of Rust-Oleum #960 primer or Tnemec #99. Galvanized steel except as otherwise specified shall be given two (2) shop coats as follows: Two coats of brush or spray applications of Rust-Oleum #1386 gray primer, or Tnemec "Galv-gard".

Z. Performance Requirements:

1. Guaranteed Performance - Contract speed will mean speed in the UP direction with full capacity load in the car. Speed variation under any loading condition in either direction will not be more than 5%.
2. Brake to Brake Time - The time required to travel from one typical floor to the next a distance of 10'-0" from actual start of car to completion of leveling operation will not exceed 7.0 seconds, regardless of load in car or direction of travel.

3. Door Open Time - 1.6 seconds maximum.
4. Door Closing - 3.3 seconds maximum from fully open to fully closed position. There shall be no appreciable delay after closing of the door and start of the car.
5. Operating Qualities - Starting will be smooth and comfortable. Stopping and leveling will be smooth and without jars or bumps.
6. Full speed riding will be free from vibration and swaying.
7. Leveling accuracy will be  $3/8" \pm$  under any load condition.
8. The cars will not move appreciably from side to side during the opening and closing of the doors.

SECTION 15060 - AUTOMATIC FIRE PROTECTION

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 SCOPE:
- A. Work Included: Furnish and install all materials, equipment and apparatus, and furnish all labor, tools and equipment required to complete the work of this Section, including, but not limited to the following:
    - 1. Storage, uncrating, hoisting and setting in place all equipment and materials.
    - 2. A complete operable system for all levels of the parking structure, including post indicator valves, exterior underground main, detector check valve and vault, Fire Department connections and connection to street main.
    - 3. Excavation and backfill.
    - 4. All required permits and permit fees.
    - 5. All required tests and inspections.
  - B. Design of the Fire Protection System:
    - 1. All levels of the structure shall be designed for ordinary hazard occupancy, except all areas below the freeway shall be designed for "Extra Hazard Occupancy."
    - 2. Contractor shall submit complete fire sprinkler layout Drawings to the Architect, with the City of Sacramento Fire Department's approval stamp, and the State Fire Marshall's approval stamp.
      - a) All piping, valves, etc., shall be located above the bottom of beams.

- b) All piping piercing concrete beams shall be sleeved. Location of sleeves shall be approved by the Architect/Engineer and Structural Engineer.
- c) The fire sprinkler risers shall have electric alarm bells. Bell shall be located on building, the location will be subject to Architect/Engineer's approval.
- d) Pipe main routing shall be such that mains are not run below lights.

1.02 WORK IN OTHER SECTIONS:

- A. Painting.
- B. Electrical Wiring and Conduit.
- C. Mechanical and Plumbing Work.

1.03 ACCESSIBILITY: The Contractor shall fully inform himself regarding any and all peculiarities and limitations of the spaces available for the installation of all work and materials furnished and installed under this Section. Exercise due and particular caution to determine that all parts of the work are made quickly and easily accessible. Although the location of the equipment may be shown on the drawings in certain positions, the Contractor shall be guided by the architectural details and conditions at the job, correlating his work with that of the others.

1.04 ORDINANCES:

- A. The Work under this Section shall be performed in accordance with the Uniform Building Code, Uniform Fire Code, and rules of the State Board of Health, State Industrial Accident Commission, and National Fire Protection Association.
- B. When the Specification and/or Drawings call for or describe materials, workmanship or construction of a better quality, higher standard or larger size than is required by the above mentioned rules and regulations, the provisions of these specifications and/or drawings shall take precedence over the requirements of the said rules and regulations.
- C. Furnish without extra charge, any additional material or labor, or both, when required for compliance with these rules and regulations, and not mentioned in these specifications or indicated on the drawings.

- 1.05 PERMITS AND DEPOSITS: Secure and pay for permits, inspections, and certificates of inspection, required by regulatory agencies having jurisdiction.
- 1.06 INSPECTIONS: Work shall be regularly inspected and certificates of approval shall be delivered to the Architect/Engineer. No work shall be covered up or enclosed until it has been inspected, tested and approved by the State Fire Marshall who shall be given a 24 hour notice when this work is ready for inspection. Should any of the work be enclosed or covered up before such inspection and test, it shall be uncovered and after it has been inspected and tested, all necessary repairs shall be made with like materials to restore any work damage thereby to its original and/or specified condition without additional cost to the Owner.
- 1.07 WORKMANSHIP: Work shall be installed in a neat and workmanlike manner by skilled mechanics. Piping shall be kept out of floor slabs or under floor slabs unless specifically noted on the drawings. Openings in pipes, and fittings shall be securely covered during construction. Materials shall be new and in perfect condition.
- 1.08 WATERPROOFING: Piping work that has to pierce waterproof construction shall be done with care. The opening made by this piping shall be waterproof, and made absolutely watertight.
- 1.09 DAMAGES AND LEAKS: Be responsible for damage to any part of the premises caused by leaks or breaks in the pipe, fixtures and equipment furnished and/or installed for a period of one year after date of final completion.
- 1.10 PROTECTION OF EQUIPMENT: Be responsible for damage to the work until final acceptance. Cover all openings, apparatus, equipment and appliances both before and after being set in place to prevent misuse or disfigurement of the apparatus or equipment.
- 1.11 ELECTRICAL WORK: In general, all electrical work is included in the Electrical Specifications. Furnish control transformer, motor starters, and switches for equipment under this Section to the Electrical Contractor for mounting and connection to power wiring.
- 1.12 SHOP DRAWINGS:
- A. Provide in accordance with applicable requirements of the "General Conditions," and include a:

1. List of all materials and equipment required under this Section showing the following for each item:
  - a) Manufacturer's name.
  - b) Trade name.
  - c) Catalog number.
  - d) Data giving size, capacities, motor horsepower, etc., of all equipment.
2. Cuts of all equipment, sprinkler heads, controls, valves, etc.
3. Layout drawings, with dimensions of all sleeves (floor and beam), piping and equipment.
4. Wiring diagrams for all equipment and controls systems under this Section requiring electrical connections.

1.13 RECORD DRAWINGS: One Complete Set of Prints shall be kept on the job, reserved for use as record prints on which progress of the job shall be neatly and legibly indicated daily. Any change in locations, directions or size of installation or equipment shall be indicated. Drawings shall show dimensions and locations for all underground pipe, etc. At completion of the job and before final acceptance, a set of reproducible shall be obtained from the Architect/Engineer; all changes of work in this Section shall be recorded neatly and accurately thereon, and the set signed and delivered to the Architect/Engineer. The cost of reproducible obtained from the Architect/Engineer shall be borne by the Contractor.

1.14 SUBSTITUTIONS:

- A. Certain Units of equipment and materials are specified by name of manufacturer and in most cases a choice is given. The Contractor shall base his bid on these products. If desired, the Contractor may submit and request for substitution in accordance with the related requirements of the General Conditions.
- B. Such request shall be made in writing accompanied with complete technical data, giving sizes, capacities, details of construction, and all other pertinent information.



- C. The Architect's interpretation of any alternate product being an approved equal shall be final. No articles or materials of any kind shall be substituted for those specified unless written permission to make such substitutions is granted by the Architect/Engineer.
  - D. Pay for any costs or charges arising from the consideration of alternate materials or equipment shall be paid for by this Contractor. He shall also be responsible for fitting any such alternates into spaces available and paying the costs of any changes or revisions required in the work of any other trades.
- 1.15 GUARANTEE: Be responsible for all work done and materials installed under these drawings and specifications. Repair or replace any defective work which may show itself within one (1) year of the date of final completion. Guarantee must be submitted in writing before date of final payment.
- 1.16 INTENT OF CONTRACT: It is the intent of these drawings and specifications to provide complete working installations. Although the drawings describe methods and materials to be used, they are not necessarily complete in every detail, but rather shall be considered only as minimum requirement. Take full responsibility for proper operation of all parts of his installation, shall furnish any necessary refinements or additions to the specified items or methods required to insure such proper operation.
- 2.00 MATERIALS:
- A. Automatic sprinkler system shall be as indicated or specified herein, and is required by rules and/or agencies having jurisdiction. NFPA Pamphlet No. 13, "Standard for Sprinkler System Installations" is hereby made a part of these specifications and shall be followed for any items or details not specifically covered by the drawings or specifications.
  - B. Piping:
    - 1. Underground piping shall be in compliance with NFPA Standards. Steel pipe underground shall be wrapped.
    - 2. Above ground piping shall be Schedule 40, black steel, with cast iron fittings.
    - 3. Drain piping shall be Schedule 40, galvanized steel, with cast iron fittings.

4. All piping shall conform to NFPA Standards.

C. Valves:

1. Valves up to 2" inclusive shall be bronze (or brass) wedge disc, screw type gate valve, 200 lbs. working pressure, Kennedy Underwriter's gate valve #66, or equal.
2. Valves over 2" shall be standard iron body bronze (or brass) trim, double disc, OS&Y gate valve, 175 lbs. working pressure, Kennedy Underwriter's gate valve #68, or equal.
3. Horizontal alarm check valves shall be Viking or equal, in compliance with NFPA and the City of Sacramento Fire Department and the State Fire Marshall.
4. Electric alarm bell shall match manufacturer of alarm check valve. In addition, install in each sprinkler riser a flow switch for connection to a remote indicating panel.
5. Zone control valves located at each level shall be furnished with provisions for remote supervision.

D. Fire Department Connection:

1. Fire Department connection shall be free-standing type with rough bronze finish as manufactured by Potter-Roemer, or Standard.

E. Sprinkler Heads:

1. Sprinkler heads shall be bronze up-right and/or pendant type, temperature rating as per NFPA requirements.
2. Furnish five (5) extra sprinkler heads of each type, paced in suitable containers; also furnish two (2) sprinker wrenches.
3. Sprinkler heads located below freeway in perimeter inset shall be bronze side-wall type, temperature rating as per NFPA requirements.

F. Pipe Wrapping:

1. All buried steel piping inside and outside of the building shall be wrapped. Wrapping shall consist of two (2) layers of 3M No. 51 Scotchrap applied over "Scotchrap" Pipe Primer. Contractor shall apply "Scotchrap" Insulation Putty at all fittings and joints. Pipe wrapping shall extend a minimum of one (1) foot above grade. The primer, putty and wrapping shall be done in accordance with data published by 3M. After completion of all wrapping, the Contractor shall check the pipe wrapping for holidays. The minimum voltage used for checking the holidays shall be 200 times the mil thickness

of the wrapping used. All test results shall be delivered to the Architect/Engineer for review prior to backfilling. Place piping in sand backfill. Minimum six (6) inches of sand on all sides of piping.

G. Pipe Hangers and Supports:

1. Horizontal Pipes: Hangers and supports shall be hung from adequate solid rods, the lengths of which shall be adjustable.

a) Types of hangers and supports shall be as specified below, similar to Fee and Mason. In lieu of individual hangers, trapeze hangers may be used for parallel pipes, details of which shall be submitted to the Architect/Engineer for approval. Hanger rods for vibration isolators or single and trapeze hangers shall be hung from suitable clips, beam clamps or inserts, as required; "Philips" shields may be used when authorized.

b) Hanger Schedule:

SERVICE PIPE SIZE		ROD SIZE	SPACING	HANGER NO.
Sch. 40 Steel	1/2" & 3/4"	3/8"	6'-0"	199 (Other
	1" & 1-1/2"	3/8"	8'-0"	199 locations-
	1-1/2" & 2"	3/8"	10'-0"	199 Valve fit-
	2-1/2" & 3-1/2"	1/2"	12'-0"	199 tings and Changes in Direction)
C.I. Pipe	2"	3/8"	5'-0"	239
	3"	1/2"	5'-0"	239
	4" thru 6"	5/8"	5'-0"	239
	8"	7/8"	5'-0"	239

c) Where hanger rods are longer than 18", provide lateral bracing at every fourth hanger. No piping shall be supported by any wire, rope, wood or other makeshift devices. Where building construction does not permit the hanger spacing as specified in the hanger schedules, this Contractor shall provide adequate additional steel supports. Location and details shall be submitted to the Architect/Engineer for approval.

2. Vertical pipe lines shall be supported, not hung, from each floor of the building. Malleable iron or steel pipe clamps, bolted around pipes, shall be used for these supports.
3. Miscellaneous supports, wall brackets, etc., shall be provided where required in accordance with the best standard practices of the trade and as approved by the Architect/Engineer.

H. Fire Hydrant shall be furnished and installed with hydrant control valve. Hydrant shall be in accordance with the City of Sacramento Fire Department requirements.

