



COUNTY OF GALVESTON
SPECIFICATIONS AND CONTRACT DOCUMENTS

BAYSHORE PARK BOAT RAMP

RFP # B221022

HUITT-ZOLIARS

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SPECIAL PROVISIONS FOR CONSTRUCTION

1. Contract and Contract Documents

- (a) The project to be constructed pursuant to this contract will be financed with assistance from FEMA and is subject to all applicable Federal and State laws and regulations.
- (b) The Plans, Specifications and Addenda, General Provisions shall form part of this contract and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth.

2. Definitions

Whenever used in any of the contract Documents, the following meanings shall be given to the terms here in defined:

- (a) The term "Contract" means the Contract executed between the County of Galveston, hereinafter called the Owner, and _____, hereinafter called Contractor, of which these GENERAL CONDITIONS, form a part.
- (b) The term "Project Area" means the area within which are the specified Contract limits of the Improvements contemplated to be constructed in whole or in part under this contract.
- (c) The term "Engineer" means Huitt-Zollars, Inc., Engineer in charge, serving the Owner with architectural or engineering services, his successor, or any other person or persons, employed by the Owner for the purpose of directing or having in charge the work embraced in this Contract.
- (d) The term "Contract Documents" means and shall include the following: Invitation to Bid, , Signed Copy of Bid, General Conditions, Special Provisions For Construction, Acknowledgement and Certification Regarding Debarment, Non-Collusion Affidavit, Vendor Qualification Packet, Payment and Performance Bonds, Contract Award, Addenda (if any), Technical Specifications, and Drawings (as listed in the Schedule of Drawings).
- (e) The term "Substantially Complete" shall mean that the work is fully completed with the exception of minor miscellaneous work and adjustments.

3. Supervision by Contractor

- (a) Except where the Contractor is an individual and gives his personal supervision to the work, the Contractor shall provide a competent superintendent, satisfactory to the Local Public Agency and the Engineer, on the work at all times during working hours with full authority to act for him. The Contractor shall also provide an adequate staff for the proper coordination and expediting of his work.
- (b) The Contractor shall lay out his own work and he shall be responsible for all work executed by him under the Contract. He shall verify all figures and elevations before proceeding with the work and will be held responsible for any error resulting from his failure to do so.

4. Subcontracts

- (a) The Contractor shall not execute an agreement with any subcontractor or permit any subcontractor to perform any work included in this contract until he has verified the subcontractor as eligible to participate in federally funded contracts.
- (b) No proposed subcontractor shall be disapproved by the city/county except for cause.
- (c) The Contractor shall be as fully responsible to the city/county for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them.
- (d) The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work and required compliance by each subcontractor with the applicable provisions of the Contract.
- (e) Nothing contained in the Contract shall create any contractual relation between any subcontractor and the Owner.

5. Fitting and Coordination of Work

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors, or material suppliers engaged upon this Contract.

6. Payments to Contractor

(a) Partial Payments

- 1) The Contractor shall prepare his requisition for partial payment as of the last day of the month and submit it, with the required number of copies, to the Engineer for his approval. The amount of the payment due the Contractor shall be determined by adding to the total value of work completed to date, the value of materials properly stored on the site and deducting (1) Five percent (5%) of the total amount, to be retained until final payment and (2) the amount of all previous payments. The total value of work completed to date shall be based on the estimated quantities of work completed and on the unit prices contained in the agreement. The value of materials properly stored on the site shall be based upon the estimated quantities of such materials and the invoice prices. Copies of all invoices shall be available for inspection of the Engineer.
- 2) Monthly or partial payments made by the Owner to the Contractor are moneys advanced for the purpose of assisting the contractor to expedite the work of construction. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the Owner. Such payments shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the Owner in all details.

(b) Final Payment

- 1) After final inspection and acceptance by the Owner of all work under the Contract, the Contractor shall prepare his requisition for final payment which shall be based upon the careful inspection of each item of work at the applicable unit prices stipulated in the Agreement. The total amount of the final payment due the Contractor under this contract shall be the amount computed as described above less all previous payments.

- 2) The Owner before paying the final estimate, shall require the Contractor to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor, if the Owner deems it necessary in order to protect its interest. The Owner may, if it deems such action advisable, make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments made shall in no way impair the obligations of any surety or sureties furnished under this Contract.
- 3) Any amount due the Owner under Liquidated Damages shall be deducted from the final payment due the contractor.

(c) **Payments Subject to Submission of Certificates**

Each payment to the Contractor by the Owner shall be made subject to submission by the Contractor of all written certifications required of him and his subcontractors.

(d) **Withholding Payments**

The Owner may withhold from any payment due the Contractor whatever is deemed necessary to protect the Owner, and if so elects, may also withhold any amounts due from the Contractor to any subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Owner and will not require the Owner to determine or adjust any claims or disputes between the Contractor and his subcontractors or material dealers, or to withhold any moneys for their protection unless the Owner elects to do so. The failure or refusal of the Owner to withhold any moneys from the Contractor shall in no way impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

7. Changes in the Work

- (a) The Owner may make changes in the scope of work required to be performed by the Contractor under the Contract without relieving or releasing the Contractor from any of his obligations under the Contract or any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise.
- (b) Except for the purpose of affording protection against any emergency endangering health, life, limb or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the Owner authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price will be valid unless so ordered.
- (c) If applicable unit prices are contained in the Agreement, the Owner may order the Contractor to proceed with desired unit prices specified in the Contract; provided that in case of a unit price contract the net value of all changes does not increase the original total amount of the agreement by more than twenty-five percent (25%) or decrease the original the total amount by eighteen percent (18%).

- (d) Each change order shall include in its final form:
- 1) A detailed description of the change in the work.
 - 2) The Contractor's proposal (if any) or a confirmed copy thereof.
 - 3) A definite statement as to the resulting change in the contract price and/or time.
 - 4) The statement that all work involved in the change shall be performed in accordance with contract requirements except as modified by the change order.
 - 5) The procedures as outlined in this Section for a unit price contract also apply in any lump sum contract.

8. Estimated Quantities

This Contract, including the specifications, plans and estimates, is intended to show clearly all the work to be done and material to be furnished hereunder. The estimated quantities of the various classes of work to be done and material to be furnished under this contract are approximate and are to be used as a basis for estimating the probable cost of the work and for comparing the proposals offered for the work. It is understood and agreed that the actual amount of work to be done and material to be furnished under this contract may differ somewhat from these estimates, and that the basis for payment under this contract shall be the plan quantity or actual amount of such work done whichever is specified. It is further understood that the County does not guarantee any minimum amount of work under this Contract.

Contractor agrees that it will make no claim for damages, anticipated profits or otherwise on account of any differences which may be found between the quantities of work actually done, the material actually furnished under this Contract and the estimated quantities contemplated and contained in the proposals.

9. Claims for Extra Cost

- (a) If the Contractor claims that any instructions by Drawings or otherwise involve extra cost or extension of time, he shall, within ten days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his protest thereto in writing to the Owner, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.
- (b) Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.
- (c) Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall be reported at once to the Owner and work shall not proceed except at the Contractor's risk, until written instructions have been received by him from the Owner.
- (d) If, on the basis of the available evidence, the Owner determines that an adjustment of the Contract Price and/or time is justifiable, a change order shall be executed.

10. Time

The Contractor is advised that time for completion will consist of the number of calendar days set out in the Contract Award. The time for completion will begin to run on the day after the issuance of a notice to proceed by the County. The Contractor is required to start work no later than ten (10) working days after the issuance of the written notice to proceed. Failure to timely commence operations may be deemed by the County to be a default. The Contractor will complete the work at that site within the time period specified. If there is more than one site listed on the notice to proceed, work for all sites must be completed not later than is specified for each site.

11. Termination, Delays, and Liquidated Damages

(a) Right of the Owner to Terminate Contract.

In the event that any of the provisions of this contract are violated by the Contractor, or by any of his subcontractors, the Owner may serve written notice upon the Contractor and the Surety of its intention to terminate the contract.

The notices shall contain the reasons for such intention to terminate the contract, and unless such violation or delay shall cease and satisfactory arrangement of correction be made within ten days, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor. The Surety shall have the right to take over and perform the contract. Provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work and complete the project by bid/contract or by force account at the expense of the Contractor and his Surety shall be liable to the Owner for any excess cost incurred. In such event the Owner may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work and necessary therefore.

(b) Liquidated Damages for Delays.

Contractor agrees that time is of the essence of this contract and that for each day of a delay of a day beyond the number of working days or calendar days herein agreed upon the completion of the work herein specified and contracted for (after due allowance for such extension of time as is provided for under Extension of Time hereinabove) County may withhold permanently from Contractor's total compensation the sum of \$1,000.00 for each calendar day of delay, until the work is completed, as liquidated damages for such delay. The Contractor and his sureties shall be liable to the Owner for the amount thereof.

(c) Excusable Delays.

- 1) The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due to:
 - a. Any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, national defense, or any other national emergency;
 - b. Any acts of the Owner;

- c. Causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of another Contractor in the performance of some other contract with the Owner, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions.
- 2) Provided, however, that the Contractor promptly notifies the Owner within ten (10) days in writing of the cause of the delay. Upon receipt of such notification, the Owner shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and the terms of this contract, the delay is properly excusable, the Owner shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

12. Assignment or Novation

The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the Owner; provided, however, that assignments to banks or other financial institutions may be made without the consent of the Owner. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract in favor of all persons, firms, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

13. Disputes

- (a) All disputes arising under this Contract or its interpretation except those disputes covered by FEDERAL LABOR STANDARDS PROVISIONS whether involving law or fact or both, or extra work, and all claims for alleged breach of contract shall, within ten (10) days of commencement of the dispute, be presented by the Contractor to the Owner for decision. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt of the Owner.
- (b) The Contractor shall submit in detail his claim and his proof thereof.
- (c) If the Contractor does not agree with any decision of the Owner, he shall in no case allow the dispute to delay the work but shall notify the Owner promptly that he is proceeding with the work under protest.

14. Technical Specifications and Drawings

Anything mentioned in the Technical Specifications and not shown on the Drawings, or vice versa, shall be of like effect as if shown on or mentioned in both. In case of difference between Drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy in Drawings, or Technical Specifications, the matter shall be immediately submitted to the Owner, without whose decision, said discrepancy shall not be adjusted by the Contractor, save only at his own risk and expense.

15. Shop Drawings

- (a) All required shop drawings, machinery details, layout drawings, etc. shall be submitted to the Engineer in copies for approval sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. The Contractor may proceed, only at his own risk, with manufacture or installation of any equipment or work covered by said shop drawings, etc. until they are approved and no claim, by the Contractor, for extension of the contract time shall be granted by reason of his failure in this respect.
- (b) Any drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of contract price and/or time, otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.
- (c) If a shop drawing is in accordance with the contract or involves only a minor adjustment in the interest of the owner not involving a change in contract price or time; the engineer may approve the drawing. The approval shall not relieve the Contractor from his responsibility for adherence to the contract or for any error in the drawing.

16. Requests for Supplementary Information

It shall be the responsibility of the Contractor to make timely requests of the Owner for any additional information not already in his possession which should be furnished by the Owner under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted from time to time as the need approaches, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing and list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provision of this section.

17. Materials and Workmanship

- (a) Unless otherwise specifically provided for in the technical specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the technical specifications as "equal to" any particular standard, the Engineer shall decide the question of equality.
- (b) The Contractor shall furnish to the Owner for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics, and all other pertinent information as required, and shall likewise submit for approval full information concerning all other materials or articles which he proposes to incorporate.

- (c) Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.
- (d) Materials specified by reference to the number or symbol of a specific standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in the technical specifications shall have full force and effect as though printed therein.
- (e) The Owner may require the Contractor to dismiss from the work such employee or employees as the Owner or the Engineer may deem incompetent, or careless, or insubordinate.

18. Samples, Certificates and Tests

- (a) The Contractor shall submit all material or equipment samples, certificates, affidavits, etc., as called for in the contract documents or required by the Engineer, promptly after award of the contract and acceptance of the Contractor's bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the Engineer. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the contract time.
- (b) Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the Engineer in making a prompt decision regarding the acceptability of the sample. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.
- (c) Approval of any materials shall be general only and shall not constitute a waiver of the Owner's right to demand full compliance with Contract requirements. After actual deliveries, the Engineer will have such check tests made as he deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Engineer will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.
- (d) Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:
 - 1) The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the Engineer;
 - 2) The Contractor shall assume all costs of re-testing materials which fail to meet contract requirements;
 - 3) The Contractor shall assume all costs of testing materials offered in substitution for those found deficient;
 - 4) The Owner will pay all other expenses.

19. Permits and Codes

- (a) The Contractor shall give all notices required by and comply with all applicable laws, ordinances, and codes of the Local Government. All construction work and/or utility installations shall comply with all applicable ordinances, and codes including all written waivers. Before installing any work, the Contractor shall examine the drawings and technical specifications for compliance with applicable ordinances and codes and shall immediately report any discrepancy to the Owner. Where the requirements of the drawings and technical specifications fail to comply with such applicable ordinances or codes, the Owner will adjust the Contract by Change Order to conform to such ordinances or codes (unless waivers in writing covering the difference have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated unit prices.
- (b) Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers (notwithstanding the fact that such installation is in compliance with the drawings and technical specifications), the Contractor shall remove such work without cost to the Owner.
- (c) The Contractor shall at his own expense, secure and pay for all permits for street pavement, sidewalks, shed, removal of abandoned water taps, sealing of house connection drains, pavement cuts, buildings, electrical, plumbing, water, gas and sewer permits required by the local regulatory body or any of its agencies.
- (d) The Contractor shall comply with applicable local laws and ordinances governing the disposal of surplus excavation, materials, debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the Improvements contained in this Contract.
- (e) The Contractor will be required to make arrangements for and pay the water, electrical power, or any other utilities required during construction.
- (f) During construction of this project, the Contractor shall use every means possible to control the amount of dust created by construction. Prior to the close of a day's work, the Contractor, if directed by the Owner, shall moisten the bank and surrounding area to prevent a dusty condition.

20. Care of Work

- (a) The Contractor shall be responsible for all damages to person or property that occur as a result of his fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance.
- (b) The Contractor shall provide sufficient competent watchmen, both day and night, including Saturdays, Sundays, and holidays, from the time the work is commenced until final completion and acceptance.
- (c) In an emergency affecting the safety of life, limb or property, including adjoining property, the Contractor, without special instructions or authorization from the Owner is authorized to act at his discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by the Owner.

- (d) The Contractor shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and he shall at his own expense completely repair any damage thereto caused by his operations.
- (e) The Contractor shall shore up, brace, underpin, secure, and protect as maybe necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the improvements included in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Owner from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Owner may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

21. Accident Prevention

- (a) No laborer or mechanic employed in the performance of this Contract shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety as determined under construction safety and health standards promulgated by the Secretary of Labor.
- (b) The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work.
- (c) The Contractor shall maintain an accurate record of all cases of death, occupational disease, or injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the Owner with reports concerning these matters.
- (d) The Contractor shall indemnify and save harmless the Owner from any claims for damages resulting from property damage, personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this contract.
- (e) The Contractor shall provide trench safety for all excavations more than five feet deep prior to excavation. All OSHA Standards for trench safety must be adhered to by the Contractor.
- (f) The contractor shall at all times conduct his work in such a manner as to insure the least possible inconvenience to vehicular and pedestrian traffic. At the close of the work each day, all streets where possible in the opinion of the Owner, shall be opened to the public in order that persons living in the area may have access to their homes or businesses by the use of the streets. Barricades, warning signs, and necessary lighting shall be provided to the satisfaction of the Owner at the expense of the Contractor.

22. Sanitary Facilities

The Contractor shall furnish, install and maintain ample sanitary facilities for the workmen. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

23. Use of Premises

- (a) The Contractor shall confine his equipment, storage of materials, and construction operations to the contract limits as shown on the drawings and as prescribed by ordinances or permits, or as may be desired by the Owner, and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.
- (b) The Contractor shall comply with all reasonable instructions of the Owner and all existing state and local regulations regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

24. Removal of Debris, Cleaning, Etc.

The Contractor shall, periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights of way reasonably clear.

Upon completion of the work, he shall remove all temporary construction facilities, debris and unused materials provided for work, and put the whole site of the work and public rights of way in a neat and clean condition.

25. Inspection

- (a) All materials and workmanship shall be subject to inspection, examination, or test by the Owner and Engineer at any and all times during manufacture or construction and at any and all places where such manufacture or construction occurs. The Owner shall have the right to reject defective material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected.
Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge. If the Contractor fails to proceed at once with the correction of rejected workmanship or defective material, the Owner may by contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any Monies which may be due the Contractor, without prejudice to any other rights or remedies of the Owner.
- (b) The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required. All tests by the Owner will be performed in such manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the technical specifications.
- (c) The Contractor shall notify the Owner sufficiently in advance of back filling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the Owner, the Contractor shall uncover for inspection and recover such facilities at his own expense, when so requested by the Owner.

- (d) Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by uncovering the same, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or his subcontractors, the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, shall be allowed the Contractor and he shall, in addition, if completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.
- (e) Inspection of materials and appurtenances to be incorporated in the improvements included in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such inspection and acceptance, unless otherwise stated in the technical specifications, shall be final, except as regards (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.
- (f) Neither inspection, testing, approval nor acceptance of the work in whole or in part, by the Owner or its agents shall relieve the Contractor or his sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

26. Review by Owner

The Owner and its authorized representatives and agents shall have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however that all instructions and approval with respect to the work will be given to the Contractor only by the Owner through its authorized representatives or agents.

27. Final Inspection

When the Improvements included in this Contract are substantially completed, the Contractor shall notify the Owner in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The Owner will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable.

28. Deduction for Uncorrected Work

If the Owner deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the Owner and subject to settlement, in case of dispute, as herein provided.

29. Warranty of Title

No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed by him to the Owner free from any claims, liens, or charges. Neither the Contractor nor any person, firm, or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

30. Warranty of Workmanship and Materials

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the improvements included in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of 12 months from the date of final acceptance of the work.

31. Job Offices

- (a) The Contractor and his subcontractors may maintain such office and storage facilities on the site as are necessary for the proper conduct of the work. These shall be located so as to cause no interference to any work to be performed on the site. The Owner shall be consulted with regard to locations.
- (b) Upon completion of the improvements, or as directed by the Owner, the Contractors shall remove all such temporary structures and facilities from the site and leave the site of the work in the condition required by the contract.

32. Partial Use of Site Improvements

The Owner may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected and can be accepted as complying with the technical specifications and if in its opinion, each such section is reasonably safe, fit, and convenient for the use and accommodation for which it was intended, provided:

- (a) The use of such sections of the Improvements shall in no way impede the completion of the remainder of the work by the Contractor.
- (b) The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.
- (c) The period of guarantee stipulated in the Section 29 hereof shall not begin to run until the date of the final acceptance of all work which the Contractor is required to construct under this Contract.

33. Contract Period

The work to be performed under this contract shall commence within the time stipulated by the Owner in the Notice to Proceed and shall be fully completed within 365 calendar days thereafter.

34. Keeping of Plans and Specifications Accessible

The Contractor shall keep one (1) copy of all Plans and Specifications constantly accessible at the work site and available for inspection at all times.

35. Utilities

Contractor shall be responsible for any charges which may be made by any city or utility companies for the work to be performed by Contractor.

36. Parking

Contractor shall be responsible for the expense of parking the Contractor's vehicle(s) in a legal manner and at no expense or inconvenience to the County.

37. Fire and Safety

Contractor is completely responsible for fire protection at the job site as well as the safety of its own employees as well as those entering onto the job site.

38. Contractor's Buildings

The building of structures for housing men, or the erection of tents or other forms of protection will be permitted only at such places as the County shall permit, and the sanitary conditions of the grounds in or about such structures shall at all times be maintained in the manner satisfactory to the County.

39. Worksite Security

Contractor shall maintain the security of the worksite.

Contractor shall provide adequate protection to persons on the worksite, adjacent properties, and utilities as is necessary to keep each free of damage or injury. Contractor shall furnish all barricades, warning lights and other safety devices necessary for the safety and protection of the public and shall remove them upon completion of the work performed on those premises under the terms of this contract.

Contractor will have complete control over the work site and shall be fully responsible for any loss of or damage to any County property from any cause and will reimburse County in the event of any loss or damage to County's property from any cause.

Contractor shall take proper means to protect adjacent or adjoining properties which might be injured or seriously affected by construction undertaken under this Agreement from any damage or injury by reason of said process of construction. Contractor shall be liable for any and all claims for such damage on account of its failure to fully protect all adjoining properties.

40. Final Grading

If grading is required, when work is complete, Contractor shall grade the site to fill in holes and make a presentable appearance without disturbing trees and add fill dirt if needed. Contractor may not leave voids in the grading and compaction of the property. The land shall have a smooth appearance without concrete, bricks, building materials, and other debris on the surface.

41. Changes and Alterations

Contractor further agrees that County may make such changes and alterations as County may see fit, in the line, grade, form dimensions, plans or materials for the work herein contemplated, or any part thereof, either before or after the beginning of the contract construction, without affecting the validity of this Contract and the accompanying bonds.

If such changes or alterations diminish the quantity of the work to be done, they shall not constitute the basis for a claim for damages, or anticipated profits on the work that may be dispensed with. If they increase the amount of the work, and the increased work can fairly be classified under the specifications, such increase shall be paid for according to the quantity actually done and at the unit price established for such work under this contract; otherwise such additional work shall be paid for as provided under the paragraph entitled "EXTRA WORK". In case the County shall make such changes or alterations as shall make useless any work already done or material already furnished or used in said work, then County shall recompense Contractor for any material or labor so used, and for any actual loss occasioned by such change due to actual expenses incurred in preparation for the work as originally planned.

42. Extra Work

The term "Extra Work" as used in this contract shall be understood to mean and include all work that may be required by the County to be done by Contractor to accomplish any change, alteration or addition to the work shown in the plans and specifications.

It is agreed that Contractor shall perform all Extra Work under the direction of the County when presented with a Written Work Order signed by the County. It is also agreed that the compensation to be paid Contractor for performing said Extra Work shall be determined by one or more of the following methods:

Method (a) - By agreed unit prices; or

Method (b) - By agreed lump sum; or

Method (c) - If Neither Method (a) nor Method (b) can be agreed upon before the Extra Work is commenced, then Contractor shall be paid the "Actual field cost" of the work plus fifteen (15) percent.

In the event said Extra Work be performed and paid for under Method (c), then the provisions of this paragraph shall apply and the "actual field cost" is hereby defined to include the cost of all workmen, such as foremen, timekeepers, merchants, and laborers, and materials, supplies, teams, trucks, rentals on machinery and equipment for time actually employed or used on such Extra Work plus actual transportation charges necessarily incurred, if the kind of equipment or machinery is not already on the job, together with all power, fuel, lubricants, water and similar operating expenses, also all necessary incidental expenses incurred directly on account of such Extra Work including Social Security, Old Age Benefits and other payroll taxes, and a ratable proportion of premiums on Construction and Maintenance Bonds, Public Liability and Property Damage and Workmen's Compensation, and all other insurance as may be required by any law or ordinance. The County may direct the form in which accounts of the "actual field cost" shall be kept and may also specify in writing, before the work commences, the method of doing the work and the type and kind of machinery and equipment to be used, otherwise these matters shall be determined by Contractor. Unless otherwise agreed upon, the prices for the use of machinery and equipment shall be determined by using the one hundred (100) percent of the actual hourly or daily rate (for the time used plus time in moving to and from Job) of the latest schedule of Equipment Ownership Expense adopted by the Association General Contractors of America. Where practicable the terms and prices for the use of Machinery and Equipment shall be incorporated in the Written Extra Work Order. The fifteen (15) percent of the "Actual Field Cost" to be paid Contractor shall cover and compensate him for his profit, overhead, general superintendence and field office expense, and all other elements of cost and expense not embraced within the 'actual field cost" as herein defined, save that where the Contractor's Camp or Field Office must be maintained primarily on account of such extra work, then the cost to maintain and operate same shall be included in the "actual field cost".

