LEAHI HOSPITAL
HAWAII HEALTH SYSTEMS CORPORATION

3675 Kilauea Avenue ■ Honolulu, Hawaii 96816 ■ Telephone: (808) 733-8000

I N V I T A T I O N F O R B I D S

FOR

FURNISHING LABOR AND MATERIALS

REQUIRED FOR

LEAHI HOSPITAL

New Walking Path

IFB No. 18-008

3675 KILAUEA AVENUE
HONOLULU, HAWAII 96816

May 7, 2018

ARCHITECT
Pacific Architects

STRUCTURAL ENGINEER
MKE Associates

CIVIL ENGINEER
Wesley R. Segawa & Associates

LANDSCAPE ARCHITECT
Brownlie & Lee

COST ENGINEER
Pacific Cost Engineering

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NOTICE TO BIDDERS

SEALED BIDS will be received at the Hawaii Health Systems, Purchasing Office at Maluhia, 1027 Hala Drive, Honolulu, HI, 96817, up to 2:00 p.m. May 25, 2018 for:

IFB No. 18-008
Leahi Hospital
New Walking Path

and will then and there be publicly opened and read aloud.

Drawings and specifications may be obtained at the following Leahi website:
http://www.leahi.hhsc.org/procurement/notices/

A Pre-Bid walk-through of the facility will be conducted on May 10, 2018 at 10:00 a.m. Interested bidders shall meet at the Leahi Hospital lobby area. Clarifications will be presented at the walk-through. All questions must be submitted to the Contract Manager no later than May 18, 2018.

To be eligible to submit a Bid, the Bidder must possess a valid license to perform the work.

Michelle Kato
CONTRACTS MANAGER
phone: 832-3001 email: mkato@hhsc.org

Leahi Hospital
3675 Kilauea Avenue
Honolulu, Hawaii 96816

SAMPLE
BID TRANSMITTAL COVER LETTER

Dear Ms. Kato,

(Name of Business) proposes to provide any and all goods and services as set forth in the "Invitation for Bid" to furnish repainting services at Leahi Hospital patient rooms IFB No. 18-008, for which fees/costs have been set. The fees/costs offered herein shall apply from July 1, 2018 to June 30, 2019.

It is understood and agreed that (Name of Business) have read HHSC's Scope of Services described in the IFB and that this bid is made in accordance with the provisions of such Scope of Services. By signing this bid, (Name of Business) guarantee and certify that all items included in this bid meet or exceed any and all such Scope of Services.

(Name of Business) agree, if awarded the contract, to provide the goods and services set forth in the IFB; and comply with all terms and conditions indicated in the IFB; and at the fees/costs set forth in this bid. The following individual(s) may be contacted regarding this bid:_____

_____

Other information:

Address:		Federal Tax ID #:	
Phone No.:		Hawaii GET ID #:	
E-mail address:			

(Name of Business) is a: ☐ Sole Proprietor ☐ Partnership ☐ Corporation ☐ Joint Venture Other (Specify)_____

State of Incorporation is: (Specify)_____

Year of Business started: _____

The exact legal name of the business under which the contract, if awarded, shall be executed is:_____

_____

(Authorized Bidder's Signature, Printed Name/Title; Corporate Seal or Notarized)

IFB No. 18-008
Leahi Hospital
New Walking Path

BID FORM

After carefully examining the bid documents, drawings and specifications identified above, the Bidder proposes to furnish at its own expense all necessary labor, materials, tools and equipment to complete the work according to the true intent and meaning of the drawings and specifications, all for the Lump Sum Base Bid of:

_____DOLLARS ($_____)

(Schedule of Values must be submitted with the Bid).

Respectfully Submitted:

_____ _____
Signature / Printed Name Date

_____
Title

OTHER CONDITIONS

1. Bidder agrees to pay liquidated damages to the HHSC to be specified.

2. By submitting this proposal, the Bidder is declaring that its firm has not been assisted or represented on this matter by an individual who has, in a County capacity, been involved in the subject matter of this contract in the past two years;

3. Anti-collusion certification. In accordance with HAR 3-122-192, by submitting this proposal, the Bidder is declaring that the price submitted is independently arrived at without collusion.

4. Certification for Safety and Health Program for bids in excess of $100,000. In accordance with HRS 396-18, the Bidder certifies that its organization will have a written safety and health plan for this project that will be available and implemented by the Notice to Proceed date of this project. Details of the requirements of this plan may be obtained from the Department of Labor and Industrial Relations, Occupational Safety and Health Division (HIOSH); and

5. Upon the acceptance of the proposal by the HHSC, the Bidder must enter into and execute a contract for the same and furnish a Performance and Payment bond, as required by law.

RECEIPT OF ADDENDA
Receipt of the following addenda issued by HHSC is acknowledged by the date (s) of receipt indicated below:

Addendum No. 1 _____ Addendum No. 3 _____
Date
Addendum No. 2 _____ Addendum No. 4_____

It is understood that failure to receive any such addendum shall not relieve the Bidder from any obligation under this Proposal as submitted.

ALL JOINT CONTRACTORS OR SUBCONTRACTORS TO BE ENGAGED ON THIS PROJECT

The Bidder certifies that the following is a complete listing of all joint contractors or subcontractors covered under Chapter 444, Hawaii Revised Statutes, who will be engaged by the Bidder on this project to perform the nature and scope of work indicated and understands that failure to comply with this requirement may be just cause for rejection of the bid.

The Bidder further understands that only those joint contractors or subcontractors listed shall be allowed to perform work on this project and that all other work necessary shall be performed by the Bidder with his own employees. If no joint contractor or subcontractor is listed, it shall be construed that all of the work shall be performed by the Bidder with its own employees.

The Bidder must be sure that it has and that the subcontractor(s) listed in the proposal have all the necessary specialty licenses needed to perform the work for this project. The Bidder shall be solely responsible for assuring that all the specialty licenses required to perform the work are covered in its bid.

The Bidder shall include the license number of the joint contractors or subcontractors listed below. Failure to provide the correct names and license numbers as registered with the Contractor's Licensing Board may cause rejection of the bid submitted.

Complete Firm Name Joint Contractor or Subcontractor for Lump Sum Base Bid	License Number	Nature and Scope of Work to be Performed

Enclosed herewith:

1. Surety Bond (*1))
2. Legal Tender (*2))
3. Cashier's Check (*3))
4. Certified Check (*3))

(Cross Out Those Not Applicable)

in the amount of:

_____ DOLLARS ($_____).

as required by law.

Respectfully submitted,

_____
Name of Company, Joint Venture or Partnership

_____
License

By _____
Signature (*4)

Title _____

Date: _____ (CORPORATE SEAL) (*5)

NOTES:

1. Surety bond underwritten by a company licensed to issue bonds in this State;

2. Legal tender; or

3. A cashier's or a certified check accepted by, and payable on demand to the HHSC by a bank, a savings institution, or credit union insured by the Federal Deposit Insurance Corporation.

   a. These instruments may be utilized only to a maximum of $100,000.

   b. If the required security or bond amount totals over $100,000, more than one instrument not exceeding $100,000 each and issued by different financial institutions shall be accepted.

4. Please attach to this page evidence of the authority of this officer to submit bids on behalf of the Company, and also the names and residence addresses of all officers of the Company.

5. Fill in all blank spaces with information asked for or bid may be invalidated. PROPOSAL MUST BE INTACT. MISSING PAGES MAY INVALIDATE YOUR BID.

END OF BID FORM

SECTION 00210 - INSTRUCTIONS TO BIDDERS

Part 1 - GENERAL

1.01 GENERAL

A. Only Bidders with the required contractor's license(s) are eligible to submit a Bid.

B. Bidders (Contractors) shall be incorporated or organized under the laws of the State or be registered to do business in the State as a separate branch or division that is capable of fully performing under the contract. The following definitions are used in the solicitation documents.

1. Hawaii Business §3-1222-112 HAR: A bidder who is registered and incorporated or organized under the laws of the State is a "Hawaii Business" and eligible for an award.

2. Compliant non-Hawaii Business §3-122-112 HAR: A bidder not incorporated or organized under the laws of the State, but is registered to do business in the State and complies with or is exempt from the requirements of §3-122-112 HAR, is a "Compliant Non-Hawaii Business" and eligible for an award.

3. Non-compliant Bidder: If a bidder is a non-Hawaii business and is not registered with the DCCA Business Registration Division (BREG) or cannot comply with §3-122-112 HAR, then the bidder in non-compliant and is ineligible for an award.

C. Bidders shall submit the "Sealed Bid Form", bid bond (if required), tax clearances, Hawaii business certificates, and any other documents required by the bidding documents.

1.02 OFFEROR(S) or BIDDER(S)

A. The terms "Offeror" and "Bidder" are synonymous when used in this Section 00210 and other solicitation documents.

1.03 ADDENDA, CLARIFICATIONS

A. Addenda: The HHSC may periodically issue an addendum that may increase or decrease the scope of work or contract time, provisions or conditions. The HHSC will make the addenda available to the bidders at the Contracts Manager's office. Bidders are responsible for the information contained in the addenda or bid clarification whether or not the Bidder receives the addenda or clarification.

B. Bidders discovering an ambiguity, inconsistency or error when examining the bidding documents or the site and local conditions or bidders with questions or clarification requests shall send their written requests (email

or fax notification are acceptable) to the Project Architect. Bidders shall comply with the following procedures:

1. Identify each request with the Project Name and IFB Number.

2. Indicate the appropriate section number, paragraph, drawing and detail number, schedule or other identifier.

3. The request should be brief, concise, but complete enough to properly evaluate and determine the merits or non-merits of the question or request.

C. Bidders shall make any requests for clarifications no later than fourteen (14) calendar days prior to the submission date for sealed bids. Refer to the "Notice to Bidders" for submission date.

D. HHSC will respond to important requests or clarifications by way of addenda. HHSC may not address or respond to all bidders inquiries, if the HHSC determines the request is unimportant or not required to disseminate to all Bidders.

1.04 SEALED BID FORM (BID FORM)

A. Bidder shall fill out the "Sealed Bid Form" completely. Write in ink or type. Besides the following paragraphs with instructions, there are supplemental Bidder's Instructions within the text of the "Sealed Bid Form" and bidders shall comply with the instructions. Do not alter the "Sealed Bid Form", and maintain the form intact.

B. HAWAII PRODUCT PREFERENCE: If applicable to this project, bidders proposing to use Hawaii products shall complete the "Hawaii Product Schedule" by entering the product total cost (not unit price) and identifying the respective class. Bidders may provide a cost for any one or as many products listed in the schedule. Any product that is left without a respective cost and class designation cannot be used in the preference evaluation.

1. If there are several classes offered for a product, the bidder shall choose and circle the appropriate class, otherwise, preference will be given based on the class with the lower percentage.

2. If the Hawaii product preference is used to determine the contract award, the bidder must use the designated Hawaii products in the work, otherwise the bidder (contractor) may be in default of the contract.

C. RECYCLED PRODUCT PREFERENCE is not applicable to this project.

D. OTHER CONDITIONS: Bidder acknowledges and agrees to the provisions and certifications stated in this article.

E. RECEIPT OF ADDENDA: Bidder shall fill in the appropriate dates any addenda were received.

G. LISTING JOINT CONTRACTORS OR SUBCONTRACTORS:

1. Bidder shall complete the "Joint Contractors or Subcontractors List." It is the sole responsibility of the bidder to review the requirements of this project and determine the appropriate specialty contractor's licenses that are required to complete the project. Failure of the bidder to provide the correct names, license numbers, specialty class number, classification description and to indicate that the specialty contractor is required for this project, may cause the bid to be rejected.

2. Bidder agrees the completed listing of joint contractors or subcontractors is required for the project and that the bidder, together with the listed joint contractors and subcontractors, have all the specialty contractor's licenses to complete the work.