3.00 INSTALLATION:

3.01 GENERAL INSTALLATION REQUIREMENTS:

- A. Install all material, equipment, and apparatus with like elements and appurtenances in similar location, position and elevation. Do not install any diagonal or otherwise irregular work without written approval from the Architect/Engineer.

3.02 SLEEVES AND SLEEVE SEALANTS:

- A. Install and seal sleeves and pipes penetrating beam as indicated herein, sleeve or core drill shall be two inches larger than pipe to be installed.

1. Sleeve Material:

- a) Walls - Core drill in field.
- b) Beams - Scheudle 40 galvanized steel.

END OF SECTION

SECTION 15400 - PLUMBING AND MECHANICAL WORK

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: All labor, material, equipment, apparatus, services, transportation, permanent and temporary facilities necessary for and/or reasonably incidental to the installation and completion of all work for the plumbing system involving the furnishing, installing, testing and adjusting, re-testing and readjustment as required and/or directed, and place into approved satisfactory operation the complete system as shown on the Drawings, called for in the Specifications, and as is required by job conditions, including but not limited to the following:
- A. Work Included:
1. Study work (and related drawings and specifications) of all other crafts whose work abuts, adjoins or is in any manner affected by Work of this Section. Consult with other trades and with them expedite and coordinate materials and labor to avoid omissions and delays.
  2. Roof and floor drainage system complete with catch basins and emergency floor drains.
  3. Cold water system.
  4. All permits, inspections and permit fees.
  5. Dry standpipe system consisting of piping, valves. Fire Department connections, and accessories as indicated on drawings.
  6. Waste and vent system consisting of piping and accessories.
  7. Plumbing fixtures and equipment.
  8. Stubs for landscape as indicated on drawings.

9. Package electric heat pump air conditioning unit, complete with electric heating section, direct-expansion cooling section, thermostat, operating and safety controls, motors, compressors, condensers, filters, starters and as hereinafter specified.
10. Sheet metal supply air ductwork, taped complete with air supply, return and exhaust grilles, registers, dampers, volume dampers, cleanout doors, fire dampers, and miscellaneous appurtenances.
11. Activated charcoal filters.
12. Acoustical and thermal insulation for ductwork as shown on the plans.
13. Rotary evaporative coolers, including supply fan.
14. Controls, consisting of thermostats, and miscellaneous devices for a complete system.
15. Toilet and miscellaneous exhaust ventilation system consisting of fans, vibration isolation, sheet metal ductwork, flashing, registers, cleanout doors, and miscellaneous appurtenances.
16. Balance, test and adjust complete the heating, ventilating and air conditioning systems.
17. Indirect drains from air conditioning and rotary evaporative coolers.

B. Related Work Specified Elsewhere:

1. Temporary Facilities - Section 01500.
2. Excavating, Filling, Compaction - Section 02200.
3. Electrical Work - Section 16400.
4. Concrete Work - Section 03400.
5. Painting - Section 09900.
6. Door and Wall Louvers.
7. Access doors and/or frames in building walls or ceilings.

- C. Intent of Contract Documents: It is the intent of these Drawings and Specifications to provide complete working installations. Although the Drawings describe methods and materials to be used, they are not necessarily complete in every detail but rather shall be considered only as minimum requirements. The Contractor for the particular specialty shall take full responsibility for proper operation of all parts of his installation, shall furnish any necessary refinements or additions to the specified items or methods required to insure such proper operation.

1.02 QUALITY ASSURANCE:

- A. Workmanship: Piping and ductwork shall be installed in a neat and workmanlike manner by skilled mechanics. All rough-in work shall be completed and tested before plastering or before concealment by other work. Water piping shall be kept out of floor slab or under floor slabs unless specifically indicated on the Drawings. Openings in pipes, drains and fittings shall be securely covered during construction.

- 1.03 REVIEW OF WORK: Contractor shall examine the site, and existing structure, become familiar with the Drawings and Specifications and understand the conditions under which he shall operate in performing his work. Report any conflicts or discrepancies to the Architect/Engineer.

- 1.04 ACCESSIBILITY: The Contractor shall fully inform himself regarding any and all peculiarities and limitations of the spaces available for the installation of all work and materials furnished and installed under this Section. The Contractor shall exercise due and particular caution to determine that all parts of the work are made quickly and easily accessible. Although the location of the equipment may be shown on the Drawings in certain positions, the Contractor shall be guided by the Architectural details and conditions at the job, correlating his work with that of other trades and sections of the Specifications. The Drawings are essentially diagrammatic, intended to indicate the scope of the work to be done.

- 1.05 PROTECTION OF EQUIPMENT: The Contractor shall be responsible for any damage to any of the Work of the Section until final acceptance. Cover all openings, apparatus, and equipment both before and after being set in place to prevent misuse or disfigurement of the apparatus or equipment.

- 1.06 ORDINANCES: The Work under this Section shall be performed in accordance with all city and/or county building laws, ordinances and regulations, and rules of the State Board of Health, State Industrial Accident Commission, and National Board of Fire Underwriters.
- 1.07 When the Specifications and/or Drawings call for or describe materials, workmanship or construction of a better quality, higher standard or larger sizes than is required by the above-mentioned rules and regulations, the provisions of these Specifications and/or Drawings shall take precedence over the requirements of the said rules and regulations.
- 1.08 The Contractor shall furnish, without any extra charge any additional material or labor, or both, when required for compliance with these rules and regulations, and not mentioned in these Specifications or indicated on the Drawings.
- 1.09 PERMITS AND DEPOSITS: The Contractor shall secure and pay for all permits, inspections, certificates of inspection required by any regulations having jurisdiction over all or any part of the Work included under this Section. Pay the cost of repairing street and/or site paving or curb which may be damaged by his work.
- 1.10 INSPECTIONS: All work shall be regularly inspected and certificates of approval shall be delivered to the Architect/Engineer. No work shall be covered up or enclosed until it has been inspected, tested and approved by the governmental authorities having jurisdiction over this work. Should any of the work be enclosed or covered up before such inspection and test, it shall be uncovered and after it has been inspected, tested and approved, make all repairs with like materials necessary to restore any work damaged thereby to its original condition.
- 1.11 WORKMANSHIP: All plumbing, equipment and ductwork shall be installed in a neat and workmanlike manner by skilled mechanics. All roughing-in completed and tested before plastering or before concealment by other work. All openings in pipes, ducts, drains and fittings shall be securely covered during construction. All materials shall be new and in perfect condition.
- 1.12 GUARANTEE AND OPERATING INSTRUCTIONS: Contractor shall be responsible for all work done and materials installed under these plans and specifications. He shall repair or



replace any defective work which may show itself within one year of the date of final completion. This guarantee must be submitted in writing before date of final payment.

At completion, Contractor shall submit final operating instructions, manufacturer's operating and maintenance data, control system charts and valve charts as required in Division I of these Specifications.

- 1.13 SHOP DRAWINGS: All items of material and equipment required by this Section shall bear the approval of the Architect/Engineer prior to the start of any work. The Contractor shall submit all items requiring such approval, allowing ample time for checking and processing and shall assume all responsibility for delays incurred due to the rejected items. Within thirty (30) days after the award of the Contract, submit the following (see Division I of these Specifications for number of copies required).
- A. List of all materials and equipment required under this Section, showing the following for each item:
    - 1. Manufacturer's name.
    - 2. Trade name.
    - 3. Catalogue number.
  - B. Submit for review prior to installation complete temperature control drawings, wiring diagrams, heating, ventilating and air conditioning equipment, ductwork layout; drawings shall indicate all ductwork sizes, grille, register and fan locations; drawings shall be coordinated with the other trades on the project.
- 1.14 RECORD DRAWINGS: One (1) complete set of prints shall be kept on the job, reserved for use as record prints on which progress of the job shall be neatly and legibly indicated daily. Any change in locations, directions or size of installation or equipment shall be indicated. Plan shall show dimensions and location of all cleanouts, underground piping, etc. At the completion of the job and before final acceptance, a set of reproducibles shall be obtained from the Architect/Engineer; all changes in work of this Section shall be recorded neatly and accurately thereon, and the set signed and delivered to the Architect/Engineer. The cost of reproducibles obtained from the Architect/Engineer shall be borne by the Contractor.

1.15 CLEAN-UP:

- A. During the process of the Work and after completion, as described in Division I of these Specifications.
- B. Machinery, Apparatus, and Equipment: Thoroughly cleaned of cement, plaster and other materials, grease and oil spots removed with cleaning solvent; surfaces carefully wiped; cracks and corners scraped clean.

1.16 SUBSTITUTIONS:

- A. Substitutions may be made when approved by the Architect/Engineer.
- B. Contractor shall also be responsible for fitting any substituted or alternate material and equipment into spaces available and paying the costs of any changes or revisions required in the work of any other trades.

1.17 QUALITY: Equipment and materials used shall be new and in perfect condition when installed and shall be furnished in ample quantities at the proper time. All articles provided for the same general purpose or use shall be of the same make except as otherwise specified. Capacities, sizes and dimensions are minimum unless otherwise noted. All equipment and materials shall be of American Manufacturer.

1.18 OPENINGS - CUTTING, PATCHING, REPAIRING: The Contractor shall provide and do all work required as to openings in walls, slabs and footings for all piping and equipment, including sleeves and core drilling where required and indicated on Drawings.

1.19 INTENT OF CONTRACT: It is the intent of these Drawings and Specifications to provide complete working installations. Although the Drawings describe methods and materials to be used, they are not necessarily complete in every detail but rather shall be considered only as minimum requirements. The Contractor for the particular specialty shall take full responsibility for proper operation of all parts of his installation, shall furnish any necessary refinements or additions to the specified items or methods required to insure such proper operation.

2.00 PRODUCTS:

2.01 PLUMBING FIXTURES AND TRIM:

A. General: Furnish and install, complete, all plumbing fixtures and trim and fittings in quantity and location as shown on the drawings and in accordance with the requirements of these specifications.

1. All trim, such as P-traps and fixture fittings, water supply pipes, escutcheons, etc., shall be brass, chrome plated, except traps for the service sinks.
2. All fixtures, shall be firmly anchored and free from undue vibrations.
3. Provide individual stops and supply risers for each fixture.

B. Fixture List: Fixtures shall be American Standard.

1. WC-1 Water Closet: 2109.395 elongated water saver cadet toilet with 3405.016 supply white "Church" seat 5320.536, 481310-100 bolt caps. Supply: 2302.149 loose key stop with smooth 3/8" O.D. tube closet riser.
2. L-1 Lavatory: No. 0350.132 Lucerne with insinkerator Model 777W with pop-up waste assembly. Supply: 2302.149 loose key stop with 3/8" O.D. smooth tube riser.
3. CD-1 Curb Drain: J. R. Smith 1520, cast iron body and galvanized flush grate secured with vandal-proof screws.

C. Fixture Supports:

1. All fixtures shall be hung, supported or set with 1/4" bolts or screws of sufficient length to securely fasten the fixture to the backing, wall or closet ring.

2. Fixtures set against concrete or masonry walls shall have their hangers secured with 5/16" bolts into "Tampin" type anchors, or 2-unit cinch anchors. Wood plugs shall not be used.
3. Fixtures set against metal stud walls shall have their hangers secured to a metal backing plate. Metal backing plate shall be installed at the time the rough piping is installed, and shall be a steel plate 1/4" thick, and not less than 6" wide; the plate shall be attached by bolting with not less than two 1/4" "U" bolts per stud with the bolts through the plate and around the flange of the stud, or by welding with a 1/8" fillet weld across the full width of the flange at top and bottom of the plate.

2.02 MISCELLANEOUS EQUIPMENT AND MATERIALS:

- A. EFD-1 Emergency Floor Drain: J. R. Smith No. 21104 with flashing collar.
- B. Catch basins - Rough-in and connect.
- C. Air Conditioning System:
  1. EC-1: Rotary evaporative cooler: Airfan Model RSD25, complete with stainless steel water tank assembly including but not limited to rotor bearings, rotor drive motor, bronze rotor, water supply valve, float, overflow, electric dump valve and timer assembly and unit cabinet.
  2. AC-1 (Heat Pump Unit): Carrier model 50YQ024 Air to Air Electric heat pump for use with refrigerant 22. Coils shall be constructed with aluminum plate fins mechanically bonded to nonferrous tubing with all joints brazed. Unit shall contain hermetically sealed compressor, internal and external motor protection. Outdoor fan shall be propeller type, arranged for vertical air discharge, and direct driven by a factory-lubricated motor. Controls and protective devices shall include a crankcase heater, liquid line low pressurestat, suction line accumulator and pressure relief device. Motor-compressor shall have both thermal and current sensitive overload devices and internal high-pressure protection. Unit wiring shall incorporate a positive acting timer to prevent compressor short cycling if power is interrupted. Device shall prevent compressor from restarting for a 5-minute period. A 24-v transformer shall be factory

installed and wired on unit for external control circuit. Unit shall conform to State of California Appliance Energy Efficiency Standards. Compressor shall have a 5-year warranty.