No claim for extra work of any kind will be allowed unless ordered in writing by the County. In case any orders or instructions, either oral or written appear to Contractor to involve extra work for which he should receive compensation, it shall make written request to the County for written order authorizing Extra Work. Should a difference of opinion arise as to what does or does not constitute extra work, or as to the payment therefor, and the County insists upon its performance, Contractor shall proceed with the work after making written order and shall keep an accurate account of the "actual field cost" thereof, as provided under Method (c) and by this action Contractor will thereby preserve the right to submit the matter of payment to litigation.

43. Salvage

Any materials, equipment and fixtures specifically ordered to be salvaged under these specifications shall remain the property of County and will be delivered to the site designated by the County. All other items shall be disposed of by Contractor in compliance with all applicable laws and regulations.

44. Compliance with Codes

Contractor shall comply with all city, county, and state codes, laws, and ordinances in force at the time of award of contract and applicable to such work. Contractor shall obtain, at Contractor's own expense such permits, certificates, and licenses as may be required in the performance of the specified work.

45. Laws and Ordinances

Contractor shall at all times observe and comply with all Federal, State and Local Laws, ordinances and regulations which in any manner effect the contract or the work, and shall indemnify and save harmless the County against any claim arising from the violation of any such laws and ordinances, whether by Contractor or its employees.

46. Permits and Licenses

Contractor shall be responsible for obtaining and furnishing all necessary permits and licenses, City, County, State or Federal as are required for the performance of this contract.

47. Lines and Grades

The Engineer will furnish points for horizontal and vertical control. Any additional stakes required by the Contractor shall be set at his expense. Whenever necessary, work shall be suspended to permit this work, but such suspension will be as brief as practicable and the Contractor shall be allowed no extra compensation therefor. The Contractor shall give the Engineer ample notice of the time and place where control lines and benchmarks will be needed. All control stakes, marks, etc. shall be carefully preserved by the Contractor, and in case of careless destruction or removal by him or his employees, such control stakes, marks, etc. shall be replaced by the Engineer at the Contractor's expense.

48. Excess, Waste Material and Debris

All excess material, waste material and debris shall become the property of the Contractor and shall be properly disposed of off-site. No separate payment shall be made for same.

49. Material Hauling

Hauling of materials will not be paid for directly, however, shall be considered as subsidiary work pertaining to the respective bid items. Haul routes for full and empty loads shall be restricted to State Highways. Hauling of equipment is also restricted to State Highways.

50. Abatement and Mitigation of Excessive Or Unnecessary Construction Noise

Throughout all phases of the construction of this project, including the moving, unloading, operating and handling of construction equipment prior to commencement of work, during the project and after the work is complete, the contractor shall make every reasonable effort to minimize the noise imposed upon the immediate neighborhood surrounding the area of construction. Particular and special efforts shall be exercised by the Contractor to avoid the creation of unnecessary noise impacts on adjacent sensitive receptors in the placement of non-mobile equipment such as air compressors, generators, pumps, etc. The placement of temporary parked mobile equipment with the engine running shall be such as to cause the least disruption of normal adjacent activities not associated with the work to be performed by the contractor.

All equipment associated with the work shall be equipped with components designed by the manufacturer wholly or in part to suppress excessive noise and these components shall be maintained in their original operating condition considering normal depreciation. Noise-attenuation devices installed by the manufacturer such as mufflers, engine covers, insulation, etc., shall not be removed nor rendered ineffectual nor be permitted to remain off the equipment while the equipment is in use.

51. Working Hours

Work shall not be commenced by the contractor before sunrise and shall be so conducted that all equipment is off the road and safely stored by sunset. Specific permission shall be obtained by the contractor from the Engineer for work during those hours between 7:00 P.M. and 6:00 A.M. of the following day.

52. Pipeline, Utility Locations and Contractor Responsibility

An effort to determine all pipelines and utilities which may impact the project has been made. All known pipelines and utilities have been approximately located and shown on the plans. The Contractor shall notify all utility and pipeline owners before beginning the work. Additional unknown utilities and pipelines may be found. Adjustments of these utilities or pipelines shall be done by others at no expense to the contractor. However, the Contractor shall cooperate and coordinate his work with the adjustment

The Contractor will anticipate this in making his bid. The contractor will not be allowed claims for damages or delays for these adjustments should they be necessary. However, additional time will be considered for the contract period.

This action, however, shall in no way be interpreted as relieving the Contractor of his responsibilities under the terms of the contract as set out in the plans and specifications. The Contractor shall repair any damage to the facilities caused by his operations at the Contractor's expense and shall restore facilities to service in a timely manner.

53. Incidentals

All items of work required under this contract not specifically called for in the proposal as pay items shall be considered incidental to the various bid items and no separate payment shall be made for same.

54. Flagmen

During certain phases of construction flagmen will be required to direct and control traffic. This work will not be paid for directly, however, shall be considered incidental the various bid items and no separate payment shall be made for same.

55. Field Office

For this project the Contractor will not have to provide a field office.

56. Wage Rates:

The attached schedule of wages per hour for this Contract follows.

**BID PROPOSAL
BAYSHORE PARK BOAT RAMP**

BID ITEMS

ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	QUAN.	UNIT PRICE IN WORDS	UNIT PRICE	TOTAL PRICE
1	010260	MOBILIZATION (5%)	LS	1	_____	_____	
					DOLLARS AND	CENTS	
2	022000	DEMOLITION	LS	1	_____	_____	
					DOLLARS AND	CENTS	
3	022000	SEDIMENT REMOVAL	CY	267	_____	_____	
					DOLLARS AND	CENTS	
4	028900	COFFERDAM SYSTEM	LS	1	_____	_____	
					DOLLARS AND	CENTS	
5	033110	BOAT RAMP 10" CONCRETE SLAB AND 6" CONCRETE SEAL SLAB	SY	123	_____	_____	
					DOLLARS AND	CENTS	
6	023780	CONCRETE RIP RAP	SY	20	_____	_____	
					DOLLARS AND	CENTS	
7	DRAWINGS	SWPPP	LS	1	_____	_____	
					DOLLARS AND	CENTS	
TOTAL - BID							

**BID PROPOSAL
BAYSHORE PARK BOAT RAMP**

This Proposal consists of a Bid. For a bid to be considered responsive all sections must be completed.

CONTRACT AWARD

CONTRACT FOR: BAYSHORE PARK BOAT RAMP

THIS CONTRACT IS ENTERED INTO BETWEEN GALVESTON COUNTY AND THE CONTRACTOR NAMED BELOW PURSUANT TO SUBCHAPTER B, CHAPTER 271, TEXAS LOCAL GOVERNMENT CODE, AND THE REFERENCED INVITATION TO BID.

Contract No: _____

Bid No: _____

Contractor: _____

The Specifications and Drawings are enumerated as follows:

Standard Specifications: Huitt-Zollars, Inc.'s Specifications

Special Provisions: None

Special Items: None

DRAWINGS:

ADDENDA: SHEETS C-100 THRU C-108

Contract Award (continued)

Invitation to Bid, General Provisions, Special Provisions, Bid Forms, Non-Collusion Affidavit, Vendor Qualification Packet, Debarment Form, Special Provisions for Construction, Bid Proposal, Affidavit and Surety Forms, Wage Rates, Specifications and Plans attached to this Contract Award are all made a part of this Contract and collectively evidence and constitute the entire contract. Contractor shall furnish all materials, perform all of the work required to be done and do everything else required by these documents.

Time of Completion: The Contractor shall complete the work within 65 Calendar Days of the issuance of the Notice to Proceed. The time set forth for completion of the work is an essential element of the Contract.

The Contract Sum: The County shall pay the Contractor for performance of the Contract, the sum of _____

Dollars and ___/100 (\$ _____), payments to be made as described herein.

Performance Bond required: (x) yes () no
Payment Bond required: (x) yes () no

This Contract is issued pursuant to award made by Commissioners' Court on _____, 20__.

EXECUTED this ____ day of _____, 20__.

COUNTY OF GALVESTON, TEXAS

BY: _____
MARK HENRY, County Judge

ATTEST:

DWIGHT SULLIVAN, County Clerk

CONTRACTOR

BY: _____
Signature - Title

Printed Name

Insert Affidavit & Surety Forms Here

CONSENT OF SURETY TO REDUCTION IN OR PARTIAL RELEASE OF RETAINAGE

TO:

PROJECT NO.

PROJECT:

Bayshore Park Boat Ramp

CONTRACT FOR:

CONTRACT DATE:

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the

, SURETY,

On bond of (here insert name and address of Contractor as it appears in the bond)

, CONTRACTOR,

Hereby approves the reduction in or partial release of retainage to the contractor as follows:

The Surety agrees that such reduction in or partial release of retainage to the Contractor shall not relieve the Surety of any of its obligations to (here insert name and address of Owner)

, OWNER,

As set forth in the said Surety's bond

IN WITNESS WHEREOF,

The Surety has hereunto set its had this

day of

2022,

SURETY

Signature of Authorized Representative

Title

ATTEST:

(Seal):

CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIEN:

TO (Owner):

PROJECT NO:

CONTRACT FOR:

PROJECT:

CONTRACT DATE:

Bayshore Park Boat Ramp

State of:

County of:

The undersigned, hereby certifies that, to the best of his knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS: (If none, write "None". If required by the Owner, the Contractor shall furnish bond satisfactory to the Owner for each exception)

SUPPORTING DOCUMENTS ATTACHED HERETO:

Contractor:

1. Contractor's Release or Waiver of Liens, Conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Sub-contractors and material and equipment Suppliers, to the extent required by the Owner, accompanied by a list thereof.

Address:

BY:

Subscribed and sworn to before me this day of _____, 2022.

Notary Public:

My Commission Expires:

CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS

TO (Owner):

PROJECT NO:

CONTRACT FOR:

PROJECT:

CONTRACT DATE:

Bayshore Park Boat Ramp

State of:

County of:

The undersigned, hereby certifies that, except as listed below, he has paid in full or has otherwise satisfied all obligations for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or his property might in any way be held responsible.

EXCEPTIONS: (If none, write "None". If required by the Owner, the Contractor shall furnish bond satisfactory to the Owner for each exception.)

SUPPORTING DOCUMENTS ATTACHED HERETO:

CONTRACTOR:

1. Consent of Surety to Final Payment.
Whenever Surety is involved, consent of Surety is required. CONSENT OF SURETY, may be used for this purpose.
Indicate attachment; yes _____ no _____

Address:

The following supporting documents should be Attached hereto if required by the Owner:

BY:

1. Contractor's Release or Waiver of Liens, Conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Sub-contractors and material and equipment Suppliers to the extent required by the Owner, Accompanied by a list thereof.
3. Contractor's Affidavit of Release of Lien.

Subscribed and sworn to before me this

day of _____ 2022.

Notary Public:

My Commission Expires:

CONSENT OF SURETY COMPANY TO FINAL PAYMENT

TO (Owner):

PROJECT NO:

CONTRACT FOR:

PROJECT:

CONTRACT DATE:

Bayshore Park Boat Ramp

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the (here insert name and address of Surety at it appears in the bond)

, SURETY COMPANY.

On bond of (here insert name and address of Contractor)

, CONTRACTOR,

Hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety Company of any of its obligations to (here insert name and address of Owner)

, OWNER,

As set forth in the said Surety Company's bond.

IN WITNESS WHEREOF,

day of

, 2022.

Surety Company

Signature of Authorized Representative

Title

ATTEST:
(Seal)

NOTE: This form is to be used as a companion document to Contractor's Affidavit of Payment of Debts and Claims.

Insert Prevailing Wage Rates Here

"General Decision Number: TX20220062 02/25/2022

Superseded General Decision Number: TX20210062

State: Texas

Construction Type: Heavy

County: Galveston County in Texas.

HEAVY CONSTRUCTION PROJECTS Including Water and Sewer Lines
(Does Not Include Flood Control)

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Modification Number	Publication Date
0	01/07/2022
1	02/25/2022

SFTX0669-001 04/01/2021

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers).....	\$ 31.68	22.20

* SUTX2005-021 08/05/2005

HEAVY Including Water and Sewer Lines (Excluding Flood Control)

	Rates	Fringes
Carpenter.....	\$ 14.38 **	
Cement mason/concrete finisher.....	\$ 11.37 **	1.13
Electrician.....	\$ 18.40	1.34
FORM BUILDER/FORM SETTER.....	\$ 13.35 **	1.17
IRONWORKER, REINFORCING.....	\$ 11.29 **	
Laborers:		
Common.....	\$ 10.70 **	
Landscape.....	\$ 7.35 **	
Mason Tender Cement.....	\$ 9.96 **	
Pipelayer.....	\$ 10.07 **	
PIPEFITTER.....	\$ 17.00	0.04
Power equipment operators:		
Excavator.....	\$ 16.74	
Backhoe.....	\$ 13.25 **	
Bulldozer.....	\$ 14.00 **	
Crane.....	\$ 14.91 **	0.58
Front End Loader.....	\$ 11.75 **	0.92
Grader.....	\$ 12.20 **	1.48
Tractor.....	\$ 12.38 **	1.51
TRUCK DRIVER.....	\$ 12.28 **	0.98

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====
 ** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$15.00) or 13658 (\$11.25). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is

like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a

new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISIO"

GALVESTON COUNTY
BAYSHORE PARK BOAT RAMP

TECHNICAL SPECIFICATIONS

September 1, 2022

HUITT-ZOLLARS

Huitt-Zollars, Inc.
TBPE Firm Registration #F-761
10350 Richmond Avenue, Suite 300
Houston, Texas 77042
291-496-0066
HZ Project No. R308586.01

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015000	CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS
015010	TRENCH EXCAVATION SAFETY SYSTEMS
016000	MATERIALS AND EQUIPMENT
016310	SUBSTITUTIONS
017000	CONTRACT CLOSEOUT
017400	WARRANTIES

DIVISION 02 SITEWORK

021000	SITE CLEARING
022000	EARTHWORK
022200	DEMOLITION
025140	CONCRETE WALKS
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028900	PREFABRICATED BRIDGE

DIVISION 03 CONCRETE

031000	CONCRETE FORMWORK
032000	CONCRETE REINFORCEMENT
033000	CAST-IN-PLACE CONCRETE FOR STRUCTURES
Item 404*	DRIVING PILING
Item 409*	PRESTRESSED CONCRETE PILING
Item 421*	HYDRAULIC CEMENT CONCRETE

DIVISION 06 WOOD, PLASTICS, AND COMPOSITES

061323	HEAVY TIMBER CONSTRUCTION
061533	WOOD DECKING AND RAILING

*** See Standard Specifications For Construction And Maintenance Of Highways, Streets And Bridges; adopted by the Texas Department Of Transportation, November 2014**

END OF TABLE OF CONTENTS

SECTION 010100

SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Project consists of demolishing the existing Bayshore Park Boat Ramp; constructing a new concrete pavement boat ramp as shown in the plans at Bayshore Park in Galveston County.
- B. The Owner for the Project is Galveston County, 722 Moody Avenue, Galveston, Texas 77550. Phone Number is 409-934-8101.
- C. Contract Documents were prepared for the Project by the Engineer, Huitt-Zollars, Inc., 10350 Richmond Avenue, Suite 300, Houston, Texas 77042-4248.

1.3 WORK SEQUENCE

- A. Contractor shall secure all applicable permits at no cost to the Owner. This project is located within the boundaries of the Bayshore Park, 2700 E Bayshore Dr., Dickinson, Texas and is within the jurisdiction of Galveston County, Texas.
- B. Contractor shall notify Owner at 409-934-8101 at least 48 hours prior to any construction commencing.
- C. Contact Huitt-Zollars, Inc. at 281-496-0066 at least 48 hours prior to construction.
- D. All construction activities shall be coordinated with the Owner.

1.4 CONTRACTOR USE OF PREMISES

- A. General: Contractor shall be responsible for application, payment, and receipt of all permits required to conduct activities involved with the project.
- B. Use of the Site: Contractor shall confine construction operations to areas within contract limits indicated or as coordinated with the Owner. Do not disturb portions of the site beyond the areas in which the Work is indicated.
 - 1. Owner Occupancy: Allow for Owner accessibility and maintain traffic as required by the sequence of construction. Keep driveways, entrances and streets near the project area clear and available to traffic at all times. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
 - 2. Contractor shall provide temporary construction fencing around the construction site. Contractor shall be fully responsible for security at the site.

PART 2 - PRODUCTS (Not Applicable)

Bayshore Park
Boat Ramp

SUMMARY OF WORK

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 010100

SECTION 010260

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 MEASUREMENT AND PAYMENT

- A. It is intent of the Contract that the aggregate amount of unit prices times units of work actually installed shall cover all work required by the Contract Documents, in place, complete, and ready for use.
- B. Prices in the Contract Documents include all compensation for full completion of all work items in place, and include providing all labor, materials, tools, equipment, services, supplies, incidentals, and all necessary operations.
- C. Work to protect items to remain by installation of temporary construction; including posting of warning signs, placement of protective fencing, barriers, barricades and covers, and restoration of damaged items to remain; will be considered incidental to the various pay items and no separate payment for this work will be made.
- D. Work necessary to haul materials from original positions to points of disposition, including excavation of earth materials and utilization in construction or other disposition, will be considered incidental to the various pay items and no separate payment for this work will be made.
- E. Work necessary to provide proper drainage during construction; including maintaining sections, existing ditches, channels, culverts, and sewers and including temporary construction and maintenance of ditches and drainage ways, will be considered incidental to the various pay items and no separate payment for this work will be made.
- F. No costs in connection with work required by the Contract Documents for proper and successful completion of the Contract will be paid outside of or in addition to prices named in the Contract Documents.
- G. Work not specifically set forth in the Contract Documents as pay items shall be considered subsidiary obligations of Contractor and costs shall be included in prices named in the Contract Documents.
- H. Method of measurement and basis of payment for unit price work items shall be as stipulated in following paragraphs.

1.2 CONSTRUCTION FACILITIES

- A. Mobilization costs shall not exceed 5% of the contract bid amount. Seventy percent (70%) of the mobilization bid amount will be paid upon issuance of the notice to proceed for the contract. The balance of mobilization shall be paid 30 days after the notice to proceed.
- B. Site Preparation and Demolition of Existing Facilities:
 - 1. Site preparation shall be paid per one lump sum for the project. Partial payment shall be made as follows: Seventy (70%) percent of lump sum for completion of site preparation activities excluding cleaning, and contract closeout. The remaining thirty (30%) percent of lump sum shall be paid upon completion of demobilization, cleaning of site, and contract closeout activities.

MEASUREMENT AND PAYMENT

2. Site preparation includes providing labor, materials, tools, equipment and operations necessary to complete work identified below.
3. Site preparation work includes:
 - a. Providing, installing and maintaining of, and other Storm Water Pollution Control Measures
 - b. Demolition and removal of existing boat ramp components.
 - c. Removal and disposal of grasses, vegetation, trees, logs, roots, stumps, brush, rocks, rubbish, debris and other objectionable materials.
 - d. Protection of existing facilities to include drainage, sanitary sewer, sidewalk areas, and utilities.
 - e. Construction surveying
 - f. Activities required in Division 1 specification sections
 - g. Control of water and dewatering

END OF SECTION

SECTION 010270

APPLICATION FOR PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.
- B. This Section specifies administrative and procedural requirements governing each Application for Payment.
 - 1. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, Submittal Schedule, and List of Subcontracts.
- C. Related Sections: The following Sections contain requirements that relate to this Section.
 - 1. Schedules: The Contractor's Construction Schedule and Submittal Schedule are specified in Division 1 Section 01300 - "Submittals."

1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Engineer and paid for by the Owner.
- B. Payment-Application Times: The date for each progress payment is the 15th day of each month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends the last calendar day of the preceding month for each progress payment.
- C. Payment-Application Forms: Use forms provided by the Owner for Applications for Payment.
- D. Application Preparation: Complete every entry on the form. Include notarization and execution by a person authorized to sign legal documents on behalf of the Contractor. The Engineer will return incomplete applications without action.
 - 1. Entries shall match data on the Bid Proposal and the Contractor's Construction Schedule. Use updated schedules if revisions were made.
 - 2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- E. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to the Engineer by a method ensuring receipt within 24 hours. One copy shall be complete, including waivers of lien and similar attachments, when required.

APPLICATION FOR PAYMENT

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Engineer.
- F. Certification: Engineer shall field certify the quantities of work completed monthly.
- G. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of mechanics liens from subcontractors, sub-subcontractors and suppliers for the construction period covered by the previous application.
1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. The Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Delays: Submit each Application for Payment with the Contractor's waiver of mechanics lien for the period of construction covered by the application.
 - a. Submit final Applications for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to the Owner.
- H. Initial Application for Payment: Administrative actions and submittals, that must precede or coincide with submittal of the first Application for Payment, include the following:
1. List of subcontractors.
 2. List of principal suppliers and fabricators.
 3. Contractor's Construction Schedule (one for each bridge).
 4. Schedule of principal products.
 5. Schedule of unit prices.
 6. Submittal Schedule (preliminary if not final).
 7. List of Contractor's staff assignments.
 8. List of Contractor's principal consultants.
 9. Copies of building permits.
 10. Copies of authorizations and licenses from governing authorities for performance of the Work.
 11. Initial progress report.
 12. Report of preconstruction meeting.
 13. Certificates of insurance and insurance policies.
 14. Performance and payment bonds.
 15. Initial settlement survey and damage report, if required.
- I. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.
1. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
 2. Administrative actions and submittals that shall precede or coincide with this application include:
 - a. Warranties (guarantees) and maintenance agreements.
 - b. Startup performance reports.

APPLICATION FOR PAYMENT

- c. Changeover information related to Owner's occupancy, use, operation, and maintenance.
 - d. Final cleaning.
 - e. Application for reduction of retainage and consent of surety.
 - f. Advice on shifting insurance coverages.
 - g. Final progress photographs.
 - h. List of incomplete Work, recognized as exceptions to Engineer's Certificate of Substantial Completion.
- J. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:
- 1. Completion of Project closeout requirements.
 - 2. Completion of items specified for completion after Substantial Completion.
 - 3. Ensure that unsettled claims will be settled.
 - 4. Ensure that incomplete Work is not accepted and will be completed without undue delay.
 - 5. Transmittal of required Project construction records to the Owner.
 - 6. Proof that taxes, fees, and similar obligations were paid.
 - 7. Removal of temporary facilities and services.
 - 8. Removal of surplus materials, rubbish, and similar elements.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 010270

SECTION 010350

MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing contract modifications.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section 01300 - "Submittals" for requirements for the Contractor's Construction Schedule.
 - 2. Division 1 Section 01027 - "Applications for Payment" for administrative procedures governing Applications for Payment.