3. Based on the Hawaii Supreme Court's January 28, 2002 decision in Okada Trucking Co., Ltd. v. Board of Water Supply, et al., 97 Hawaii 450 (2002), the bidder as a general contractor ('A' or 'B' license) is prohibited from undertaking any work solely or as part of a larger project, which would require the bidder ('A' or 'B' general contractor) to act as a specialty ('C' license) contractor in any area in which the bidder ('A' or 'B' general contractor) has no specialty contractor's license. Although the 'A' and 'B' contractor may still bid on and act as the "Prime Contractor" on an 'A' or 'B' project (*See, HRS §444-7 for the definitions of an "A" and "B" project*), respectively, the 'A' and 'B' contractor may only perform work in the areas in which they have the appropriate contractor's license. The bidder ('A' or 'B' general contractor) must have the appropriate 'C' specialty contractor's licenses either obtained on its own, or obtained automatically under HAR §16-77-32.

4. General Engineering 'A' Contractors automatically have these 'C' specialty contractor's licenses: C-3, C-9, C-10, C-17, C-24, C-31a, C-32, C-35, C-37a, C-37b, C-38, C-43, C-56, C-57a, C-57b, and C-61.

5. General Building 'B' Contractors automatically have these 'C' specialty contractor's licenses: C-5, C-6, C-10, C-12, C-24, C-25, C-31a, C-42a, and C-42b.

6. The table that lists the specialty contractor' classifications in the bid form is from the Department of Commerce and Consumer Affairs' (DCCA) website www.state.hi.us/dcca/har/index.html. Bidders shall provide the appropriate classifications numbers and descriptions for any specialty contractors that are not included in the bid form and bidders are directed to the DCCA web site for the latest updated list.

7. Instructions to complete the Joint Contractors or Subcontractors List:

   a. Determine the specialty contractor classification(s) required for this project and provide the complete firm name and license number of the joint contractor or subcontractor in the respective columns. If the bidder is a general contractor and providing the work of the required specialty contractor classification, fill in the bidder's (general contractor's) license number and name.

   b. List only one joint contractor or subcontractor per required specialty contractor's classification.

   c. For projects with alternate(s), fill out the respective "Joint Contractors or Subcontractors List for the Alternate(s)." Bidder shall determine the specialty contractor's classification and description required for the respective alternate. Bidders shall fill in the complete class number, class description, firm name and license number of the respective joint contractor or subcontractor. The bidder shall not include any joint contractor or subcontractor previously listed for the base bid.

G. COST AND TIME: Bidder shall completely fill out the article and enter the cost for the Project Bid Price, and Alternates when provided. Bidder shall tabulate the Project Bid Price, and Alternates when provided, and the Bidders shall then enter the Total Lump Sum Bid Price. **BE SURE TO ENTER THE TOTAL LUMP SUM BID PRICE IN WORDS AND NUMERALS**. Refer to Bidder's Instructions located within the article.

   1. If provided, bidder shall fill in total costs for each alternate.

   2. The bidder is directed to the construction time information paragraph "B" for the list of contract times and dates which may include: contract duration, project start date, jobsite start date, jobsite completion, contract completion date and construction time for alternates. Bidder shall refer to "Section 01100" of these specifications for additional construction time information, as applicable.

H. SIGNATORY PAGE: Bidder shall completely fill out article (page). Bidder shall indicate if it is a "Hawaii Business" or a "Compliant Non-Hawaii Business." Also, bidder shall refer to Bidder's Instructions located within the article.

1.05 EVALUATION CRITERIA

A. EVALUTATING BIDS: The lowest responsive, responsible bid is determined by the following procedures:

1. The total lump sum bid price is adjusted to reflect the applicable preferences.

    a. For projects with alternates, the total lump sum base bid price and alternates will be adjusted to reflect the applicable preferences.

2. Project control budget is established prior to the submission of bids.

1.06 METHOD OF AWARD

A. The contract will be awarded to the lowest responsive and responsible Bidder whose bid meets the requirements and criteria set forth in the solicitation documents.

B. In the event the total lump sum bid of all bidders exceeds the project control budget, HHSC reserves the right to make an award to the apparent Low Bidder if additional funds are available or by reducing the scope of work through negotiation.

1.07 OTHER CONDITIONS FOR AWARD

A. The Chief Procurement Officer may reject any or all bids and waive any defects if the Chief Procurement Officer believes the rejection or waiver is in the best interest of HHSC.

B. The Chief Procurement Officer may hold all bids up to 60 calendar days from the date bids were opened. Unless otherwise required by law, bids may not be withdrawn without penalty.

C. The award of the contract is conditioned upon funds made available for the project (or projects if applicable).

1.08 COMPLIANCE WITH §3-122-112 HAR:

A. As a condition for award of the contract and as proof of compliance, the bidder shall meet the “Hawaii Business” or “Compliant non-Hawaii Business” requirements and shall provide the following documents:

1. Department of Taxation (DOTAX) and the IRS tax clearance certificates.

2. Department of Labor (DLIR) certificate of compliance.

3. Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG) certificate of good standing.

    a. A Hawaii business that is a sole proprietorship is not

required to register with the BREG and therefore not required to submit the DCCA, BREG "Certificate of Good Standing."

B. The apparent three low bidders shall furnish the required documents to HHSC within seven calendar days from the bid opening date. If a valid certificate is not submitted on a timely basis for award of a contract, a bidder otherwise responsive and responsible may not receive the award. Bidder is responsible to apply for and submit the documents by the required deadlines.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 REQUIRED DOCUMENTATION FOR HAWAII BUSINESS OR COMPLIANT NON-HAWAII BUSINESS (§3-122-112 HAR)

A. TAX CLEARANCE REQUIREMENTS (HRS Chapter 237): Bidder shall obtain a tax clearance certificate from the Hawaii State Department of Taxation (DOTAX) and the Internal Revenue Service (IRS). The certificate is ~~are~~ valid for six months from the most recently approved stamp date on the certificate; the certificate must be valid on the date received by HHSC.

1. DOTAX *TAX CLEARANCE APPLICATION* Form A-6 (Rev 2003) is available at DOTAX and IRS (State of Hawaii) offices or DOTAX website, and by mail or fax.

   a. DOTAX website: http://www.state.hi.us/tax/alphalist.html#a

   b. DOTAX forms by fax/mail: (808) 587-7572 or 1-800-222-7572

2. Mail, fax or submit in person completed tax clearance application forms to the Department of Taxation, Taxpayer Services Branch or to the address listed on the application. Facsimile numbers are:

   a. DOTAX: (808) 587-1488

   b. IRS: (808) 539-1573

3. DOTAX will return the form to the bidder. The bidder is reminded that it is responsible to submit the applications for the tax clearance directly to DOTAX or IRS and not to HHSC.

B. DLIR CERTIFICATE of COMPLIANCE (HRS Chapter 383 - Unemployment Insurance, Chapter 386 - Workers' Compensation, Chapter 392 - Temporary Disability Insurance, and 393 – Prepaid Health Care): Bidder shall obtain a certificate of compliance from the Hawaii

State Department of Labor and Industrial Relations (DLIR). The certificate is valid for six months from the date of issue; certificates must be valid on the date received by HHSC.

1. DLIR *APPLICATION FOR CERTIFICATE OF COMPLIANCE WITH SECTION 3-122-112 HAR*, Form LIR#27 is available at DLIR website or at the neighbor island DLIR District Office.

   a. DLIR website: http://www.dlir.state.hi.us/LIR#27

2. Mail, fax or submit in person completed application form to the Department of Labor and Industrial Relations, Administrative Services Office at the address listed on the application.

3. DLIR will return the form to the bidder. The bidder is reminded that it is responsible to submit the application for the certificate directly to DLIR and not to HHSC.

C. DCCA CERTIFICATE OF GOOD STANDING: Bidder shall obtain a certificate of good standing issued by the Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG). The certificate of good standing is valid for six months from the date of issue; certificates must be valid on the date received by HHSC.

1. DCCA *CERTIFICATE OF GOOD STANDING* is available from the business registrations website or by telephone. Bidders are advised there are costs associated with registering and obtaining the certificate.

   a. DCCA form website: http//www.BusinessRegistrations.com

   b. DCCA telephone: (808) 586-2727, M - F 7:45 to 4:30 HST

2. Submit the application per DCCA's requirements.

3. DCCA will return the form to the bidder. The bidder is reminded that it is responsible to submit the application for the certificate directly to DCCA and not to HHSC.

3.02 GENERAL CONDITIONS

The State of Hawaii INTERIM GENERAL CONDITIONS, dated August 1999, and AMENDMENTS shall be read by the Contractor as they form a part of the Agreement to be entered into between the Contractor and the LEAHI HOSPITAL. The Interim General Conditions are not physically included in these specifications, but are included by reference. Copies of the INTERIM GENERAL CONDITIONS may be obtained from the Division of Public works, Department of Accounting and General Services, State of Hawaii at the following website:
http://hawaii.gov/pwd/construction_bids/Members/gc/gen_cond_constr

The General Conditions are hereby amended as follows:

a. The following terms specified in Section 1 are hereby defined:

i) Bidder shall have the same definition as Contractor.

ii) Comptroller shall be the Chief Financial Officer at LEAHI HOSPITAL or his authorized representative.

iii) Department shall be LEAHI HOSPITAL or its designee.

iv) Engineer shall be the person so designated by LEAHI HOSPITAL.

v) State shall be LEAHI HOSPITAL or its designee.

b. Section 1.20 and 1.25 replace "State of Hawaii" with "State".

c. The last two sentences of the third paragraph of Section 2.1.1.2, in the Interim General Conditions is deleted and is replaced with the following:

" If the notice is faxed, the time of receipt by the CEO's fax machine shall be official. The submittal of intention to bid via fax is acceptable only to this office."

d. Section 2.1.2.1: second sentence is hereby deleted in its entirety.

e. Last sentence of paragraph 2.1.2.3 of the Interim General Conditions is amended to read as follows:

"Failure to submit either the required tax clearance certificate or Bid Form 4 will be sufficient grounds for LEAHI HOSPITAL to refuse to receive or consider the prospective bidder's proposal."

f. The addresses specified in Section 2.6.1 of the Interim General Conditions shall be changed to LEAHI HOSPITAL 3675 Kilauea Avenue Honolulu Hawaii 96817.

g. Sections 2.10 through 2.11 are hereby deleted in their entirety.

h. Paragraph 3.8.1 of the Interim General Conditions is amended to read as follows:

“The contract shall be signed and forwarded to LEAHI HOSPITAL (Contracts Office), by the successful bidder all within three (3) days of receipt of the contract. The performance and payment bonds shall be received by LEAHI HOSPITAL (Contracts Office) within ten (10) calendar days after the bidders is awarded the contract. No proposal or contract shall be considered binding upon the State until the contract has been fully and properly executed by all parties thereto.”

i. In paragraph 3.9.2 of the Interim General Conditions, “ten (10) calendar days after such award or within such further time as the Comptroller may allow” shall be replaced with, “the time allowed in the previous section.”

j. Section 4.1: the words “accepted bid” is deleted from the first sentence.

k. Section 4.9.3: the words “submission of bids” is replaced with the words”execution of this contract”.

l. Section 5.5: the last sentence is hereby deleted in its entirety and replaced with the following:

“In the event of conflict among the Contract Documents, the order of precedence is listed in paragraph 5 of this contract and is further detailed in the following subparagraphs:”

m. Sections 5.5.1 and 5.5.2 are hereby deleted in their entirety.

n. Section 5.8.1: “twenty-four (24)” is hereby changed to “three (3)”.

o. Section 5.11 is hereby deleted in its entirety.

p. Section 5.12.4 is hereby deleted in its entirety.

q. Section 7.3.7.4, subparagraphs a and b: Replace “If the project falls within the State University System, The University of Hawaii” with “LEAHI HOSPITAL”.

r. Section 7.4.1 is hereby deleted in its entirety and replaced with the following:

> “The Contractor shall prepare, process, obtain, and pay for all permits necessary for the proper execution of the work.”

s. Section 7.7.2 is amended to read as follows:
“The wage rate schedule is attached to this contract.”

t. Sections 7.14.2, 7.19.2, and 7.19.4: delete “Departments and Agencies and their” and insert “directors” between “officers” and “representatives”.

u. Section 7.14.4 is hereby added and reads as follows:

> “Contractor warrants that it and none of its employees, agents or subcontractors performing services or providing goods pursuant to this Agreement are excluded from participation in federal health care programs, as defined in the Social Security Act (section 1128 and 1128A), and other federal laws and regulations relating to health care. LEAHI HOSPITAL reserves the right to verify that the above warranty is true and to immediately cancel this Agreement in the event it is violated.”

v. Section 7.15 delete “and its Departments and Agencies”.

w. Section 7.21.8.6 — Delete the word “bad” before the words “weather day conditions.”

x. Section 7.35.1: the last word “earlier” is changed to “later”.