D. Duct Insulation:

1. Exterior duct insulation: Supply air ducts 1" thick glass fiber blanket or rigid with vapor barrier jacket, one pound per cubic ft. Density K-Factor - 0.23.
2. Duct Liner: Plenums, supply and return air ducts within 20 feet of unit, 1-inch thick blanket or rigid, K-factor = 0.23, 1-1/2 pounds per cubic ft. density.
3. Acceptable products: Johns-Manville, Owens-Corning, Armstrong, Certain-Teed and PPG.

E. EXHAUST FANS: Greenheck horizontal mounting, V-Belt or direct driven in-line centrifugal exhaust fan with insulated casing and disconnect switch. Fan shall be supported with spring isolators and shall have cross bracing to prevent swaying.

F. DIFFUSERS, REGISTERS, GRILLES:

1. General:

- a) Air devices shall provide indicated air quantity and shall be adjusted for throw and spread with no apparent drafts or excessive air movement within the ventilated or air conditioned space. Any air distribution accessories required to affect these conditions shall be provided by the Contractor. Ceiling diffusers, registers or grilles causing excessive noise or drafts shall be replaced at no cost to the Owner. Finish shall be prime coated for painting at jobsite, covered under another section. Equivalent products by Krueger, Tuttle and Bailey will be acceptable.
- b) All the interior portions of the plenums behind diffusers, registers and grilles and which are visible from occupied spaces shall be painted flat black.

2. Diffusers:

- a) Supply air diffusers (CD): Krueger Series "SH": with opposed blade volume damper.

3. Registers and Grilles:

- a) Return Air Grilles: Krueger Series S-80H with opposed blade volume damper.
  - b) Exhaust Air Grilles: Krueger Series S-430H.
4. Discharge Grates: Shall be traffic weight steel, see drawings for size and model.

G. DUCTWORK:

- 1. Galvanized (zinc-coated) steel sheets ASTM 526.
- 2. Steel angles and shapes ASTM A36.

H. FLEXIBLE CONNECTION FABRIC:

- 1. Non-combustible waterproof, airtight, glass fabric, double coated with neoprene, weight 30-ounce per square yard. Codes: Approved Underwriters' Laboratories, Inc., and City of Sacramento.
- 2. Acceptable Manufacturers: Ventfabrics "Ventglass" or equivalent by Duro-Dyne.

I. TURNING VANES:

- 1. Non-adjustable double walled air turns designed to reduce pressure loss in square duct elbows.
- 2. Material: Galvanized Steel, roll-formed from single sheet, surfaces and edges smooth. Blades assemble over formed tenons on side pieces, for cutting to size and assembly in field.
- 3. Acceptable Manufacturers: Duro-Dyne, Tuttle and Bailey, Titus.

J. SQUARE/ROUND QUADRANTS:

- 1. Thumb-screw set with "open," "shut," indication.
- 2. Material: Heavy gage dial, die cast handle with socket head set screws; handle locked with wing nut; steel parts cadmium-plated.

3. Acceptable Manufacturers: Duro-Dyne, Ventlok.
- K. FIRE DAMPERS:
1. Single or multiple blade fusible link actuated. Sizes as shown on the drawings.
  2. Construction: SMACNA Duct Standard Plate No. 33 and No. 34 and NFPA bulletin No. 90A. Codes: Minimum 1-1/2 hour fire protection rating NFPA No. 252.
  3. Acceptable Manufacturers: Terri Air Conditioning Products, Air Balance, Inc., & M & T Engineering Co.
- L. DAMPERS - MANUAL: Construct of same material as duct, one gage heavier, reinforced to prevent noise. Install in accessible location indicating quadrant with locking device to hold volume setting without vibration. Damper blades over 12 inches wide, multi-blade type. Damper construction shall conform to SMACNA manual.
- M. AIR EXTRACTOR: Anemostat Controlair Model 999-W, or approved equal.
- N. AIR FILTERS:
1. Activated Carbon Filter: Factory assembled and painted weatherproof cabinet, lined internally with 1" thick duct liner; access door shall be double wall, insulated, complete with gaskets, hinges and spring actuated handles. Side access filters section shall include prefilter housing with type 5700 filters. Manufacturer: American Air Filter Co., Inc.
- O. AUTOMATIC TEMPERATURE CONTROLS: This work includes all material, equipment and appurtenant accessories necessary for or incidental to the installation of a complete electric operated type of Automatic Temperature Control System.
- 2.03 DRY STANDPIPE EQUIPMENT: Equipment specified is manufactured by Potter-Roemer Company.
- A. FDC-1: #5791 Potter-Roemer Satin Chrome plated, free standing, 6-way, labeled dry standpipe.
  - B. FDC-2: #4235 3"x 2-1/2" brass body valve with No. 5950 2-1/2" cap.

- C. FDC-3: #5873 4"x 3"x 3" brass body with two (2) #4235 brass body valves with No. 5950 2-1/2" cap.

## 2.04 PIPING MATERIALS:

- A. Layout of equipment, accessories and piping system under this Section are generally diagrammatic. The Contractor shall check project drawings for interference with the work of other trades and job conditions before installing work. For the following systems:

1. Storm drainage piping.
2. Dry standpipe.
3. Domestic cold water
4. Waste and vent.

- B. Pipe and fittings hereinafter specified shall be of the type indicated for the service as called out in the Pipe Schedule Table and shall conform to "Table A Plumbing Material Standards," 1976 Edition of the U.P.C.

- C. Pipe Schedule: Table as Follows:

SERVICE	SIZE	PIPE	FITTINGS	LOCATIONS
Storm Drain	All Sizes	Std.Wt. C.I. Hubless	Std.Wt.C.I. Hubless	Above Grade Below Grade
Waste & Vent	2" & larger	Std.Wt. C.I.	Std.Wt.C.I.	Above Grade & Below Grade
	1-1/2" & Smaller	Galv. Steel Sched. 40		Above Grade
Dry Standpipe	All Sizes	Sch. 40 Blk. St.	Std. Weld or Victaulic	Above Grade
		Sch. 40 Galv. Screwed	150 #M.I. Screwed	Below Grade Wrapped
Domestic Cold Water	All Sizes			
		Sch. 40 Galv. Screwed	150 #M.I. Screwed	Below Grade Wrapped



D. UNIONS - LOCATIONS AND TYPE:

1. On inlet and outlet of all apparatus or equipment having screwed and/or soldered connections, 2-inches and smaller.
2. On outlet of all screwed valves 2-inches and smaller.
3. Steel and Wrought Iron Pipe: Malleable iron railroad type; 250 P.S.I. brass to iron seat, ground joint.

E. FLANGES AND GASKETS:

1. On inlet and outlet of all apparatus or equipment having screwed connection 2-1/2 inches and larger.
2. On inlet and outlet of all valves 2-1/2 inches and larger.
3. Black steel and wrought iron piping shall be 150 lb. steel welding type.
4. Gaskets: Ring type, 1/16" thick, of compressed asbestos fiber and special compound, suitable for services intended; factory cut for 25 lbs. or 250 lbs. flange size; Durable Manufacturing Co., "Durable," Garlock Packing Co., "Garlock 951."

F. NIPPLES:

1. Nipples shall conform to requirements of U.S. Dept. of Commerce Commercial Standard CS-5-"Pipe Nipples: Brass, Copper, Steel and Wrought-Iron." Use nipples from packages which bear manufacturer's label or tag reading: "Guaranteed Pipe Nipples Conforming to CS-5 made from New Pipe," or other words to this effect.
2. Make nipples of same material and weight as pipe whereon used.
3. Do not use "close" nipples.

G. VALVES:

1. All piping systems shall have valves at all points shown on the Drawings or as required for complete isolation of all equipment, arranged so as to give complete and regulating control of piping systems

throughout the building. All valves shall be installed with best of workmanship, with neat appearance and grouping, so that all parts are easily accessible for maintenance.

2. All valves shall be as specified in Valve Schedule below. Figure numbers listed are given as standard for type and construction. Valves for similar shall be of one manufacture.

#### VALVE SCHEDULE

TABLE #1

TYPE	NIBCO/SCOTT	CRANE	KENNEDY	CLASS
Gate 2" & Larger	F-617-0	465-1/2	0611	OS&Y

#### 2.05 PIPE HANGERS AND SUPPORTS:

- A. Horizontal Pipes: Hangers and supports shall be hung from adequate solid rods, the lengths of which shall be adjustable. No hangers or supports shall be located at a joint in the pipe.

1. Types of hangers and supports shall be as specified below similar to Fee and Mason. In lieu of individual hangers, trapeze hangers may be used for parallel pipes, details of which shall be submitted to the Architect/Engineer for approval. Hanger rods for vibrating isolators or single and trapeze hangers shall be hung from suitable clips, beam clamps or inserts, as required; "Phillips" shields may be used when authorized.

2. Hanger Schedule:

(See following page)



2.

HANGER SCHEDULE

SERVICE	PIPE SIZE	ROD SIZE	SPACING	HANGER NO.
C.I. Pipe	2"	3/8"	5'-0"	239
	3"	1/2"	5'-0"	239
	4" thru 6"	5/8"	5'-0"	239
Sch. 40	2"	3/8"	10'-0"	239
	2-1/2" and 3"	1/2"	12'-0"	239
Steel	4" and 5"	5/8"	14'-0"	239
	6"	3/4"	16'-0"	239

3. Where Hanger Rods are longer than 18", provide lateral bracing at every fourth hanger. No piping shall be supported by any wire, rope, wood or other makeshift devices. Where building construction does not permit the hanger spacing as specified in the hanger schedules, provide adequate additional steel supports. Location and details shall be submitted to the Architect/Engineer for approval.

4. Vertical Pipe Lines shall be supported, not hung, from each floor of the building. Malleable iron or steel pipe clamps, bolted around pipes shall be used for these supports.

## 2.06 PIPE WRAPPING AND INSULATION:

- A. All buried domestic water, dry standpipe and wet standpipe piping inside and outside of the building shall be wrapped. Wrapping shall consist of one (1) layer of M3 No. 51 Scotchrap applied over "Scotchrap" Pipe Primer.

Contractor shall apply "Scotchrap" Insulation Putty at all fittings and joints. Pipe wrapping shall extend a minimum of one (1) foot above grade. The primer, putty and wrapping shall be done in accordance with data published by 3M. After completion of all wrapping, the Contractor shall check the pipe wrapping for holidays. The minimum voltage used for checking the holidays shall be 200 times the mil thickness of the wrapping used.

All test results shall be delivered to the Mechanical Engineer for review prior to backfilling. All trenches shall have a minimum of 6 in. clean washed sand on the trench bottom and shall be backfilled with clean washed sand to a minimum of 12 inches above the piping.

- B. Domestic Hot Water Piping: Insulate with 1/2" thick fiberglass with pressure sensitive tape closure system. Fitting shall be insulated with sections of fiberglass covered by Zeston plastic fitting covers.
- C. Dry Standpipe Insulation: Insulate with 2" thick calcium silicate with 6 oz. canvas jacket. Canvas sized and all laps sealed with a lagging adhesive. Lacquered bands shall be installed over the jacket on 12" centers. Fittings shall be fabricated from calcium silicate and finished with OC-110 All-Purpose Cement of an approved equal to a thickness flush with adjoining insulation and finished with 6 oz. canvas securely pasted in place.

3.00 EXECUTION:

3.01 PIPE INSTALLATION:

- A. Description: Arranged as shown on the drawings and as required for complete system. All piping shall be located above bottom of beams. Run straight and true to line and as direct as possible; risers plumb; form right angles on parallel lines with building walls; keep pipes close to walls, partitions, ceilings; off-set only where necessary to follow walls, as directed; risers shall not having couplings in runs from one floor outlet to next; bending or mitering of pipe to construct fittings will not be permitted. Piping along exterior walls shall be run behind and right to columns and behind beams so that they will not be exposed to view from the exterior.
- B. Check for Interference with Other Trades: Before installing piping, check architectural, structural, mechanical, electrical drawings; make accurate layout of piping. Where interferences may appear and departures from indicated arrange are required, consult with other trades involved; come to agreement as to changed locations and elevations of piping; obtain approval of proposed changes. Submit copies of final layout to other trades for checking and coordinating with their work so that grouped pipes, conduits, will not interfere with each other.