1.3 CHANGE ORDER PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: The Engineer will issue a detailed description of proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal requests issued by the Engineer are for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change.
 - 2. Within 20 days of receipt of a proposal request, submit an estimate of cost necessary to execute the change to the Engineer for the Owner's approval.
 - a. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.
- B. Contractor-Initiated Proposals: When latent or unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Engineer.
 - 1. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.
 - 2. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
- C. Proposal Request Form: Use forms provided by the Owner for Change Order Proposals.

1.4 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: When the Owner and the Contractor disagree on the terms of a Proposal Request, the Owner may issue a Construction Change Directive. The Construction Change Directive instructs the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. The Construction Change Directive contains a complete description of the change in the Work. It also designates the method to be followed to determine change in the Contract Sum or Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.5 CHANGE ORDER PROCEDURES

- A. Upon the Owner's approval of a Proposal Request, the Engineer will issue a Change Order for signatures of the Owner and the Contractor.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 010350

SECTION 010400

COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and supervisory requirements necessary for coordinating construction operations including, but not necessarily limited to, the following:
 - 1. General project coordination procedures.
 - 2. Conservation.
 - 3. Coordination Drawings.
 - 4. Administrative and supervisory personnel.
 - 5. Cleaning and protection.

1.3 COORDINATION

- A. Contact the following at least 48 hours prior to construction:
 - 1. Owner: 281-634-5550.
 - 2. Engineer: 281-496-0066.
- B. Coordinate construction operations included in various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in the sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.
 - 3. Make provisions to accommodate items scheduled for later installation.
- C. Where necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
 - 1. Prepare similar memoranda for the Owner and separate contractors where coordination of their work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and assure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules.
 2. Installation and removal of temporary facilities.
 3. Delivery and processing of submittals.
 4. Progress meetings.
 5. Project closeout activities.
- E. Conservation: Coordinate construction operations to assure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated in, the Work.

1.4 SUBMITTALS

- A. Coordination Drawings: Prepare coordination drawings where careful coordination is needed for installation of products and materials fabricated by separate entities. Prepare coordination drawings where limited space availability necessitates maximum utilization of space for efficient installation of different components.
1. Show the relationship of components shown on separate Shop Drawings.
 2. Indicate required installation sequences.
 3. Comply with requirements contained in Section 01300 - "Submittals".
- B. Staff Names: Within 15 days of commencement of construction operations, submit a list of the Contractor's principal staff assignments, including the superintendent and other personnel in attendance at the Project Site. Identify individuals and their duties and responsibilities. List their addresses, telephone numbers (home and work), pager numbers, and mobile numbers, as applicable.
1. Post copies of the list in the Project meeting room, the temporary field office, and each temporary telephone.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL COORDINATION PROVISIONS

- A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.

3.2 CLEANING AND PROTECTION

- A. Clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage or deterioration at Substantial Completion.

- B. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.
- C. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

END OF SECTION 010400

SECTION 010450

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for cutting and patching.

1.3 SUBMITTALS

- A. Cutting and Patching Proposal: Contractor shall submit a proposal describing procedures well in advance of the time cutting and patching will be performed. Request approval to proceed. Include the following information, as applicable, in the proposal:
 - 1. Describe the extent of cutting and patching required. Show how it will be performed and indicate why it cannot be avoided.
 - 2. Describe anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
 - 3. List products to be used and firms or entities that will perform Work.
 - 4. Indicate dates when cutting and patching will be performed.
 - 5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
 - 6. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with the original structure.
 - 7. Approval by the Owner to proceed with cutting and patching does not waive the Owner's right to later require complete removal and replacement of unsatisfactory work.

1.4 WARRANTY

- A. Existing Warranties: Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void any warranties required or existing.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible if identical materials are unavailable or cannot be used. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.
 - 1. Before proceeding, meet at the Project Site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.2 PREPARATION

- A. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
- B. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.3 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
 - 1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original Installer; comply with the original Installer's recommendations.
 - 1. Comply with requirements of applicable Specification Sections where cutting and patching requires excavating and backfilling.
 - 2. Where services are required to be removed, relocated, or abandoned, by-pass utility services, such as pipe or conduit, before cutting. Cut-off pipe or conduit to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
 - 1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
 - 2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

3.4 CLEANING

- A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar items. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

END OF SECTION 010450

SECTION 013000

SUBMITTALS

PART 1 - GENERAL

1.1 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
1. Complete all submittals within 15 days after the Notice to Proceed date.
 2. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 3. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
 4. Coordinate all submittals requiring finish and/or color selections so that they are submitted close together and early. The Owner cannot make color/finish selections until all selection samples are provided for proper color/finish coordination. All color/finish selections will be made at the same time on a single list of selections and/or color board.
 - a. The Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
 5. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.
 - a. Allow 2 weeks for initial review. Allow additional time if the Engineer must delay processing to permit coordination with subsequent submittals or if several large submittals are submitted at or close to the same time.
 - b. If an intermediate submittal is necessary, process the same as the initial submittal.
 - c. Allow 2 weeks for reprocessing each submittal.
 - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Engineer sufficiently in advance of the Work to permit processing.
 - e. The Contractor may indicate on his transmittal any preferred sequence of review or if a later submittal should supersede an earlier submittal.
- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
1. Provide a space approximately 4 by 5 inches (100 by 125 mm) on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
 2. The Engineer will return submittals without review if the Contractor has not previously reviewed the submittal and included his review stamp and comments.
 3. When a submitting entity requests specific information on the submittal concerning site and project conditions, or field measurements, the Contractor shall provide that information prior to submitting to the Engineer. If it pertains to information, such as field dimensions, which are not available at the time of the submittal, the added information must be copied to the Engineer when available.

4. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Name, address and telephone/fax number of the Engineer.
 - d. Name, address and telephone/fax number of the Contractor.
 - e. Name address and telephone/fax number of the subcontractor.
 - f. Name, address and telephone/fax number of the supplier.
 - g. Name of the manufacturer.
 - h. Submittal identification number.
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Engineer using a transmittal form. The Engineer will not accept submittals received from sources other than the Contractor.
 1. On the transmittal, record relevant information and requests for data. Identify submittal by I.D. number and specification section number and name. On the form, or separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.
 2. Note on the transmittal and specifically flag on drawings or data sheets any proposed substitution to manufacturers or products listed in the contract documents.
 3. Transmittal Form: Use a form which includes the same data and information.

1.2 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart-type, contractor's construction schedule. Submit within 14 days after the Notice to Proceed date.
 1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week.
 2. Within each time bar, indicate estimated completion percentage. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion.
 3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
 4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.
 5. Coordinate the Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other schedules.
 6. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Engineer's procedures necessary for certification of Substantial Completion.
 7. Incorporate into the time base an allowance for normal or average rainfall for each month if the activity would be affected by rainfall.
- B. Work Stages: Indicate important stages of construction for each major portion of the Work, including submittal review, testing, and installation.

- C. Area Separations: Provide a separate time bar to identify each major construction area for each major portion of the Work. Indicate where each element in an area must be sequenced or integrated with other activities.
- D. Distribution: Following response to the submittal, print and distribute copies to the Engineer, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
 - 1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- E. Schedule Updating: Revise the schedule after each meeting, event, or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

1.3 SUBMITTAL SCHEDULE

- A. After development and acceptance of the Contractor's Construction Schedule, prepare a complete schedule of submittals. Contractor shall submit the schedule to the Engineer within 21 calendar days of the Notice to Proceed date.
 - 1. Coordinate Submittal Schedule with the List of Subcontracts and the Contractor's Construction Schedule.
 - 2. Prepare the schedule in chronological order. Provide the following information:
 - a. Submittal identification number.
 - b. Scheduled date for the first submittal.
 - c. Related Section number.
 - d. Submittal category (Shop Drawings, Product Data, or Samples).
 - e. Name of the subcontractor.
 - f. Description of the part of the Work covered.
 - 3. Allow time for resubmittals and reviews.
- B. Distribution: Following response to the initial submittal, print and distribute copies to the Engineer, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.
 - 1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- C. Schedule Updating: Revise the schedule after substantial impact revisions have been recognized or made. Issue the updated schedule within 3 days following a revision.

1.4 SHOP DRAWINGS

- A. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents or listed acceptable manufacturers/products. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
- B. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:

1. Dimensions.
 2. Identification of products and materials included by sheet and detail number.
 3. Compliance with specified standards.
 4. Notation of coordination requirements.
 5. Notation of dimensions established by field measurement.
 6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 24 by 36 inches .
 7. Submittal: Submit one correctable, translucent, reproducible print and three blue- or black-line prints for the Engineer's review. The Engineer will return the reproducible print.
 8. Do not use Shop Drawings without Engineer's review stamp indicating "No Exceptions Taken" or "Make Corrections Noted".
- C. Distribution: Furnish one set of prints of final submittal to Owner, installer, subcontractor, supplier, manufacturer, fabricator, and others required for performance of construction activities. Show distribution on transmittal forms. Retain one copy for each Operations and Maintenance Manual where required. Include Engineer Review Stamp and any comment made.
1. Do not proceed with installation until a set of prints is in the Installer's possession.
 2. Do not permit use of unmarked prints of Shop Drawings in connection with construction.

1.5 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color samples, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.
1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with contract documents.
 - c. Compliance with trade association standards.
 - d. Compliance with recognized testing agency standards.
 - e. Application of testing agency labels and seals.
 - f. Notation of dimensions verified or to be verified by field measurement.
 - g. Notation of coordination requirements.
 2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed by Contractor.
 3. Failure to mark applicable information as noted above, will be cause for rejection. Only marked items will be considered and reviewed.
- B. Submittals: Contractor shall submit 4 copies of each required submittal. The Engineer will retain three and will return one copy marked with action taken and corrections or modifications required.
1. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal, if properly marked.
- C. Distribution: Furnish one photocopy of final submittal to Owner, installer, subcontractor, supplier, manufacturer, fabricator, and others required for performance of construction activities. Show distribution on transmittal forms. Copy only the applicable pages. Retain one copy for each Operations and Maintenance Manual where required. Include Engineer Review Stamp and any comment made.

1. Do not proceed with installation until a copy of Product Data is in the Installer's possession.
2. Do not permit use of unmarked copies of Product Data in connection with construction.

1.6 SAMPLES

- A. Submit actual, fully fabricated Samples cured and finished as specified and physically identical with the brick pavers and other material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern. Printed color representations will not be acceptable.
1. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a check of these characteristics with other elements and a comparison of these characteristics between the submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least 3 multiple units that show approximate limits of the variations.
 - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
 2. Submittals: Submit one set. The Engineer will return a copy of the Contractor's transmittal marked with the action taken. In the case of color selections, Engineer will issue a list of colors and finishes selected from all of the samples.
 - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

1.7 ENGINEER'S ACTION

- A. Except for submittals for the record or information, where action and return is required, the Engineer will review each submittal, mark to indicate action taken, and return it to the Contractor.
1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The Engineer will stamp each submittal with a uniform, action stamp. The Engineer will mark the stamp appropriately to indicate the action taken, as follows:
1. If returned "Contractor Has Not Approved", Contractor shall review the submittal, mark or make notation as applicable, affix the Contractor's review stamp, sign and date the stamp and then resubmit.
 2. If returned "No Exceptions Taken", Contractor shall distribute copies as required for Final Submittal and proceed with the work.
 3. If returned "Make Corrections Noted", Contractor shall distribute copies as required for Final Submittal and proceed with the work based upon the noted corrections or comments.
 4. If returned "Revise and Resubmit", Contractor shall have the submittal corrected according to the marks and comments and then resubmit in the same manner as the initial submittal, following Contractor's review. Add "(R-1)" to the submittal identification number for the first resubmittal, "(R-2)" for the second resubmittal, etc.
 5. If returned "Rejected", Contractor shall resubmit after making adjustments or changes, responding to the reason for the rejection.

C. Final Submittal:

1. Final Submittal will be returned "No Exceptions Taken" or "Make Corrections Noted". Contractor may proceed with the work (based on noted corrections or comments, if provided) and distribute prints of the reproducibles submittal as follows:
 - a. Distribute one set of prints to each entity that will be affected by the submittal data or must coordinate with that submitting entity.
 - b. Retain one set of prints where required for each Operations and Maintenance Manual.
 - c. Retain one set of prints as a "Record Document".
 - d. Retain construction and record sets as required for Contractor's use.
 - e. Return the reproducible to the entity which prepared the submittal. Engineer will forward one copy to the Owner.
 - f. Do not use, or allow others to use, submittals marked "Contractor has Not Approved", "Revise and Resubmit", or "Rejected" at the Project Site or elsewhere where Work is in progress.

D. Unsolicited Submittals: The Engineer will return unsolicited submittals to the sender without action.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 013000

SECTION 014000

QUALITY CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all other Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality-control services.
- B. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Engineer.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
 - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- E. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Section 01045 - "Cutting and Patching" specifies requirements for repair and restoration of construction disturbed by inspection and testing activities.
 - 2. Section 01300 - "Submittals" specifies requirements for development of a schedule of required tests and inspections.

1.3 RESPONSIBILITIES

- A. Responsibilities: The Owner shall employ and pay a qualified independent testing agency to provide inspections, tests, and other quality-control services.
- B. Retesting: The Contractor is responsible for the cost of retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.
 - 1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Document requirements.
- C. Coordination: Coordinate the sequence of activities to accommodate required services with a minimum of delay. Coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

1. The Contractor is responsible for scheduling times for inspections, tests, taking samples, and similar activities.

1.4 SUBMITTALS

- A. The Owner's independent testing agency shall submit a certified written report, in duplicate, of each inspection, test, or similar service to the Engineer.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with Contract Document requirements for Section 01045 - "Cutting and Patching".
- B. Protect construction exposed by or for quality-control service activities, and protect repaired construction.
- C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

END OF SECTION 014000

SECTION 015000

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all other Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for construction facilities and temporary controls, including temporary utilities, support facilities, and security and protection.
- B. Security and protection facilities include, but are not limited to, the following:
 - 1. Barricades, warning signs, and lights.
 - 2. Environmental protection.

1.3 SUBMITTALS

- A. Temporary Utilities: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.
- B. Implementation and Termination Schedule: Within 15 days of the Notice to Proceed date, submit a schedule indicating implementation and termination of each temporary utility.

1.4 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
 - 1. Building code requirements.
 - 2. Health and safety regulations.
 - 3. Utility company regulations.
 - 4. Police, fire department, and rescue squad rules.
 - 5. Environmental protection regulations.
 - 6. Texas Manual of Uniform Traffic Control Devices.
- B. Standards: Comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

- A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of permanent service.

- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials. If acceptable to the Engineer, the Contractor may use undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
 - 1. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
 - 3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.
- B. Sanitary facilities include temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
 - 1. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
- C. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
 - 1. Provide separate facilities for male and female personnel.

- D. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.
 - 1. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.
- E. Drinking-Water Facilities: Provide containerized, tap-dispenser, bottled-water drinking-water units, including paper supply.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Locate field offices, storage sheds, and other temporary construction and support facilities for easy access.
 - 1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion.
- B. Temporary Signs: Prepare and install signs to provide directional information to the public and persons seeking entrance to the Project. Support on posts or framing of preservative-treated wood or steel. Do not permit installation of unauthorized signs.
- C. Temporary Exterior Lighting: Install exterior yard and sign lights so signs are visible when Work is being performed.
- D. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Contractor shall remove all waste. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Engineer.
- B. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- C. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Cover all excavations during periods of non-construction.
- D. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
- C. Termination and Removal: Unless the Engineer requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

END OF SECTION 015000

SECTION 015010

TRENCH EXCAVATION SAFETY SYSTEMS

PART 1 - GENERAL

- A. American Society for Testing and Materials (ASTM):
 - A 307, Carbon Steel Bolts and Studs 60,000 psi Tensile Strength
 - A 328, Steel Sheet Piling
 - A 36, Structural Steel
 - A 572, High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality
 - A 588, High-Strength Low-Alloy Structural Steel with 50 ksi (345 MPa) Minimum Yield Point to 4-In. (100 mm) Thick
 - A 690, High-Strength Low-Alloy Steel H-Piles and Sheet Piling for Use in Marine Environments
- B. American Welding Society, Inc. (AWS):
 - D1.1, Structural Welding Code - Steel
- C. Code of Federal Regulations (CFR):
 - 29CFR1926, Safety and Health Regulations for Construction; Subpart P-Excavations, Trenching, and Shoring

1.1 DESCRIPTION

- A. Trench excavation safety systems shall be employed to accomplish safety from trench collapses where trench excavation is more than 5 ft. in depth and trench material is other than solid rock.

1.2 SUBMITTALS

- A. When trench safety system as detailed in Contract Documents is used, submit Certificate of Compliance stating evidence or basis of compliance.
- B. When trench safety system other than that detailed in Contract Documents is used:
 - 1. Submit certificate signed and sealed by registered professional engineer licensed in State of Texas.
 - 2. Certificate shall state that system is designed in compliance with Occupational Safety and Health Administration (OSHA) standards and this Section.
 - 3. Submit certificate prior to commencing work.
 - 4. Drawings, and specifications if deemed necessary by registered professional engineer, signed and sealed, as responsible engineer, by registered professional engineer referred to above.
 - a. Drawings shall illustrate system and locations where system will be installed.
 - b. Submit drawings and specifications for review prior to commencing work.
 - c. Review by A-E will be for sole purpose of verifying that required certificate and drawings and specifications have been signed and sealed by registered professional engineer.
- C. If portable trench box other than specified is used, submit certification of design by registered professional engineer, licensed in State of Texas, prior to use on project.
- D. When trench jacks are used for crossbracing or stringers, provide certification by registered professional engineer that trench jacks provide necessary protection.

1.3 QUALITY ASSURANCE

- A. Regulatory Requirements: Meet requirements of 29CFR1926, OSHA Safety and Health Regulations For Construction, Subpart P-Excavations, Trenching, and Shoring.

TRENCH EXCAVATION SAFETY SYSTEMS

- B. Supervision: Provide competent supervisory personnel at each trench while work is in progress to ensure that Contractor's means, methods, techniques, sequences, procedures, equipment, and materials pertaining to trench safety systems are sufficient to meet State of Texas' and OSHA Standards and Regulations requirements and to determine which systems shown on Drawings or prepared by Contractor's registered professional engineer should be used for site soil conditions including any ground water.

PART 2 - PRODUCTS

2.1 STEEL

- A. Sheet Piling:
 - 1. ASTM A 328.
 - 2. ASTM A 572, Grade 50.
 - 3. ASTM A 690.
- B. Stringers and Crossbracing: ASTM A 588.
- C. Portable Trench Boxes:
 - 1. ASTM A 36.
 - 2. Acceptable product: "LHD Series Trench Box", Griswold Machine and Engineering, Inc., M-60 East, Union City, Michigan (800-248-2054).
- D. Connecting Bolts: ASTM A 307.
- E. Welds: AWS D1.1.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Make daily, periodic, or full time inspections as necessary to ensure that trench excavation safety systems meet requirements.
- B. If evidence of possible cave-ins or slides is apparent, cease work in trench until necessary precautions have been taken to safeguard personnel entering trench.
- C. Maintain records of inspections.
- D. Observations or inspections by Owner or A-E are for benefit of Owner only and are not to be relied upon for purposes of construction operations.

3.2 CONSTRUCTION

- A. Construct, install, and maintain trench excavation safety system in accordance with Contract Documents or design prepared by Contractor's registered professional engineer.
- B. Portable Trench Boxes:
 - 1. In cases where top of portable trench box will be below top of trench, trench sides above top of trench box shall be sloped outward at angle of repose of material being excavated.
 - 2. Portable trench box shall be operated on bottom of trench at all times.
- C. Sloping is prohibited in areas where sloped trench will affect integrity of existing structures.

3.3 MAINTENANCE

- A. Maintain trench safety system in safe working condition.

TRENCH EXCAVATION SAFETY SYSTEMS

- B. Take necessary precautions to ensure that trench safety system is not damaged during use.
- C. If trench safety system is damaged during use, remove personnel from trench or excavated area immediately and repair trench safety system.
- D. Take necessary precautions to ensure that no loads, except those included in trench safety system design, are imposed on excavation.

3.4 REMOVAL

- A. Bed and backfill pipe or box culvert to be installed in trench to point at least 1 ft. above top of pipe or box culvert prior to removal of any portion of trench safety system.
- B. Bedding and Backfill: As specified or as shown on Drawings.
- C. Backfilling and removal of trench supports shall progress together from bottom of trench upwards.
- D. Do not remove braces or trench supports or trench safety system until all personnel have evacuated trench.
- E. Backfill trench to within 5 ft. of natural ground prior to removal of entire trench safety system.
- F. None of trench safety system shall remain in place after backfilling.

END OF SECTION 015010

SECTION 016000

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all other Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing the Contractor's selection of products for use in the Project.

1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.

1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - a. "Named Products" are items identified by the manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
 - b. "Foreign Products," as distinguished from "domestic products," are items substantially manufactured (50 percent or more of value) outside the United States and its possessions. Products produced or supplied by entities substantially owned (more than 50 percent) by persons who are not citizens of, nor living within, the United States and its possessions are also considered to be foreign products.
2. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

1.4 SUBMITTALS

- A. Product List: Contractor shall prepare a list showing products specified in tabular form acceptable to the Engineer. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.
 1. Coordinate product list with the Contractor's Construction Schedule and the Schedule of Submittals.
 2. Form: Prepare product list with information on each item tabulated under the following column headings:
 - a. Related Specification Section number.
 - b. Generic name used in Contract Documents.

- c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date or time span of delivery period.
3. Initial Submittal: Within 15 days after Notice to Proceed date, submit 3 copies of an initial product list. Provide a written explanation for omissions of data and for known variations from Contract requirements.
 4. Completed List: Within 45 days after Notice to Proceed date, submit 3 copies of the completed product list. Provide a written explanation for omissions of data and for known variations from Contract requirements.
 5. Engineer's Action: The Engineer will respond in writing to Contractor within 2 weeks of receipt of the completed product list. No response within this period constitutes no objection to listed manufacturers or products but does not constitute a waiver of the requirement that products comply with Contract Documents. The Engineer's response will include a list of unacceptable product selections, containing a brief explanation of reasons for this action.

1.5 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.
 1. When specified products are available only from sources that do not, or cannot, produce a quantity adequate to complete project requirements in a timely manner, consult with the Engineer to determine the most important product qualities before proceeding. Qualities may include attributes, such as visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources producing products that possess these qualities, to the fullest extent possible.
- B. Compatibility of Options: When the Contractor is given the option of selecting between 2 or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.
- C. Foreign Product Limitations: Except under one or more of the following conditions, provide domestic products, not foreign products, for inclusion in the Work:
 1. No available domestic product complies with the Contract Documents.
 2. Domestic products that comply with the Contract Documents are available only at prices or terms substantially higher than foreign products that comply with the Contract Documents.
- D. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products that will be exposed to view in occupied spaces or on the exterior.
 1. Labels: Locate required product labels and stamps on concealed surfaces or, where required for observation after installation, on accessible surfaces that are not conspicuous.
 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.

e. Ratings.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
 6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
 7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.
- B. Product Selection Procedures: The Contract Documents and governing regulations govern product selection. Procedures governing product selection include the following:
1. Proprietary Specification Requirements: Where Specifications name only a single product or manufacturer, provide the product indicated. No substitutions will be permitted.
 2. Semiproprietary Specification Requirements: Where Specifications name 2 or more products or manufacturers, provide 1 of the products indicated. No substitutions will be permitted.
 - a. Where Specifications specify products or manufacturers by name, accompanied by the term "or equal" or "or approved equal," comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
 3. Nonproprietary Specifications: When Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions of Section 01631 - "Substitutions" to obtain approval for use of an unnamed product.
 4. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.