3. CORPORATE COMPLIANCE PROGRAM. A description of the Corporate Compliance Program of HHSC is posted on the HHSC Internet (www.hhsc.org). The CONTRACTOR, by signing this contract, acknowledges that it has read said description, and that the CONTRACTOR knows of the fact and substance of the Corporate Compliance Program, which governs operations at all facilities of the HHSC. The CONTRACTOR understands and agrees that employees, agents, and contractors performing any services at any of the HHSC facilities shall be fully subject to such Corporate Compliance Program, as may be amended from time to time, as well as all federal program requirements and applicable policies and procedures of HHSC and its facilities. The Corporate Compliance Program requires periodic training, including an orientation program, of all people who provide financial, business office, personnel, coding, medical records information systems and clinical services in the facility. The CONTRACTOR agrees to cause its employees, agents, and contractors who provide any services at any financial, business office, personnel, coding, medical records information systems and clinical services at any of the HHSC facilities to participate in the orientation and training programs.

4. CONFIDENTIAL INFORMATION. It is acknowledged and agreed that all of the trade secrets, business plans, marketing plans, know how, data, contracts, documents, scientific and medical concepts, billing records, personnel records, medical records of any kind, and referral resources for existing or future services, products, operations, management, business, pricing, financial status, valuations, business plans, goals, strategies, objectives and agreements of HHSC and any of its facilities, affiliates or subsidiaries, and all patient information, in any form, whether written, verbal, or electronic, are confidential ("Confidential Information"); provided, however, that Confidential Information, with the exception of patient information, shall not include information that is in the public domain.

5. CONTRACTOR EXCLUSION FROM FEDERAL PROGRAMS. CONTRACTOR warrants that it and none of its employees, agents or subcontractors performing services or providing goods pursuant to this Agreement are excluded from participation in federal health care programs, as defined in the Social Security Act (section 1128 and 1128A), and other federal laws and regulations relating to health care. LEAHI HOSPITAL reserves the right to verify that the above warranty is true and to immediately cancel this Agreement in the event it is violated.

6. CAMPAIGN CONTRIBUTIONS BY STATE AND COUNTY CONTRACTORS. CONTRACTORs are hereby notified of the applicability of Section 11-205.5, HRS, which states that campaign contributions are prohibited from specified State or county government contractors during the term of the contract if the contractors are paid with funds appropriated by a legislative body. For more information, please consult with the Campaign Spending Commission, or visit its website, www.hawaii.govicampaign.

END INSTRUCTION TO BIDDERS

SECTION 00800 - SPECIAL PROVISIONS

PART 1 - GENERAL

1.01 SUBSTITUTION REQUESTS

A. Written substitution requests must be submitted 5 days prior to the bid opening. Substitution request will not be accepted after bid opening date.

B. Substitution requests by FAX are not acceptable.

1.02 PROJECT CONTACT PERSON

A. HHSC Representative – For access to the site.

NAME:	Mr. Ron Kurasaki
POSITION OR TITLE:	Project Manager
TELEPHONE NUMBER:	(808) 486-8048
Email	mkato@hhsc.org

B. Contract Manager- For questions during bidding and contract award.

NAME:	Ms. Michelle Kato
POSITION OR TITLE:	Contracts Manager
TELEPHONE NUMBER:	(808) 832-3001
Email:	mkato@hhsc.org

1.03 OFFEROR'S RESPONSIBILITY FOR EXAMINING PLANS, SPECIFICATIONS AND SITE OF WORK

A. Offerors herewith refers to sub-contractors, suppliers, manufacturer's representatives as well as contractors.

1.04 LIQUIDATED DAMAGES

A. In accordance with the General Conditions, upon failure to complete Work or any portion of the Work within the time or times fixed in the contract or extension thereof, the Contractor shall pay liquidated damages to the Department in the amount of $100.00 per calendar day of delay.

B. In accordance with the General Conditions, PROJECT ACCEPTANCE DATE, for failure to correct punch list deficiencies, within the time or times fixed in the contract or extension thereof, the Contractor shall pay liquidated damages to the HHSC, in the amount equal to ten percent (10%) of the liquidated damages per calendar day of delay.

C. In accordance with the General Conditions FINAL SETTLEMENT OF THE CONTRACT, for failure to submit closing documents within the time or times fixed in the contract or extension thereof, it is agreed that the Bidder shall pay liquidated damages to HHSC in the amount equal to five percent (5%) of the liquidated damages per calendar day of delay.

1.05 PERFORMANCE AND PAYMENT BOND

Performance and payment bonds shall be required for contracts $25,000 and higher. At the time of the execution of the contract, the successful Bidder shall

file good and sufficient performance and payment bonds, each in an amount equal to one hundred percent (100%) of the amount of the contract price unless otherwise stated in the solicitation of bids. See section 3.7.1 in the general

1.06 SPECIALTY CONTRACTOR'S LICENSE

A. Contractor shall be solely responsible to assure that all the specialty licenses required to perform the Work are covered by the Contractor or its subcontractor(s).

1.07 WORKING HOURS

A. The regular working hours for this project is from 7:00 AM to 3:30 PM Monday through Friday, excluding State Holidays, unless otherwise noted or restricted under "Section 01100". The Working Hours provisions of specification "Section 01100" shall govern over this article 1.06.

B. The Contractor may be given approval to work beyond the regular hours including Saturdays, Sundays, State Holidays, night work, or after hours under the provisions of the GENERAL CONDITIONS, "Overtime And Night Work Section" and under specification "Section 01100".

1.08 SPECIAL PROCEDURES DURING BIDDING

A. Bid documents will be available from the Contracts Manager's office, at Maluhia, 1027 Hala Drive, Honolulu, HI, 96817.

B. All bids shall be submitted to the Contracts Manager.

C. All questions regarding the IFB shall be submitted, in writing, to the Contract Manager. The Contract Manager will review the questions and issue any responses via Addendum. Only information received by Addendum shall be binding.

E. Any visitation to the site to examine the scope of work shall be requested through the HHSC Representative. Disruption of facility operations shall not be permitted.

F. Bid Submittal via email will be accepted by the due date and time. Please send to Michelle at mkato@hhsc.org.

1.09 PROCEDURES DURING CONSTRUCTION

A. Upon issuance of the Notice to Proceed, the Contractor shall submit a work schedule for review and discussion. The work schedule shall be up-dated on a weekly or bi-weekly basis as directed by the Architect.

B. On a weekly or bi-weekly basis, the Contractor shall conduct a progress meeting with the Hospital and Architect. The meeting will discuss the progress of the construction, discussion of problems, and review of outstanding issues. The Contractor shall conduct the meeting and prepare the meeting notes and minutes and distribute to all parties.

C. During the construction, submittals and RFIs shall be submitted to the Architect for review and action. To expedite the review, the Contractor may make submittals via email.

D. Periodic requests for payment shall be submitted to the Architect for review and confirmation. Approved requests for payment will be forwarded to the Contracts Officer for processing of payment.

E. Upon substantial completion of the project, the Contractor shall submit in writing to the Architect a request for a pre-final inspection. The Contractor shall have completed their own inspection and completed all noted discrepancies. Include with the request for the pre-final inspection a list of all outstanding work not completed or corrected.

F. Upon conducting a pre-final inspection, the Architect shall prepare a punchlist of noted discrepancies for the Contractor's remedial action. A final inspection will be performed upon completion of all punchlist items.

1.10 PROJECT RESTRICTIONS

A. The Contractor is informed that the facilities will be fully occupied and work shall be performed in close coordination with the HHSC representative. Work shall be phased and may be limited to one Bathroom or area at a time. Work will require the relocation of clients from the work area. Time shall be allocated for the Hospital to conduct this relocation. Scheduling of the work shall be closely monitored and work performed to minimize the disruption to the remaining areas of the facility.

B. Staging and storage of materials on-site is limited and shall be coordinated with the HHSC representative. Contractor may be required to store materials off-site at his own expense.

C. Parking on-site is limited and may be restricted to only active delivery of materials and equipment. Coordinate with the HHSC representative. If on-site parking not be available, the Contractor shall park off-site.

D. The above restrictions shall be considered in the work of this project and shall be included in the Contractor's cost. No additional compensation shall be made for not considering these restrictions.

PART 2 - EXECUTION

2.01 FINAL PAYMENT REQUIREMENTS

A. In addition to the requirements in the GENERAL CONDITIONS "Final Payment" section, the contractor shall submit"

1. Tax clearance certificate from DOTAX and IRS, current within two months of the issuance date;

END OF SECTION

DIVISION 2 – SITE CONSTRUCTION

SECTION 02200 - EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY

Furnish all material, labor and equipment required to complete all excavation, filling and grading as indicated on the drawings.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Asbestos Prohibition: No asbestos containing materials or equipment shall be used in this section. The Contractor shall ensure that all materials and equipment incorporated in the project are asbestos-free.

B. Structural Fill: Structural fill under cushion fill below concrete slabs or walkways on grade shall consist of a minimum six inch layer thickness. A non-expansive select granular fill shall be used for areas of proposed fill. Submit laboratory test results of non-expansive select granular fill material for approval by the Contracting Officer.

1. The gradation and material quality of the non-expansive select granular fill shall consist of crushed basalt or coral. The material shall be well graded from coarse to fine with particles no larger than three inches in largest dimension and contain between 10 and 30 percent particles passing the No. 200 sieve. The material shall have a laboratory CBR value of 20 or more and should have a maximum swell of 1 percent or less.

2. The non-expansive select granular fill shall be moisture conditioned above the optimum moisture, placed in level lifts not exceeding 8 inches loose thickness, and compacted to a minimum 95 percent relative compaction.

C. Cushion Fill: New cushion fill under concrete slabs or walkways on grade shall consist of a minimum four inch layer thickness. Cushion fill shall consist of crushed rock (#3B fine gravel).

D. Product Delivery, Storage and Handling: Materials shall be worked to raise as little dust as possible. If materials become too dry and dusting occurs, implement procedures to eliminate dust.

PART 3 - EXECUTION

3.01 INSTALLATION AND WORKMANSHIP

A. Laying Out:

1. The laying out of base lines, establishment of grades and staking out the entire work shall be done by a Surveyor or Civil Engineer licensed in the State of Hawaii at the expense of the Contractor and he shall be solely responsible for their accuracy. The Contractor shall erect and maintain substantial batterboards showing construction lines and levels.

2. The dimensions given on the drawings shall be verified by the Contractor before any lay-out work is done. The Contractor shall immediately notify the Contracting Officer before proceeding with lay-out work should any discrepancies be discovered. Otherwise he will be held responsible for any costs involved in correction of construction placed due to such discrepancies. Starting of laying-out work shall be construed to mean that the Contractor agrees that the dimensions given on the drawings are essentially correct as shown and no extra compensation will be allowed if he fails to report the discrepancies before proceeding with the laying-out work.

B. Protective Measures:

1. All excavation shall be protected and guarded against danger to life, limb and property.

2. All excavations shall be kept free from standing water. The Contractor shall do all pumping and draining that may be necessary to remove water to the extent required in carrying on the work. Grade shall be controlled so that the ground surface is properly sloped to conduct storm runoff away from the building and open excavations and to protect slopes from erosion.

C. Existing Utility Lines:

1. The existence of active underground utility lines traversing the construction area is not definitely known. If shown on the drawings, they are only approximate in their locations. The Contractor shall tone/subsurface radar to investigate the complete project area prior to starting work, and actual digging in the field if necessary to determine the actual locations of such utilities with all their branch and service lines whether indicated on the drawings or not.

2. Should any utility or service lines be encountered during the excavation, the Contractor shall not disconnect same without authorization by the Hospital of the lines. Inform the Hospital immediately of each discovery, investigate and receive proper authorization for procedure. Damages to and relocation of existing active underground utility lines traversing the construction area shall be the responsibility of the Contractor and at his expense.