- C. Protect Open Pipe Ends: Keep piping free from scale and dirt; protect open ends whenever work is suspended during construction; to prevent foreign bodies entering and lodging there, use temporary plugs, burlap, or other approved material for protection.
- D. Pipes Over Electrical Equipment:
1. Where pipe joints or valves in lines occur within 2-feet in horizontal directions from electrical panels or equipment; provide drip pan of size which will afford protection, as approved.
  2. Pans: 20-oz. sheet copper, edges turned up 2-1/2" all sides, reinforced with brass angles or by rolling edge over 1/4-inch diameter brass wire.
  3. Provide drain with 3/4-inch brass flange and brass pipe to floor.
  4. Support with brass bars or angles, brace to prevent sagging or swaying, as directed.
- E. Pipe Joints:
1. Cast Iron Hubless: Joints shall be made in accordance with manufacturer's recommendations.
  2. Screwed Steel Pipe: Pipe shall be properly reamed and threads cut straight and true. Apply Crane Thread Lubricant or Grinnel Fig. 1968; not more than two (2) threads shall remain exposed.
  3. Victaulic Joints: Provide grooving to dimensions specified by Victaulic Company of America. The outside surface of pipe between groove and pipe end must be reasonably smooth and free from deep pits or scores to provide a suitable seal for the Victaulic gasket. Before assembly of couplings, lightly coat pipe ends and outside of gaskets with cup grease or graphite paste to facilitate installation.
  4. Dielectric Connections:
    - a) Location: For connection between dissimilar metals, in the piping systems, to control corrosion caused by galvanic or electrolytic action.

- b) Type: Union for sizes 2" and smaller and flanges for sizes 2-1/2" and larger.

- 3.02 EXCAVATION FOR PIPE LAYING: Underground pipe placed a minimum of two feet below finish grades unless otherwise called for on Drawings. Trenches shall have vertical sides from the bottom to a point six inches above pipe. Trenches not less than eight inches wider on each side, or a total of sixteen inches more than the exterior diameter of the pipe, exclusive of sockets. Where necessary, trenches may be increased with the approval of the Architect/Engineer. Bottom of trench shall be compacted per requirements of soils engineer before pipe laying is commenced.
- 3.03 BACKFILL AROUND PIPE; Prior to testing, place over the pipe to a depth of approximately one foot, except that joints shall be left for inspection. After the test, the remainder of the backfill may be placed. Backfill and compaction operations shall conform to requirements of Section 02200. Remove all surplus material from site. Relative compactions of backfill to be approved by Soils Engineer.
- 3.04 WATERPROOFING: Any piping work that has to pierce waterproof construction to be done with care. The opening made by this piping to be waterproof and made absolutely watertight in a manner approved by the Architect/Engineer. Seal all pipe sleeves through floor and roof.
- 3.05 DAMAGE BY LEAKS: Contractor shall be responsible for all damage to any part of the premises caused by leaks or breaks in the pipe or fixtures furnished and installed by him for a period of one (1) year after date of final completion.
- 3.06 CONCRETE WORK: Do all concrete work necessary to properly install storm drain and wet and dry standpipe lines. (Thrust block, Grade C.O. blocks, etc.).
- 3.07 DRY STANDPIPE SYSTEM: Standpipe system shall be installed as indicated on the drawings and as required by rules and/or regulations of all agencies having jurisdiction. All dry standpipes outside the 2-hour stair enclosures shall be insulated. Fire rating of insulation shall be not less than 2-hour. Provision shall be made to drain the system.

### 3.08 TEST OF PIPING:

- A. Notify the Inspector and Engineer at least seven (7) days in advance of testing of all or any part of the various piping systems.
- B. All piping shall be tested at completion of roughing-in, or at other times as directed by the Engineer, in accordance with the following schedule.
- C. Furnish all necessary tests, pumps and equipment required for testing.
- D. Test Schedule:

<u>System Tested</u>	<u>Gauge PRESS at Start of the Test</u>	<u>Gauge PRESS after 4 hrs.</u>	<u>Test With</u>
Storm Drain	Fill with water to top of highest vent or drain, allow to stand three (3) hrs. without drop in water level.		
Dry Standpipe	300 lbs.	300 lbs.	Water
Domestic Cold Water	150 lbs.	150 lbs.	Water
Waste & Vent	Fill with water to top of highest vent or drain, allow to stand three (3) hrs. without drop in water level.		

### 3.09 INSULATION:

#### A. Ductwork:

1. Cover surfaces including standing seams with insulation joints lapped a minimum of 2-inches. Fasten insulation with wire ties spaced 12-inches on centers maximum for straight runs and 3-inches on center for elbows and fittings. Flaredoor staples on 3-inch centers through laps. Additionally, secure insulation for ducts 24-inches or more in width by mechanical fasteners spaced 18-inches on center on center line of bottom of duct. Cover seams and penetration of vapor barrier tape sealed with vapor barrier mastic.



2. Insulate internally all exposed plenums, and ductwork indicated on the plans with glass fiber duct liner with a vinyl coating. Secure insulation to sheet metal surface with coated side toward air stream, with minimum 50 percent coverage of bonding adhesive. Adhesive shall completely cover sheet metal at each end of section of ductwork. Additionally secure insulation for ducts over 12-inches wide, and on sides when width exceeds 24 inches with mechanical fasteners 12-inches on center maximum starting approximately 1-1/2 inch from every edge. Apply fire retardant mastic to joints in liner and edges of the liner where sections of ductwork are jointed.

3.10 DUCTWORK:

- A. Fabricate ductwork with airtight joints, presenting smooth surfaces on inside, neatly finished on outside; construct with curves, bends, etc. Make internal ends of slip joints in direction of air flow.
- B. Dimensions of accoustical lined ductwork are clean inside dimensions. Increase size of duct thickness of accoustic lining.
- C. Methods of Construction: Construct in accordance with the latest A.S.H.R.A Guide and all governing codes and ordinances.

1. Duct Gages:

Maximum side inches	Steel min. Gal. Sht. Gage	Aluminum min. B&S Gate
Through 12	26 (0.022.in.)	24 (0.020 in.)
13 through 30	24 (0.028 in.)	22 (0.025 in.)
31 through 54	22 (0.034 in.)	20 (0.032 in.)
55 through 84	20 (0.040 in.)	18 (0.040 in.)
Over 84	18 (0.052 in.)	16 (0.051 in.)

### HORIZONTAL DUCT SUPPORTS

Maximum Diameter or Sides of Rectangular Pipe or Fittings			Minimum Support Material	Support Maximum Distance
Maximum Diameter in Inches	Maximum One Side in Inches	Maximum Other Side in Inches		
18"	12"	12"	18 gage gal- vanized - iron wire, or 26 gage galvan- ized-iron strap 5/8" wide.	Every 10 Feet
30"	18"	36"	18 gage gal- vanized-iron strap 5/8" wide, or 8 gage gal- vanized - iron wire.	Every 8 Feet
36"	36"	48"	16 gage gal- vanized - iron strap 1" wide, or 8 gage gal- vanized - iron wire.	Every 8 Feet
48"	36"	60"	14 gage gal- vanized - iron strap 1" wide.	Every 6
Above 48"	Above 36"	Above 60"	14 gage gal- vanized - iron strap 1" wide.	Every 4 Feet

### VERTICAL DUCT SUPPORTS

Maximum Diameter for Round Duct or Maximum Side of Rectangular Duct	Rectangular Duct Angle Iron Size	Round Duct Circular Band Size
12"	1"x1"x1/8"	18 gage galvanized- iron 2" wide
36"	1"x1"x1/8"	16 gage galvanized- iron 2" wide
48"	1 1/2"x1 1/2"x1/8"	1/8" iron strap 1 1/2" wide
60"	1 1/2"x1 1/2"x3/16"	1/8" iron strap 2" wide
Over 60"	2" x 2" x 3/16"	3/16" iron strap 2" wide

Supports shall be installed on two opposite sides of each duct and shall be riveted, bolted or metal screwed to each side of the duct at not more than 12-inch intervals. Circular bands or angle iron supports shall project beyond the opening in the floor.

- D. Metal Decking: Attach strap hangers or rods to roof or floor beams, purlins or joists with steel 'I' beam clamps. Furnish and install steel intermediate support members spanning between joints; attach to joints. Hangers shall not be attached to metal decking.
- E. Concrete Structure: Attach strap hangers to roof or floor slabs with concrete inserts. Attach rod or angles with concrete inserts. Attach rod or angles with malleable insert and nut. Use self-drilling concrete anchors for additional inserts if required.
- F. Tapers: Pitch sides of duct in a "Diverging" air flow maximum of 20 degrees. Pitch sides of duct in a "Converging" air flow maximum of 30 degrees.
- G. Elbows: Elbows radius or square type. Radius of throat of curves and bends not less than width of duct. Provide square elbows with fixed turning vanes spaces 2-1/4 inch on center maximum. Fit vanes into runner, metal screw, rivet or spot weld runner to duct sides.
- H. Duct Connections: Thickness of metal comprising all enumerated types of connections not less than required thickness of connected duct wall. Minimum width of slip joints not less than 1/20 of width of longest side of duct it connects, and not less than one inch. Minimum height of standing seams, not less than 1/20 the width of longest side of duct it connects.
- I. Access Doors: Construct with two sheets same gage as duct of casing, frame, galvanized steel hinges, handles, clamping devices, gasketed for airtight fit. Sizes as shown, minimum 12" x 12". Walk-through size 20"x 72", 16 gage galvanized welded frame, one inch insulation, 4 hinges, 2 inside-outside handles, size up to 36 inches high, 2 hinges, one latch, size 37 inches to 71 inches high, 3 hinges, one latch.
- J. Joint Sealing: Seal supply and exhaust duct joints air-tight with 6-inch wide canvas and Arabol, Chil-Seal "CP-50". Seal all duct joints and seams exposed to weather airtight on four sides with Tuff-Bond. Return air ducts within building not sealed.

- 3.11 FLEXIBLE CONNECTION: Provide flexible duct connectors between ducts and fans, ducts crossing building expansion joints and as shown. Fasten with bolted galvanized metal bands; seal or sew seams airtight.
- 3.12 CLOSING IN WORK: No work shall be covered or enclosed until it has been tested and inspected and then approved by the Architect/Engineer and authorities having jurisdiction. Any work covered prior to such inspection, test and approval shall be uncovered, if so requested, and after approval, covered again without cost to the Owner.
- 3.13 IDENTIFICATION OF EQUIPMENT AND APPARATUS: Each piece of equipment and apparatus shall display a permanent metal or plastic nameplate which shall be located so as to be fully visible after the equipment or apparatus has been installed. The nameplate shall show the manufacturer's name and address, model number, serial number, size and capacity.
- 3.14 CONCRETE FOUNDATIONS, PADS, PIERS:
- A. Furnish templates, anchor bolt layouts, drawings showing dimensions and weights of equipment to be supported and the dimensions of related foundations, pads, piers and similar supports.
  - B. All work including concrete, required for the construction of vibration isolation bases, thrust blocks and other concrete work noted shall be provided under this division.
- 3.15 CHASES, OPENINGS, CUTTING AND PATCHING:
- A. Provide full information to the trades responsible for cutting, patching, sealing, etc., of the structure. Such information shall include the location and size of chases and openings required, curbs around openings in floors, and framing required.
  - B. Provide all sleeves, frames, access doors, and other items to be built into the structure to accommodate equipment and material furnished hereunder.
  - C. When approved, pipes and ducts in close proximity may be grouped in one framed opening.

- 3.16 OPERATING AND MAINTENANCE INSTRUCTIONS: After having completely installed all the systems and all necessary tests completed, the Contractor shall make arrangements to operate all the systems for a period of not less than one day at no expense to the Owner. A written notification of this trial operating period shall be presented to the Architect/Engineer, ten (10) days in advance, for approval. During this trial operating period, the Contractor may make necessary minor but non-interruptive adjustments, and also shall give instructions to the Owner's operating personnel or representatives, on the operation and maintenance of the various items of equipment and systems.
- 3.17 EMERGENCY OPERATION: After acceptance of the work the Owner reserves the right to make, or cause to be made, any temporary repairs required to keep equipment in operating condition without voiding guarantees or bonds or diminishing contractual responsibilities.
- 3.18 PRELIMINARY OPERATION: Provide preliminary operation of any systems or portions thereof when required by the Owner, under the supervision of the Contractor, and at no expense to the Owner. Such operation does not imply acceptance of all or any portion of the systems.
- 3.19 CLEANING AND PAINTING:
- A. Thoroughly clean both inside and outside surfaces of material and equipment before systems are put in operation. Remove all grease, oil, scale, rust and other foreign substances from all surfaces except shafts, bearings and similar moving parts.
  - B. Except for factory-finished, factory-primed or galvanized equipment, apparatus, pipe and other galvanized ferrous materials, apply 2 coats of Rustoleum 769 protective primer to all exposed ferrous surfaces. Apply one additional coat of chlorinated rubber base enamel to ferrous surfaces that will be exposed to weather in the finished work. Color and painted surfaces marred or abraded shall be repaired after installation to match adjacent surfaces.