MATERIALS AND EQUIPMENT

5. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by the manufacturer for the application indicated.
 - a. Manufacturer's recommendations may be contained in published product literature or by the manufacturer's certification of performance.
6. Compliance with Standards, Codes, and Regulations: Where Specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.
7. Visual Matching: Where Specifications require matching an established Sample, the Engineer's decision will be final on whether a proposed product matches satisfactorily.
 - a. Where no product available within the specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents concerning "substitutions" for selection of a matching product in another product category.
8. Visual Selection: Where specified product requirements include the phrase "... as selected from manufacturer's standard colors, patterns, textures ..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Owner will select the color, pattern, and texture from the product line selected.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Per manufacturer's requirements, anchor each product securely in place, accurately located and aligned with other Work.
 1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 016000

SECTION 016310

SUBSTITUTIONS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Substitution Request Submittal: The Engineer will consider requests for substitution if received within 10 days after Notice to Proceed. Requests received more than 10 days after commencement of the Work will be rejected.
1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and according to procedures required for normal submittals, except accompanied by a written request for substitution.
 2. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers.
 3. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
 - a. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate contractors, that will be necessary to accommodate the proposed substitution.
 - b. A detailed comparison of specified and other significant qualities of the proposed substitution with those of the Work and products or products of manufacturers specified. Significant qualities may include elements, such as performance, weight, size, durability, visual effect, test results, warranty, and suitability. Where there are differences, data must show how the substituted product is either equivalent to or better than those listed in the specifications.
 - c. Product Data, including Drawings and descriptions of products and fabrication and installation procedures.
 - d. Samples, where applicable or requested.
 - e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
 - f. Cost information, including a proposal of the net change, if any in the Contract Sum.
 - g. The Contractor's certification that the proposed substitution conforms to requirements in the Contract Documents in every respect and is appropriate for the applications indicated, or clearly state differences and show how the substitution is equivalent or better.
 - h. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Conditions: The Engineer will receive and consider the Contractor's request for substitution when one or more of the following conditions are satisfied, as determined by the Engineer. If one or more of the following conditions are not satisfied, the Engineer will return the requests without action except to record noncompliance with these requirements.
1. Revisions to the Contract Documents are not required.
 2. Proposed changes are in keeping with the general intent of the Contract Documents.

SUBSTITUTIONS

3. The request is timely, fully documented, and properly submitted.
 4. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.
 5. The requested substitution offers the Owner a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the Owner must assume. The Owner's additional responsibilities may include compensation to the Engineer for redesign and evaluation services, increased cost of other construction by the Owner, and similar considerations.
 6. The specified product or method of construction cannot meet the requirements of a governing authority, and the requested substitution can.
 7. The specified product or method of construction cannot be provided in a manner that is compatible with other materials and where the Contractor certifies that the substitution will overcome the incompatibility.
 8. The specified product or method of construction cannot be coordinated with other materials and where the Contractor certifies that the proposed substitution can be coordinated.
 9. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.
- B. The Contractor's submittal and the Engineer's acceptance of Shop Drawings, Product Data, or Samples for construction activities not complying with the Contract Documents do not constitute an acceptable or valid request for substitution, nor do they constitute acceptance of the Product, Method, or process.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 016310

SECTION 017000
CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all other Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Project record document submittal.
 - 3. Operation and maintenance manual submittal.
 - 4. Submittal of warranties.
 - 5. Final cleaning.
- B. Closeout requirements for specific construction activities are also included in the appropriate Sections in Divisions 2 and 3.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete.
 - a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
 - b. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
 - 2. Advise the Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Submit record drawings, maintenance manuals, final project photographs, damage or settlement surveys, property surveys, and similar final record information.
 - 6. Deliver tools, spare parts, extra stock, and similar items.
 - 7. Make final changeover of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of changeover in security provisions.
 - 8. Complete startup testing of systems and instruction of the Owner's operation and maintenance personnel. Discontinue and remove temporary facilities from the site, along with mockups, construction tools, and similar elements.
 - 9. Complete final cleanup requirements, including touchup painting.
 - 10. Touch up and otherwise repair and restore marred, exposed finishes.

- B. Inspection Procedures: On receipt of a request for inspection, the Engineer will either proceed with inspection or advise the Contractor of unfilled requirements. The Engineer will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
 - 1. The Engineer will repeat inspection when requested and assured that the Work is substantially complete.
 - 2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.4 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
 - 1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
 - 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 - 3. Submit a certified copy of the Engineer's final inspection list of items to be completed or corrected, endorsed and dated by the Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Engineer.
 - 4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion or when the Owner took possession of and assumed responsibility for corresponding elements of the Work.
 - 5. Submit consent of surety to final payment.
 - 6. Submit a final liquidated damages settlement statement.
 - 7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Reinspection Procedure: The Engineer will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Engineer.
 - 1. Upon completion of reinspection, the Engineer will prepare a certificate of final acceptance. If the Work is incomplete, the Engineer will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
 - 2. If necessary, reinspection will be repeated.

1.5 RECORD DOCUMENT SUBMITTALS

- A. General: Do not use record documents for construction purposes. Protect record documents from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for the Engineer's reference during normal working hours.
- B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
 - 1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
 - 2. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.
 - 3. Note related change-order numbers where applicable.

4. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.
- C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda. Include with the Project Manual one copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.
1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
 2. Give particular attention to substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned later by direct observation.
 3. Note related record drawing information and Product Data.
 4. Upon completion of the Work, submit record Specifications to the Engineer for the Owner's records.
- D. Record Product Data: Maintain one copy of each Product Data submittal. Note related Change Orders and markup of record drawings and Specifications.
1. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site and from the manufacturer's installation instructions and recommendations.
 2. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily discerned later by direct observation.
 3. Upon completion of markup, submit complete set of record Product Data to the Engineer for the Owner's records.
- E. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Submit to the Engineer for the Owner's records.
- F. Maintenance Manuals: Organize operation and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual, heavy-duty, 2-inch (51-mm), 3-ring, vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:
1. Emergency instructions.
 2. Copies of warranties.
 3. Inspection procedures.
 4. Shop Drawings and Product Data.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

- A. Operation and Maintenance Instructions: Arrange for each Installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following items:
1. Maintenance manuals.
 2. Record documents.
 3. Spare parts and materials.

4. Tools.
5. Lubricants.
6. Identification systems.
7. Control sequences.
8. Hazards.
9. Cleaning.
10. Warranties and bonds.
11. Maintenance agreements and similar continuing commitments.

3.2 FINAL CLEANING

- A. General: The General Conditions require general cleaning during construction. Regular site cleaning is included in Section 01500 - "Construction Facilities and Temporary Controls".
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion.
 - a. Remove labels that are not permanent labels.
 - b. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore surfaces to their original condition.
 - c. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.
- C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
- D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.

END OF SECTION 017000

SECTION 017400

WARRANTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers standard warranties on products and special warranties.

- 1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.

- B. Related Sections: The following Sections contain requirements that relate to this Section:

- 1. Division 1 Section 01300 - "Submittals" specifies procedures for submitting warranties.
- 2. Division 1 Section 01700 - "Contract Closeout" specifies contract closeout procedures.
- 3. Divisions 2 through 3 Sections for specific requirements for warranties on products and installations specified to be warranted.
- 4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

- C. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.3 DEFINITIONS

- A. Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.4 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents.

WARRANTIES

The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

- D. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.
 - 1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
- E. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.5 SUBMITTALS

- A. Submit written warranties to the Engineer prior to the date certified for Substantial Completion. If the Engineer's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Engineer.
 - 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Engineer within 15 days of completion of that designated portion of the Work.
- B. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Engineer, for approval prior to final execution.
- C. Forms for special warranties are included at the end of this Section. Prepare a written document utilizing the appropriate form, ready for execution by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Submit a draft to the Owner, through the Engineer, for approval prior to final execution.
 - 1. Refer to Divisions 2 through 3 Sections for specific content requirements and particular requirements for submitting special warranties.
- D. Form of Submittal: At Final Completion compile 2 copies of each required warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.
- E. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (115-by-280-mm) paper.
 - 1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.
 - 2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor.

Bayshore Park
Boat Ramp

WARRANTIES

3. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 017400

SECTION 021000

SITE CLEARING

PART 1 - GENERAL

1.1 RELATED SECTIONS

- A. Section 02200: Earthwork

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Removing above- and below-grade items.

1.3 PROJECT CONDITIONS

- A. Traffic: Conduct site-clearing operations to ensure minimum interference with traffic, adjacent roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.
- B. Protection of Existing Improvements: Provide protections necessary to prevent damage to existing improvements indicated to remain in place.
 - 1. Restore damaged improvements to their original condition, as acceptable to property owners.

1.4 EXISTING SERVICES

- A. General: Indicated locations are approximate; determine exact locations before commencing Work.
- B. Arrange and pay for disconnecting, removing, capping, and plugging utility services if necessary. Notify affected utility companies in advance and obtain approval before starting this Work.
- C. Place markers to indicate location of disconnected services. Identify service lines and capping locations on Project Record Documents.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SITE CLEARING

- A. General: Remove grass and other vegetation, improvements, or obstructions, as required, to permit installation of new construction. Remove items elsewhere on site or premises as specifically indicated.

3.2 FILLING AND ROUGH GRADING

- A. Depressions and areas below grade in site area shall be filled to original rough grade elevations.
- B. Fill to rough grade elevations with select fill as defined in Section 02200, when fill obtained from high areas is exhausted.
- C. Compact fill to preclude further consolidation.

D. Rough Grading:

1. Site shall be rough-graded to eliminate holes and sharp breaks in grade and to fit into area drainage pattern.
2. Maintain existing system or establish temporary drainage system to prevent flooding, sedimentation, or erosion damage to project site.

3.3 DISPOSAL OF WASTE MATERIALS

- A. Burning on Owner's Property: Burning is not permitted on Owner's property.
- B. Removal from Owner's Property: Waste materials shall be property of the Contractor and shall be removed from Owner's property. Contractor shall properly and legally dispose of waster materials.

END OF SECTION 021000

SECTION 022000

EARTHWORK

PART 1 - GENERAL

RELATED SECTIONS

- A. Section 02100: Site Clearing
- B. Section 02243: Lime Stabilized Subgrade.

REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM):
 - D 1556, Density of Soil in Place by the Sand-Cone Method
 - D 2922, Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
 - D 698, Moisture-Density Relations of Soils and Soil- Aggregate Mixtures Using 5.5 lb. (2.49-kg) Rammer and 12 in. (305-mm) Drop

1.1 DEFINITIONS

- A. Soil Compaction to Percentage of Maximum Density: 1. Compaction to density not less than stated percentage of oven-dry maximum density at optimum moisture content as determined by standard method of test ASTM D 698 (Method A) shall be abbreviated "percent maximum density ASTM D 698 (Standard Proctor)".

1.2 DESCRIPTION

- A. Major Operations:
 - 1. Complete preparation of rights-of-way and lots, including:
 - a. Removal and disposal of vegetation, trash, debris, and deleterious and objectionable materials.
 - b. Protection of items to remain.
 - c. Removal and disposal of minor structures, clearing and grubbing, and backfilling of depressions.
 - d. Stripping and stockpiling of topsoil.
 - 2. Excavate materials in areas of cut to established lines, grades, cross sections, and slopes and utilize excavated materials and borrow materials of specified characteristics to place fills and to spread on adjacent lots stripped and prepared to receive fill.
 - 3. Process and compact subgrades including lime and cement subgrade stabilization as required.
 - 4. Finish subgrades and entire rights-of-way ready for subsequent construction including construction of roadway paving.

1.3 SUBMITTALS

- A. Submit to Owner certified copies of laboratory test results made to determine optimum moisture content, plasticity index (P.I.), liquid limit, gradation, and other characteristics of soils necessary for field quality control of subgrade compaction.

1.4 PROTECTION

- A. Refer to "Protection" article in General Requirements.

PART 2 - EXECUTION

2.1 CLASSIFICATION OF EXCAVATED MATERIALS

- A. Excavated materials will be unclassified.
- B. Excavate materials encountered without exception.
- C. No separate or extra compensation will be made or any special consideration given based on types of materials encountered.

2.2 BLASTING

- A. Use of explosives will not be permitted.

2.3 SITE PREPARATION

- A. Earthwork includes clearing and grubbing, removing and disposing of vegetation, debris, rubbish, objectionable materials and minor obstacles to construction within construction areas as work incidental to earthwork.

2.4 STRIPPING

- A. Before excavation or placement of embankments or fills, strip surface of topsoil to depths encountered.
- B. Stockpile topsoil free of grasses and vegetation at locations as directed.

2.5 EXCAVATION

- A. Perform excavation of materials encountered within grading limits of project to lines and grades indicated.
- B. No extra payment will be made because of subsurface soil conditions requiring removal of rock, boulders, hard-pan or other classes of excavation; materials encountered shall be excavated as required by construction without claim for extra compensation because of subsurface soil conditions.
- C. Transport suitable excavated material to and place in fill areas as required within limits of roadway and freehaul and spread excess excavated materials on adjacent lots at locations selected by the Owner.
- D. Excavated materials shall not be treated as excess or waste materials unless specifically designated.
- E. Stripped materials containing organic and objectionable materials shall be treated as waste material.
- F. Maintain existing sections and ditches to ensure proper drainage.

- G. Construct and maintain ditches and channels to avoid damage to sections.

2.6 FILLS

A. Ground Surface Preparation:

1. Remove and dispose of, as waste material, top layer of soil containing roots, grasses, and other vegetable and organic materials.
2. Backfill stump holes or other small excavations with fill material and compact to density of adjacent in situ soils.
3. Scarify roadbed areas to 6 in. depth minimum.
4. Scarify or plow areas outside roadbed areas to depth of 4 in. minimum.
5. Recompact loosened natural ground material with new material.

B. Formation of Embankments and Fills:

1. Construct at locations and to lines and grades, typical sections, detailed sections, and slopes indicated within limits of work.
2. Use earth free from roots or other organic material, trash, frozen material, and rock, stones, or clods of hard earth having maximum dimension greater than 2 in.
3. Utilize materials excavated from within project limits for fill and to construct embankments and fills.
4. Construct in layers approximately parallel to finished grade surface and compact.
5. Construct in successive layers for full width of individual cross section and in lengths as best suited to sprinkling and compaction methods utilized.
6. Form layers by utilizing equipment which will spread material as it is dumped or spread by blading or other acceptable methods from piles or windrows dumped from excavating or hauling equipment in amounts such that material is evenly distributed.
7. Where layers of unlike materials abut each other, mix each material to prevent abrupt changes in soil.
8. No material placed by dumping in a pile or windrow shall be incorporated in a layer in that position, but such piles or windrows shall be moved by blading or similar methods.
9. Break clods or lumps of material and mix material by blading, harrowing, disking or similar methods to obtain material of uniform consistency in each layer.
10. In order to facilitate uniform wetting of material, water may be applied at material source.
11. At cut and fill sections, scarify earth cuts in hill side to subgrade 6 in. depth, mix material, reshape by blading, adjust moisture content of soil, and compact to same density as that required for adjacent embankment.
12. Depth for compaction for each lift shall not exceed loose measurement depth specified in "Compaction".
13. Prior to and in conjunction with compaction operation, bring each layer to moisture content as specified in "Compaction", and keep leveled with suitable equipment to insure uniform compaction over entire layer.
14. In conjunction with formation of embankments and fills, compact fill material as specified in "Compaction".
15. Seal exposed fill surface with smooth roller when rainfall occurs to prevent infiltration of runoff.
16. Grade fill to prevent ponding of runoff.

2.7 SUBGRADE PREPARATION FOR PAVEMENT

A. Subgrade Stabilization Requirements:

1. Lime stabilize clay subgrade to depth of 6 in.: Refer to Section 02243.

B. Construction Requirements:

1. Construct subgrade to lines, grades, and typical sections indicated allowing for full thickness of pavement section.

2. Beneath subgrade lime stabilized depth, compact to 95 percent maximum density, ASTM D698, Standard Proctor.

C. Subgrade Protection:

1. Keep subgrade shaped and drained during construction.
2. Maintain ditches and drains along subgrade to drain effectively.
3. Bring subgrade to grade when ruts of 2 in. or more in depth occur in subgrade, reshape if required, and recompact prior to placing of paving or base.
4. Storage or stockpiling of materials on subgrade will not be permitted.
5. Do not place subsequent construction until subgrade has been properly prepared and in no case shall subsequent construction be placed on muddy or soft subgrade.
6. Should subgrade lose required stability, density, or finish before subbase or base course is placed, recompact and refinish subgrade.
7. Prevent excessive loss of moisture in subgrade by sprinkling, sealing, or covering with subsequent layer or granular material.
8. Excessive loss of moisture shall be construed to exist when subgrade soil moisture content is more than two percent below optimum.

2.8 COMPACTION

- A. Compact in uniform layers, not exceeding required loose thickness, dry or moisten as necessary to obtain moisture content not more than one percent below or more than two percent above optimum moisture content and compact to density as follows:
 1. Roadways subgrade: not less than 95 percent of Standard Proctor (ASTM D698).
 2. Lot fill: 86 to 92 percent of Standard Proctor (ASTM D698).
- B. Each layer shall be uniform as to material, density, and moisture content before compaction.
- C. Conduct density tests after each layer has been compacted.
- D. If material fails to meet density specified or moisture content is outside required range, rework layer to obtain specified results and alter compaction methods on subsequent work.
- E. Maximum thickness of uniform layers, loose measurement, shall be as follows:
 1. Mechanical hand tamper and hand compaction equipment and procedures: 4 in.
 2. Pneumatic tired roller: 6 in.
 3. Tamping rollers: 12 in.
- F. Compacting equipment and method of compaction shall ensure uniform density will be obtained over entire area and depth of material being compacted.
- G. Break up and spread fill material deposited in place by means of dumping in pile before grading into uniform layers.
- H. Start rolling longitudinally at sides and proceed toward center of crowned sections, or start longitudinally at low side and proceed toward high side of sloped areas, overlapping on successive trips by at least half width of roller unit.
- I. Mechanical Hand Tampers: Use in areas inaccessible to roller equipment.

2.9 FINISHING

- A. Description: Finishing shall consist of shaping and finishing entire right-of-way.
- B. Construction Methods:
 1. Smoothly shape roadway shoulders, slopes and ditches after other work has been completed, except for exactness of finish as required.

2. Clear ditches and channels within right-of-way of debris and obstructions.
3. Level excess earth or other waste material adjacent to structures, poles, trees, or other objects or dispose of, as required.
4. Remove loose stones, rocks and boulders within construction areas that would fail to pass 2 in. ring; dispose of as required.
5. Remove roots, trash and other debris from Owner's controlled land; place entire construction area in neat and presentable condition.
6. Dragging, pushing or scraping of material along or across surface of completed pavement will not be permitted.
7. Continuously maintain sections until acceptance of work.
8. Finish surface not more than 0.10 ft. above or below established grade or cross section.
9. Finish ditches and gutters to drain readily.
10. Regrade disturbed area to original grade where existing grade is disturbed in areas not marked to be graded.

2.10 FIELD QUALITY CONTROL

- A. Frequency and Types of Tests:
 1. Laboratory shall test compacted general fill, embankment, and backfill as follows:
 - a. Take one field density test minimum for every 1000 cu. yds. of material placed, ASTM D 1556 or ASTM D 2922.
 2. Laboratory shall test subgrade:
 - a. Take one field density test for every 1000 sq. yds. of compacted layer in compliance with ASTM D 1556 or ASTM D 2922.

2.11 EXCESS MATERIAL

- A. Excavated and topsoil materials in excess of that used to construct required fills, embankments, stockpiles and topsoiled areas shall remain property of Owner and shall be freehauled, stockpiled or spread on Owner's property at locations selected by Owner.

2.12 DISPOSAL OF WASTE MATERIALS

- A. Waste materials such as trash, debris, cleared and grubbed materials, grasses and vegetation and topsoil contaminated with vegetation, and unsuitable, unusable, and undesirable materials necessary to be removed from construction area or designated by Owner to be removed as waste materials shall be classified as follows:
 1. Combustible waste materials: Materials feasible, practical and non-toxic to dispose of by burning, including cleared and grubbed materials.
 2. Incombustible waste materials: Materials not burnable, not feasible, and not practical to dispose of by burning.
- B. Combustible waste materials and incombustible waste materials shall become property of Contractor and legally disposed of outside limits of Owner's controlled property.

2.13 TOPSOIL

- A. Distribute suitable topsoil on areas indicated to minimum depth of 4 in.
- B. Suitable topsoil from stripping operations may be used.

2.14 EXISTING FENCING

- A. Mend damage to existing fencing to remain and provide temporary fencing to maintain function of fencing that is damaged until damage to existing fencing is restored or replaced.

END OF SECTION

SECTION 022200

DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Demolishing and removing pavement, curbs, concrete boat ramp components and other items identified in the plans.
- B. Disposing of demolished materials.

1.2 MEASUREMENT AND PAYMENT

- A. Work under this specification shall be incidental to the other project work.

1.3 SUBMITTALS

- A. Submittals shall conform to requirements of Section 01300 - Submittals.
- B. Submit proposed methods, equipment, materials and sequence of operations for demolition. Describe coordination for shutting off, capping, and removing temporary utilities. Plan operations to minimize temporary disruption of utilities to existing facilities or adjacent property.
- C. Submit proposed demolition and removal schedule for approval. Notify Owner and the local municipality having jurisdiction in writing at least 48 hours before starting demolition.
- D. Obtain a permit for demolition, as required.

1.4 OWNERSHIP OF MATERIAL AND EQUIPMENT

- A. Demolished materials become the property of the Contractor.

1.5 ENVIRONMENTAL CONTROLS

- A. Minimize spread of dust and flying particles. If required by governing regulations, use temporary enclosures and other suitable methods to prevent the spread of dust, dirt and debris.
- B. Use appropriate controls to limit noise from demolition to levels designated in City ordinances.
- C. Do not use water where it can create dangerous or objectionable conditions, such as localized flooding, erosion, or sedimentation of nearby ditches or streams.
- D. Dispose of removed equipment, materials, waste and debris in a manner conforming to applicable laws and regulations.

PART 2 PRODUCTS

2.1 EQUIPMENT AND MATERIALS FOR DEMOLITION

- A. Use equipment and materials approved under Paragraph 1.03, Submittals.

- B. Fires are not permitted.
- C. Do not use a "drop hammer" where the potential exists for damage to underground utilities, structures, or adjacent improvements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Prior to demolition, make an inspection with Owner to determine the condition of existing structures and features adjacent to items designated for demolition.
- B. Do not proceed with demolition or removal operations until after the joint inspection and subsequent authorization by Owner.

3.2 PROTECTION OF PERSONS AND PROPERTY

- A. Provide safe working conditions for employees throughout demolition and removal operations. Observe safety requirements for work below grade.
- B. Maintain safe access to adjacent property and buildings. Do not obstruct roadways, sidewalks or passageways adjacent to the work.
- C. Perform demolition in a manner to prevent damage to adjacent property. Repair damage to Owner's property or adjacent property and facilities.
- D. The Contractor shall be responsible for safety and integrity of adjacent structures and shall be liable for any damage due to movement or settlement. Provide proper framing and shoring necessary for support. Cease operations if an adjacent structure appears to be endangered. Resume demolition only after proper protective measures have been taken.
- E. Erect and maintain enclosures, barriers, warning lights, and other required protective devices.