D. Grading:

1. Grade area to finished elevations indicated in accordance with the Grading, Soil Erosion and Sediment Control Ordinance of the City and County of Honolulu, and the recommendations contained therein unless modified herein.

   a. Grade by cut and fill prior to the construction. Materials resulting from cut operation may be used as fill material providing that they contain no adobe or other objectionable material and meet the requirements specified above under Materials.

   b. Within the limits of the new concrete walkway areas, the existing soil shall be excavated to subgrade elevation, scarified to a depth of 6 inches below subgrade, moisture conditioned on the wet side of optimum and recompacted to 95% of maximum density as determined by ASTM D 1557, and backfilled with materials as indicated on the drawings. The subgrade shall not be allowed to dry prior to backfilling with base course.

E. Surplus Earth Materials: Surplus earth material resulting from excavation shall be hauled away from the project site without any additional cost to the Hospital.

F. Waste Material Disposal: Excavated materials declared unusable shall be removed from the site and disposed of at the Contractor's expense.

END OF SECTION

SECTION 02410 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. Extent of selective demolition work is indicated on the drawings. Selective demolition work includes, but is not limited to, selective demolition, removal, and subsequent disposal of all materials indicated or required to be removed.

B. It shall be the responsibility of the Contractor to examine the project site and determine for himself the existing conditions.

C. Execute all work in an orderly and careful manner with due consideration for all items of work to remain.

D. Obvious conditions which exist on the site shall be accepted as part of the work, even though they may not be clearly indicated on the Drawings and/or described herein, or may vary therefrom.

E. All debris of any kind accumulated from the work of this section shall be disposed of off the site.

F. Schedule construction work in sections or phases to be able to protect exposed area from rain damage.

G. Protect all existing conditions surrounding the work area, including, but not limited to, walkways, parking, landscaping, etc. at all times from damage.

H. Any damage as a result of demolition work and any neglect to provide protection shall be fixed new at Contractor's own expense.

I. Demolish and remove materials as indicated on the drawings and as required to perform work under this project.

J. Remove/relocate existing signage, etc. as required to perform demolition work. Return all items to its original location, unless otherwise indicated or directed by the Contracting Officer, after completion of work.

K. Permits, Notice, Etc.:

1. The Contractor shall procure and pay for all necessary permits or certificates that may be required in connection with this work.

2. The Contractor shall serve proper notice and consult with the Contracting Officer regarding any temporary disconnections of electrical or other utility lines in the area which may interfere with the removal work, and all such lines where necessary shall be properly disconnected or relocated before commencing with the work.

1.02 SUBMITTALS

Schedule: Submit schedule indicating proposed methods and sequence of operations for selective demolition work for review prior to commencement of work. Include coordination for temporary shut-off and continuation of utility services as required, together with details for dust and noise control protection.

1.03 JOB CONDITIONS

A. Condition of Structure: The State assumes no responsibility for actual condition of items or portions of structure to be demolished.

B. Existing Conditions: Conditions existing at time of commencement of contract will be maintained by the State insofar as practicable.

C. Occupied Spaces: Do not interfere with use of adjacent occupied spaces. Maintain free and safe passage to and from occupied spaces.

D. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor, may be removed from structure as work progresses. Transport salvaged items from site as they are removed. Storage or sale of removed items on site will not be permitted.

E. Explosives: Use of explosives will not be permitted.

F. Utility Services: The existence of exposed and concealed utility lines other than those shown on the drawings is not definitely known. Should any other utility lines be encountered, the Contractor shall immediately notify the Contracting Officer and follow his direction as to procedure. Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations. Do not interrupt existing utilities serving occupied building or facilities, except when authorized in writing by the Contracting Officer. Outages and interruptions must be accepted in advance by the Contracting Officer. Submit written notice of outages and interruptions not less than fourteen days in advance of intended outage. Report damage, however slight, immediately. Do not repair or reconstruct any pipe, conduit, or installation without authorization, except perform emergency repairs immediately.

G. Dust Control:

1. Keep dust within acceptable levels at all times, including non-working hours, weekends and holidays, in conformance with Hawaii Administrative Rules, Title 11, Department of Health, Chapter 60.1, Air Pollution Control, latest edition as amended.

2. Mechanical dry sweeping not permitted. Vacuuming, wet mopping, approved limited dry hand, wet or damp sweeping is acceptable.

3. During loading operations, water down debris and waste materials to allay dust.

4. The method of dust control and all costs incurred thereof shall be the responsibility of the Contractor.

H. Noise Control:

1. Noise shall be kept within acceptable levels at all times in conformance with Hawaii Administrative Rules, Title 11, Department of Health, Chapter 46 - Community Noise Control, latest edition as amended. The Contractor shall obtain and pay for community noise permit from the State Department of Health when the construction equipment or other devices emit noise at level exceeding the allowable limits.

2. All internal combustion engine powered equipment shall have mufflers to minimize noise and shall be properly maintained to reduce noise to acceptable levels.

3. Starting up of on-site vehicular equipment meeting allowable noise limits shall not be done prior to 6:45 a.m. without prior acceptance of the Contracting Officer. Equipment exceeding allowable noise limits shall not be started up prior to 7:00 a.m.

4. Conform to noise control related to events at the project site or adjoining facilities as directed by the Contracting Officer.

I. Other Controls:

1. Wherever trucks and/or vehicles leave the site and enter surrounding paved streets, the Contractor shall prevent any material from being carried onto the pavement. Waste water shall not be discharged into existing streams, waterways, or drainage systems such as gutter and catch basins unless treated to comply with Department of Health pollution regulations.

2. Trucks hauling materials shall be covered as required by PUC regulation. Trucks hauling fine materials shall be covered.

J. Existing Conditions: The Contractor shall be responsible for protection of existing conditions for the entire duration of the project. Damage to the existing conditions as a result of the work of this section shall be corrected at Contractor's own expense.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

3.01 INSPECTION

Prior to commencement of selective demolition work, inspect areas in which work will be performed. Inventory existing conditions of structure surfaces, equipment or surrounding properties which could be misconstrued as damage resulting from selective demolition work; photograph, video or otherwise document and file with the Contracting Officer prior to starting work.

3.02 SELECTIVE DEMOLITION

A. Perform selective demolition work, including all improvements indicated on the drawings, in a systematic manner. Use such methods as required to complete work indicated on drawings in accordance with demolition schedule and governing regulations.

1. Demolish concrete in small sections. Cut concrete at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.

2. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction. All dust shall be suppressed by a fog spray or other approved method.

B. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to the Contracting Officer in written, accurate detail. Pending receipt of directive from the Contracting Officer rearrange selective demolition schedule as necessary to continue overall job progress without delay.

3.03 PROTECTIONS

Provide temporary barricades and other forms of protection as required to protect the general public from injury due to selective demolition work.

1. Erect temporary barricades as required, to prevent people from entering into project area to the extent as accepted by the Contracting Officer. The extent of barricade may be adjusted as necessary with the acceptance of the Contracting Officer. This work shall be accomplished at Contractor's own expense.

2. When necessary, the Contractor shall provide, erect and maintain lights, barriers, etc., as required by traffic and safety regulations with special attention to protection of life.

3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or elements to be removed, and adjacent facilities or work to remain.

4. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.

5. Life safety procedures and provisions shall be in conformance with all applicable Federal, State, and City and County regulations, including OSHA.

6. Remove protections at completion of work.

3.04 DAMAGES

Promptly repair damages caused to adjacent facilities by demolition work at Contractor's own expense.

3.05 TRAFFIC

A. Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from the Contracting Officer. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations, as directed by the Contracting Officer.

B. Buildings and facilities which are essential for public use for the construction period shall be provided with safe pedestrian passageways around the construction site as per ADAAG 206.

3.06 DISPOSAL OF DEMOLISHED MATERIALS

Remove debris, rubbish, and other materials resulting from demolition operations from building site daily. Transport and legally dispose of materials off site. Burning of removed materials is not permitted on project site.

3.07 HAZARDOUS MATERIALS

If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

3.08 MATERIAL STORAGE

Removed items to be re-installed by the Contractor shall be stored in a secured room. The Contractor shall be responsible for all items and shall replace any missing items at his own expense.

3.09 CLEAN-UP AND REPAIR

A. Clean up the work site daily and at the completion of removal work. Leave the area neat and clean to the satisfaction of the Contracting Officer.

B. Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.

C. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

D. Where exposed existing surfaces and/or materials are damaged or left unfinished by the removal work, the resultant exposed unfinished surfaces shall be repaired, patched, filled or finished to match the adjoining existing surfaces. Where the method of repair work is not indicated or specified, the Contractor shall perform the repair work in accordance with the best recognized workmanlike procedure.

E. All existing grass areas disturbed or damaged due to construction or ingress or egress to the site shall be repaired to its original conditions. Grass areas shall be recultivated, topsoiled, and then grassed with the same kind and type of material as existing.

F. Trenches, holes, depressions, and pits left by the removal of miscellaneous improvements shall be backfilled with select borrow and compacted to 95% maximum dry density as determined by ASTM D 1557.

END OF SECTION

SECTION 02810 - LANDSCAPE IRRIGATION SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. Provide a landscape irrigation system in the areas shown on the Drawings. Work indicated on the Drawings by notes shall be provided whether or not specifically mentioned in the Specifications. Items not specifically shown in the Drawings or specified, but normally required to conform with such intent, are considered part of the work. Contractor shall furnish materials, labor and equipment necessary to complete the work described herein and as indicated.

B. The work in this Section includes, but is not limited to the following:

1. All necessary permits and certificates.

2. Excavation and backfilling.

3. Installation of backflow prevention device, pipes, fittings, valves, irrigation heads, irrigation controller, and electrical wiring.

4. Adjustment.

5. Instructions to Owner's operating personnel.

6. As-built drawings.

7. Warranty.

1.02 INCORPORATED DOCUMENTS

Published specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to work of this Section where cited by abbreviations noted below.

1. American Society for Testing and Materials (ASTM).

2. National Sanitation Foundation (NSF).

3. Uniform Plumbing Code, current edition (UPC).

1.03 SUBMITTALS

A. Substitutions: For purposes of establishing minimum requirements for type and quality of materials, the irrigation plan and specifications are based upon products of specific manufacturers. Whenever products of other manufacturers are to be considered, submit supporting technical literature to the Architect for prequalification prior to bidding.

B. Manufacturer's Warranties: Submit manufacturer's certificates of warranty.

C. As-built Drawings: Prepare and submit one reproducible as-built plan of the installation drawn or printed on tracing paper or mylar drafting film.

1.04 REQUIREMENTS OF REGULATORY AGENCIES

A. Work shall conform to governing laws, codes, ordinances and regulations.

B. Procure and pay for necessary permits and certificates required in connection with this work.

1.05 WARRANTY

A. Warranty entire irrigation system for a period of one year after the date of acceptance. Immediately repair or replace material and equipment found to be defective due to faulty material or workmanship during this period. This warranty does not include vandalism, negligence by others, or acts of God.

B. Contractor is responsible for damage caused by the irrigation system during installation or the Warranty Period due to failure of workmanship or materials. Repair damage and return the area to the previous condition at Contractor's expense.

PART 2 - PRODUCTS

2.01 MATERIALS

Use new materials, in first class condition. Items of one type shall be from the same manufacturer.

2.02 IRRIGATION MAINS AND SLEEVES

Polyvinyl chloride, Schedule 40, ASTM Type 1, Grade 1 (PVC 1120), NSF approved, conforming to ASTM D1784 and D1785 specifications, solvent weld bell, unless otherwise indicated. J-M or PW pipe or accepted equivalent.

2.03 IRRIGATION LATERALS

Polyvinyl chloride, 200 PSI (SDR 21), ASTM Type 1, Grade 1 (PVC 1120), NSF approved, conforming to ASTM D1784 and D2241 specifications, solvent weld bell, unless otherwise indicated. J-M or PW pipe or accepted equivalent.

2.04 FITTINGS

Schedule 40 PVC, Type 1, ASTM D1784 and D2466 unless otherwise indicated. Dura, Lasco, Spears or accepted equivalent.

IRRIGATION CABLE

A. AWG #14, U.L. listed Type UF-600V, solid copper conductor.

B. Common wire shall have a white jacket, control wires shall have a red jacket.

2.05 WIRE CONNECTORS

3M DBR/Y Direct Bury Splice Kit or accepted equivalent.