- C. Touch up or repaint any factory-painted surfaces of equipment, apparatus or ferrous materials which have become scratched or abraded during installation. Color shall match the factory-applied coating and shall provide the same degree of protection and appearance.

Comply with requirements specified in Section 09900, Painting.

END OF SECTION

SECTION 16400 - ELECTRICAL

- 1.00 GENERAL: General Conditions, General Provisions, Supplementary General Provisions and Division 1 apply to work of this Section. It is the General Contractor's responsibility to inform all subcontractors of the provisions thereof.
- 1.01 DESCRIPTION: The Work under this Section shall include the furnishing and installing of all materials, tools, equipment and labor required for the complete installation of the electrical work, as indicated on the Drawings and as further specified herein.
- A. Work Included: Work includes, but is not limited to the following:
1. Make detailed arrangements with Utility Company for all items of service including all items and costs required to render service. Include service conduits, grounding, metering, service switchboard, distribution, feeders, transformers and panels.
  2. A complete system of power and lighting including wiring distribution, outlets for and connection of all fixtures, all branch circuits and outlets for lighting and convenience outlets as shown on the Drawings.
  3. All lighting fixtures including luminaires, walk lights, stair lights, egress fixtures, illuminated exit signs, furnished and installed complete with lamps and wiring.
  4. Complete wiring and controls for mechanical equipment as specified elsewhere.
  5. All items for the emergency lighting system in stairs.
  6. All facilities required for electric and telephone, to render service.
  7. Excavation, backfill, framing and other associated work required for the installation of the electrical systems.

8. Remove existing salvagable wiring luminaires equipment, etc.
  9. Conduit with pull wire for parking equipment controls.
  10. Submission of Shop Drawings.
  11. Record Drawings. Furnish "As Built" on Mylar.
  12. Tests.
  13. Work or equipment not indicated or specified which is necessary for the complete and proper operation of the Work of this Section, in accordance with the true intent and meaning of the Contract Documents, shall be provided and incorporated in the Work of the subcontractor for the electrical work without additional cost.
- B. Not Included in This Section: The following materials, equipment, or items of work are not included under this Section:
1. Electrical equipment or installation specified herein to be furnished as a part of the Plumbing and Mechanical Sections of the Specifications.
  2. Illuminated signs, except wiring for and connections to signs. Signs shall be controlled from main control office control equipment.
- 1.02 SHOP DRAWINGS AND SUBSTITUTIONS:
- A. Shop Drawings: Shop Drawings shall be submitted on the following items:
1. Panelboards.
  2. Lighting Fixtures.
- B. Substitutions: Catalog and manufacturer's numbers in this Section and on the Drawings are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if similar and equal in quality and design in the opinion of the Architect/Engineer and are specifically approved by the Architect/Engineer in writing. Requests for approval of substitutions shall be in writing and shall include reports of tests, performance data or other proof of quality



to the item specified. After receipt of the performance data for an item of equipment, additional data or a sample of the equipment may be requested by the Architect/Engineer for additional investigation prior to approval or rejection.

1.03 WORKMANSHIP:

- A. Use experienced, well-qualified craftsmen, in good standing with their respective labor unions.
- B. Use capable and experienced superintendents, authorized by the Contractor to instruct work, make job decisions and act for the Contractor in all matters pertaining to the Contract.

1.04 PERMITS, TESTS AND INSPECTIONS:

- A. Apply for, secure and pay for all required permits, licenses and royalties to accomplish the Work.
- B. Apply for, secure and pay for all required tests and inspections, to accomplish the Work in conformance with rules and ordinances of all governmental agencies having jurisdiction.
- C. Furnish signed certified and acceptable copies of all items covered in 1.04A and 1.04B above to the Architect/Engineer for his records.
- D. Comply with rules and regulations of jurisdictional authorities and report any deviations on Drawings to Architect/Engineer.

1.05 PROTECTION:

- A. Protect all work, fixtures, materials, etc., under this Contract from damage until final acceptance of the Work.
- B. Protect workmen and the public from harm and conform to the requirements of the National Fire Protection Association and Industrial Accident Commission of the State of California.
- C. Protect work and installations of other trades under this Contract.
- D. Repair and/or replace any damaged work. Replacement shall be at the discretion of the Architect/Engineer.

1.06 SERVICES:

- A. General: Requirements for serving and availability of services have been determined as accurately as possible.
- B. The Contractor shall verify availability of services and determine actual details pertaining to exact locations and requirements. No consideration for extra costs will be given resulting from failure of Contractor to comply with this requirement.

2.00 PRODUCTS:

- A. Use first-grade materials and equipment, adequate in all respects to accomplish the intended results, fabricated by manufacturers recognized by the trade as being capable of producing first class and acceptable materials and items.
- B. Equipment, materials and items shall meet the requirements of the National Fire Protection Association, the governing authority having jurisdiction and the California Industrial Accident Commission.
- C. All items, material and equipment shall bear the Underwriters' label of approval and the AFL-IBEW union label.
- D. Obtain the Electrical Engineer's approval via the Architect/Engineer of all manufactured or fabricated electrical items, material and equipment prior to manufacture or fabrication.

2.01 CONDUIT:

- A. Underground, embedded in concrete walls or floors shall be rigid, standard weight steel, galvanized inside and outside, coated with an acid and waterproof shellac or lacquer. Non-metallic conduit will be acceptable only if encased in a 3-inch concrete envelope and for service only at a minimum depth of 24" below grade, subject to Electrical Engineer's written approval. The non-metallic conduit, if approved by the Engineer, shall contain an insulated copper grounding conductor of sufficient size.
- B. Electric metallic tubing (EMT) shall be used in masonry walls with pressure type connectors and couplings. Crimp-type fittings will not be approved.
- C. Flexible metal conduit (FLEX) shall be used from junction boxes to recessed lighting fixtures, not to exceed 4-feet in length and from junction to motor connections boxes, not to exceed 2-feet in length.

- D. Unions, nipples, couplings, factory elbows and miscellaneous fitting shall comply with the specifications outlined in this Section.
- E. All conduits shall be sealed with threaded type conduit seals until conduit is extended for use.

2.02 OUTLET AND/OR JUNCTION BOXES:

- A. Galvanized of one-piece construction, knock-out type, of same manufacture as rigid conduit.
- B. Switch boxes, convenience outlets, junction boxes and light outlets shall be 4-inch square or larger as required by the number of wires entering the box in accordance with the requirements of the governing Electrical Codes.
- C. Provide and install fixture studs in all lighting fixture outlets as required by Code. Studs shall be supported by hangers or securely bolted to box.

2.03 WIRE:

- A. Use code grade, copper, rubber-covered or thermoplastic with "Safecote" flame retarding finish, General Electric, Harbirschaw, or Anaconda, size as noted on the plans and color-coded as noted by the governing authority having jurisdiction.
- B. Use Type TW or RW for underground installations, and Type THW or RHH for continuous row fluorescent fixtures raceway installations.

2.04 MAIN PANELBOARD: Provide compartmentalized and lockable panelboard, with clock compartment separate, and split bus panel compartment.

2.05 PANEL DETAILS:

- A. Provide, install and connect all distribution panels as noted on the plans of types required by the various voltages shown.
- B. All circuit breakers shall maintain rated current indefinitely, 125% of rated current for one hour. Tripping action shall not be affected by ambient temperature changes within panel enclosure which under full load and they shall comply with Underwriters' requirements covering harmless momentary overloads.

- C. All panel enclosures shall be equipped with hinged doors and non-pickable locks in covers. All locks shall be master-keyed and two (2) keys furnished for each lock.
- D. Paint all panels two (2) coats of suitable paint.
- E. Circuit information shall be typewritten on a card and placed in a card-holder on the inside of the door.

2.06 LIGHTING FIXTURES:

- A. Lighting fixtures shall have all parts and fittings necessary to completely and properly install the fixture. All fixtures shall be wired from outlet to socket with #14 AWG Underwriters' Type "AF" or "CR" fixture wire. All fixtures shall be equipped with lamps of the size and type specified.
- B. All fixtures of one type shall be of one manufacturer and of identical finish and appearance.
- C. All fluorescent fixtures shall be equipped with ETL approved high power factor ballasts and no blink starters. Fluorescent and slimline fixtures shall be designed to accommodate T12, 430, or 800 M.A. lamps as shown on the Drawings, except where specified otherwise.
- D. Fixture types will be as shown on the Drawings.
- E. Fixture schedule lists manufacturer's catalog numbers selected as suitable for the intended purpose. Quantities shown are approximate and Contractor shall be responsible for required quantities of each fixture type as shown on the plans.
- F. HPS Ballasts shall be high power factor constant wattage type.

2.07 LAMPS:

- A. Lamps shall be furnished and installed for all fixtures.
- B. All lamps shall be new, of wattage as indicated and as manufactured by General Electric, Westinghouse, or Sylvania.
- C. Incandescent lamps shall be for 120 volt operation. Use inside frosted type with medium base for lamps 200 watts and smaller, and mogul base for 300 watts or larger.

D. Fluorescent Lamps:

1. Rapid start lamps shall be 48", T-12 bi-pin base.
2. Slimline lamps shall be 48" or 96", T-12, single-pin base.
3. All lamps shall be standard warm white.

3.00 EXECUTION:

3.01 PROSECUTION OF WORK:

- A. Prepare a schedule of operation of the entire work.
- B. Order materials and equipment.
- C. Arrange with the Contractor for all cutting, drilling, blocking, supporting, etc., as required. Obtain Architect/Engineer's approval in each specific instance, for all penetrations of structure, and do no cutting until such approval is obtained.
- D. Arrange with the Contractor for all necessary assistance, cooperation and use of the premises.
- E. Prepare samples, schedules and other data. Obtain Architect/Engineer's approvals in ample time before needed, so as not to cause delays in the execution of the Work.
- F. Arrange order of work so as not to cause interference or delays with other trades.
- G. Obtain all required tests and/or approvals of work before such work is closed in or covered up.

3.02 CONDUIT INSTALLATION:

- A. Conduit under concrete slabs shall be installed under the steel wire mesh, or reinforcing bars.
- B. All conduits except as noted shall be concealed in cast-in-place concrete or masonry walls or slabs except conduits larger than one (1) inch shall not be embedded in concrete slabs.



- C. Make conduit bends and offsets as required only to clear footings and foundations. Bends shall be sufficiently true to pass a ball 80 percent of the inside diameter of conduit. All bends shall be complete below grade before rising through floor slabs.
  - D. Ream ends and clean conduit free of all metal chips and shavings. Remove cutting oil from all "job-cut" threads. Make all connections liquid-tight with red lead and boiled linseed oil carefully and smoothly placed on conduit threads and not on fittings. Paint the outside of each coupling and all wrench abrasions on conduit with red lead. Liquid-tight specification applies for all conduits buried in the ground or in concrete walls or floors.
  - E. Use approved galvanized strap hangers and clamps at intervals not to exceed 4 feet for flexible metal conduit (FLEX) and not to exceed 10 feet for electrical metallic tubing (EMT) or rigid conduit, but in all cases within 18" of each end so that no strain is placed on outlet or junction boxes.
  - F. Surface conduits shall be strapped tight to slabs, columns or other surfaces. Straps shall be 2-hole galvanized steel. Holes shall be drilled for steel threaded fastener quick bolt or equal.
  - G. A qualified journeyman electrician shall see that all conduits, outlet and junction boxes remain in proper place, alignment, elevation and position during construction of concrete and masonry walls.
- 3.03 OUTLET AND/OR JUNCTION BOX INSTALLATION:
- A. In concrete or masonry walls, use an approved type box which will not disturb placement of reinforcing steel. They shall be set before walls and ceilings are constructed or erected.
  - B. All boxes shall be set plumb, square, flush and true with finished floor or wall, securely wired to reinforcing rod or mesh, maintained in proper position with respect to finished surfaces by a qualified journeyman electrician until concrete pour is complete or until at least two brick courses have been laid above the top of the outlet. Hold Masonry and/or Concrete Contractor's free of any costs and liabilities in connection therewith. Properly locate and center in spaces all outlet boxes and fixtures.

3.04 WIRING:

- A. After any "wet work," remove all debris and moisture from cabinets, outlets and conduit before pulling wire.
- B. Make splices only in cabinets, junction boxes or outlet boxes.