3.3 UTILITY SERVICES

- A. Follow rules and regulations of authorities or companies having jurisdiction over communications, pipelines, and electrical distribution services.
- B. Notify and coordinate with utility company and adjacent building occupants when temporary interruption of utility service is necessary.

3.4 PAVEMENT DEMOLITION

- A. Demolish pavement to depth necessary to meet requirements of plans and specifications. Where no limits are shown, the limits shall be 4 inches outside new items to be installed. Removals beyond these limits shall be at the Contractor's expense; satisfactorily reconstruct excess removals.
- B. Where existing concrete and/or asphalt must be removed, but will be replaced subsequently:
 - 1. Make initial cut with a concrete saw; do not cut reinforcement.

2. After removing concrete, cut cross bars at center of breakout and protect for subsequent concrete work.

3.5 DISPOSAL

- A. Remove from the site all items contained in or upon the structure not designated for reuse or salvage. Follow method of disposal as required by regulatory agencies.

3.6 BACKFILL

- A. Backfill holes in accordance with specification sections governing materials indicated on Drawings. Where no material is indicated, backfill with approved borrow and compact to a density of 90 percent standard Proctor.
- B. Do not backfill with material from demolition unless approved by Owner.

END OF SECTION 022200

SECTION 023780

RIP RAP AND GRANULAR FILL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for furnishing and installing riprap and granular fill and filling and burying riprap, when required.

1.2 MEASUREMENT AND PAYMENT

- A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment is made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
- B. Measurement and payment is as noted on the Unit Price Schedule.
- C. Refer to Section 010260 - Measurement and Payment for unit price procedures.
- D. Excavation for riprap and buried riprap will not be measured separately, but is incidental to riprap surface measurement.
- E. Riprap and granular fill used in toe walls, grade beams or termination trenches are incidental to surface measurement.
- F. On-site topsoil will not be measured and paid separately, but is incidental to riprap surface measurement.
- G. Imported topsoil will be paid for as noted on the Unit Price Schedule.

1.3 DELIVERY, STORAGE AND HANDLING

- A. Keep the storage area clean, firm, smooth and well drained in order that the product can be placed with a minimum of foreign matter.
- B. Stockpile and handle riprap and granular fill to minimize segregation of particle sizes either in the stockpile or while loading, hauling and handling

PART 2 - PRODUCTS

2.1 RIP RAP

- A. Provide riprap consisting of broken concrete or stone. Provide riprap that is dense, durable and hard material free from cracks, seams and other defects which would increase deterioration from handling and natural causes.
- B. Shape and Dimensions.
 - 1. Provide riprap in cubic form, rather than elongated (flat) shapes.
 - 2. Provide riprap with a minimum thickness of 6 inches.
 - 3. No more than 25 percent shall have a length greater than 2-1/2 times the width or thickness. No length shall exceed 3 times the width or thickness.

- C. Do not provide spalls, fragments and chips exceeding 5 percent by weight. The dimension and shape limitations do not apply to this portion of the riprap.
- D. Where broken concrete is used, cut exposed metal flush with the surface prior to placing the riprap.
- E. Provide riprap conforming to the following tables:

TABLE 2
RIPRAP GRADATION NO. 2

Percent	Stone Weight Lbs.		Volume Cubic Ft (2)		Cubical Shape Ft (Each Side)		Spherical Shape Ft (Dia.)		
	Lighter by Weight	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit
100		260	640	1.73	4.27	1.20	1.62	1.49	2.01
50		130	200	0.87	1.33	0.95	1.10	1.18	1.37
15		40	150	0.27	1.00	0.64	1.00	0.80	1.24

Notes:

1. The theoretical cube and sphere size is presented for guidance only. Paragraph 2.1 shall control riprap shape and dimensions.
2. Volume is based on 150 pcf, unit weight.
3. Riprap Gradation No. 2 is to be used where a 24 inch thick riprap mat is noted on the Plans.

2.2 GRANULAR FILL

- A. Provide granular fill consisting of concrete or stone. Provide granular fill that is dense, durable and hard material.
- B. Provide granular fill, as shown on the Plans or as directed by the Engineer, to the following dimensions:
 1. Provide 3 inch to 5 inch granular fill with no material diameter less than 3 inches and no material diameter greater than 5 inches.
 2. Provide 4 inch to 8 inch granular fill with no material diameter less than 4 inches and no material diameter greater than 8 inches.
 3. Provide riprap Gradation No. 1 and Gradation No. 2 as shown on the Plans or as directed by the Engineer.
- C. Do not provide spalls, fragments and chips exceeding 5 percent by weight.
- D. Where broken concrete is used, cut exposed metal flush with the surface prior to placing granular fill.

PART 3 - EXECUTION

3.1 GRADE PREPARATION

- A. Refer to Section 02241 - Care and Control of Water.

- B. Trim and dress the channel bottom and side slopes to proper lines and grade prior to placing riprap or granular fill.
- C. The Engineer will inspect prepared section prior to placing riprap or granular fill.

3.2 EXCAVATION AND FILL

- A. Excavate the channel. Refer to Section 02315 - Excavating and Backfilling.
- B. Excavate for riprap. Refer to Section 02316 - Structural Excavating and Backfilling.

3.3 RIPRAP OR GRANULAR FILL PLACEMENT

- A. Place the riprap or granular fill to the slopes, lines and grades as shown on the Plans.
- B. To establish a well-graded mass of riprap with minimal voids, fill voids between larger riprap blocks with spalls and smaller blocks of the largest feasible size to form a compact mass. Do not place spalls and small blocks in place of larger size riprap or granular fill.
- C. Install riprap and granular fill mat to the thickness as shown on the Plans. Riprap shall have minimum mat thickness as shown on the gradation tables.
- D. Place the riprap and granular fill to avoid displacement or damage to the prepared surface and in a manner to avoid segregation of particle sizes.
- E. Fill riprap voids and bury riprap a minimum of 6 inches with topsoil on side slopes as directed by the Engineer.

END OF SECTION

SECTION 025150

CONCRETE PAVEMENTS

PART 1 - GENERAL

1.1 REFERENCE STANDARDS

- A. A 615, Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
- C 31, Making and Curing Concrete Test Specimens in the Field
- C 33, Concrete Aggregates
- C 42, Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
- C 94, Ready-Mix Concrete
- C 131, Test for Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine
- C 138, Test for Unit Weight, Yield and Air Content (Gravimetric) of Concrete
- C 143, Test for Slump of Portland Cement Concrete
- C 150, Portland Cement
- C 171, Sheet Materials for Curing Concrete
- C 231, Test for Air Content of Freshly Mixed Concrete by the Pressure Method
- C 260, Air-Entraining Admixtures for Concrete
- C 309, Liquid Membrane-Forming compounds for Curing Concrete
- C 494, Chemical Admixtures for Concrete

1.2 HANDLING AND STORAGE

- A. Do not mix different classes of aggregate without written permission of the Owner.
- B. Segregated aggregate will be rejected. Before using aggregate whose particles are separated by size, mix them uniformly to grading requirements.
- C. Aggregates mixed with dirt, weeds or foreign matter will be rejected.

1.3 SUBMITTALS

- A. Submittals shall be made under provisions of Section 01300.
 - 1. Design Mix: Submit the design mix and test data on the proposed design mix for each type and strength of concrete in the project. The design mixes shall be prepared by a certified independent testing laboratory employed and paid by the Contractor.
 - 2. Joint Layout: The Contractor shall submit a concrete pavement joint layout to the Owner for review and approval prior to construction.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Portland Cement: ASTM C 150, Type II.
- B. Water: Furnish clean, drinkable water free from injurious amount of oils, acids, alkalis or other deleterious substances.
- C. Coarse Aggregate: ASTM C 33.

- D. Fine Aggregate: ASTM C 33.
- E. Reinforcing Steel: ASTM A 615, Grade 60.
- F. Air Entraining Agent: ASTM C 260.
- G. Water Reducer: ASTM C 494 Chemical Admixture for Concrete Type A may be used if required to improve the workability of concrete. The amount and type of such admixture shall be subject to approval by the Owner.
- H. Expansion Joint Material: Clear all heart Redwood board with density after oven dried to constant weight of 30 lb. per cu. ft. maximum or asphalt impregnated fiberboard conforming to ASTM D1751.
- I. Joint Sealing Compound: Conform hot-poured rubber-asphalt compound to ASTM D 3405/6690.
- J. Load Transmission Devices: Provide smooth steel bar dowel, as shown. Steel bars must conform to standards of ASTM A 615 Deformed and plain Billet-Steel Bars for Concrete Reinforcement, Grade 60.
- K. Metal Supports for Reinforcing Steel and Joint Assembly: Employ metal of approved shape and size as required to maintain clear distances.
- L. Cover Materials for Curing: Curing materials shall conform to one of the following:
 - 1. Polyethylene Film: Polyethylene film shall be opaque pigmented white in color and shall conform to the requirements of ASTM C 171 Sheet Materials for Curing Concrete.
 - 2. Waterproofed Paper: Waterproofed paper used for curing shall conform to the requirements of ASTM C 171.

2.2 PROPORTIONING

- A. Responsibility: Prior to the start of paving operations and after approval of all material to be used in the concrete, the Contractor shall submit test data showing the proportions and actual compressive strength obtained from the concrete for all required compressive strengths, at all test ages, identified in the specifications. Compressive strength shall be as specified using test specimens prepared in accordance with ASTM C 31 Making and Curing Concrete Test specimens in the Field and tested in accordance with ASTM C 42 Obtaining and Testing Drilled Cores and Sawed Beams of Concrete. It shall also be the responsibility of the Contractor to determine and measure the batch quantity of each ingredient, including all water, not only for batch designs but for all concrete produced for the project, so that the mix conforms to these specifications.
- B. Concrete Mix: Provide a concrete mix that is uniform and workable. Design the mix to produce concrete which will have a minimum compressive strength of 3,500 psi at 28 days. Slump of concrete must be at least 1-1/2-in., but no more than 3-in. for curbs and 4-inches, plus or minus 1-inch, for pavement when tested in accordance with ASTM C 143 - Slump of Portland Cement Concrete.

Pavement mix designs shall meet flexural requirements of at least 500 pounds per square inch at 28 days using ASTM C78.

- 1. Concrete pavement must contain at least 5-1/2 sacks of cement per cubic yard, with not more than 6.5 gallons of water, net, per sack of cement. The cement content shall be determined in accordance with ASTM C 138 Unit Weight, Yield and Air Content (Gravimetric) of Concrete.
- 2. Coarse dry aggregate shall not exceed 85 percent of the loose volume of concrete.

3. Air-entraining admixture shall be added in such a manner that will ensure uniform distribution of the agent throughout the batch. The air content of freshly mixed air-entrained concrete shall be based upon trial mixes with the materials to be used in the work adjusted to produce concrete of the required plasticity and workability. The percentage of air entrainment in the mix shall be 5-1/2 percent plus or minus 1-1/2 percentage points. Air content shall be determined by testing in accordance with ASTM C 231 Air Content of Freshly Mixed Concrete by the Pressure Method.

2.3 MIXING AND MIXING EQUIPMENT

- A. Mixing and mixing equipment shall be in accordance with ASTM C94 - Ready-Mixed Concrete for Mixing Equipment.

PART 3 - EXECUTION

3.1 SUBGRADE PREPARATION

- A. Construct subgrade true to grade and cross section as required to achieve the final grades as shown in the drawings.

3.2 WEATHER CONDITIONS

- A. Place concrete only when the air temperature is above 40 degrees F. The Contractor is responsible for the quality and strength of concrete placed under any weather conditions.

3.3 FORMS

- A. Side Forms: Use metal forms of approved shape and section. A form as deep as the pavement edge thickness is preferred. Forms with depth up to 1-in. greater or less than pavement thickness may be used. Forms with less depth than pavement thickness shall be brought to required depth by securely attaching wooden planks of approved section and size to the bottom of the form. Use a form section at least 10 feet in length, and staked in position with at least three pins. Form shall have adequate strength to withstand machine loads without visible springing or settlement. Use forms free from warps, bends and kinks and sufficiently true to provide a straight edge on the concrete. Test the top of each form section with a straight edge and verify that it conforms with requirements for the surface of completed pavement. Use flexible or curved forms of wood or metal to set the proper radius on curves of 100 feet radius or less.
- B. Form Setting
 1. Rest forms directly on subgrade. Do not shim with pebbles or dirt. Remove subgrade that will not support the load form. Replace and compact subgrade to required density. Accurately set forms to required grade and alignment and, during the entire operation of placing, vibrating and finishing of concrete, do not deviate from this grade and alignment more than 1/8-in. in 10 feet of length. Do not remove forms for at least 24 hours after the completion of finishing operations. Provide a supply of forms that will be adequate to comply with this requirement and for orderly and continuous placing of concrete.
 2. Adjacent slabs may be used instead of the forms, provided that the concrete is well protected from possible damage by finishing equipment. These adjacent slabs shall not be used for forms until the concrete has aged at least 7 days. For short radius curves, forms less than 10 feet in length or curved forms may be used. Do not use any material which, in the opinion of the Engineer, is unsuitable for forms.

- C. Ensure requirements for accessibility per Texas Department of Licensing and Regulation are met.

3.4 REINFORCING STEEL

- A. Accurately place reinforcing steel in accordance with details shown. Wire reinforcing bars securely together at intersections and splices. Bars and coatings shall be free of rust, dirt or other foreign matter when the concrete is installed. Reinforcement shall be as detailed on the drawings.
- B. Place all reinforcing steel and secure to chairs.

3.5 JOINT ASSEMBLIES

- A. Placement: Place joints of the same type shown on the Drawings.
- B. Construction Joints: Place transverse construction joint at end of day's paving operation or where concrete placement must be stopped for more than 30 minutes.
- C. Expansion Joints: Place transverse expansion joints at same locations as in adjacent pavement, abutting against other structures (grease traps), and at radius ends, but no further than 60 feet apart. Shape board filler accurately to the cross section of the concrete slab. Use load transmission devices of the type and size shown on Drawings.
- D. Sawing Joints: When joints in concrete pavements are sawed, the joints shall be cut. The concrete saw shall be capable of cutting a groove in a straight line and shall produce a slot at least 1/4-in. wide and to the depth shown on the plans. When shown on the plans or required by the specifications, the top portion of the slot or groove shall be widened by means of a second shallower cut or by suitable and approved beveling to provide adequate space for joint sealers. Sawing of the joints shall commence as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling or tearing and prior to the initiation of cracks. The joints shall be sawed at the required spacing consecutively in sequence of the concrete placement, unless otherwise approved by the Engineer.

3.6 PLACING

- A. Concrete batch(es) not placed as specified within 60 minutes after water or cement has been added at the batch plant shall be rejected.
- B. Deposit concrete rapidly and continuously on subgrade in successive batches. Distribute concrete to the required depth and for entire width of the pour by shoveling or by other approved methods. Do not use rakes in handling concrete. At the end of the day or in case of unavoidable interruption of more than 30 minutes, place a transverse construction joint at the point of stopping work, provided that the section on which work has been suspended is not less than 10 feet from the preceding joint. Sections less than 10 feet long shall be removed and replaced.
- C. Take special care in placing and spading concrete against forms and at longitudinal and transverse joints to prevent honeycombing. Voids in the edge of the finished pavement shall be cause for rejection.

3.7 VIBRATING

- A. Consolidate the concrete using an approved mechanical vibratory unit designed to vibrate concrete internally. Extend a vibratory unit across the pavement, not quite touching the side forms. Equip the unit with synchronized vibrators. Space individual vibrators at close enough intervals to vibrate and consolidate the entire width of the pavement uniformly. Mount mechanical vibrators to avoid contact with forms, reinforcement, transverse or longitudinal joints.
- B. Furnish enough hand-manipulated mechanical vibrators for proper consolidation of concrete along forms, at joints and in areas not covered by mechanically controlled vibrators.

3.8 FINISHING

- A. Finish concrete pavement by hand finishing methods. Hand finish with a mechanical strike and tamping template as wide as the pavement to be finished. Shape the template to the pavement section. Move the strike template forward in the direction of the work, maintaining a slight excess of material in front of the cutting edge. Make at least two trips over each area. Screed the pavement surface to the required section. Work the screed with a combined transverse and longitudinal motion in the direction work is progressing. Maintain the screed in contact with the forms. Use a longitudinal float to level the surface.
- B. On narrow strips and transitions, finish concrete pavement by hand. Thoroughly work concrete around reinforcement and embedded fixtures. Strike off concrete with a strike-off screed. Move the strike-off screed forward with combined transverse and longitudinal motion in direction work is progressing, maintaining the screed in contact with the forms, and maintaining a slight excess of materials in front of the cutting edge. Tamp the concrete with a tamping template. Use a longitudinal float to level the surface.
- C. After completion of the straightedge operation, make the first pass of a burlap drag as soon as construction operations permit and before the water sheen has disappeared from the surface. Follow this by as many passes as required to produce the desired texture depth. Permit no unnecessary delays between passes. Keep the drag wet, clean and free from encrusted mortar during use.

3.9 SURFACE TEST

- A. Test the entire surface before the initial set and correct irregularities or undulations. Bring surface within requirements of the following test and then finish. Place an approved 10 foot straightedge parallel to the center of the roadway to bridge any depressions and touch all high spots. Do not permit ordinates measured from the face of the straight edge to the surface to exceed 1/16-in. per foot from the nearest point of contact. In no case permit the maximum ordinate to a 10 foot straightedge to exceed 1/8-in.

3.10 CURING

- A. All concrete pavement shall be cured by protecting it against loss of moisture for a period of not less than 72 hours immediately upon the completion of finishing operations. In all cases in which curing requires the use of water, the curing shall have prior right to all water supply or supplies. Failure to provide sufficient cover material of whatever kind shall be cause of immediate suspension of concreting operations.
 - 1. Polyethylene Film Curing: Immediately after the finishing of the surface has been completed and the concrete has taken its initial set, it shall be wetted with water applied in the form of a fine spray and covered with the polyethylene film so place and weighted to remain in intimate contact with the surface.

The polyethylene film covering shall be maintained in place continuously for not less than the specified curing period. The film shall be prepared to form blankets of sufficient width to cover the entire surface and both edges of the pavement slab. All joints in the blankets caused by joining film sheets shall lap not less than 12-in. All tears or holes appearing in the polyethylene film during the curing period shall be immediately repaired by placing acceptable moisture-proof patches over such defects or by replacing the blankets.

2. Liquid Membrane-Forming Compounds: Immediately after the finishing of the surface has been completed and the concrete has taken its initial set, a liquid membrane-forming compound concrete shall be applied. The liquid membrane-forming compound shall be provided in accordance with ASTM C 309 Liquid Membrane-Forming Compounds for Curing Concrete and applied in accordance with the manufacturer's instructions. The membrane shall restrict the loss of water to not less than 0.55 kg/m² of surface in 72 hours.
- B. Prior to being placed in service, all concrete shall cure a sufficient amount of time. At a minimum, the concrete shall have achieved its design flexural or compressive strength, as evidenced by the testing lab reports, before any construction equipment or vehicles are permitted to use it.

3.11 JOINT SEALING

- A. Seal joints in strict accordance with the joint sealant manufacturer's printed instructions.
- B. Before work is started, the joint sealing equipment shall be in first class working condition, and be approved by the Engineer. Use a concrete grooving machine or a power-operated wire brushing and other equipment such as plow, brooms, brushes, blowers or hydro or abrasive cleaning as required to produce satisfactory joints.
- C. Clean joints of loose scale, dirt, dust and curing compound. When required, remove the joint filler to the depth shown. The term joint includes wide joint spaces, expansion joints, dummy groove joints or cracks, either performed or natural. Remove loose material from concrete surfaces adjacent to joints.
- D. Fill joints neatly with joint sealer to the depth shown. Pour sufficient joint sealer into the joints so that, upon completion, the surface of the sealer within the joint will be 1/4-in. below the level of the adjacent surface.

3.12 TESTING

- A. Laboratory Services: The Owner shall employ a commercial laboratory.
- B. Duties: Arrange for the laboratory to inspect and test materials entering the concrete and check the design of concrete mixes to meet specified strengths, uses and finishes. The lab shall analyze aggregate for quality, durability, grading and free water content. The lab shall take representative specimens of ingredients and mixes; make test specimens measure their flexural strength. The lab shall check the moisture content of aggregates and control their mix subject to approval by the Engineer.
- C. Test Procedures: The laboratory shall make tests in conformance with current standard test procedures of ASTM.
- D. Test Reports: The laboratory shall promptly furnish certified written reports covering results of tests and inspections to the Engineer and the Owner.

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- E. Quality Assurance: Sample concrete delivered to the site in accordance with ASTM method C172. Mold four beams and four cylinders for each 150 cubic yards. Each time a set of specimens is molded, the slump will be determined in accordance with ASTM C143 and the air content in accordance with ASTM C173 or C231. Two of the beams will be tested in accordance with ASTM C78 at 7 days, and the remaining two at 28 days. Two of the cylinders will be tested in accordance with ASTM C39 at 7 days, and the remaining 2 at 28 days.
- F. Core Samples: At the option of the Owner, drill core samples of concrete pavement at locations designated by the Engineer to measure thickness. At age of 28 days, each core may be tested for compressive strength according to methods of the ASTM C42 Drilled Cores and Sawed Beams of Concrete.
- G. Yield: Make a yield test in accordance with ASTM C138 for cement content per cubic yard of concrete.

END OF SECTION 025150

SECTION 031000
CONCRETE FORMWORK

PART 1 - GENERAL

1.1 RELATED SECTION

- A. Section 03300: Cast-in-Place Concrete for Structures.

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for concrete formwork under this Section. Include payment for concrete formwork in unit price for applicable cast-in-place concrete structures, sidewalks, and curbs.

1.3 REFERENCE STANDARDS

- A. American Concrete Institute (ACI):
347R, Guide to Formwork for Concrete
- B. American Society for Testing and Materials (ASTM):
A 446, Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
A 525, General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process

1.4 DESIGN REQUIREMENTS

- A. Design formwork for loads, lateral pressure, and allowable stresses outlined in ACI 347R and for design considerations, wind loads, allowable stresses, and other applicable code requirements.

1.5 SUBMITTALS

- A. Certifications, installation instructions, samples, and catalog data for:
 - 1. Form accessories.
 - 2. Form release material.

1.6 QUALITY ASSURANCE

- A. Tolerances for Formed Surfaces:
 - 1. Variation from plumb:
 - a. In lines and surfaces of piers and walls:
 - 1) In any 10 ft. of length: 1/4-in.
 - 2) Maximum for entire length: 1-in.
 - 2. Variation in cross sectional dimensions of beams and in thickness of slabs and walls: Minus 1/4-in., plus 1/2-in.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Forms:
 - 1. Comply with ACI 347R; confine concrete and shape it to required dimensions.
 - 2. Construct forms with sufficient strength to withstand pressure resulting from placement and vibration of concrete and of sufficient rigidity to maintain specified tolerances.
- B. Form Release Material: Field applied form release agent, sealer, or factory applied nonabsorptive liner, nonstaining type.
- C. Form Accessories:
 - 1. Use only commercial manufactured type form accessories partially or wholly embedded in concrete.
 - 2. Do not use wire type manufactured for other purposes.
 - 3. Use form ties constructed with removable ends or end fasteners to prevent spalling at face of concrete.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Preparation of Form Surfaces:
 - 1. Clean surfaces of forms and embedded materials of accumulated mortar, grout, and other foreign material before placing concrete.
 - 2. Treat surfaces of forms as follows:
 - a. Before placing reinforcing steel, cover surfaces of forms with coating material to prevent absorption of moisture and prevent bond with concrete.
 - b. Do not allow excess form coating material to stand in puddles in forms.
 - c. Do not allow coating to come in contact with hardened concrete against which fresh concrete is to be placed.
- B. Establish and maintain sufficient control points and bench marks for reference purposes to check tolerances until final completion and acceptance of project.
- C. Regardless of tolerances listed, no portion of structure shall extend beyond legal boundary of project.