2.06 SOLVENT CEMENT

As recommended by the pipe manufacturer and conforming to ASTM D2564. Use primer approved by the pipe manufacturer.

2.07 CONCRETE ANCHOR BLOCKS

2500 PSI concrete.

PART 3 - EXECUTION

3.01 INSPECTION

Inspect the substrates and conditions under which work of this Section will be performed. Do not proceed until unsatisfactory conditions have been corrected.

3.02 EXCAVATION AND BACKFILL

A. Verify locations of utility lines. Arrange and pay for repair of utilities and structures damaged as a result of these operations.

B. Install irrigation mains and electrical wiring at least 18 inches below finish grade; laterals at least 12 inches below finish grade; and sleeves, pipes and electrical wiring crossing pavement at least 18 inches below finish grade at sidewalks and 2 feet below finish grade at roadways. Install electrical wiring below irrigation pipes for protection.

C. Provide firm uniform bed for the entire length of each pipeline.

D. No rocks or sharp objects 1/2-inch or larger shall be within 6 inches of PVC pipe and fittings.

E. Barricade and/or light the excavated areas to prevent undue hazard to the public.

F. Should settlement occur over trenches after completion of irrigation system, refill and compact soil as directed.

3.03 INSTALLATION

A. Installation of the materials and workmanship shall conform to the manufacturer's recommendations; where provisions of the specifications exceed such requirements, the specifications shall govern.

B. Immediately notify Architect of any discrepancy between drawings and actual site conditions. Do not proceed with work within affected area until discrepancy has been resolved by Architect.

C. Make minor field adjustments due to site conditions to insure adequate coverage and even distribution of water in landscape areas.

D. Adjust the location, arc and radius of irrigation heads as required to eliminate dry areas and to minimize over spray.

E. Allow for expansion and contraction of PVC pipe by snaking it from side to side in the trench.

F. Parallel piping may be installed in the same trench with pipes at the same depth and 4-inch minimum horizontal separation between pipes. Parallel piping shall not cross in the trench.

G. Crossing pipes shall have a 4-inch minimum vertical separation. No direct contact between other pipes or structures will be permitted.

H. Prior to backfilling, pipes shall be tested and inspected for leaks at the joints and fittings and repaired or replaced as required.

I. Prior to installing irrigation valves and heads, flush pipes under full pressure to insure removal of dirt and debris.

J. Assemblies with threaded PVC pipe connections to metal pipe or fittings shall utilize PVC Schedule 40 male adapters or PVC Schedule 80 nipples unless otherwise indicated.

K. Wire splices and connections shall be waterproof.

L. Provide fittings and parts for a functioning irrigation system and connect to existing water source and stub outs.

M. After installation, adjust irrigation heads and valves to provide the most effective coverage possible.

3.04 TESTS AND INSPECTIONS

A. Pressure Test: Conform with UPC, General Regulations, Section 609.4, Testing.

B. Preliminary Inspection: After irrigation system is complete, request a preliminary inspection. Perform coverage test in the presence of the Architect or Owner to determine if water distribution for areas is complete and adequate.

C. Maintenance Period: Contractor is responsible for maintaining the irrigation system in an operable manner, including repair or replacement of stolen or vandalized equipment, until completion of landscape maintenance period and acceptance of landscaping.

D. Final Inspection: At completion of maintenance period, request a final inspection. Perform coverage test in the presence of Architect. Warranty period shall not begin until corrections are completed to the satisfaction of the Architect.

E. Completion of above tests shall not relieve Contractor from repairing leaks or areas of poor coverage discovered during the warranty period.

3.05 OPERATIONAL INSTRUCTION

Prior to acceptance of the installation, arrange a meeting on site to instruct Owner's maintenance personnel in the proper operation of the irrigation system.

3.06 CLEAN UP

A. Remove from the premises, as work progresses, rubbish and debris resulting from this work.

B. Upon completion, leave entire area in a neat and orderly condition.

C. Promptly remove any soil falling upon pavement as a result of these operations.

END OF SECTION

SECTION 02900 - LANDSCAPING

PART 1 - GENERAL

1.01 SUMMARY

A. Provide landscape plantings in the areas shown on the Drawings with plants in a healthy, vigorous growing condition. Work indicated on the Drawings by notes shall be provided whether or not specifically mentioned in the Specifications. Items not specifically shown in the Drawings or specified, but normally required to conform with such intent, are considered part of the work.

B. The work of this Section includes but is not limited to the following:

1. Clearing and grubbing

2. Imported screened soil.

3. Pre-planting weed control.

4. Soil preparation.

5. Fine grading.

6. Planting operations.

7. Maintenance.

8. Warranty.

1.02 CODES AND STANDARDS

Perform work in accordance with applicable laws, codes, and regulations required by authorities having jurisdiction over such work and provide for inspections and permits required by Federal, State and local authorities in furnishing, transporting and installing materials.

1.03 WARRANTY

Warranty planting furnished or relocated under this contract until completion of the maintenance period. Immediately replace plants that decline or die during the warranty period, using the same kind and size as originally planted. Furnish, plant and maintain replacement plants as specified for original planting.

Warranty planting for a period of 2 years following completion and approval of formal maintenance period for species, hybrid, flower color and/or variety specified. If after acceptance of the project, any warranted plant material proves to be of a different species, hybrid, flower color and/or variety not initially determinable, replace that plant with a new plant of the originally specified species, hybrid, flower color and/or variety. The new plant shall be equal in size to that of the incorrect plant at the time of its removal. The new plant shall meet

the quality standards, be subject to the warranty, and be installed according to the Specifications. This warranty does not include plants reverting to the general species. The Architect will determine the nonconformance of the plant materials and notify the Contractor in writing of the required replacement work. Materials and work shall be at the expense of the Contractor. Work shall be completed within 10 working days from the date of notification by the Architect.

PART 2 - PRODUCTS

2.01 PLANT MATERIAL

A. Botanical and common names of plants specified on the Drawings conform with names given in Tropica by Alfred Byrd Graf, and In Gardens of Hawaii by Marie C. Neal. Names not included therein conform to names generally accepted in the local nursery trade.

B. Plant material shall conform with recommendations and requirements of the most recent edition of the American Standard of Nursery Stock, published by the American Association of Nurseryman Inc., except as supplemented or modified by these specifications or the drawings.

C. All plant material shall have a habit of growth that is normal for the species and shall be healthy and free from insects and injuries. Trees and shrubs shall have normal, well-developed branching, together with vigorous root systems. Roots must fill containers, but show no evidence of being or having been root bound. Any tree or shrub with a weak, thin trunk not capable of supporting itself when planted in the open will be rejected. Plants shall equal or exceed measurements specified on planting plan, which will be the minimum acceptable sizes after pruning.

2.02 IMPORTED SCREENED SOIL

Fertile, friable soil of loamy character, free of clay, refuse, branches, weeds, noxious seeds, nematodes or other deleterious or extraneous matter. Soil shall have a minimum pH value of 5.4 and a maximum pH value of 7.0 prior to amending. Stones and earth lumps shall not exceed one inch in largest dimension. Red Humic latosol soils or types known as "Red Dirt" are unacceptable. Soil is subject to approval by the Architect.

2.03 FERTILIZERS AND SOIL AMENDMENTS

A. Fertilizer: "Lesco sulfur-coated 14-14-14 + minors", unless otherwise indicated in soil analysis report, or accepted equivalent.

B. Fertilizer Tablets: "Gro-Power 12-8-8 planting tablets", 7 gram, or accepted equivalent.

C. Manure: Cattle or chicken manure free of extraneous matter and screened to remove lumps larger than one inch in diameter.

2.04 PRE-EMERGENT HERBICIDE

"Ronstar-G" or accepted equivalent.

2.05 POST-EMERGENT HERBICIDE

Selective herbicide for removal of existing weeds, lawn and nutgrass.

2.06 BIOBARRIER

“Typar” Biobarrier manufactured by Reemay Inc. with 19.5 inches minimum width. Install per manufacturer's recommendations.

2.07 TREE TRUNK PROTECTOR

Polyethylene with a minimum thickness of 0.06 inches; height of 9 inches and expanding diameter to a maximum of 4 inches. “Deep Root ArborGard + AG 9-4” or accepted equivalent.

2.08 POLYETHYLENE BOARD DIVIDER (Poly Board Divider)

Grade B Premium Blend Medium Density Polyethylene with UV Inhibitor, 5-inches high, 3/4-inch thick, Valley View PB-6 or accepted equivalent.

PART 3 - EXECUTION

3.01 INSPECTIONS

Inspect the substrates and conditions under which work of this section will be performed. Do not proceed until unsatisfactory conditions have been corrected. Immediately notify Architect of any discrepancy between the Drawings and actual site conditions. Do not proceed with work within affected area until discrepancy has been resolved by Architect.

3.02 PREPARATION OF PLANTING AREAS

A. Clear planting areas of debris and foreign material. Remove rocks exceeding one inch in largest dimension and weeds and vegetation unless designated to remain. Spray nutgrass with post-emergent herbicide. Follow manufacturer's instructions for herbicide application.

B. Cut and fill planting areas as required to set rough grade 4 inches below finish grade elevations specified on Grading Plan in areas where screened soil will be spread. Any fill required shall be approved screened soil.

C. Spread fertilizer at rate of 20 lbs. per 1000 square feet, unless otherwise indicated in soil analysis report, over rough grade in planting areas and then scarify soil to a depth of 8 inches by tilling until the soil is loose and fine textured.

D. All construction operations of soil transportation, spreading and fine grading shall conform to Chapter 23, Grading Soil Erosion Standards and Guidelines dated 1975, Revised Supplement 1 dated 1992 and amendment (Ordinance No. 96-34). Contractor shall not perform any construction work so as to cause falling rocks, soil, or debris in any form to fall, slide or flow onto adjoining properties, streets, natural watercourses, or drainage facilities. The Contractor shall also be responsible for conformity with the applicable provisions of Chapter 54, Water Quality Standards, and Chapter 55, Water Pollution Control, of Title 11, Administrative Rules of the State Department of Health. Should a violation occur, the cost incurred for any remedial action shall be at the expense of the Contractor.

E. Dust Control: Contractor shall abide by all Federal, State and City ordinances regarding dust control practices during construction.

F. After completion of tillage, spread 4-inch deep layer of screened soil mix over rough grade in planting areas unless otherwise indicated. Greater depths of screened soil mix may be required to meet specified finish grades adjacent to sidewalks, pavement and curbs. Finish grades shall be as specified on Grading Plan. Maintain previously established drainage swales.

G. Remove stones exceeding one inch in largest dimension, sticks, rubbish, and other extraneous matter that is exposed by tilling. Remove this debris from the site.

H. Fine grade: Grades shall be smooth and on a uniform plane with no abrupt changes or pockets and shall slope away from the building at a minimum slope of 1/4-inch per foot. Maintain previously established drainage swales. Verify the surface drainage of planting areas. Notify Architect of discrepancies, obstructions or other conditions considered detrimental to proper execution of the work.

I. Tie landscape work to existing conditions and controls such as existing walls, pavement, utility lines, storm drains, etc. Finish grades shall properly relate to such controls. Adjust new work as necessary and as directed to meet existing conditions and fulfill the intent of the Drawings.

J. Finish grades adjacent to sidewalks, pavement and curbs shall be a 1/2-inch below top of sidewalk, pavement or curb and shall slope away at a maximum slope of one inch vertically to 6 inches horizontally to intersect the adjoining grade, unless otherwise indicated on Grading Plan.

3.03 INSTALLATION OF PLANT MATERIAL

A. Quantities stated on planting plan and in plant list are only approximate. Verify quantities before bidding. Provide sufficient quantities to fulfill intent of plan with plants and other specified materials at locations, spacings and depths indicated. The planting plan takes precedence over stated quantities.

B. Caliper measurements shall be taken at a point on the trunk 6 inches above natural ground lines for trees up to 4 inches in caliper and at a point 12 inches above the natural ground line for trees over 4 inches in caliper.

C. Relocated and field stock plants shall have a root ball of sufficient size to support recovery of the plant from transplanting. Plants with small or inadequate root balls will be rejected.

D. Verify locations of utility lines. Arrange and pay for repair of utilities and structures damaged as a result of these operations.

E. Use adequate wrapping and padding to protect trunks and branches from rope, cable and equipment abrasions during planting operations.