3.05 LIGHTING FIXTURE INSTALLATION:

- A. Cooperate with other crafts to provide the best possible results. Advise other crafts of requirements affecting their work.
- B. The Contractor shall be responsible for the correct location of all outlets.

3.06 "AS-INSTALLED" DRAWINGS:

- A. A set of Electrical Drawings shall be kept on the job for the express purpose of recording changes and modifications necessitated by construction conditions. These changes shall be recorded daily. See Section 01720 - Project Record Documents.

3.07 WATERPROOFING: Whenever any electrical work pierces any waterproofings, it shall be installed as in a waterproof manner using waterproof equipment.

3.08 DEVIATIONS:

- A. No deviations from Plans or Specifications will be permitted, and the Contractor is required to install all work, conduits, and material exactly as shown and specified.
- B. The Architect/Engineer shall have the right to move any outlet or light within the radius of six (6) feet prior to its installation, without additional expense.

3.09 TEMPORARY SERVICE FOR CONSTRUCTION: The Contractor shall arrange for the meter installation, install the service and all outlets required by his own and all other trades for construction purposes.

3.10 TESTS:

- A. All wiring and connections shall be tested for continuity, short circuits and improper grounds. Each lighting panel shall be tested with mains disconnected from the feeder, branches connected, wall switches closed, fixtures permanently connected and without lamps.



- B. Each individual power circuit shall be tested at the panel or switchboard with the power equipment connected for proper operation. Failure shall be corrected in a manner satisfactory to the Architect/Engineer. Contractor shall furnish all necessary testing equipment and pay all costs of testing, including the costs of replacement or repairs due to damage resulting from testing, and the costs of correcting failures.
  - C. Should these tests develop any defective materials or poor workmanship or variance with the requirements of the specifications, then the Contractor shall make any changes necessary and remedy any defects at his own expense, to the full satisfaction of the Electrical Engineer.
- 3.11 CLEAN-UP: Remove all surplus material, equipment and debris incidental to this Work and leave the premises in a condition acceptable to the Architect/Engineer.
  - 3.12 GUARANTEE: Furnish a written certified guarantee, in acceptable form to the Owner, against any defective workmanship, material and operating equipment. This guarantee shall be in force and effective for a period of one (1) year after acceptance of the installation. Under the terms of this guarantee, replace and/or repair and make satisfactorily operative any and all items and work which in the opinion of the Architect/Engineer are defective and hold Owner free from any costs and liabilities in connection therewith.

END OF SECTION

SECTION 16500 - ELECTRICAL

TRAFFIC SIGNAL INTERSECTION AT 3rd STREET & I/J STREET

1.00 GENERAL

- .01 Description: The work to be performed under these Special Provisions consists of furnishing and installing all necessary equipment and material for the complete traffic signal system installation at the following location:

3rd Street & I/J Street

Included in the work shall be the furnishing and installing of conduits, wires, standards, signal equipment and all appurtenances as shown on the Plans and/or called for in these specifications.

Work done shall be in accordance with the Plans, Standard Specifications (as adopted by the Council of the City of Sacramento by Resolution No. 653, dated March 30, 1967 (insofar as the same may apply and in accordance with the following Special Provisions.

The said Standard Specifications are now subject to the provisions of Chapter 58 of the Sacramento City Code (Ordinance No. 3129, Fourth Series) effective July 15, 1972 (enacted pursuant to Section 251 of the Sacramento City Charter).

For specifications of a technical electrical nature not covered by the City Standard Specifications or these Special Provisions Section 86 of the Standard Specifications of the State of California Business and Transportation Agency dated January 1975 shall apply. In Section 86 all mention of the "State" shall be construed to mean the City of Sacramento and all mention of the "Engineer" shall mean the City Engineer or his assistant who may have been assigned to supervision of the project by the City Engineer.

All mention of and reference to the "State Specifications" shall specifically mean the Standard Specifications of the State of California Business and Transportation Agency Department of Transportation dated January 1975.

All incidental parts which are not shown on the Plans or specified herein and which are necessary to complete the traffic signal system shall be furnished and installed as though such parts were shown on the Plans or specified herein.

All equipment shall be complete and in operation to the satisfaction of the City Engineer at the acceptance time of work.

All equipment, material and supplies called for by the Plans and Specifications shall be new unless otherwise specified.

- .02 Rules and Regulations: Shall be in accordance with Section 32-2 of the Standard Specifications.
- .03 Equipment List and Drawings: Shall be in accordance with Section 32-3 of the Standard Specifications and these Special Provisions.

The Contractor, within fifteen (15) days after the award of contract, shall submit to the Engineer a statement from each vendor supplying electrical equipment, including but not limited to, traffic signal controller, signal heads, standards, service pedestals and all other electrical equipment, that the orders for the materials required for this contract have been received and accepted by the said vendor. The confirmed date of delivery to the Contractor shall be indicated on the statement.

.04 Salvage: Shall be in accordance with Section 32-4 of the Standard Specifications.

2.00 MATERIALS

.01 Electrical Service: The electric service will be from an existing service located on the west side of 3rd Street 50' south of J Street.

The service voltage is 120/208 volts single phase 3 wire.

One (1) additional circuit breaker shall be required to be installed in the existing service pedestal. Circuit breakers shall be single pole 240 volt alternating current branch circuit breakers each with 40 ampere trip and an asymmetrical interrupting rating of 10,000 amps at 240 volts. Breaker shall be Westinghouse Quicklag C or approved equal.

.02 Traffic Signal Control Systems: Two (2) new traffic signal controllers shall be provided and installed.

A. One (1) Type 90 2-phase traffic actuated controller in a Type G cabinet for the garage entrance intersection at 3rd Street between I and J Streets.

The Type G controller cabinet shall be wired with a 20 ampere single pole circuit breaker and a two pole normally open relay to provide power for two (2) "Lot Full" signs as shown on the Plans. The relay shall have contact ratings of 10 amperes per pole and shall operate from an external 120 volt signal from the garage "Lot Full" sign circuit.

An interconnect module shall be installed external to the controller in the controller cabinet to operate as described in Section 2.03 (Traffic Signal Interconnect).

The traffic controller phase modules required are as follows:

The traffic controller phase modules required are as follows:

3rd Street & I/J Street

<u>Phase</u>	<u>Phase Module Type</u>
1	DP
2	DP

Cabinet wiring and equipment shall be complete for two (2) vehicular phases and two (2) pedestrian phases.

Sufficient load switches shall be provided for two (2) vehicular phases and two (2) pedestrian phases.

- B. One (1) Type 90 8-phase traffic actuated controller in a Type R cabinet for the replacement of the existing controller for the traffic signal system at 3rd Street and J Street.

The controller shall be of modular design and shall be completely wired and equipped for 8-phase vehicular operation with 4-phase pedestrian operation and two (2) pedestrian overlap operation.

The normal vehicular phase sequence is as follows:

Phase A	South bound and North bound 3rd Street
Phase B	South bound 1-5 off ramp
Phase C	North bound 1-5 off ramp

As shown on the Plans the 1-5 north bound and south bound off ramp pedestrian crossings shall have the following pedestrian overlaps:

1. Pedestrian Phase (A + B)
2. Pedestrian Phase (C + A)

If a pedestrian call is made during Phase A on the overlapped pedestrian Phase A + B, the call will be served immediately and a pedestrian call will be subsequently placed on Phase B. No pedestrian clearance will occur during the change from Phase A to Phase B in this case.

If a pedestrian call is made during Phase C on the overlapped pedestrian Phase C + A, the call will be served immediately and a pedestrian call will be subsequently placed on Phase A. No pedestrian clearance will occur during change from Phase C to Phase A in this case.

The pedestrian overlaps shall be accomplished by circuitry external to the controller.

Two (2) complete pedestrian overlap modules shall be supplied.

Cabinet wiring and equipment shall be complete for eight (8) vehicle phases and four (4) pedestrian phases and overlaps where required.

Sufficient load switches shall be provided for eight (8) vehicle traffic phases and four (4) pedestrian phases and overlaps where required.

Separate load switches shall be provided for the pedestrian overlaps.

The phase modules required are as follows:

<u>Phase</u>	<u>Phase Module Type</u>
1 (A)	DP
2 (B)	DP
3	S
4 (C)	DP
5	S
6	S
7	S
8	DP

- C. General: All new controllers and appurtenances shall conform to all specifications as stated in Section 86 of the State Specifications dated January 1978 and these Special Provisions.

Controllers shall be Type 90. The Type 90 controllers shall be of modular design, completely wired and equipped for the phase operation as described.

The controller unit may be equipped with a feature (Guaranteed Passage Time) to extend the green interval for a length of time equal to the difference between the reduced gap and the passage time. If this feature is provided it shall be capable of being omitted without internal circuit modifications.

All integrated circuits within the controller shall be mounted in sockets and they shall be removable without the use of tools. The controller shall be pin programmable for all time settings and settable functions.

Type R cabinets shall have no terminations below fifteen inches (15") from the bottom.

The flasher unit shall be capable of flashing a load of 30 amperes minimum.

The convenience receptacle shall have ground fault circuit interruption as defined by the National Electric Code. Circuit interruption shall occur on 6 milliamperes of ground fault current and shall not occur on less than 4 milliamperes of ground fault current.

The fail safe device (Safety Monitor) for each controller shall conform to the following:

The safety monitor shall be capable of monitoring up to eight (8) vehicle phases, four (4) pedestrian phases and four (4) overlap phases (16 channels).

The monitor shall have the capability of being connected so that the intersection is held in flashing operation unless the monitor is in the circuit and operating properly. Power failure to the monitor shall cause the intersection to flash.

Programming shall be accomplished at the time of installation by attaching the monitor input wires to their proper places in the signal cabinet field wiring terminals. Some programming may be allowed in the monitor for special intersection configurations.

The safety monitor shall make available two (2) sets of FORM "C" contacts at its output. When a conflict occurs, one (1) set of contacts may be utilized to place the intersection in flashing operation while the second set may be used to provide a "stop timing" signal to the controller.

The safety monitor shall employ a "power failure" memory feature. In the event of a conflict action and a subsequent power failure, the monitor shall command the intersection to return to flashing operation upon restoration of power. In the event of power failure without green conflict, the monitor will allow the intersection to resume normal operation after resumption of power.

The safety monitor shall monitor all indications at the field wiring.

The safety monitor shall detect green conflicts regardless of the cause (i.e. knock down, welded load relay contacts, wire problems).

The safety monitor shall employ full wave monitoring (both halves of the line), such as produced by partially failed solid state load switches.

The safety monitor shall monitor the interval (i.e. clearance) between two green indications. If such interval is typically less than two (2) seconds, the intersection shall be placed in flash.

The safety monitor shall detect conflicts caused by an open line to the signal head even though the voltage to the offensive indication is 1/5 normal voltage.

The safety monitor and signal protection device shall be capable of operating from a main power source of 117 VAC (RMS)  $\pm$  15% at 60 Hz, 5 watts.

The safety monitor shall operate over a temperature range of -30° F to +165° F.

The safety monitor shall utilize a 26 pin MS type connector for standardization and interchangeability of all units.

The safety monitor shall have a protective fuse mounted on the front panel.

The safety monitor shall have two (2) indicator lights mounted on the front panel. One indicator light shall illuminate when the monitor is functioning properly and the second indicator light shall illuminate whenever a conflict occurs. Thus, if both lamps are out and the intersection is flashing, the user will know monitor power has failed consistent with the "fail-safe" requirement.

The safety monitor shall employ a mechanically latched relay to cause an output. In the event of a green conflict, the mechanically latched relay shall only be unlatched by depressing a reset button mounted on the front panel.

The safety monitor shall be enclosed in a housing 7" wide x 3.25" high x 9" long. All circuitry associated with the monitor shall be housed in the same cabinet.

No controller and appurtenances will be accepted without written approval of the Engineer. Approval will be done in accordance with Section 32-3 of the Standard Specifications.

The Contractor shall deliver the Type 90 controller and cabinet to the traffic signal shop at the City Corporation Yard for testing at least two (2) weeks prior to the installation at the intersection. If adjustment, modifications or repair to the controller is required, the Contractor shall accomplish this through the manufacturer or his representative.

After the controller is proven operative with respect to the Plans and these specifications, the Contractor shall allow two (2) additional weeks for testing at the traffic signal shop. After successful testing, the Contractor shall be required to transport the controllers and cabinets to the job site for installation.

### .03 Traffic Signal Interconnect

- A. The traffic signal at 3rd Street and I/J Street garage entrance shall be interconnected with the 3rd Street and J Street traffic signal system in the following manner:

The interconnect mode shall be selectable by the following:

1. A 120 volt a.c. signal from an external source.
2. A manual single pole double throw toggle switch to be mounted in the controller cabinet.
3. A time switch to be located in the cabinet. The time switch shall be equipped with a 10 hour reserve.