3.2 INSTALLATION OF FORMWORK

- A. Maximum deflection of facing materials reflected in concrete surfaces exposed to view: 1/240 of span between structural members.
- B. Construct formwork so concrete surfaces will conform to tolerance limits listed.
- C. Construct forms sufficiently tight to prevent loss of mortar from concrete.
- D. Place chamfer strips in corners of forms to produce beveled edges on permanently exposed surfaces.
- E. To maintain specified tolerances, camber formwork to compensate for anticipated deflections in formwork prior to hardening of concrete.

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- F. Provide wedges or jacks to adjust shores and struts to take up settlement during concrete placing.
- G. Brace forms securely against lateral deflections.
- H. Form Accessories:
 - 1. Embedded portion of form ties shall terminate not less than 3/4-in. from formed faces of concrete to be permanently exposed.
 - 2. When formed surface of concrete is not to be permanently exposed, form ties may be cut off flush with formed surfaces.
- I. Construction Joints:
 - 1. Contact surface of form sheathing for flush surfaces exposed to view shall overlap hardened concrete in previous placement by not more than 1-in.
 - 2. Hold forms against hardened concrete to prevent offsets or loss of mortar at construction joint and to maintain true surface.
- J. Prior to concrete placement, fasten wedges used for final adjustment in position after final check.
- K. Anchor formwork to shores, other supporting surfaces, or members to prevent upward or lateral movement of any part of formwork system during concrete placement.
- L. Provide runways for moving equipment with struts or legs supported directly on formwork or structural member without resting on reinforcing steel.

3.3 REMOVAL OF FORMS

- A. Perform needed repairs or treatment required on sloping surfaces at once and follow with curing.
- B. Formwork for walls, sides of beams, and other parts not supporting weight of concrete may be removed as soon as concrete has hardened sufficiently to resist damage from removal operations.
- C. Shoring used to support weight of concrete in beams, slabs and other structural members shall remain in place until concrete has reached strength sufficient to carry weight and construction loads.
- D. Concrete strength when shores are removed shall not be less than 75 percent of 28 day strength.
- E. When shores and other vertical supports are so arranged that nonload-carrying form facing material may be removed without loosening or disturbing shores and supports, form facing material may be removed at earlier age.
- F. If forms are removed prior to seven (7) days after placement of concrete, cure concrete as specified in Section 03300.

END OF SECTION

SECTION 032000

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 REFERENCE STANDARDS

- A. American Concrete Institute (ACI):
315, Details and Detailing of Concrete Reinforcement
318, Building Code Requirements for Reinforced Concrete
- B. American Society for Testing and Materials (ASTM):
A 615, Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
- C. Concrete Reinforcing Steel Institute (CRSI):
Placing Reinforcing Bars

1.2 MEASUREMENT AND PAYMENT

- A. No payment will be made for concrete reinforcement under this Section. Include payment for concrete reinforcement in unit price for applicable cast-in-place concrete structures, sidewalks, and curbs.

1.3 SUBMITTALS

- A. Shop Drawings: Show reinforcing bar configuration, bar numbers, spacing, and location, and splicing details.
- B. Test Reports: Submit copies of mill test reports.

1.4 QUALITY ASSURANCE

- A. Tolerances:
 - 1. Fabricating tolerances:
 - a. Sheared length: Plus or minus 1-in.
 - b. Depth of truss bars: Plus 0, minus 1/2-in.
 - c. Overall dimensions of stirrups and ties: Plus or minus 1/2-in.
 - d. Other bends: Plus or minus 1-in.
 - 2. Placing tolerances:
 - a. Clear distance to formed surfaces: Plus or minus 1/4-in.
 - b. Minimum spacing between bars: Plus or minus 1/4-in.
 - c. Top bars in slabs and beams:
 - 1) Members 8-in. deep or less: Plus or minus 1/4-in.
 - 2) Members more than 8-in. but not over 2 ft. deep: Plus or minus 1-in.
 - d. Crosswise of members: Spaced evenly within 2-in.
 - e. Lengthwise of member: Plus or minus 2-in.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Reinforcing Bars:

1. ASTM A 615, Grade 60.
2. Bend test requirements: For bars size No. 3 through No. 6, base on 180 deg. bends of full size bars around pins with diameters as follows:
 - a. Bar Nos. 3, 4, and 5: 3-1/2 bar diameters.
 - b. Bar No. 6: 5 bar diameters.

2.2 FABRICATION

- A. Fabricate details of concrete reinforcement and accessories complying with ACI 315.

PART 3 - EXECUTION

3.1 HANDLING AND PLACING

- A. Place reinforcing bars in accordance with CRSI "Placing Reinforcing Bars" and ACI 318, with provisions of ACI 318 governing.
- B. Move bars as necessary to avoid interference with other reinforcing steel, conduits, or embedded items.
- C. If bars are moved more than one bar diameter or enough to exceed tolerances, submit resulting arrangement of bars to Engineer for review.
- D. After fabrication, reinforcing bars shall be delivered to the Work properly identified in accordance with the approved shop drawings.
- E. Place reinforcement, at time of concrete placing, free of mud, oil, or other materials that adversely affect or reduce bond.
- F. Reinforcement with rust, mill scale, or both shall be considered satisfactory, provided minimum dimensions, including height of deformation, and weight of hand-wire-brushed test specimen are not less than ASTM A 615 requirements.
- G. Support reinforcement and fasten together to prevent displacement by construction loads of placing concrete.
- H. Use metal or plastic bar chairs and spacers to support reinforcement.
- I. Where concrete surface will be exposed to weather in finished structure, use noncorrosive or corrosion protected accessories within 1/2-in. of concrete surface.
- J. Bars having splices not shown on shop drawings will be rejected.
- K. Do not bend reinforcement after being embedded in hardened concrete.

END OF SECTION 032000

SECTION 033000

CAST-IN-PLACE CONCRETE FOR STRUCTURES

PART 1 - GENERAL

1.1 REFERENCE STANDARDS

- A. American Concrete Institute (ACI):
 - 212.1R, Admixtures for Concrete
 - 212.2R, Use of Admixtures in Concrete
 - 302.1R, Concrete Floor and Slab Construction
 - 204R, Measuring, Mixing, Transporting, and Placing Concrete
 - 305R, Hot Weather Concreting
 - 306R, Cold Weather Concreting
 - 308, Standard Practice for Curing Concrete
 - 309R, Consolidation of Concrete

- B. American Society for Testing and Materials (ASTM):
 - A 307, Carbon Steel Bolts and Studs 60,000 psi Tensile Strength
 - A 36, Structural Steel
 - C 138, Unit Weight, Yield, and Air Content (Gravimetric) of Concrete
 - C 143, Slump of Portland Cement Concrete
 - C 150, Portland Cement
 - C 172, Sampling Freshly Mixed Concrete
 - C 173, Air Content of Freshly Mixed Concrete by the Volumetric Method
 - C 192, Making and Curing Concrete Test Specimens in the Laboratory
 - C 231, Air Content of Freshly Mixed Concrete by the Pressure Method
 - C 260, Air-Entraining Admixtures for Concrete
 - C 293, Flexural Strength of Concrete (Using Simple Beam with Center-Point Loading)
 - C 309, Liquid Membrane-Forming Compounds for Curing Concrete
 - C 31, Making and Curing Concrete Test Specimens in the Field
 - C 33, Concrete Aggregates
 - C 387, Packaged, Dry, Combined Materials for Mortar and Concrete
 - C 39, Compressive Strength of Cylindrical Concrete Specimens
 - C 494, Chemical Admixtures for Concrete
 - C 78, Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
 - C 920, Joint Sealant
 - C 94, Ready-Mixed Concrete
 - D 1751, Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
 - D 1752, Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction
 - D 994, Preformed Expansion Joint Filler for Concrete (Bituminous Type)

- C. Concrete Plant Manufacturers Bureau (CPMB):
 - Concrete Plant Mixer Standards of Plant Mixer Manufacturers Division

- D. Corps of Engineers (COE):
 - CRD-C300, Handbook for Concrete and Cement
 - CRD-C621, Handbook for Concrete and Cement

- E. Federal Specifications (FS):
 - FF-S-325, Shield, Expansion; Nail Expansion; and Nail, Drive Screw (Devices, Anchoring, Masonry)

CAST-IN-PLACE CONCRETE FOR STRUCTURES

1.2 MEASUREMENT AND PAYMENT

- A. Measurement and payment is as noted on the Unit Price Schedule.
- B. Refer to Section 01026 - Measurement and Payment for unit price procedures.

1.3 SUBMITTALS

- A. Product Data: Submit literature of proposed materials certifying compliance with specification requirements and curing procedures.
- B. Mill Reports: Furnish mill certificate with each shipment of cement showing chemistry and physical tests for autoclave soundness, heat of hydration, normal consistency false set, and time of set.
- C. Design Mix:
 - 1. Submit proposed design mix from job materials prepared by approved testing laboratory when concrete proportioning Method No. 1 is used (See Paragraph 2.3, C., 1).
 - 2. Submit test records when concrete proportioning Method No. 2 is used (See Paragraph 2.3, C., 2).
 - 3. Include following information in concrete mix design submittal:
 - a. Concrete supplier.
 - b. Design mix designation and location of concrete in work.
 - c. Method of proportioning.
 - d. Type and brand of cement.
 - e. Source of aggregate.
 - f. Sieve analysis of aggregate.
 - g. Type and brand of admixtures.
 - h. Strength curve relationship to water-cement ratios established by at least three points of curve with each point established by average of three cylinder breaks using job materials.
 - i. Coarse Aggregate Factor (C.A.F.)
 - j. Batch weights of ingredients.
 - k. Water-Cement ratio and cement content.
 - l. Air content.
 - m. Slump.
 - n. Seven day and 28 day strengths.
- D. Samples: Secure in accordance with ASTM C 172.
- E. Shop Drawings:
 - 1. Indicate location of tooled (contraction), construction, and expansion joints.
 - 2. Indicate location and size of anchor bolts, anchor plates and other similar concrete-embedded items on anchor bolt setting plan.
 - 3. Indicate placement sequence of concrete.

1.4 QUALITY ASSURANCE

- A. Owner's Quality Control Laboratory:
 - 1. Sample and test concrete ingredients.
 - 2. Mixes shall meet or exceed mix design strength requirements and use and finish requirements.
 - 3. Review proposed mix design or design mix to meet or exceed mix design strength and consistency requirements as specified in "Concrete Mix Requirements" and "Concrete Proportioning".
 - 4. Test production samples of materials at plants and stockpiles and at job site during course of work for compliance with specifications.
 - 5. Conduct tests of concrete during construction in compliance with following procedures:
 - a. Strength test:

CAST-IN-PLACE CONCRETE FOR STRUCTURES

- 1) Make specimens in field.
 - 2) Each test shall consist of four cylinders; two tested at seven days and two tested at 28 days.
 - 3) For each class of concrete, one test for each pour of 100 cubic yards shall be made; however, not less than one test for each day of concreting shall be made.
 - 4) When this schedule of testing proves less than five tests for given class of concrete, at least five randomly selected batches shall be tested; if fewer than five batches are used, each batch shall be tested.
 - 5) Additional tests may be required to justify removal of formwork.
 - 6) Specimens shall be secured in compliance with ASTM C 172, made and cured in compliance with ASTM C 31, and tested in compliance with ASTM C 39.
- b. Slump test: Make one test for each strength test in compliance with ASTM C 143.
 - c. Air Content test: Make one test for each strength test in compliance with ASTM C 173 or ASTM C 231.
 - d. Report test results: Report test results to Owner and Contractor.
 - e. Maintain records: Maintain complete record of specimens; records shall include detailed location of each pour represented.
 - f. Determine temperature of concrete sample for each strength test.
 - g. Inspect concrete batching, mixing, and delivery operations.
 - h. Sample concrete at point of placement.
 - i. Indicate in report location specimens were taken, method stored and curing procedures.
6. Determine slump in accordance with ASTM C 143 of concrete sample for each strength test and when consistency of concrete appears to vary.
 7. Determine air content of normal weight concrete for each strength test in accordance with ASTM C 138, ASTM C 173, or ASTM C 231.
 8. Patching Core Holes:
 1. Fill core holes with SikaSet Roadway Patch, Sika Corporation, as per manufacturer's specification.

1.5 HANDLING

- A. Storage:
 1. Store materials in accordance with ACI 304R.
 2. Store admixtures to avoid contamination, evaporation, or damage.
- B. Protection:
 1. During curing period, protect concrete from damaging mechanical disturbances, load stresses, shock, and vibration.
 2. Protect finished concrete surfaces from damage by construction equipment or materials.
 3. Protect from rain or running water.

PART 2 - PRODUCTS

2.1 CONCRETE AND GROUT MATERIALS

- A. General:
 1. Fly ash:
 - a. Fly ash will not be used in concrete mixtures.
 2. Admixtures, other than air-entraining admixtures and water-reducing admixtures in compliance with ASTM C 494, shall not be used in concrete mixtures without prior review of material and proportioning by Owner.
- B. Cement: ASTM C 150, Type II.

CAST-IN-PLACE CONCRETE FOR STRUCTURES

- C. Concrete Admixtures:
 - 1. Acceptable manufacturers:
 - a. Master Builder.
 - b. Gifford-Hill and Company, Inc.
 - c. Sika Chemical Corp.
 - 2. Air-entraining admixtures: ASTM C 260.
 - 3. Water-reducing, normal set, retarding, and accelerating admixtures:
 - a. Concrete temperatures 80 deg. F. and below: ASTM C 494, Type A.
 - b. Concrete temperatures greater than 80 deg. F.: ASTM C 494, Type D.
 - c. Concrete temperatures 60 deg. F. and below: ASTM C 494, Type E, accelerating.
 - 4. Other admixtures: ASTM C 494.
- D. Water: Fresh, clean, and potable.
- E. Aggregates for Normal Weight Concrete: ASTM C 33.
- F. Anchor Bolts: ASTM A 307 coated with 2.5 mil shop primer.
- G. Anchor Plates: ASTM A 36 coated with 2.5 mil shop primer.
- H. Nonshrink Grout:
 - 1. Non-metallic, pre-mixed nonshrink grout complying with COE CRD-C621.
 - 2. Bleed-free at 25 sec. flow cone fluidity, COE CRD-C621.
 - 3. Acceptable products:
 - a. "Master Flow 713", Master Builders, Inc.
 - b. "Supreme Grout", Gifford-Hill and Co.
 - c. "Crystex", L and M Construction Chemicals, Inc.
 - d. "Sikagrout 212", Sika Corporation.
- I. Stud Anchors:
 - 1. Acceptable manufacturers:
 - a. Nelson Stud Welding Co.
 - b. Erico Products, Inc.
 - 2. Type with ceramic ferrules; compatible with arc-welding process.
- J. Expansion Bolts:
 - 1. Acceptable manufacturers:
 - a. Wej-it Corporation.
 - b. ITT Phillips Drill Company.
 - c. Hilti Fastener Company.
 - 2. Wedge type stainless steel, FS FF-S-325, Group II, Type 4, Class 1.
- K. Adhesive Type Waterstop:
 - 1. Preformed plastic.
 - 2. Acceptable product: "Synko-Flex", Synko-Flex Products Co.
- L. Curing Compound:
 - 1. Comply with COE CRD-C300.
 - 2. Unit moisture loss, g. per sq. cm. at 72 hr. shall not exceed 0.039.
 - 3. Acceptable products:
 - a. "Sealco 309", Gifford-Hill.
 - b. "Masterseal", Master Builders.
 - c. "Dress and Seal", L and M Construction Chemicals, Inc.
- M. Joint Sealant
 - 1. Two – component elastomeric chemical – cure polyurethane
 - 2. ASTM C920, Type M, Grade P

CAST-IN-PLACE CONCRETE FOR STRUCTURES

2.2 CONCRETE MIX REQUIREMENTS

- A. Strength: Base strength requirements on 28-day compressive strength.
- B. Mixture Limits:
 - 1. Air-entrainment of normal-weight concrete shall conform to content limits of Table I, as measured by ASTM C 138, ASTM C 173, and ASTM C 231:

TABLE I
TOTAL AIR CONTENT FOR VARIOUS SIZES OF COARSE
AGGREGATE FOR NORMAL WEIGHT CONCRETE

Nominal Max. Size of Coarse Aggregate	Size No. (ASTM C 33)	Total Air Content Percent by Volume
3/4	67	4-8
1	57	3.5-6.5

- 2. Grading for coarse aggregate shall not exceed limits for various size number designation in compliance with ASTM C 33 for various maximum nominal sizes.
- 3. Water used for mixing concrete, including water absorbed by aggregates and admixture, shall not contain more than 150 ppm of chloride ion.
- C. Slump:
 - 1. Proportion concrete to produce maximum slump of 4-in. or less.
 - 2. Tolerance of up to 1-in. above maximum shall be allowed for individual batches provided average for batches or most recent ten batches tested, whichever is fewer, does not exceed maximum limit.
 - 3. Concrete of lower than usual slump may be used provided properly placed and consolidated.
 - 4. Determine slump by ASTM C 143.
- D. Admixtures:
 - 1. Comply with ACI 212.1R and ACI 212.2R.
 - 2. Do not use calcium chloride.
 - 3. Use admixtures in accordance with manufacturers instructions.
 - 4. Use only admixtures in work used in establishing design mix.
 - 5. Water-reducing admixtures, or other admixtures accepted by Owner, may be used to produce quality of concrete specified under prevailing placing conditions.

2.3 CONCRETE PROPORTIONING

- A. General:
 - 1. Proportion ingredients to produce mixture which will work readily into corners and angles of forms and around reinforcement under conditions of placement to be employed without excessive segregation of materials or excessive collection of free water on surface or excessive bleeding out of free water.
 - 2. Proportion ingredients to produce mixture of required workability, placeability, durability, strength, and other specified properties.

CAST-IN-PLACE CONCRETE FOR STRUCTURES

B. Required Strength:

TABLE IA

Type of Construction	Minimum Compressive Strength psi. (28 days)	Total Air (Percent)	Minimum Cement Factor* (Bags/cu.yd.)	Maximum W/C Ratio* (Gals/bg)
Sidewalks and Curbs	3000	4.0 to 8.0	5.0	-
Prestressed Concrete Piling	Class H concrete per TxDOT Standard Specifications – Item 421, Hydraulic Cement Concrete			
Other Concrete Work	4000	4.0 to 8.0	5.5	6.40

* In some instances, maximum water-cement ratios and minimum cement factors may not be compatible due to aggregate characteristics or weather conditions. Under these conditions, water reducing admixture may be introduced into mix. In hot weather, retarding admixture may be added to mix in accordance with manufacturer's recommendations.

C. Normal Weight Concrete: Establish mixture proportions to provide required properties for each class of concrete using one of the methods described below.

1. Method No. 1:

- a. Using materials proposed for work, establish concrete proportions on basis of laboratory trial mixes.
- b. Make at least three trial batches of at least three cylinders per batch at different water-cement ratios which will produce range of strengths within 1000 psi of that specified for each class of concrete for proposed work.
- c. Make trial batches to produce maximum slump within plus or minus 0.75-in. and maximum allowable air content within plus or minus 0.5 percent.
- d. Make and cure cylinders complying with ASTM C 192.
- e. Test for strength at 28 days in accordance with ASTM C 39.
- f. Use results of tests to plot curve showing relationship between water-cement ratio and compressive strength.
- g. For each class of concrete select design water- cement ratio from this curve for average compressive strength 1200 psi greater than specified compressive strength, except that water-cement ratio shall not exceed 6.6 gallons of water per sack (94 lb.) of cement.

2. Method No. 2:

- a. Field test data for concrete made with similar ingredients in previous project may be used to establish mix design for each class of concrete.
- b. Where production facility has record based on 30 consecutive strength tests that represent similar materials and conditions to those expected for each class of concrete, average compressive strength used as basis for selecting proportions shall exceed specified compressive design strength for each class by at least:
 - 1) 400 psi if standard deviation is less than 300 psi.
 - 2) 550 psi if standard deviation is 300 to 400 psi.
 - 3) 700 psi if standard deviation is 400 to 500 psi.
 - 4) 900 psi if standard deviation is 500 to 600 psi.
 - 5) 1200 psi if standard deviation is above 600 or unknown.

CAST-IN-PLACE CONCRETE FOR STRUCTURES

- c. Strength test data used to determine standard deviation for each class for above requirement shall represent concrete produced to meet specified design compressive strengths within 1000 psi of that specified for proposed work.
- d. For each class of concrete, select water-cement ratio based on Method 2 except that design water- cement ratio shall not exceed 6.6 gallons of water per sack (94 lb.) of cement.

2.4 PRODUCTION OF CONCRETE

- A. Ready Mixed Concrete: Batch mix and transport in accordance with ASTM C 94.

PART 3 - EXECUTION

3.1 INSPECTION FOR CONCRETE PLACEMENT

- A. Inspect subgrade for conditions detrimental to work and for specified compacted density.
- B. Inspect formwork and reinforcing for compliance with specified tolerances.
- C. Do not proceed with work until unsatisfactory conditions are corrected.

3.2 EMBEDDED ITEMS FOR CONCRETE

- A. Placing Miscellaneous Embedded Items:
 - 1. Place sleeves, inserts, anchors, and other embedded items prior to concreting.
 - 2. Coordinate placing of embedded items required by other trades prior to placing concrete.
 - 3. Position embedded items accurately and support against displacement.
 - 4. Temporarily fill voids in sleeves, inserts, and anchor slots with removable material to prevent entry of concrete into voids.

3.3 PREPARATION FOR PLACING CONCRETE

- A. Remove hardened concrete and foreign materials from inner surfaces of conveying equipment.
- B. Remove snow, ice, and water from completed formwork.
- C. Verify that reinforcement is secured in place.
- D. Verify that expansion joint material, anchors, sleeves, and other embedded items are in place.
- E. Notify Owner and Engineer minimum of 24 hours before pour. If notifications are not made, Owner may stop placement of concrete.

3.4 PLACING CONCRETE

- A. Conveying:
 - 1. Comply with ASTM C 94.
 - 2. Handle concrete as rapidly as practicable by methods which will prevent segregation, loss of ingredient, or damage quality of concrete.
 - 3. Do not use conveying equipment that will restrict continuous placement of concrete.
 - 4. Use horizontal or sloped belt conveyors that will not cause segregation or loss of ingredients.
 - 5. Protect concrete against undue drying or rise in temperature.
 - 6. Do not allow mortar to adhere to return length of belt.