F. Notify Architect in writing of soil or drainage conditions encountered during planting operations which the Contractor considers detrimental to growth of plant material. If drainage conditions of plant pits appear unsatisfactory, test drainage by filling with water. Conditions permitting the retention of water in planting pits for an excessive period of time shall be brought to the attention of the Architect.

G. Backfill mix for planting of trees and shrubs shall be 4 parts excavated soil from planting pit to 1 part manure. If the excavated soil is of poor quality or insufficient in quantity, provide the necessary additional screened soil.

Thoroughly mix backfill together with fertilizer at the following rates:

8 cups (4 lbs.)	per field stock or relocated tree
4 cups (2 lbs.)	per 25-gallon can tree or palm
3 cups (1 1/2 lbs.)	per 15-gallon can tree or palm
1/2 cup (1/4 lb.)	per 5-gallon can tree or shrub
1/2 cup (1/4 lb.)	per 3-gallon can shrub
1/4 cup (1/8 lb.)	per 1-gallon can shrub

H. Diameter of plant pits for trees and shrubs shall be at least twice the diameter of the rootball; depth of pits shall be sufficient to accommodate rootball when plant is set 2 inches below finish grade, allowing for at least one foot of prepared backfill mix below rootball.

I. Set trees and shrubs on tamped backfill mix with top of rootball 2 inches below finish grade. Set each plant upright and in a position of natural balance and appearance and face to provide the best appearance in relationship to adjacent structures and surroundings.

J. Carefully place backfill under and around rootball to ensure no air pockets and tamp firmly to prevent settling. Space fertilizer tablets evenly around rootball, approximately 2 inches from root tips, alongside lower half of rootball. Apply fertilizer tablets at the following rates:

Container Size	Number of Tablets
Field stock or relocated tree	50
25-gallon can	30
15-gallon can	20
5-gallon can	10
3-gallon can	5
1-gallon can	3

K. Set finish grade of backfill approximately flush with top of rootball, leaving a 2-inch deep watering basin over the rootball.

L. Support single trunk palms immediately after planting. Brace each palm with 3 equally spaced guys. Encase guys in garden hose at point of contact with tree trunk and attach to trunk at about 2/3 the height of the palm. Encase lower portion of guy wires in a 4 foot minimum length of 1/2-inch diameter PVC pipe. Pound stakes below finish grade after attaching guys. Flag each guy with at least 2 strips of yellow plastic tape; one tied at eye level and one at knee level, in such a manner as to remain in place without slipping. Keep guys taut throughout contract period.

M. Pruning shall be performed by experienced tree trimmers who, through related training and on-the-job experience, are familiar with the techniques and hazards of this work.

1. Limit pruning of trees and shrubs to the minimum necessary to remove dead and broken branches and undesirable growth, and to compensate for loss of roots during transplanting. Prune in a manner which retains the natural habit and shape of the plant.

2. Branches should be cut back above the collar at a healthy limb or bud without leaving a stub which may decay and injure the plant. On larger branches and limbs requiring a saw for removal, a preliminary undercut approximately 1/3 through the limb must be made to prevent ripping and tearing of the bark.

   On the upper side of the limb, above the first cut, make a second cut to remove the limb. Then remove the remaining stub.

N. Apply pre-emergent herbicide in ground cover areas, except where seeds or unrooted cuttings are planted. Follow manufacturer's directions. If Contractor elects to use "Ronstar-G" herbicide, apply it following completion of ground cover planting. Do not disturb the soil after spreading "Ronstar-G."

O. Plant ground cover in neat rows insuring complete coverage of planting areas, including watering basins and under and around trees, shrubs and hedges. Spacings indicated on drawings are triangular spacing.

P. Water each plant deeply and thoroughly, saturating rootball immediately following planting. Keep planting areas moist, but not saturated until completion of maintenance period.

Q. Maintain finish grade established prior to planting. Restore finish grade in any area disturbed by erosion or planting operations.

R. Poly Divider: Install in accordance with installation instructions furnished by the manufacturer. Join poly divider sections with approved fittings. Top of poly divider shall be one inch above finish grade.

3.04 CLEAN-UP

A. Remove from the premises, as work progresses, rubbish and debris resulting from this work.

B. Upon completion, leave entire area in a neat and orderly condition.

C. Promptly remove any soil falling upon pavement as a result of these operations.

3.05 INSPECTION

A. When planting and clean-up have been completed, request that an inspection be held so that the maintenance period may be started. Correct deficiencies noted at the inspection to the satisfaction of the Owner and the Architect before starting the formal maintenance period.

B. At the completion of the maintenance period, a final inspection shall be held to resolve and correct any deficiencies. Make corrections immediately.

C. Contractor, Architect, Owner, or their representatives, shall be present at each inspection.

D. Request inspections at least one week in advance so that a mutually agreeable time may be arranged.

3.06 MAINTENANCE

A. Maintain planting within project limit from effective date of the construction contract until 90 days after completion and approval of planting operations.

B. Contractor shall have on-site at all times a written Best Management Practice (BMP) plan as stated within the Chapter 55, Water Pollution Control, of Title 11, Administrative Rules of the State Department of Health. Within BMP, the following shall be made part of the plan: types of fertilizer used based upon periodic soil analysis for plant nutrient level, irrigation operation (run time) based upon seasonal changes and annual rainfall with adjustment accordingly, chemical spraying for pests, etc.

C. Maintain plants and planted areas in optimum growing conditions and appearance. Maintenance shall include watering, weeding, mowing, trimming, fertilizing, replacing, pruning, maintaining of grades and elevations in landscaped areas, and other operations necessary to maintain work. Remove from the site leaves, trash and debris which accumulate in planting areas.

1. Irrigate as necessary to secure maximum growth of plants. Regulate irrigation as required to avoid runoff and soil erosion.

2. Keep planting areas free of weeds and undesirable grasses, including nutgrass. Remove entire root system of weeds.

3. Mow lawn areas after grass is established, to a height of one inch whenever the height of the grass becomes 1-1/2 inches. Remove clippings.

4. Topdress and roll lawn areas as necessary to obtain smooth and level lawn surface.

5. Immediately regrass bare spots within lawn areas.

6. Spread fertilizer over planting areas at rate of 10 lbs. per 1000 square feet; once, 30 days after start of maintenance period and again, every 30 days thereafter until completion of maintenance period. Notify Architect one day prior to application of fertilizer.

7. Promptly wash off any fertilizer which adheres to foliage. Irrigate planting areas following fertilizer application. Promptly sweep off any fertilizer which falls on pavement, wood or metal surfaces to prevent staining.

8. Prune trees and shrubs as required or as directed by the Architect.

9. Maintain finish grade established prior to planting. When any planting areas become eroded or otherwise damaged, repair and replant.

10. Protect areas susceptible to pedestrian or vehicular traffic by erecting barricades immediately after planting. Replant areas damaged by pedestrian or vehicular traffic, at no additional expense to the Owner. Barricades or warning signs erected for protection of landscaping are subject to approval of the Architect.

11. Contractor is responsible for replacement of plants which are stolen, killed or damaged as a result of vandalism prior to completion of maintenance period.

12. Inspect plants, including lawn, for fungus and insect damage weekly. Treat affected material immediately. Replace plants killed or disfigured by insects, fungus or disease.

13. Acceptance of lawn areas at conclusion of maintenance period shall be conditioned upon 99 percent coverage of the overall area. Individual bare spots shall not exceed 0.5 square feet in area. Maintenance period for planting shall be extended at no additional cost if grass planting does not meet this requirement.

END OF SECTION

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mix design, placement procedures, and finishes.

1.02 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume.

1.03 SUBMITTALS

A. Product Data: Reinforcing steel - Certified mill test results or laboratory test results. Indicate bar size, yield strength, ultimate tensile strength, elongation and bend test. Provide chemical composition for rebars that are to be welded.

B. Design Mixes: For each concrete mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments. Indicate amounts of mix water to be withheld for later addition at Project site.

C. Steel Reinforcement Shop Drawings: Details of fabrication, bending, and placement, prepared according to ACI 315, “Details and Detailing of Concrete Reinforcement.” Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement.

D. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance with the requirements indicated, based on comprehensive testing of current materials.

E. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:

1. Form materials and form-release agents.

2. Steel reinforcement and reinforcement accessories.

3. Fiber reinforcement

4. Curing materials.

5. Adhesives.

6. Joint-filler strips.

7. Repair materials.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94/C 94M requirements for production facilities and equipment.

B. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.

D. ACI Publications: Comply with the following, unless more stringent provisions are indicated and maintain a copy at the field office.

1. ACI 301, “Specification for Structural Concrete.”

2. ACI 117, “Specifications for Tolerances for Concrete Construction and Materials.”

3. ACI 347R “Guide to Formwork for Concrete”.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle steel reinforcement to prevent bending and damage.

B. Store materials out of weather in original containers or unopened packages as recommended by the manufacturer.

PART 2 - PRODUCTS

2.01 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Comply with ACI 347R. Provide new or good finish form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints. Plywood, metal, or other ACI 347R accepted panel materials.

B. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

C. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

D. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair

subsequent treatments of concrete surfaces. Form oils or waxes shall not be used for concrete surfaces intended to be painted. Formulate form-release agent with rust inhibitor for steel form-facing materials.

E. Form Ties: Factory-fabricated, removable or snap-off glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal. Furnish ties that, when removed, will leave holes not larger than 1-1/2 inches in diameter in concrete surface.

2.02 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed, unless otherwise noted on the drawings.

2.03 REINFORCEMENT ACCESSORIES

A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars in place. Use plastic straps to secure reinforcing. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from plastic or precast concrete of greater compressive strength than concrete.

2.04 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150/C 150M, Type II.

B. Pozzolans - Fly Ash: ASTM C 618, Class C or F.

C. Normal-Weight Aggregate: ASTM C 33/C 33M, uniformly graded, and as follows:

1. Class: Moderate weathering region, but not less than 3M.

2. Aggregate Size: No. 57 (1-inch to No. 4) or No. 67 (3/4-inch to No. 4).

D. Size of Coarse Aggregate: Except when otherwise specified or permitted, maximum size of coarse aggregate shall not exceed three-fourths of the minimum clear spacing between reinforcing bars (or bundled bars), one-fifth of the narrowest dimension between the sides of forms, or one-third of the thickness of slabs or toppings.

E. Water: Potable and complying with ASTM C 94/C 94M or non potable meeting ASTM C 94/C 94M Acceptance Criteria for Questionable Water Supply. Use only potable water for job site mixing.

2.05 ADMIXTURES

A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material and to be compatible with other admixtures, coloring admixtures, and cementitious materials. Do not use admixtures containing calcium chloride.

B. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

C. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

D. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.

2.06 FIBER REINFORCEMENT

A. Synthetic Fiber: Fibrillated or monofilament polypropylene fibers engineered and designed for us in concrete, complying with ASTM C 1116/C 1116M, Type III, 1-1/2 to 2-1/4 inches long.

2.07 CURING MATERIALS AND EVAPORATION RETARDERS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

2.08 RELATED MATERIALS

A. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

B. Epoxy-Bonding Adhesive: ASTM C 881/C 881M, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class and grade to suit requirements, and as follows:

1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

C. Sleeves: Schedule 40 PVC Pipe.

D. Detergent Cleaner: A commercially produced concrete cleaning detergent.

2.09 REPAIR MATERIALS

A. Repair Topping: Traffic-bearing, cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch. Products shall contain no added gypsum.

1. Cement Binder: ASTM C 150/C 150M, portland cement as defined in ASTM C 219.

2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.

3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.

4. Compressive Strength: Not less than 5500 psi at 28 days when tested according to ASTM C 109/C 109M.

B. Patching Mortar: Cement-based, polymer-modified, shrinkage compensating product with a corrosion inhibitor that can be applied in thicknesses of 1/8" to 1-1/2". Compressive strength not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M. Products that may be incorporated into the Work include, but are not limited to, the following:

1. Sikatop 123 Plus by Sika Corporation

2.10 CONCRETE MIXES

A. Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases.