During non interconnect operation, all vehicle calls on Ø1 (3rd & I/J St) shall place a call on ØA (3rd & J St) during Ø1 (3rd & I/J St) green.

During interconnect operation Ø1 (3rd & I/J St) green will place a continuous vehicle call on ØA (3rd & J St).

When Ø1 (3rd & I/J St) is not green, and ØA (3rd & J St) is green, vehicle calls on Ø1 (3rd & I/J St) shall be transferred to ØA (3rd & J St).

When Ø1 (3rd & I/J St) is not green and ØA (3rd & J St) is not green, Ø1 (3rd & I/J St) vehicle calls shall place a vehicle call on ØA (3rd & J St).

A ØC (3rd & J St) yellow shall place a force off on the Ø2 (3rd & I/J St).

A ØA (3rd & J St) not green will place a continuous hold on the Ø2 (3rd & I/J St).

If 3rd and J Street is in a flashing mode or power outage, the traffic signal at 3rd and I/J Street shall run free.

The interconnect modules shall be digital in nature and shall be separate from the controller. The controller shall operate as a normal controller when the interconnect module is removed.

Two (2) complete interconnect modules shall be supplied.

- B. The controller at 3rd and J Street shall be capable of operating under the following interconnect modes:

1. Run free with Max 1.
2. Run free with Max 2. Max 2 will be selectable over Max 1 by the following:
  - a. A 120 volt ac signal from an external source.
  - b. A manual single pole double throw toggle switch mounted in the controller.

- c. A time switch to be located in the controller cabinet. The time switch shall be equipped with a ten (10) hour reserve.

Mode I ØB will yield by a modified external sync pulse with a variable delay from 0 to 100 seconds. The external sync pulse will occur every 50 seconds and the interconnect system at 3rd and J Street will respond to every other pulse or on a 100 second background cycle.

Mode I will cause ØB to be non actuated and ØA and ØC to be actuated.

Mode I will use Max 2 timing.

Mode II ØC will yield by an external sync pulse with a variable delay of from 0 to 100 seconds.

Mode II will cause ØC to be non actuated and ØA and ØB will be actuated. During Mode II ØC shall have a max time different from Mode I which may be accomplished by actuating inhibit max terminations and using an external timer settable from 0 to 127 seconds in one (1) second increments.

Mode I or Mode II shall be mutually exclusive modes of operation and shall be selectable by a time clock in the controller or by an external 120 volt signal.

The interconnect module shall be digital by nature and shall be separate from the controller. The controller shall operate as a normal controller when the interconnect module is removed.

Two (2) complete interconnect modules shall be supplied.

- .04 Inductive Loop Detectors: An inductive loop detector consists of a detector conductor loop or group of detector conductor loops, lead in cable and sensor unit and power supply.

Inductive loop detectors shall conform to the State Standard Specifications.

- A. Detector Sensor Units: The sensor unit shall be of the automatic tuning type with integral power supply. The sensor unit shall be of the single circuit type suited for installation external to the controller.

Vehicle detector sensor units shall be as follows:

Type One: A Type One detector sensor unit shall be of the automatic tuning type with integral power supply. The unit shall be of the single circuit type suited for installation external to the controller. Type One detector sensor units shall be Sarasota 215B, Traffic Data System Model LD-328, TransSensor 710 or approved equal.

Type Two: A Type Two detector sensor unit shall be of the automatic tuning type with integral power supply. The unit shall be of the single circuit type suited for installation external to the controller. The unit shall be capable of operating in 3 selectable modes; normal, stretch and delay. The stretch and delay function shall have a digital timer capable of setting from 0 to 60 seconds. The timer operation shall be able to be defeated by an external 120 volts ac signal. Type Two detector sensor units shall be Sarasota 215T/MS or approved equal.



Type Three: Proximiter 11-2 - These detector sensor units shall be supplied by the City.

The following detector sensor units shall be required to be supplied by the Contractor:

1. 3rd Street & I/J Street  
Seven ( 7 ) Type One
2. 3rd Street & J Street  
Twelve (12) Type One  
One ( 1 ) Type Two

ØAD3 shall be used in the stretch mode.

The following detector sensor units shall be supplied by the City. The Contractor shall provide all cabinet wiring to accommodate the provided detector sensor units.

3. 3rd Street & J Street  
Six ( 6 ) Type Three

The Contractor shall provide two (2) sensor units of each type he proposes to install on this project for testing and evaluation within thirty (30) days after award of the contract. Sensor units shall be delivered to:

Traffic Signal Division  
City Corporation Yard  
5730 24th Street  
Sacramento, California

The test sensor units will be returned to the Contractor after testing and evaluation. The Contractor shall not order additional project sensor units until testing and evaluation is completed and permission to order additional detectors is received from the Engineer.

- B. Detector Lead In Cable: The detector lead in cable shall consist of two (2) No. 14 copper conductors with 30 mil minimum, high molecular weight, head stabilized, colored polyethylene. The conductors shall be twisted and the twisted pair shall be protected with a shield of tinned copper bonded to a polyester film. A ground drain wire shall be provided and connected to the equipment ground within the cabinet. The cable shall be provided with a chrome vinyl outer jacket with a minimum thickness of 35 mil. The diameter of the cable shall be .35 inch maximum.

Detector lead in cable shall be Belden Type 8720 or approved equal.

The detector lead in cable shall be continuous from the pull box adjacent to the conductor loops to the controller unless otherwise shown on the Plans.

Splicing of detector lead in cables to loop conductors and splicing of detector cables when called for on the Plans shall be as follows:

1. Splices shall be made in pull boxes only. All splices to lead in cable shall be soldered.
2. The ends of the splice shall then be inserted into an approved insulated spring type connector of the correct size.
3. The splice shall then be insulated by the 2 component self-curing epoxy resin and envelope method. A 2 component, self-curing, epoxy resin shall be furnished in a double compartment, plastic envelope. The splice insulation shall be made by thoroughly mixing the 2 components in the envelope and, after cutting open one end of the envelope and inserting the wire connection into the epoxy resin and then taping shut the open end of the envelope.

Other methods may be used to mix and apply the epoxy resin. Sufficient epoxy resin shall be provided to completely cover the connector and exposed wires up to and including the outer jacket of the cable to provide for a completely waterproof insulated splice. The container shall be transparent to allow inspection.

4. When detector cables and detector loops are initially installed, precautions shall be taken to insure the cables and loops remain watertight prior to splicing. If splicing is not to be done immediately after installation, the ends of the conductors and cables shall be dipped in electrical insulating liquid which shall render them watertight. The insulating liquid shall be fast drying, resistant to oils, acids, alkalis and corrosive atmospheric conditions and shall be compatible with the insulations used in the conductors and cables.

All conductors and cables shall be installed and splices shall be made in a dry environment.

- C. Inductive Detector Loop Conductors: Conductor for each inductive detector loop shall be continuous, unspliced type USE cross-linked polyethylene insulated, No. 12 solid copper wire.

After slots are sawed in the pavement and immediately prior to loop installation, the slots shall be blown clean and thoroughly dried with compressed air.

The No. 12 AWG loop conductor shall be installed in the slots using a 3/16" to 1/4" wooden paddle. As the wire is installed, it shall be kept under tension and shall be kept in the slot by means of suitable cardboard wedges. The cardboard wedges shall not be removed until the loop sealant operation requires their removal.

The Contractor shall use the following material and technique for inductive loop wire sealant.

1. Immediately after the loop wires have been installed, the slot shall be filled with an anionic asphaltic emulsion conforming to the State Standard Specifications for Rapid Setting No. 1 (RS1).
2. Dry sand blasting sand shall then be poured in and around the slot. A suitable and approved tool shall then be used to work the asphaltic emulsion up through the dry sand.

3. The slot will then be inspected for any dry spots in the sandfill. Any dry sand spots will be wetted with more asphaltic emulsion.
4. More dry sand blasting sand shall then be added to the slot and the asphalt emulsion will again be worked up through the sand until a uniform mix of asphaltic emulsion and sand with no voids completely fills the slot to the level of the surrounding road surface.
5. A final thin layer of sand will then be added to surrounding surface to absorb the excess asphaltic emulsion.
6. The traveled way may be opened to vehicular traffic immediately after installation of the asphaltic emulsion and sand loop sealant.

Installation of detector loops shall be in accordance with the January 1975 State of California Standard Specifications and Standard Plan ES-5A entitled "Traffic Signal and Highway Lighting Installation Details, Detector" except the insulation resistance of the loop wires shall not be less than 300 megohms.

#### .05 Traffic Signals and Appurtenances

- A. General: Traffic signals and appurtenances shall conform to Section 86 of the State Specifications. They shall be installed at locations called for on the Plans. Each mast arm mounted signal head shall be equipped with all twelve inch (12") diameter sections and backplate.

Each twelve inch (12") signal section except program visibility sections, shall contain a 1950 lumen, 120 volt, 150 watt, 6000 hour lamp life with three inch (3") light center length. Each eight inch (8") signal section shall contain a 665 lumen, 120 volt, 69 watt, 8000 hour lamp life with 2-7/16" light center length.

Each incandescent pedestrian signal section shall contain a 1277 lumen 130 volt, 116 watt 8000 hour lamp life with a 2-7/16" light center length.

All terminal compartments and top mounting slip fitters shall be of the bronze type.

- B. Traffic Signal and Lighting Standards: Traffic signal and lighting standards shall be of the type called for on the Plans. The length of traffic signal mast arms shall be as called for on the Plans. The length of luminaire mast arms shall be as called for on the Plans. All mast arm standards shall be supplied with galvanized or approved cast aluminum 2 piece base covers. All standards to be furnished shall be galvanized.
- C. Back Plates: The Contractor shall furnish and install backplates on all traffic signal heads furnished.
- D. Pedestrian Signals: Pedestrian signal faces shall conform to the provisions in Section 86-4.05, "Pedestrian Signal Faces" of the State of California Department of Transportation dated January 1978 and these Special Provisions.

Pedestrian signals shall be Type F1. Type F1 signals shall conform to the provisions in Section 86-4.01 "Vehicle Signal Faces" with the following exceptions:

1. Each signal face shall consist of two (2) sections arranged vertically. The upper section shall display the message "DON'T WALK" and the lower section shall display the message "WALK." Minimum letter height shall be four and one-half inches ( $4\frac{1}{2}$ ").
2. The housing for each Type F1 signal shall be cast aluminum 16"  $\pm$  in height by 17"  $\pm$  in width.
3. Overall brightness for the "DON'T WALK" message of the Type F1 signal shall be a minimum of 175 foot-lamberts and for the "WALK" message it shall be a minimum of 180 foot-lamberts. The maximum to minimum brightness ratio between letters on each message shall not exceed 4:1.

Brightness readings will be taken with a brightness meter with a filter correcting it to human eye response and having an acceptance angle of one degree (10). For each measurement the meter will be located at the minimum distance from the message plate that results in the message or the letter being enclosed within the acceptance angle of the meter. Input voltage to the signal during the readings shall be 120 volts  $\pm$  1/2 volt.

4. Type F1 signals shall use standard traffic signal lamps. Maximum wattage for a Type F1 signal shall be 116 watts.

The type of pedestrian signal supplied shall be approved by the State of California Department of Transportation and shall be certified as to meeting these specifications prior to acceptance by the City.

Each pedestrian signal shall be provided with a hood and louvers.

- E. Pedestrian Pushbuttons: The pedestrian pushbuttons shall conform to Section 86-5.02 "Pedestrian Pushbuttons" of the State Specifications and these Special Provisions.

The pedestrian pushbuttons shall be micro switch type pushbuttons in heavy cast aluminum housings. The instruction signs shall be a minimum 20 gage enameled steel 5" x 7-3/4" and shall read "To Cross Street Push Button - Wait for Walk Signal."

- .06 Luminaires: Mast arm mounted high pressure sodium luminaires to be furnished and installed shall be of the integral ballast type, equipped with regulator type ballasts having a 10%  $\pm$  voltage regulation suitable for 200 watt high pressure sodium lamps on 120 volt circuits. There shall be electrical isolation between the copper primary and secondary windings of the ballast. Luminaires shall be designed to produce asymmetric distributions conforming to Illuminating Engineering Society light patterns called for on the Plans. The units shall be suitable for two inch (2") slipfitter end mounting. Luminaires to be placed on service #480 shall have ballasts wired for 208 volts.