CAST-IN-PLACE CONCRETE FOR STRUCTURES

7. Discharge runs longer than 20 ft. into hopper.
 8. Use metal or metal lined chutes with slope not exceeding 1 vertical to 2 horizontal and not less than 1 vertical to 3 horizontal.
 9. Chute more than 20 ft. long discharging into hoppers may be used.
- B. Pumping of Concrete:
1. Design mix to produce pumpable concrete.
 2. Pneumatic conveying equipment shall meet requirements of ACI 304R.
 3. Slump in pumping or pneumatic conveying equipment: 2-in. maximum.
 4. Do not convey through pipe made of aluminum or aluminum alloy.
 5. Obtain approval of A/E to use pumped concrete before placing pumped concrete.
- C. Depositing:
1. Comply with ACI 304R.
 2. Deposit concrete continuously without formation of seams or planes of weakness.
 3. If section cannot be placed continuously, provide construction joints.
 4. Do not start placing of concrete in supported elements until concrete previously placed is no longer plastic and has been in place two hours minimum.
- D. Segregation:
1. Deposit concrete as nearly as practicable in final position to prevent segregation due to rehandling or flowing.
 2. Do not subject concrete to procedures which will cause segregation.
- E. Consolidation:
1. Comply with ACI 309R.
 2. Consolidate concrete by vibration, spading, rodding, or forking.
 3. Thoroughly work around reinforcement, embedded items, and into corners of forms.
 4. Eliminate air or stone pockets which may cause honeycombing, pitting, or planes of weakness.
 5. Use internal vibrators with minimum frequency of 8000 vibrations per minute and sufficient amplitude to consolidate concrete effectively.
 6. Do not use vibrators to transport concrete within forms.
 7. Insert and withdraw vibrators at points approximately 18-in. apart.
 8. At each insertion, maintain duration from 5 to 15 sec. to consolidate concrete but not long enough to cause segregation.
 9. Keep spare vibrators on job site during concrete placing operations.
 10. Where concrete is to have as-cast finish, bring full surface of mortar against form by vibration process and supplemented by spading to work coarse aggregate back from formed surface.
 11. Use internal vibration in beams, girders, slabs, and along bulkheads of slabs on grade.

3.5 REPAIR OF CONCRETE SURFACE DEFECTS

A. Preparation:

1. Repair tie holes and surface defects immediately after form removal.
2. Remove honeycombed and otherwise defective concrete down to sound concrete.
3. If chipping is necessary, place edges perpendicular to surface or slightly undercut.
4. No feathered edges will be permitted.
5. Dampen patch minimum of 6-in. of surrounding area.

B. Patching Mixture:

1. Mix one part cement to 2-1/2 parts sand by damp loose volume.
2. Match color of surrounding concrete as determined by trial patch.
3. Add water only as necessary for handling and placing.
4. Mix patching mortar in advance and allow to stand with frequent manipulation with trowel, without addition of water, until it has reached stiffest consistency that will permit placing.

CAST-IN-PLACE CONCRETE FOR STRUCTURES

- C. Patch Application:
 - 1. Apply patching mortar after bonding grout has lost sheen.
 - 2. Thoroughly consolidate mortar into place and strike off to leave patch slightly higher than surrounding surface.
 - 3. Leave undisturbed for one hour minimum before being finally finished.
 - D. Fill tie holes solid with patching mortar after cleaning and dampening.
- 3.6 FINISHING CONCRETE SLABS
- A. Meet requirements of ACI 302.1R.
 - B. Finishing Tolerances:
 - 1. True planes within 1/8-in. in 10 ft. as determined by 10 ft. straight edge placed on slab in any direction.
 - C. Trowel Finish all Concrete Slab Surfaces:
 - 1. Float finish surface and trowel.
 - 2. Finished surface shall be free of trowel marks, uniform in texture and appearance, and planed to finishing tolerance.
 - 3. On surfaces intended to support floor coverings, remove defects which show through floor covering by grinding.
- 3.7 CURING CONCRETE
- A. General:
 - 1. Comply with ACI 308.
 - 2. After placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
 - 3. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration and hardening.
 - B. Preservation of Moisture for Concrete Surfaces not in Contact with Forms:
 - 1. Contractor's option:
 - a. Ponding or continuous sprinkling.
 - b. Absorptive mats or fabric kept continuously wet.
 - c. Sand kept continuously wet.
 - d. Continuous application of steam not exceeding 150 deg. F. or mist spray.
 - e. Curing compound:
 - 1) Do not use curing compound on floor slab which will receive floor covering or chemical resistant or epoxy coating.
 - 2) Apply in accordance with manufacturer's recommendations.
 - 3) Do not apply to surfaces to which additional concrete or resilient materials are to be bonded unless manufacturer certifies that compound will not prevent bond or positive means are taken to completely remove compound.
 - 2. Use curing compound on concrete surfaces where floor hardener is shown on Drawings.
 - C. Curing Period: Continue curing for seven days minimum or when average compressive strength of job-cured cylinders has reached 70 percent of specified strength, moisture retention measures may be terminated.

END OF SECTION

SECTION 033110

SEAL SLABS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Concrete seal slabs.

1.2 PRICES

- A. Measurement for seal slabs is incidental to pay item.

1.3 SUBMITTALS

- A. Conform to all provisions and sections of these specifications.
- B. Submit design mix and test data, prepared by a certified independent testing laboratory employed and paid by the Contractor, for each type and strength of Concrete in the project. Include manufacturer's technical information for each type of admixture proposed for use on the project.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Concrete: Class B concrete with a minimum compressive strength at 28 days of 1500 psi, conforming to Section 03305 – Concrete for Utility Construction, or 03310 – Structural Concrete.

PART 3 – EXECUTION

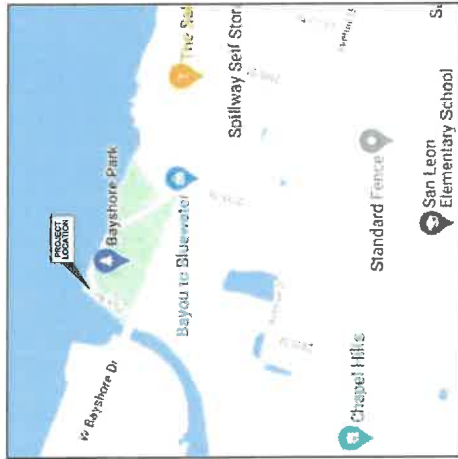
3.1 PLACEMENT OF SEAL SLABS

- A. Place seal slabs at locations indicated on Drawings or as directed by the Owner's Representative.
- B. Excavate trench or other excavation to depth required for pipe or other installation, plus depth of seal slab. Do not over-excavate.
- C. Place seal slabs within 4 hours of excavation to final grade.

END OF SECTION

GALVESTON COUNTY BAYSHORE PARK BOAT RAMP REPAIR

5437 FM646, BACLIFF, TX 77518



Sheet Number	Sheet Title
C-100	COVER
C-101	CIVIL SITE PLAN
C-102	CONCRETE SLAB DETAILS
C-103	RAMP SECTION A
C-104	RAMP SECTION B
C-105	SEDIMENT DETAIL
C-106	SWPPP
C-107	SWPPP DETAILS 1 OF 2
C-108	SWPPP DETAILS 2 OF 2



B. Franklin Andrews
9-01-20
Huit-Zollars Inc.
Firm Registration No. F-761

COVER
C-100
BAYSHORE PARK BOAT
RAMP REPAIR

HUIT-ZOLLARS
10350 RICHMOND AVENUE, SUITE 300
HOUSTON, TEXAS 77042-4248
(281) 496-0066
TBPE FIRM# F-761

PROP. 10" THICK CONCRETE REINFORCED SLAB AND 6" NON-REINFORCED SLAB WITH TOE WALL. SEE SHEET C-102 DETAIL 2.

REMOVE APPROX. 267 CY (60 FT LONG X 40 FT WIDE X 3 FT DEEP) OF SEDIMENT BUILD UP IN FRONT OF BOAT RAMP. SEE NOTE 6 FOR MORE DETAILS.

MATCH EXIST. ELEVATIONS

B SEE SHEET C-104

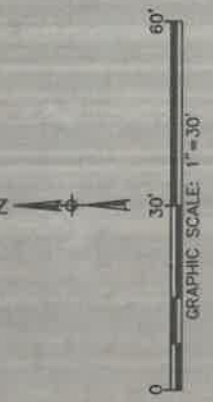
MATCH EXIST. ELEVATIONS

9" THICK BY 3' DEEP TOE WALL (TYP.)

DEMOLISH EXISTING CONCRETE BOAT RAMP. SEE NOTE 4.

PROPOSED CONCRETE RAMP. SEE SECTIONS ON SHEETS C-103 & C-104. MATCH EXIST ELEVATIONS.

EXIST CONCRETE PAVEMENT



GALVESTON BAY

375 LF AQUA BARRIER COFFERDAM

EXIST RIP RAP

LEGEND

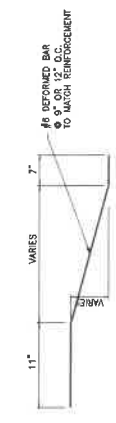
PROP CONC RAMP
SEDIMENT BUILD UP
M.H.W +0.88
M.S.L 0.0
M.L.W -0.52

- NOTES:**
- GROOVE PATTERN FOR PROPOSED BOAT RAMP. SEE SHEET C-102 DETAIL 1.
 - BOAT RAMP CONSTRUCTION IN DRY CONDITIONS CONSTRUCTION, MEANS AND METHODS TO BE DETERMINED BY CONTRACTOR, TO BE APPROVED.
 - REMOVE:
4 EACH (13.5' (L) X 4' (W) X 0.5' (D)) OF PRE-CAST CONCRETE PLANKS
10 EACH (13.5' (L) X 6' (W) X 0.5' (D)) OF PRE-CAST CONCRETE PLANKS.
 - CONTRACTOR TO LOCATE ALL UTILITIES INCLUDING EXISTING BURIED CABLES, GAS LINES, IRRIGATION LINES & AT&T CONDUITS AS APPLICABLE BEFORE START OF WORK. CONTRACTOR SHALL NOT USE HEAVY MACHINERY IN AREAS OF EXISTING UTILITIES. USE HAND DIGGING.
 - PRIOR TO BOAT RAMP DEMOLITION, CONTRACTOR SHALL INFORM ENGINEER OF START AND END OF RAMP ELEVATIONS.
 - SEDIMENT BUILD UP ON RAMP IS TO BE REMOVED BY CLAM SHELL AND TRANSPORTED TO A LANDFILL FACILITY. SEE SHEET C-105 FOR MORE DETAILS.
 - AREA OF IMPACT IS 0.08 ACRES.
 - NO WETLANDS ARE AFFECTED BY THIS WORK.

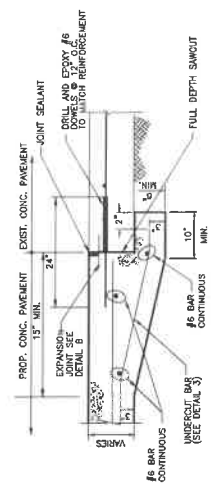


Fruit-Zollars Inc.
Firm Registration No. F-761

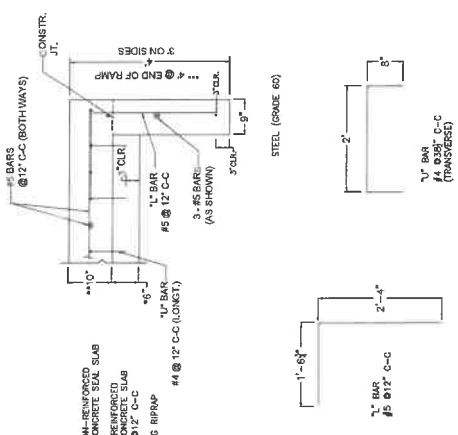
CIVIL SITE PLAN
C-101
BAYSHORE PARK BOAT RAMP
REPAIR



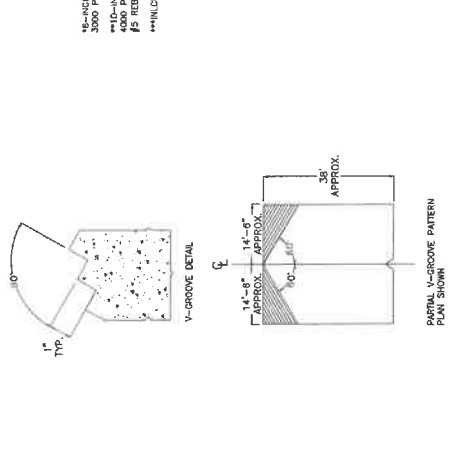
3 DETAIL - UNDERCUT BAR
NOT TO SCALE



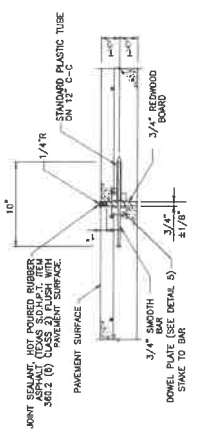
4 SECTION - TYP. PAVEMENT TIE-IN
NOT TO SCALE



2 BOAT RAMP CONCRETE SLAB DETAIL
NOT TO SCALE

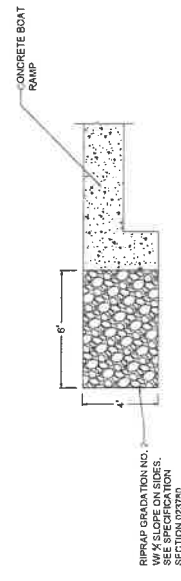


1 BOAT RAMP LAYOUT SHOWING V-GROOVE PATTERN
NOT TO SCALE



1. EXPANSION JOINTS SHALL MATCH LOCATIONS IN EXIST. CONC. PAVEMENT, SHALL BE PLACED AT THE END OF EACH CURB RADIUS, AND SHALL BE SPACED AT A MAXIMUM OF 60'-0" APART.
2. STAKES FOR TRANSVERSE JOINTS SHALL NOT BE PLACED CLOSER THAN 8" TO A LONGITUDINAL JOINT. THE TOP OF EACH STAKE SHALL NOT BE LESS THAN 1" BELOW THE FINISH SURFACE.
3. ALTERNATIVE DOWEL IS A CHAINLEVER TYPE, CAST MALLEABLE IRON LOAD TRANSMISSION UNIT, STAR-LUG, MODEL D-27, OR EQUAL ON 12" C-C.

5 SECTION - TYP. EXPANSION JOINT
NOT TO SCALE



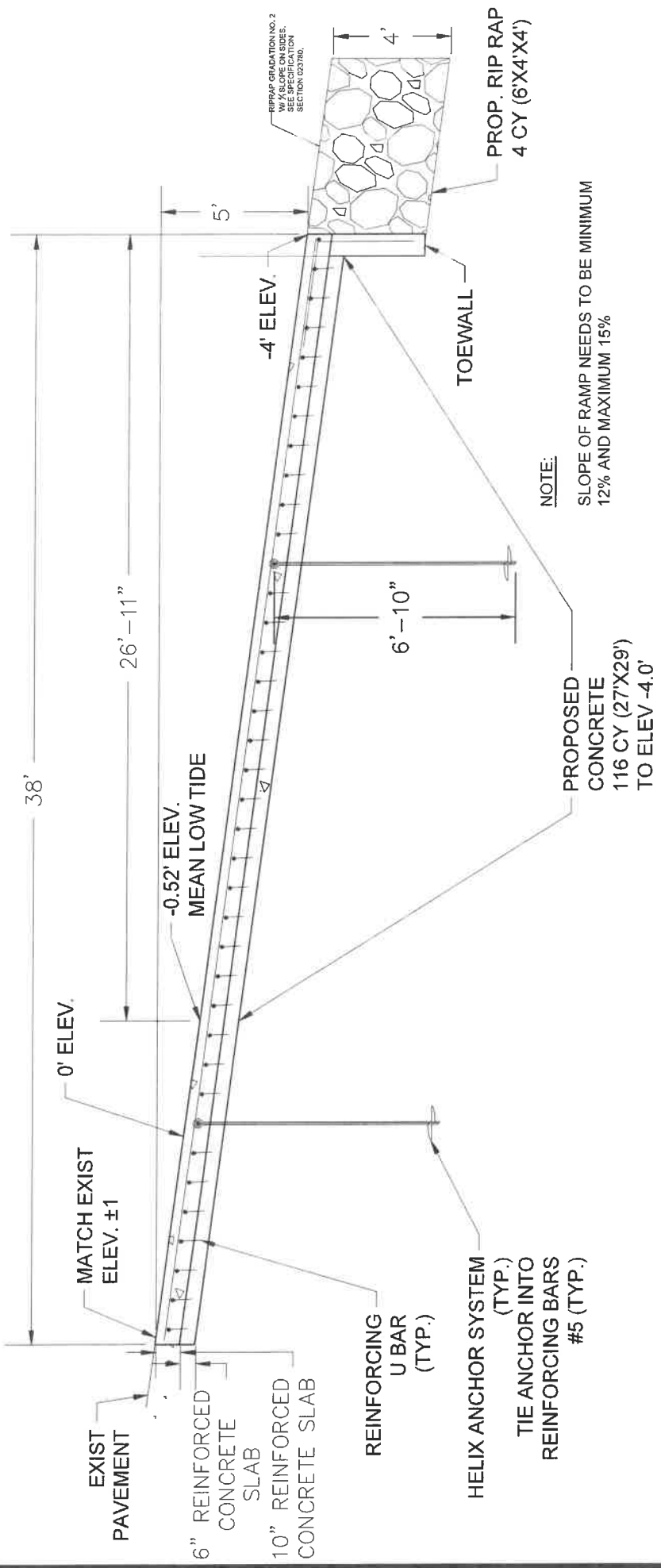
6 SECTION - TYP. RIP RAP AT END OF CONCRETE BOAT RAMP
NOT TO SCALE



B. F. Andrews
9-01-2020
Hultt-Zollars Inc.
Firm Registration No. F-761

CONCRETE SLAB DETAILS C-102 BAYSHORE PARK BOAT RAMP REPAIR

- M.H.W +0.88
- M.S.L 0.0
- M.L.W -0.52



NOTE:
SLOPE OF RAMP NEEDS TO BE MINIMUM 12% AND MAXIMUM 15%

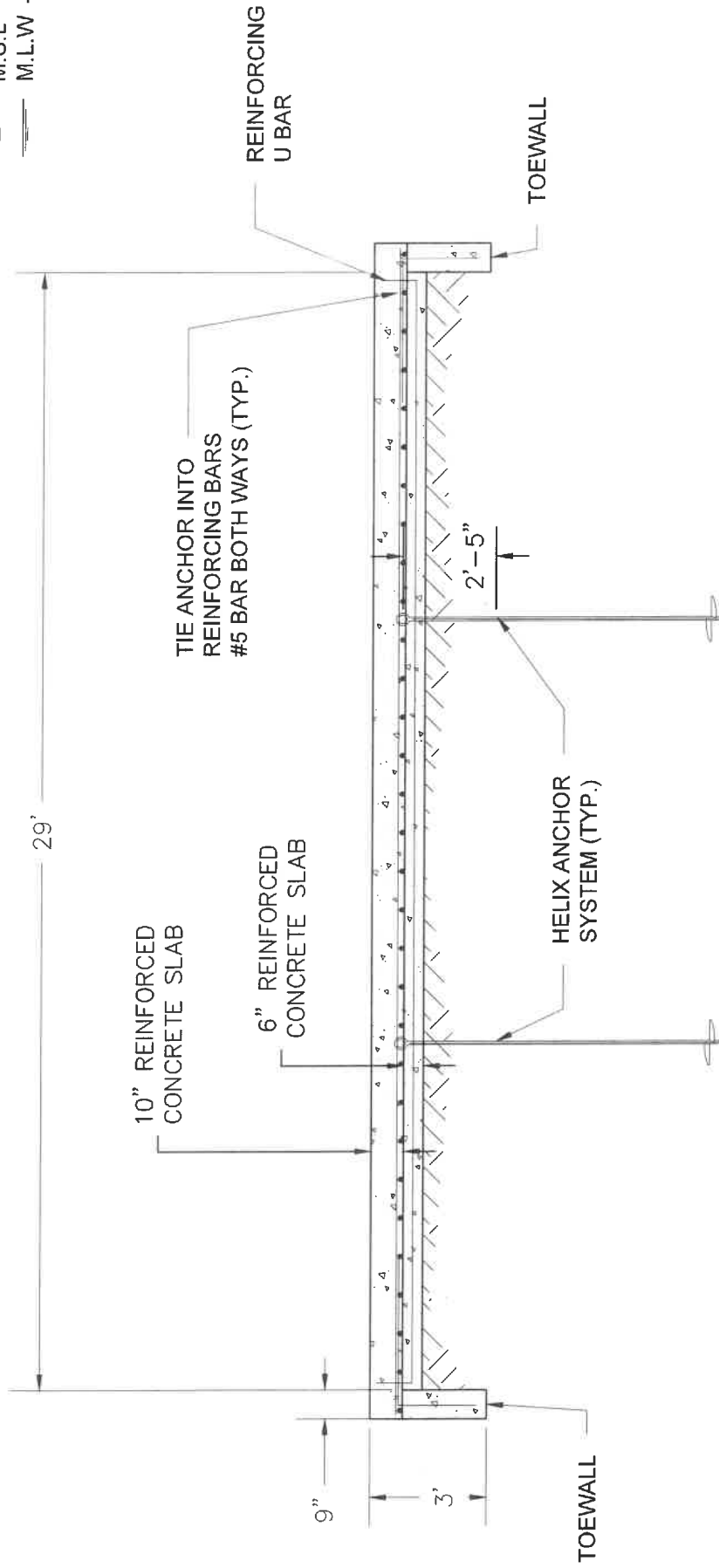
A BOAT RAMP SECTION A-A
SCALE: 1"=60'



B. F. Andrews
9-01-22
Hultt-Zollars Inc.
Firm Registration No. F-761

RAMP SECTION A
C-103
BAYSHORE PARK BOAT
RAMP REPAIR

M.H.W +0.88
 M.S.L 0.0
 M.L.W -0.52

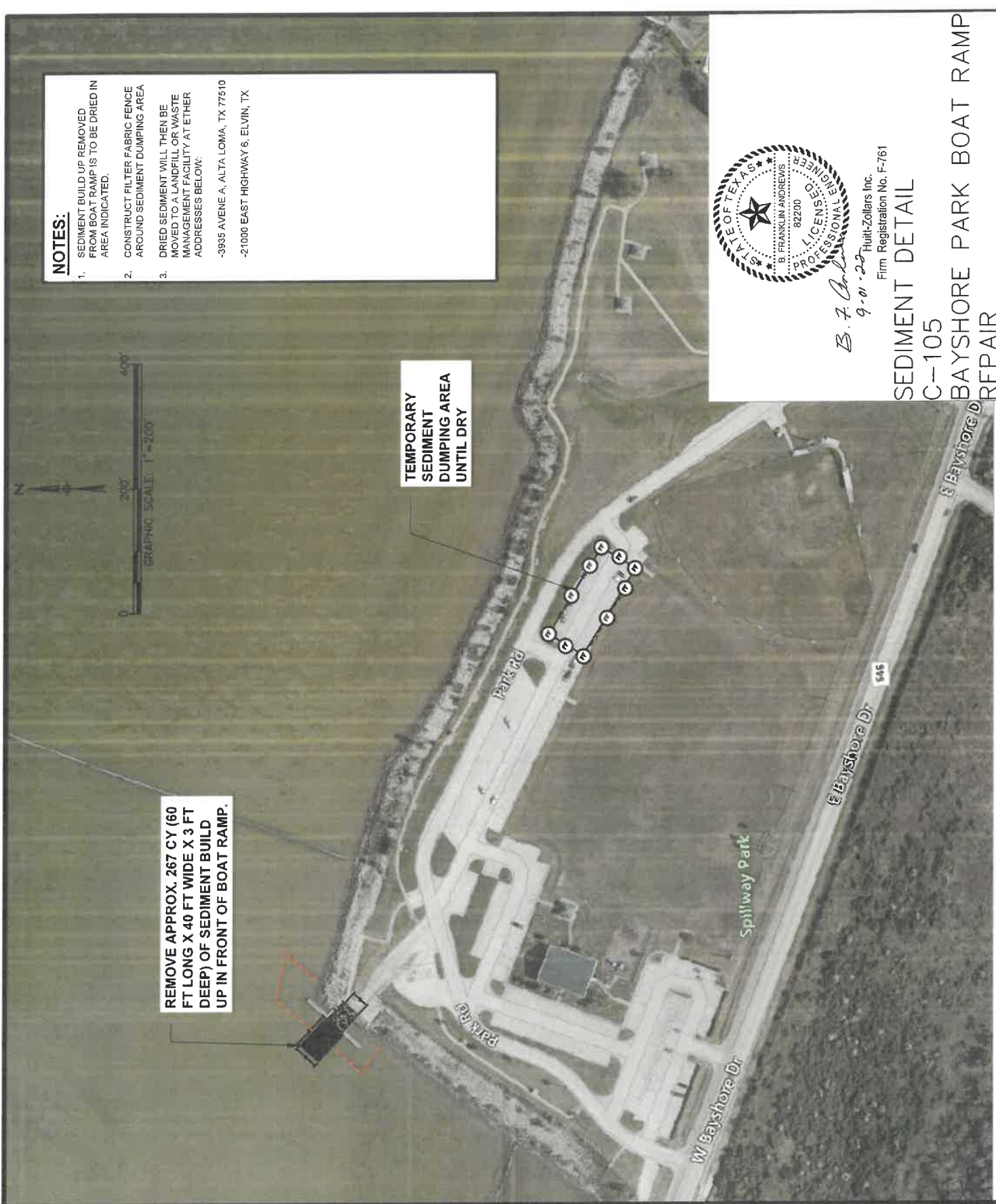


Hullit-Zollars Inc.
 Firm Registration No. F-761

RAMP SECTION B
 C-104
 BAYSHORE PARK BOAT
 RAMP REPAIR

BOAT RAMP SECTION B-B
 SCALE: 1"=60'





REMOVE APPROX. 267 CY (60 FT LONG X 40 FT WIDE X 3 FT DEEP) OF SEDIMENT BUILD UP IN FRONT OF BOAT RAMP.