1. Proportion normal-weight concrete according to ACI 211.1 and ACI 301.

2. Compressive strength (28 days): 4000 psi.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:

1. Fly Ash: 25 percent.

2. Combined Fly Ash and Pozzolan: 25 percent.

C. Maximum Water-Cementitious Materials Ratio: 0.40.

D. Do not add air entrainment to concrete.

E. Limit water-soluble, chloride-ion content in hardened concrete per ACI 318 Chapter 4 for corrosion protection of reinforcing steel.

F. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate. Use synthetic fiber reinforcement for exterior concrete sidewalks on grade and in other areas identified in the contract documents.

G. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.

2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be

watertight, and concrete with a water-cementitious materials ratio below 0.50.

2.11 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.12 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and ASTM C 1116/C 1116M and furnish batch ticket information. Batch ticket information shall include design mix reference, water that can be added at the jobsite, and admixtures. For transit mixing, complete not less than 70 revolutions of the drum at the manufacturer's rated mixing speed. Discharge concrete into its final position within 90 minutes after introduction of batch water to the cement. If a retarder admixture is used, the discharge time limit of 90 minutes may be increased by the time specified for retardation by the admixture manufacturer or the concrete supplier. Mix concrete a minimum of one minute at mixing speed immediately prior to discharge.

B. Project-Site Mixing: Measure, batch, and mix concrete materials according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer. Project-site mixed concrete will not be allowed except to make up shortages for fence post footings, curbs, and utility trench encasements.

PART 3 - EXECUTION

3.01 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:

1. Class A, 1/8 inch, for surfaces exposed to public view.

2. Class B, 1/4 inch, for permanently concealed surfaces.

D. Construct forms to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Chamfer exterior corners and edges of permanently exposed concrete.

H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.02 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.03 REMOVING AND REUSING FORMS

A. General: Formwork, for sides of beams, walls, columns, and similar parts of the Work, that does not support weight of concrete may be removed after cumulatively curing at not less than 50 degrees Fahrenheit for 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces.

3.04 STEEL REINFORCEMENT

A. General: Comply with CRSI’s “Manual of Standard Practice” for placing reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, and other foreign materials.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

D. Set plastic straps with ends directed into concrete, not toward exposed concrete surfaces.

E. Reinforcement shall not be bent after being partially embedded in hardened concrete.

3.05 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by the Contracting Officer.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated.

2. Form from bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness, as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.

2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface.

2. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

3.06 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed. Provide one day notification to the Contracting Officer for each scheduled pour.

B. Do not add water to concrete during delivery, at Project site, or during placement, unless included in the accepted concrete mix design. Do not add water to concrete after adding high-range water-reducing admixtures to mix.

C. Convey concrete from mixer to the place of final deposit rapidly by methods that prevent segregation or loss of ingredients and will insure the required quality of concrete. Use conveying equipment, conveyors, hoppers, baffles, chutes, pumps that are sized and designed to prevent cold joints from occurring and prevent segregation in discharged concrete. Clean conveying equipment before each placement.

D. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. Deposit concrete to avoid segregation.

E. Deposit concrete in forms in horizontal layers with proper consolidation into previous layers and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.

    1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.

    2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.

    3. Plan pours to continuously place concrete from one construction joint to another.

F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

    1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.

    2. Maintain reinforcement in position on chairs during concrete placement.

    3. Screed slab surfaces with a straightedge and strike off to correct elevations.

4. Slope surfaces uniformly to drains where required.

5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleed-water appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

G. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 degrees Fahrenheit at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.07 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding ACI 347R limits for class of surface specified.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch in height. Apply to concrete surfaces exposed to public view.

C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.08 FINISHING FLOORS AND SLABS

A. General: Comply with recommendations in ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high

spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

C. Trowel Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance.

D. Broom Finish: Apply a broom finish to exterior concrete walkways. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Contracting Officer before application.

3.09 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete Work.

B. Curbs: Provide monolithic finish to curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

3.10 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with recommendations in ACI 305R for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces before and during finishing operations. Apply according to manufacturer’s written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing by one or a combination of the curing methods listed in paragraph entitled "Unformed Surfaces" hereinbelow.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

a. Water.

b. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3. Curing Compound: Apply uniformly in continuous operation by spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.11 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas. Remove and replace concrete that cannot be repaired and patched to the acceptance of the Contracting Officer.

B. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean exposed surface of concrete with a scrub brush and thoroughly rinse with potable water.

2. Mix all materials in strict accordance with the manufacturer's mixing instructions. Scrub patching mortar into the saturated surface dry concrete substrate and cover all areas to be patched. Build the patching mortar to fill all voids and match surrounding concrete surface. Patching mortar shall blend with adjacent surfaces such that after application of final finishes specified in other sections of these specifications, the lines at the edges of the patching mortar are not visible.

3. Commence initial curing of patching mortar immediately after final troweling is completed. Curing shall be in strict accordance with the patching mortar manufacturer's recommendations, including curing materials used, method of application, and period of cure.

4. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by the Contracting Officer.

C. Repairing Unformed Surfaces: Test unformed surfaces for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test

surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.

2. After concrete has cured at least 14 days, correct high areas by grinding.

3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.

4. Repair defective areas, except random cracks and single holes 1-inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mix as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

5. Repair random cracks and single holes 1-inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Clean exposed surface of concrete with a scrub brush and thoroughly rinse with potable water. Mix all materials in strict accordance with the manufacturer's mixing instructions. Scrub patching mortar into the saturated surface dry concrete substrate and cover all areas to be patched. Build the patching mortar to fill all voids and match surrounding concrete surface. Patching mortar shall blend with adjacent surfaces such that after application of final finishes specified in other sections of these specifications, the lines at the edges of the patching mortar are not visible. Commence initial curing of patching mortar immediately after final troweling is completed. Curing shall be in strict accordance with the patching mortar manufacturer's recommendations, including curing materials used, method of application, and period of cure.

D. Perform structural repairs of concrete, subject to acceptance of the Contracting Officer, using epoxy adhesive and patching mortar.

E. Repair materials and installation not specified above may be used, subject to acceptance of the Contracting Officer.

3.12 FIELD QUALITY CONTROL

A. Testing Agency: Contractor will retain and pay a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test

reports during concrete placement according to requirements specified in this Article.

B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mix exceeding 5 cubic yards, but less than 25 cubic yards, plus one set for each additional 50 cubic yards or fraction thereof.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.

3. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 degrees Fahrenheit and below and when 80 degrees Fahrenheit and above, and one test for each composite sample.

4. Compression Test Specimens: ASTM C 31/C 31M. Cast and field cure one set of four standard cylinder specimens for each composite sample.

5. Compressive-Strength Tests: ASTM C 39/C 39M; test two field-cured specimens at 28 days. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at age indicated.

C. Strength of each concrete mix will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

D. Test results shall be reported in writing to the Contracting Officer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by the Contracting Officer but will not be used as sole basis for acceptance or rejection of concrete.

F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, compressive strengths, or other requirements have not been met, as directed by the Contracting Officer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by the Contracting Officer.

3.13 CLEAN UP

A. Remove all debris, dust, materials, cartons, and waste resulting from this work. Leave the work area in a clean and satisfactory condition daily. Leave finished work in neat, clean condition with no evidence of spillovers onto adjacent areas.

END OF SECTION

DIVISION 5 – METALS

SECTION 05500 - METAL FABRICATIONS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS: Furnish all labor, materials, tools and equipment necessary to fabricate and install checkered cover plate work as specified herein.

1.02 GENERAL PROVISIONS

A. Provide all miscellaneous metal fabrication work, including but not limited to, the following:

1. Stainless steel checkered cover plate.

2. Galvanized pipe guardrails.

3. Miscellaneous metal fabrications as indicated on the drawings or specified herein.

4. Include all anchors, angles, bolts, expansion shields for items in this section only, and other accessories shown in details and/or required for the complete installation of all work.

1.03 QUALITY ASSURANCE

A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.

B. Shop Assembly: Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

C. Welders Certificates: Submit certification that welders employed for the work of this section have received AWS certification within the previous 12 months. All welds shall conform with the AWS D1.1 – Structural Welding Code.

1.04 SUBMITTALS

A. Shop Drawings: Submit complete shop drawings of all miscellaneous metal work to the Architect for review before fabrication. Detail all members and connections not specifically shown but which are required to complete the work.

B. Indicate welded connections using standard AWS A2.0 welding symbols.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Asbestos Prohibition: No asbestos containing materials or equipment shall be used under this section. The contractor shall ensure that all materials and equipment incorporated in the project are asbestos-free.

B. Structural Steel: Conforming to ASTM A 36.

C. Structural Steel Tubing: ASTM A 500 or ASTM A 501.

D. Bolts, Nuts, and Washers: ASTM A 307, Grade A. Hot-dip galvanize all hardware items in accordance with ASTM A 153.

E. Welding Materials: AWS D1.1, type required for materials being welded.

F. Checkered Plate: Type 316 stainless steel with manufacturer's standard raised surface pattern.

2.02 FABRICATION

A. Workmanship:

1. Use materials of size and thickness shown, or, if not shown, of required size and thickness to produce strength and durability in finished product. Work to dimensions shown or accepted on shop drawings, using proven details of fabrication and support. Use type of materials shown or specified for various components of work.

2. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32" unless otherwise shown. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

3. Provide for anchorage of type shown, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.

4. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware and similar items.

B. Galvanizing: Provide a zinc coating for those items shown or specified to be galvanized, as follows:

1. ASTM A 153 for galvanizing iron and steel hardware.

2. ASTM A 123 for galvanizing rolled, pressed and forged steel shapes, plates, bars and strip 1/8" thick and heavier, and for galvanizing assembled steel products.

C. Shop Painting:

1. Shop paint miscellaneous steel metal work and galvanized surfaces, unless otherwise specified.

2. Immediately after surface preparation, brush or spray on primer in accordance with manufacturer's instructions, and at a rate to provide uniform dry film thickness of 2.0 mils for each coat. Use painting methods which will result in full coverage of joints, corners, edges, and exposed surfaces.

D. Miscellaneous Framing and Supports:

1. Provide miscellaneous steel framing and supports as required to complete work.

2. Fabricate miscellaneous units to sizes, shapes and profiles shown or, if not shown, of required dimensions to receive adjacent other work to be retained by framing. Except as otherwise shown, fabricate from structural steel shapes and plates and steel bars. Cut, drill and tap units to receive hardware and similar items.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.

B. Cutting, Fitting and Placement: Perform cutting, drilling, and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels.

3.02 MISCELLANEOUS METAL FABRICATIONS

A. The following fabricated assemblies are described in brief outline to indicate, in addition to the drawings, the general design and details desired. Standard products of manufacturers specializing in similar work will be considered insofar as they fulfill the requirements and do not violate governing codes for building and standards for good construction work.

1. Metal Trench Covers: Shall consist of Type 316 sheet stainless steel, 1/2” thick, non-slip checkered plate. Fabricate edge supports with stainless steel flat plate with anchors as indicated on the drawings.

2. Metal Guardrails: Shall consist of galvanized steel pipe of sizes and arrangements as shown, with joints butt-welded and all welds dressed smooth and shop finished with zinc-rich primer.

3. Miscellaneous Metal Fabrications: Shall consist of steel components welded similar to metal guardrails, in sizes and arrangements as shown. Hot-dip galvanize after fabrication.

3.03 FABRICATION

A. Fabrication shall be performed by skilled mechanics of the trade and in accordance with manufacturer’s directions. Metal work shall be well formed to shape and size, with sharp lines and angles and true curves. Provide welding

and bracing of adequate strength and durability, with tight, flush joints, dressed smooth and clean.

B. Measurements: Before fabrication, take necessary field measurements and verify all measurements.

C. Metal surfaces shall be clean and free from mill scale, flake rust and rust pitting; well formed and finished to shape and size, with sharp lines and angles and smooth surfaces. Shearing and punching shall leave clean true lines and surfaces. Welds shall be used and finished flush and smooth on surfaces that will be exposed after installation.

D. Fastening: Provide the necessary rebates, lungs and brackets so that the work can be assembled in a neat, substantial manner. Holes for bolts shall be drilled.

E. Welding of structural steel shapes and bar stock shall be in accordance with AWS D1.1.

3.04 ADJUST AND CLEAN

Touch-Up Painting: Immediately after erection, clean bolted connection and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.