Luminaires shall be General Electric M-400A, Westinghouse OV-25, TU-DOR or approved equal with either tempered glass or acrylic refractors. The ballast of each luminaire shall be mounted on the removable ballast compartment door.

Prior to City acceptance of a fixture for installation, Contractor shall submit to the Engineer for approval information on the fixture and its ballast as per Section 32-3 of the Standard Specifications. Information on the ballast shall include but not be limited to the following:

Regulation: Furnish ballast electrical data and lamp operating volt-watt graph for nominal, + 10% and - 10% of rated line voltage for the rated life of the lamp to verify ballast performance and compliance with lamp specifications.

For nominal and through rated lamp life, the lamp wattage spread shall not exceed 18% for  $\pm 10\%$  line voltage variation.

Power Factor: Furnish test data to indicate that the power factor of the lamp-ballast system shall not drop below 90% throughout lamp life, for nominal to end of rated lamp life, for  $\pm 10\%$  line voltage variation.

Capacitor Variance: Ballast design shall be such that normal manufacturing tolerance for capacitors of  $\pm 6\%$  will not cause more than  $\pm 8\%$  variation in regulation throughout the rated lamp life for  $\pm 10\%$  line voltage variation.

Lamp Failure: The ballast, including the lamp starting circuitry function, shall be capable of protecting itself against normal lamp failure modes. The ballast shall be capable of operation with an open or short circuit condition for extended periods of up to six (6) months without significant loss of ballast life based on average design life of 100,000 hours.

Lamps: Each luminaire to be furnished shall be equipped with a clear, high pressure sodium lamp. The lamp base shall be mogul screw base. The 200 watt lamp shall conform to ANSI Specifications S66 with a nominal lamp voltage of 100 volts.

- .07 Conduits: Conduits shall be mild steel, rigid, hot dipped galvanized conduit as specified under Section 32-9 of the Standard Specifications.

Conduit placed in a raised concrete median area shall be a minimum of six inches (6") below island grade.

- .08 Conductors and Wiring: Conductors and Wiring shall be in accordance with Sections 32-10 and 32-11 of the Standard Specifications, respectively, except insulation of Type UF or Type THW conforming to appropriate articles of the National Electrical Code are also approved.

- .09 Interconnect Cable

- A. Cable Type, Specifications and Initial Testing: The interconnect cable shall conform to the Rural Electrification Association Specifications No. PE-22. The interconnect cable shall consist of six (6) twisted pairs of No. 19 AWG solid copper conductors with each conductor insulated with a high molecular weight, heat stabilized, color-coded, polyethylene material.

The core shall be protected by a polyester film with a single longitudinally applied corrugated shield of 5 mil copper. The cable shall be provided with an outer jacket consisting of an extruded, black, high molecular weight, heat stabilized polyethylene material a minimum of .06 inch thick which shall be resistant to sunlight and chemicals.

The Contractor shall furnish the City (prior to delivery of cable) in suitable form, a certified report of the tests made on the cable to show compliance with the above mentioned specifications. In addition, the City may make various tests on samples (upon arrival at the job site), at City expense. Each end of the cable shall be properly sealed against moisture intrusion and protected against injury.

- B. Cable Installation: Cable shall be installed in conduit between termination points. Termination points are identified as controller cabinets. A minimum of five feet (5') of slack cable shall be left coiled in each pull box and at each termination point. The ends of all cables shall be taped and made waterproof by dipping in an approved sealer prior to being installed in conduit and prior to being left overnight.

Splicing will be allowed at not less than five hundred foot (500') intervals and only at pull boxes.

- C. Cable Testing After Installation: The interconnect cable shall be installed and ready for cable testing (as specified below) twenty (20) working days prior to anticipated use of said cable.

Each insulated conductor in each length of completed cable, with all other insulated conductors grounded and shield grounded, shall have an insulation resistance of not less than:

Cable Lengths	500 Ft.	1000 Ft.	1500 Ft.	2000 Ft.
Megohms	500	250	160	125

This test shall be made using a 500 volt megohm meter applied for one (1) minute. The test may be terminated within the minute as soon as the measurement demonstrates that the specified value has been met or exceeded.

The d.c. resistance of each pair shall be measured by connecting each pair together at one end of the cable and the loop resistance measured at the other end. The maximum resistance shall not be greater than:

Cable Lengths	500 Ft.	1000 Ft.	1500 Ft.	2000 Ft.
Ohms	20	40	60	80

If the cable being tested fails any one or more of the above tests then the Contractor is obligated to seek out and repair the failure immediately. No extension of time or compensation will be allowed for repair of failure. All tests and corrections of failures shall be documented and shall be available for future reference.

- D. Cable Splicing and Insulating: The ends of the wires shall be joined together with an insulated spring type connector without soldering.

A 2-component, self-curing, epoxy resin shall be furnished in a double compartment, plastic envelope. The splice insulation shall be made by thoroughly mixing the 2 components in the envelope and, after cutting open one end of the envelope, inserting the wire connection into the epoxy resin and then taping shut the open end of the envelope.

Other methods may be used to mix and apply epoxy resin.

Sufficient epoxy resin shall be provided to completely cover the connector and exposed bare wires at connector. The container shall be transparent to allow inspection.

Ends of detector cables, including those stripped back for splicing, shall be dipped in an electrical insulating liquid which shall render the cable watertight prior to splicing. The insulating liquid shall be fast drying, resistant to oils, acids, alkalies and corrosive atmospheric conditions and shall be compatible with the insulations used in the cables. The insulating liquid shall be applied in two (2) applications. Each application shall be allowed to dry after which the splice shall be insulated by the 2 component, self-curing epoxy resin and envelope method specified above. The insulating epoxy shall completely encapsulate splice and end of cable.

- .10 Excavating and Backfilling: Excavating and Backfilling shall be in accordance with Section 32-6 of the Standard Specifications and these Special Provisions.
- .11 Bonding and Grounding: Bonding and Grounding shall be in accordance with Section 32-12 of the Standard Specifications.
- .12 Pull Boxes: Pull Boxes shall be in accordance with Section 32-13 of the Standard Specifications.
- .13 Painting: Unless otherwise specified, all new metal parts, posts, steel poles, pedestals and fittings with the exception of the luminaires, galvanized standards and the rigid galvanized conduits and fittings, shall receive in the shop two (2) primer coats on all inside and outside surfaces before delivery to the site for erection. The application of the primer coats shall be done in the following manner:
  - A. All metal surfaces shall be cleaned of all rust, scale, grease and dirt.
  - B. All base metal and rusted surfaces to be painted shall be treated with a freshly prepared solution of phosphoric acid conforming to Federal Specifications MIL-C-15328A. The solution shall be applied by means of a brush. After drying twenty (20) minutes, the metal surfaces shall be rinsed with water. Painting shall begin within twenty-four (24) hours after applying the diluent.
  - C. Following the above treatment and prior to installation or erection in the field, all metal surfaces to be painted shall receive two (2) primer coats on all inside and outside surfaces. The primer coats shall be of alkyd base, exterior red oxide metal primer equal to Sherwin Williams E61RY21. Application of primer to the pole shall be by dip process.



If approved prime coats have been applied by the manufacturer and the coats are in good condition, an application of primer by the Contractor other than for repairs will not be required.

After the standards, pedestals, cabinets and signal equipment are installed and the conductors are in place, all exterior surfaces shall be examined for damaged primer. All damaged surfaces shall be given a spot coat of primer.

After the primer is examined and all spot coats are applied, the Contractor shall apply the finish paint.

Finish painting of galvanized standards will not be required.

Except for the galvanized standards, all exterior surfaces of equipment supplied including all existing equipment to be reused or shown on the Plans and listed in the facilities portion of the "Finish Paint Schedule" shall receive two (2) brush coats of finished paint as shown in the "Finish Coat Schedule."

Painting of outside of signal heads and other signal equipment which have been factory enameled in specified color and are in good condition, as determined by the Engineer will not be required. Painting of galvanized street lighting and traffic signal standards will not be required.

#### .14 Finish Paint Schedule

<u>Facilities</u>	<u>Paint</u>
A. Signal Heads, Exterior of Hoods & Backface of Backplate	<u>First and Second Coats</u> Enamel, Traffic Signal, Dark Olive Green Calif. State Specifications 8010-41B-14
B. Interior of Hoods, Louvers and Front Face of Backplate	<u>First and Second Coats</u> Traffic Signal Lusterless, Black Enamel Calif. State Specifications 8010-61J-45
C. Controller Cabinets Type G & R Type 15 Standards at Locations (C) and (F)	<u>First and Second Coats</u> Aluminum Paint, Finish Coat Calif. State Specifications 8010-61J-45

The Contractor shall allow the first coat to dry at least twelve (12) hours before applying second coat.

The final coat shall show an even solid color. If any scratches are found on the equipment during the final inspection, the Contractor shall give such equipment a third coat of paint. This third coat shall not be a spot coat, but will be for the entire piece of equipment. All paint shall be applied by brush without thinning and all material must be supplied in the original sealed containers. The field painting of standards, pedestals, cabinets and signal equipment shall not be started unless they are absolutely dried and free of dirt, oil, grease and all other foreign substances.



The application of the final coat shall not be done at nights or on weekends or on holidays. Finish coats shall be applied on regular working days between the hours of 8:00 a.m. and 5:00 p.m. The Contractor shall notify the Engineer at least twenty four (24) hours in advance of final painting.

### 3.00 EXECUTION

- .01 Field Test and Inspection: Field Test and Inspection shall be in accordance with Sections 32-15 and 32-16 of the Standard Specifications.
- .02 Traffic Signal Controller and Intersection Turn On: Prior to the initial traffic signal intersection turn on, the Contractor shall perform the following functional tests in the presence of the Engineer.

- A. All vehicular and pedestrian indications shall individually be turned on momentarily and proper operation and phasing shall be checked.
- B. The controller shall be turned on with the vehicle and pedestrian indications turned off, all pedestrian pushbuttons and inductive loop detectors shall be checked for proper operation and phasing.
- C. All vehicular and pedestrian signal heads shall be properly adjusted and covered.

If any system component or circuit does not operate properly it shall be repaired and retested prior to traffic signal intersection turn on.

After the successful completion of all tests the Contractor shall request through the Engineer, a time and date for turn on.

Traffic signal intersection turn on may occur only between the hours of 9:00 a.m. and 3:00 p.m. on Tuesday, Wednesday or Thursday on a week with no scheduled holidays. The Contractor shall give the Engineer at least five (5) working days notice prior to the traffic signal intersection turn on.

The intersection turn on date shall be at the discretion of the Engineer. The Contractor shall arrange to have a signal technician qualified to work on the controller and employed by the controller manufacturer or his representative present at the time of traffic signal intersection turn on.

In addition, the Contractor shall provide sufficient personnel and equipment for the timely completion of the traffic signal intersection turn on. If in the opinion of the Engineer, the Contractor has not provided sufficient personnel and equipment the Engineer, at his discretion, may postpone the traffic signal turn on until such time as sufficient personnel and equipment are provided.

- .03 Functional Test: A functional test shall be made on the new controller after installation. The Contractor shall schedule the test upon the approval of the Engineer.

Prior to the functional test, Contractor shall first determine that all equipment as shown on the Plans or called for under these specifications, are installed and operable.



The functional test shall not begin on a Friday or on the day preceding a legal holiday. The test shall be made between 9:00 a.m. and 2:00 p.m. by the Contractor in conjunction with the service engineer of the controller manufacturer, in the presence of the Engineer and representatives of the City Traffic Engineering Division and Traffic Signal Maintenance Division.

Included as a part of the functional test is the continuous satisfactory operation of each signal system for a period of not less than five (5) days. During the five (5) day test period, the Contractor and the authorized service engineer of the controller manufacturer shall be available at the job site within four (4) hours after notification to correct any malfunction which might develop in the signal system or the controller.

Cost of this service will be considered as included in the lump sum bid price of the traffic signal system and no additional compensation will be allowed therefor.

- .04 Relief from Maintenance and Responsibility: Upon the written request of the Contractor and upon written approval of the City Engineer the Contractor may be relieved of the duty of maintaining and protecting certain portions of work which have been completed in all respects in accordance with the requirements of the contract and to the satisfaction of the City Engineer and thereafter, except with his consent, the Contractor will not be required to do further work thereon.

In addition, such action by the Engineer will relieve the Contractor of responsibility for injury or damage to said completed portions of the work resulting from use by public traffic or from the action of the elements or from any other cause but not from injury or damage resulting from the Contractor's own operations or from his negligence.

Nothing in this section providing for relief from maintenance and responsibility will be construed as relieving the Contractor of full responsibility for making good defective work or materials found at any time before either the formal acceptance of the entire contract by the City Council or during the applicable guarantee period.