END OF SECTION

DIVISON 9 - FINISHES

SECTION 09901 - PAINTING

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS: Furnish all labor, materials, tools and equipment necessary to complete all surface preparation and painting work as specified herein.

1.02 GENERAL PROVISIONS

A. Airless Spraying: Airless spray painting shall not be permitted on this project. All application shall be by brush or roller.

B. Application: The Contractor shall strictly conform with all Manufacturer's written instructions and recommendations for all material application.

C. Right of Rejection: The HHSC Representative shall have the right to reject all work which is not in compliance with the plans and specifications. Rejected work shall be redone at no cost to the Hospital.

D. All materials shall have low or no volatile organic compounds (VOC). The HHSC Representative reserves the right to stop all and any application work and the use of materials emitting offensive odors.

1.03 SUBMITTALS

A. Schedule of Finishes

1. 4 sets of proposed painting finish schedule shall be submitted to the HHSC for approval. The schedule shall indicate the wet film thickness (mils) at which the proposed paints/coatings will be applied that are necessary to achieve the final dry film thickness indicated on the Schedule of Finishes under Section 2.02.

2. Schedule of finishes shall indicate which products are intended for airless spray application, if any.

B. Color Samples

1. 3 sets, 8.5” x 11”, of each color finish sample shall be submitted to the HHSC for approval.

2. After the color finish sample has been approved, one set of color finish samples painted onto 8-1/2" x 11" cardboard shall be submitted to the HHSC Representative. The cardboard shall be divided into 4 horizontal strips and painted as follows:

a. Prime 3 strips starting from the bottom.

b. 1st coat bottom 2 strips.

c. 2nd coat bottom strip.

C. Schedule of Operations: Before work on the project is commenced, 6 complete sets of a work schedule showing his sequence of operations and dates shall be submitted by the Contractor to the HHSC Representative.

D. Guaranty: 3 copies of a written guarantee shall be submitted to the HHSC Representative.

1.04 GUARANTY

A. The Contractor shall guarantee that the work performed under this section conforms to the contract requirements and is free of any defect of material or workmanship performed by the Contractor. Such guarantee shall continue for a period of 2 years from the date of project acceptance during which period the Contractor shall remedy at his own expense any such failure to conform or any such defect.

C. The University shall notify the Contractor in writing within a reasonable time after discovery of any failure or defect.

D. Should the Contractor fail to remedy any failure or defect described in Paragraph A above within 10 working days after receipt of notice thereof, the HHSC Representative shall have the right to repair or otherwise remedy such failure or damage at the Contractor's expense.

1.05 SPECIAL REQUIREMENTS

A. Codes

1. The Contractor shall comply with the State OSHL (Occupational Safety and Health Law) and all pollution control regulations of the State Department of Health.

B. Protection

1. Persons

a. The Contractor shall take all necessary precautions to protect occupants, staff and public from injury.

b. The Contractor shall provide, erect and maintain safety barricades around scaffolds, hoists and wherever Contractor's operations create hazardous conditions in order to properly protect the students, faculty, staff and public.

2. Completed Work: The Contractor shall provide all necessary protection for wet paint surfaces.

3. Protective Covering: The Contractor shall provide and install protective covering over furniture, equipment, floor and other areas that are not scheduled for treatment. Protective covering shall be clean sanitary drop cloth or plastic sheets. Paint applied to surfaces not scheduled for treatment shall be completely removed and surfaces shall be returned to original condition.

4. Safeguarding of Property: The Contractor shall take whatever steps may be necessary to safeguard his work and also the property of the University and other individuals in the vicinity of his work area during the execution of this Contract. He shall be responsible for and make good on any and all damages and for losses to work or property caused by his or his employee's negligence.

   Should surface preparation work include power-washing of the existing surface, the Contractor shall take all necessary precautions to control water run-off. Failure to take this precaution shall be grounds to stop the work of the project until a satisfactory solution is provided. Costs for this action shall be borne by the Contractor.

5. Fire Safety: The Contractor shall direct his employees not to smoke in the vicinity and exercise precautions against fire at all times. Waste rags, plastic (polyester sheets), empty cans, etc. shall be removed from the site at the end of each day.

C. Storage Area for Materials: No paint material, empty cans and paint brushes and rollers may be stored in buildings, but shall be stored in separate storage facilities away from the buildings. The Contractor may furnish a job site storage facility. Such facility shall comply with requirements of the local Fire Department. The storage area shall be kept clean and facility shall be locked when not in use or when no visual supervision is possible.

D. Sequence of Operations: The sequence of operations shall divide the surfaces into work areas and present a schedule for:

1. Surface preparation and spot prime.

2. Prime coat.

3. First finish coat.

4. Second finish coat.

E. Protection, Removal, Trimming of Landscaping: The Contractor shall coordinate with the University on the location of scaffolding, platforms, etc., within the landscaping surrounding the buildings. The Contractor shall be responsible for

all trimming and removal or relocation of landscaping as necessary. The Contractor shall be responsible for protection of all landscaping to remain.

1.06 AREAS TO BE PAINTED

A. Surfaces to be Painted

1. Exterior:

a. All new exposed fabrications not prefinished, new mechanical piping, new electrical conduits, and touch-up of existing surfaces for the work of this project. Note: New copper or stainless steel fabrications need not be painted.

2. All questions regarding the extent of work shall be addressed to the HHSC Representative for clarification. The Contractor's bid shall assume, that unless noted otherwise, all questionable surfaces shall be assumed to be painted unless directed by the HHSC Representative otherwise.

B. Work Incidental to Painting

1. Other items as noted in the drawings or herein specified.

PART 2 - PRODUCTS

2.01 MATERIALS

The Contractor shall be responsible for furnishing to the University quantities of each paint material required. The paint materials will generally meet the following requirements.

A. Asbestos Prohibition: No asbestos containing materials or equipment shall be used under this section. The Contractor shall ensure that all materials and equipment incorporated in the project are asbestos-free.

B. Lead Prohibition: All paints shall be lead-free.

C. Mercury Prohibition: All paint shall be mercury- free.

D. Chromate Prohibition: All paint shall be free of zinc-chromate and/or strontium-chromate.

E. Cadmium Prohibition: All paint shall be cadmium free.

F. All materials shall be low or no VOC and shall not produce offensive odors unless otherwise specified. Should offensive odors be produced, the contractor shall immediately stop and cease to use such product until an acceptable ventilation system can be provided by the contractor to remove such offensive odors. Provide ventilation in conformance with manufacturer's

recommendations. If a ventilation system is required, the cost of such measures shall be borne by the contractor.

G. Paints shall be as manufactured by PPG Paints, Benjamin Moore, Sherwin Williams, or pre-approved equal.

H. Thinning of paint shall be done using material recommended by the manufacturer. Mix proprietary products according to manufacturer's printed specifications. Compound thinner, mineral oil, kerosene, refined linseed oil, or gasoline shall not be used for thinning.

I. Except for metal primers all paint shall contain the maximum amount of mildewcide per gallon of paint permitted by the mildewcide manufacturer without adversely affecting the quality of the paint.

2.02 SCHEDULE OF FINISHES

A. The Schedule of Finishes is made for the convenience of the Contractor and indicates the types and quality of finishes to be applied to the surfaces.

B. Any existing painted surface not specifically noted in the finish schedule shall be finished to match adjoining work.

C. Additional paint materials not included in the Schedule of Finishes, however, required for the conditions of the site, shall be provided by the Contractor for a complete paint/repaint project.

SCHEDULE OF FINISHES

Exterior System:

A. Galvanized Steel: Provide the following finish systems over exterior galvanized steel surfaces:

1. MPI EXT 5.3A-G5 (Semi-Gloss)

a. Primer (MPI 134)
Waterborne Primer & Flat Finish

b. Intermediate (MPI 11)
Exterior Semi-Gloss Paint

c. Topcoat (MPI 11)
Exterior Semi-Gloss Paint

PART 3 - EXECUTION

3.01 WORKMANSHIP

A. Apply all materials in strict accordance with the manufacturer's printed instructions with paint evenly spread and well applied with no drops, runs, or sags. Do not apply paint on wet or damp surfaces nor until preceding coat of paint is thoroughly dry, and in the case of woodwork, well sanded. Particular attention shall be made to sanding between finish coats. All finishes are intended to thoroughly cover in the number of coats listed, using the quality of paint specified. If paints are thinned, apply sufficient additional coats as required to provide full and complete coverage, with no shadows, spots, streaks, voids, color bleed-through, or other defects.

B. Identification of Coatings: Each coat shall be tinted a slightly different shade from the preceding coat so that it can be readily identified. Finish coat shall match approved sample for each portion of work.

C. All surfaces adjacent to areas being finished shall be protected and left clean of paints, stains, etc. Clean drop cloths shall be used until completion of job.

D. All mixing shall be done outside the building.

E. All waste materials shall not be left in or near the building but shall be stored in proper metal containers.

F. Take all necessary precautions to prevent or minimize dust from surface preparation work from becoming airborne and spreading beyond the immediate work area. If directed by the University provide a dust barricade around the work area at no additional cost to the University.

3.02 PREPARATION OF SURFACES

A. The painting contractor shall be wholly responsible for the finish of his work and shall not commence any part of it until surfaces are in proper condition. If painting contractor considers any surfaces unsuitable for proper finish of his work, he shall notify the General Contractor of this fact and he shall not apply any material until the unsuitable surfaces have been made satisfactory. Major defects shall be restored by the proper trades. In general, follow paint manufacturer's directions for surface preparation for the paint to be applied.

B. All surfaces:

1. All surfaces shall be free of all contaminants, including oils, greases dirt, grime, loose paint, chalk, imbedded contaminants, rust, mildew and/or any surface contaminants that will impede the proper adhesion and appearance of the finishes to be applied.

2. Remove surface “chalk” by a soap and water scrubbing. Rinse thoroughly.

3. Existing surfaces, where touch-up is required, to which new paint is to be applied shall be tightly bonded to the subsurface.

4. Remove all mildew by scrubbing with a commercial mildew wash formulated for this purpose such as Jomax or pre-approved equal. Apply per manufacturer's written instructions and adhere to all cautions. Allow 15 – 20 minutes dwell time before rinsing. If necessary, scrub surfaces to remove mildew and dirt. Work from the top to bottom. Thoroughly rinse with clean, fresh water and allow surfaces to dry thoroughly before proceeding. Repeat above process if necessary to insure removal of all milder contamination.

C. Scuff-sand glossy surfaces scheduled for painting to insure proper adhesion.

D. Unprimed galvanized metal shall be washed with a solution of chemical phosphoric metal etch and allowed to dry.

E. All metal surfaces shall be made clean and free of any defects or condition that may produce unsatisfactory finish.

3.03 PAINT APPLICATION

A. General : All materials shall be applied in accordance with the manufacturer's specifications and the finished surfaces shall be free from runs, sags, drops, ridges, waves, laps, streaks, brush marks and variations in color, texture and finish (glossy or dull). The coverage shall be complete and each coat shall be so applied as to produce a film of uniform thickness. No paint materials shall be applied until the preceding coat is thoroughly dry and approved.

B. Application: Application shall be by brush or roller only. Paint coating shall be dressed down in one direction.

C. Colors: Each coat shall be tinted a different shade from the preceding coat. Colors shall generally match the existing building colors or as selected by the HHSC Representative.

3.05 PROTECTION OF PROPERTY

The Contractor shall be responsible for condition of work area in his charge. He shall protect adjacent work and materials from soiling or damage as well as his own. The storage and handling of paints and thinners shall be in accordance with the safety provisions and codes covering such handling and storage.

3.06 INSPECTION

All areas shall be provided for inspection of the work by the University at any time. Any work not conforming to these specifications shall be cleaned off, and repainted at the expense of the Contractor.

3.07 MISCELLANEOUS

A. Clean-up

1. During the progress of the work, all debris, empty crates, waste, drippings, etc. shall be removed by the Contractor and the grounds about the areas to be painted shall be left clean and orderly at the end of each work day.

2. Upon completion of the work, staging, scaffolding, containers and all other debris shall be removed from the site. All paint, shellac, oil, or stains splashed or spilled upon adjacent surfaces not requiring treatment (hardware, fixture, floor, glass) shall be removed and the entire job left clean and acceptable.

END OF SECTION