TEMPORARY SEDIMENT DUMPING AREA UNTIL DRY

- NOTES:**
1. SEDIMENT BUILD UP REMOVED FROM BOAT RAMP IS TO BE DRIED IN AREA INDICATED.
 2. CONSTRUCT FILTER FABRIC FENCE AROUND SEDIMENT DUMPING AREA
 3. DRIED SEDIMENT WILL THEN BE MOVED TO A LANDFILL OR WASTE MANAGEMENT FACILITY AT EITHER ADDRESSES BELOW:
 -3935 AVENE A, ALTA LOMA, TX 77510
 -21000 EAST HIGHWAY 6, ELVIN, TX



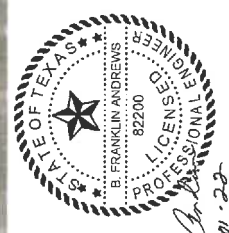
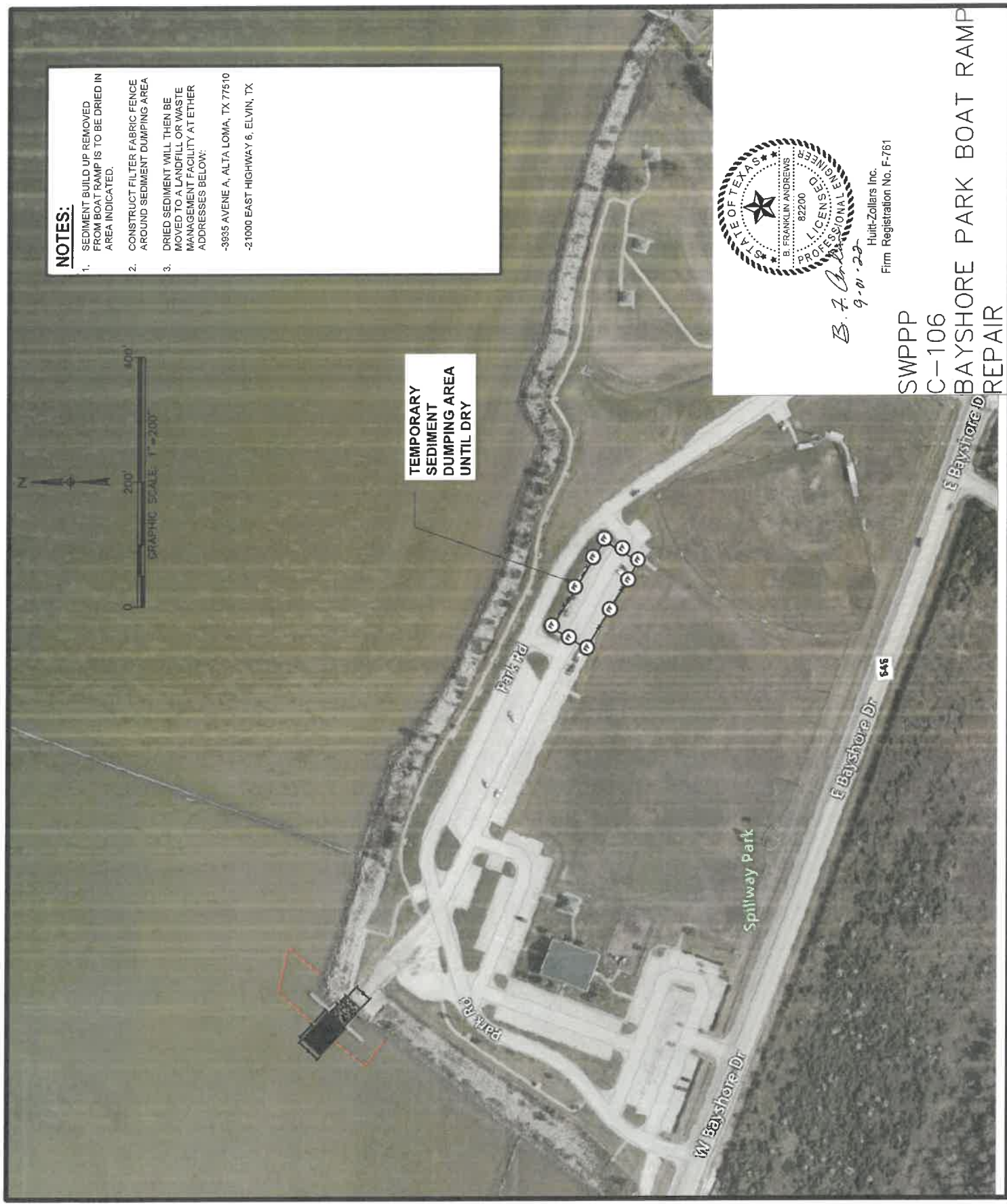
B. F. Andrews
 9-01-28
 Hult-Zollers Inc.
 Firm Registration No. F-761

SEDIMENT DETAIL
 C-105
 BAYSHORE PARK BOAT RAMP
 REPAIR



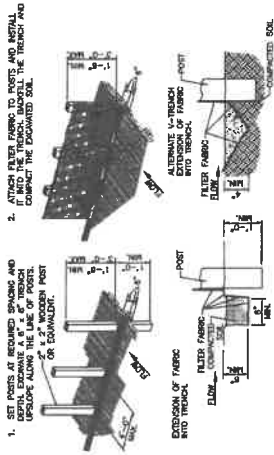
- NOTES:**
1. SEDIMENT BUILD UP REMOVED FROM BOAT RAMP IS TO BE DRIED IN AREA INDICATED.
 2. CONSTRUCT FILTER FABRIC FENCE AROUND SEDIMENT DUMPING AREA
 3. DRIED SEDIMENT WILL THEN BE MOVED TO A LANDFILL OR WASTE MANAGEMENT FACILITY AT EITHER ADDRESSES BELOW:
 -3935 AVENE A, ALTA LOMA, TX 77510
 -21000 EAST HIGHWAY 6, ELVIN, TX

TEMPORARY
 SEDIMENT
 DUMPING AREA
 UNTIL DRY



Hult-Zollers Inc.
 Firm Registration No. F-761

SWPPP
 C-106
 BAYSHORE PARK BOAT RAMP
 REPAIR



GENERAL NOTES:

1. SET POINTS AT 400MM INTERVALS, IF POINTS INDICATED SHALL BE USED.
2. SET THE POINTS OF THE FABRIC TO THE POINTS OF THE POSTS.
3. THE POINTS OF THE FABRIC SHALL BE COMPACTED TO THE POINTS OF THE POSTS.

FILTER FABRIC FENCE



FILTER FABRIC FENCE DETAIL



B. F. Andrews
9-01-22

Hult-Zollars Inc.
Firm Registration No. F-761

SWPPP DETAILS 1 OF 2
C-107
BAYSHORE PARK BOAT
RAMP REPAIR

MAINTENANCE

ALL EROSION AND SEDIMENT CONTROL WILL BE MAINTAINED IN GOOD WORKING ORDER IF A REPAIR IS NECESSARY IT WILL BE DONE AT THE EARLIEST DATE POSSIBLE, BUT NO LATER THAN 7 CALENDAR DAYS AFTER THE SURROUNDING EXPOSED GROUND HAS DRIED SUFFICIENTLY TO PREVENT FURTHER DAMAGE FROM HEAVY EQUIPMENT. THE AREA ADJACENT TO CREEKS AND DRAINAGEWAYS SHALL HAVE PRIORITY FOLLOWED BY DEVICES PROTECTING STORM SEWER INLETS.

INSPECTION

ALL INSPECTION WILL BE PERFORMED BY A XXX INSPECTOR EVERY SEVEN DAYS OR TWO WEEKS, AS WELL AS AFTER EVERY HALF-INCH OR MORE OF RAIN (AS RECOMMENDED ON A NON-FREEZING RAIN GAUGE TO BE LOCATED AT THE PROJECT SITE). AN INSPECTION AND MAINTENANCE REPORT WILL BE SUBMITTED TO THE CLIENT BASED ON THE INSPECTION RESULTS. THE CONTROLS SHALL BE REVISED ACCORDING TO THE INSPECTION REPORT.

WASTE MATERIALS

THE DUMPSTER USED TO STORE ALL WASTE MATERIAL WILL MEET ALL STATE AND THE CITY OF PEARLAND SOLID WASTE ORDINANCE. ALL TRASH AND CONSTRUCTION DEBRIS WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED AS NECESSARY OR AS REQUIRED BY LOCAL REGULATION AND THE TRASH WILL BE HAULED TO A LOCAL DUMP. NO CONSTRUCTION WASTE MATERIAL WILL BE BURIED ON SITE.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING)

IN THE EVENT OF A SPILL WHICH MAY BE CONSIDERED HAZARDOUS, THE CITY OF PEARLAND FIRE DEPARTMENT SHALL BE CONTACTED IMMEDIATELY AT 281-997-4630.

SANITARY WASTE

CONTRACTOR SHALL PROVIDE SANITARY WASTE FACILITIES IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS AND SPACING. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR OR FIRM AS NEEDED OR AS REQUIRED BY LOCAL REGULATIONS.

ADDITIONAL

DISPOSAL AREAS, STOCKPILES, AND HAUL ROADS SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE AND CONTROL THE SEDIMENT THAT MAY ENTER RECEIVING WATERWAYS. CONSTRUCTION STAGING AREAS AND VEHICLE MAINTENANCE AREAS SHALL BE CONSTRUCTED BY THE CONTRACTOR IN A MANNER WHICH MINIMIZES THE RUNOFF OF ALL POLLUTANTS. ALL WATERWAYS SHALL BE CLEARED AS SOON AS PRACTICAL OF TEMPORARY EMBANKMENTS, TEMPORARY BRIDGES, TEMPORARY EMBANKMENTS, TEMPORARY BRIDGES, AND OTHER OBSTRUCTIONS THAT MAY CAUSE OBSTRUCTIONS TO FLOW THAT ARE NOT PART OF THE FINISHED WORK.

PROJECT DESCRIPTION

TOTAL PROJECT AREA	
TOTAL AREA TO BE DISTURBED	
WEIGHTED RUNOFF COEFFICIENT	
NAME OF RECEIVING WATER	

SOIL STABILIZATION PRACTICES

TEMPORARY SEEDING	
PERMANENT PLANTING, SODDING, OR SEEDING	
MULCHING	
SOIL RETENTION BLANKET	
BUFFER ZONE	
PRESERVATION OF NATURAL RESOURCES	

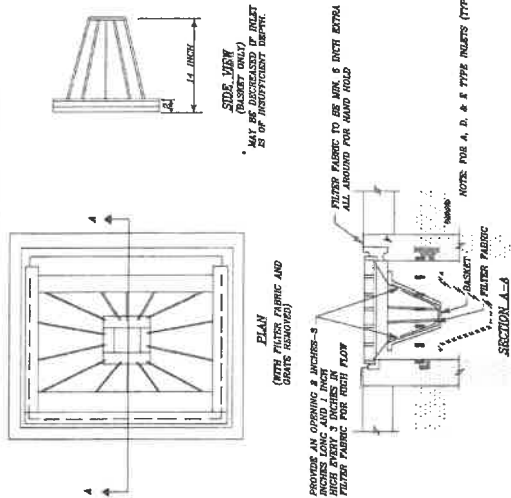
STRUCTURAL PRACTICES

SILT FENCES	
HAY BALES	
ROCK FILTER DAMS	
PIPE SLOPE DRAINS	
PAVED FLUMES	
CHANNEL LINERS	
SEDIMENT BASINS/ DETENTION PONDS	
ROCK BEDDING AT CONSTRUCTION EXIT	
CURBS AND GUTTERS	
VELOCITY CONTROL DEVICES	
EROSION CONTROL LOGS	

OFFSITE VEHICLE TRACKING

HAUL ROADS DAMPENED FOR DUST CONTROL	
LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN	
EXCESS DIRT ON ROAD REMOVED DAILY	
STABILIZED CONSTRUCTION ENTRANCE	

DROP INLET INSERT BASKET



Not to Scale

DIB

FIGURE 4.5-3a
BMP 4521

DROP INLET BASKET (DRAWING 4)



B. F. Andrews
9-01-25

Hultz-Zollars Inc.
Firm Registration No. F-761

SWPPP DETAILS 2 OF 2
C-108
BAYSHORE PARK BOAT RAMP
REPAIR



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
2000 FORT POINT RD
GALVESTON, TEXAS 77550

June 28, 2022

Evaluation Branch

SUBJECT: Permit SWG-2021-00778; Letter of Permission

County of Galveston Texas
Attn: Julie Diaz
4102 Main Street
La Marque, TX 77568

Dear Ms. Diaz:

This is in reference to your request, dated November 29, 2022, submitted on your behalf by Huitt-Zollars, Inc, to conduct work associated with repair of a boat ramp. The project can be located on the U.S.G.S. quadrangle map entitled: Bacliff, Texas.

You may proceed with the discharge of approximately 116-cubic yards of concrete and 4-cubic yards of riprap 5-feet below Mean High Water (MHW) into waters of the United States (WOTUS) to facilitate construction of a 38-foot-long by 29-foot-wide by 16-inch-thick boat ramp. Additionally, the proposed discharges include a 9-inch-thick by 4-foot-deep toe wall. This Nationwide Permit (NWP) 3 verification is valid provided the activity is compliant with the NWP General/Regional Conditions, Section 401 of the Water Quality Certification, and the Coastal Management Program, which can be found at: <http://www.swg.usace.army.mil/Business-With-Us/Regulatory/Permits/Nationwide-General-Permits/>, a hard copy can be provided to you upon request.

NWP 3. Maintenance: Authorizes the repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized.

Based on available information, there appear to be "waters of the United States" and/or "navigable waters of the United States" on the project site. Therefore, your letter resulted in the initiation of the pre-construction notification (PCN) procedure specified for NWP 3. Your application was considered complete on March 2, 2022. The time period to process the PCN expired on or around April 15, 2022. Therefore, according to the NWP regulations, the project is verified under NWP 3.

The NWP verification is valid until the NWP is modified, reissued, or revoked. The subject NWPs authorized in 2021 are scheduled to be modified, reissued, or revoked prior to March 15, 2026. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant NWP is modified or revoked, you will have 12 months from the date of the

modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

Your request is approved by this Letter of Permission (LOP) pursuant to Section 10 of the Rivers and Harbors Act of 1899. The work and/or structure will consist of reconstruction of a boat ramp damaged by Hurricane Harvey by mechanically dredging 267-cubic yards (60-foot-long by 40-foot-wide at 3-foot-deep) of deposited sediment adjacent to the damaged ramp. The dredged material is proposed to be placed in the immediately adjacent wetlands until it is dry. The dredged material will then be disposed of a waste management facility.

All work is to be performed in accordance with the enclosed plans in 8 sheets and the permit conditions. The time limit for completing the work authorized ends on December 31, 2027. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached. The following special condition(s) has/have been added to your authorization:

1. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.
2. When structures or work authorized by this permit are determined by the District Engineer to have become abandoned, obstructive to navigation or cease to be used for the purpose for which they were permitted, such structures or other work must be removed, the area cleared of all obstructions, and written notice given to the Corps of Engineers, Galveston District, Regulatory Division, Chief of the Compliance Branch within 30 days of completion.
3. The permittee must install and maintain, at the permittee's expense, any safety lights, signs and signals required by U.S. Coast Guard, through regulations or otherwise, on the permittee's fixed structures. To receive a U.S. Coast Guard Private Aids to Navigation marking determination, at no later than 30 days prior to installation of any fixed structures in navigable waters and/or prior to installation of any floating private aids to navigation, you are required to contact the Eighth Coast Guard District (dpw), 500 Poydras St., Suite 1230, New Orleans, LA 70130, (504) 671-2328 or via email to: D8oanPATON@uscg.mil. For general

information related to Private Aids to Navigation please visit the Eighth Coast Guard District web site at: <https://www.atlanticarea.uscg.mil/District-8/District-Divisions/Waterways/PATON/>

If you object to the work authorized or the terms and conditions of this LOP, you may request that the LOP be modified (in accordance with 33 CFR 331.6). To object, you must submit a copy of the completed Request for Appeal (RFA) form to the District Engineer (DE) at the letterhead address, located at the top of this letter. Your objections must be received by the DE within **60 days** of the date of this notice; noting the NAP date is considered day 1, or you will forfeit your right to appeal the LOP in the future. It is not necessary to submit an RFA form to this office if you accept the LOP's terms and conditions.

If, after review by the DE, you are still unsatisfied with the LOP because of certain terms and conditions therein, you may appeal under the Corps of Engineers Administrative Appeal Process by completing Section II of the attached RFA form and sending it to the following address:

Mr. Jamie Hyslop
Administrative Appeals Review Officer
Southwestern Division USACE (CESWD-PD-O)
U.S. Army Corps of Engineers
1100 Commerce Street, Suite 831
Dallas, Texas 75242-1317
Telephone: 469-216-8324
Email: Jamie.r.hyslop@usace.army.mil

This LOP does not address nor include any consideration for geographic jurisdiction on aquatic resources and shall not be interpreted as such. If you have any question regarding this LOP, please contact Cecilia Askins at the letterhead address or by telephone at 409-766-3856. Please notify the Chief of the Compliance Branch in the Galveston District Regulatory Division in writing at the letterhead address, upon completion of the authorized project.

FOR THE DISTRICT COMMANDER:



Andria Davis
Leader, North Evaluation Unit

cc w/Encl.
Huitt-Zollars, Inc.

Eighth Coast Guard District, New Orleans, LA

National Oceanic and Atmospheric Administration (NOAA), National Ocean Service
(NOS), Coast & Geodetic Survey, Silver Spring, MD

Texas General Land Office

Conditions for Letter of Permission:

General Conditions:

1. The time limit for completing the activity authorized ends on **31 December 2026**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

See Authorization Letter

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:
 Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
 Section 404 of the Clean Water Act (33 U.S.C. 1344).
 Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).
2. Limits of this authorization:
 - a. This permit does not obviate the need to obtain other Federal, state or local authorizations required by law.
 - b. This permit does not grant property rights or exclusive privileges.
 - c. This permit does not authorize any injury to the property or rights of others.
 - d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:
 - a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
 - b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
 - c. Damages to persons, property or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
 - d. Design or construction deficiencies associated with the permitted work.
 - e. Damage claims associated with any future modification, suspension or revocation of this permit.
4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.
5. Reevaluation of Permit Decision: This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
 - a. You fail to comply with the terms and conditions of this permit.
 - b. The information provided by you in support of your permit application proves to have been false, incomplete or inaccurate (See 4 above).
 - c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions: General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of time limit.

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFeree - Typed/Printed Name)

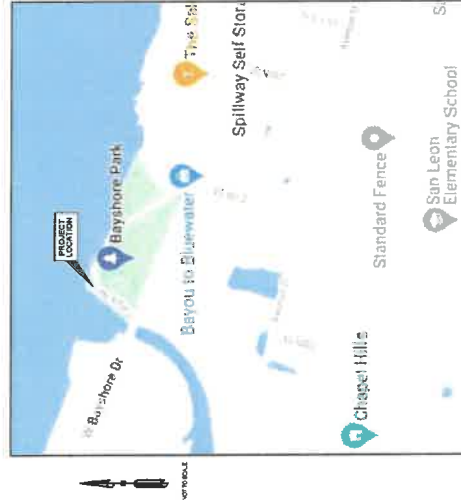
(DATE)

(TRANSFeree - Signature)

(Mailing Address)

GALVESTON COUNTY BAYSHORE PARK BOAT RAMP REPAIR

5437 FM646, BACLIFF, TX 77518



Sheet Index	
Sheet Number	Sheet Title
C-100	COVER
C-101	CIVIL SITE PLAN
C-102	CONCRETE SLAB DETAILS
C-103	RAMP SECTION A
C-104	RAMP SECTION B
C-105	SEDIMENT DETAIL



B. Franklin Andrews
2/28/2022

Huitt-Zollars Inc.
Firm Registration No. F-761

COVER
C-100
BAYSHORE PARK BOAT
RAMP REPAIR

HUITT-ZOLLARS
10350 RICHMOND AVENUE, SUITE 300
HOUSTON, TEXAS 77042-4248
(281) 486-0066
TDE #1994 F-761



FEMA FIRM
 Panel 48167C0064G, Effective August 15, 2019
 SOURCE: <https://msc.fema.gov/portal/home>

Scale: 1 in. ≈ 500 ft
 Project No.: 21.01.014

Project:
 Wetlands & Water Body Delineation
 Bayshore Park Boat Ramp
 Bacliff, Galveston County, Texas

Client: Galveston County c/o
 Huitt-Zollars, Inc

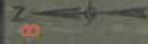
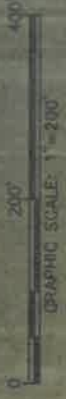


REMOVE APPROX. 267 CY (60 FT LONG X 40 FT WIDE X 3 FT DEEP) OF SEDIMENT BUILD UP IN FRONT OF BOAT RAMP.

TEMPORARY SEDIMENT DUMPING AREA UNTIL DRY

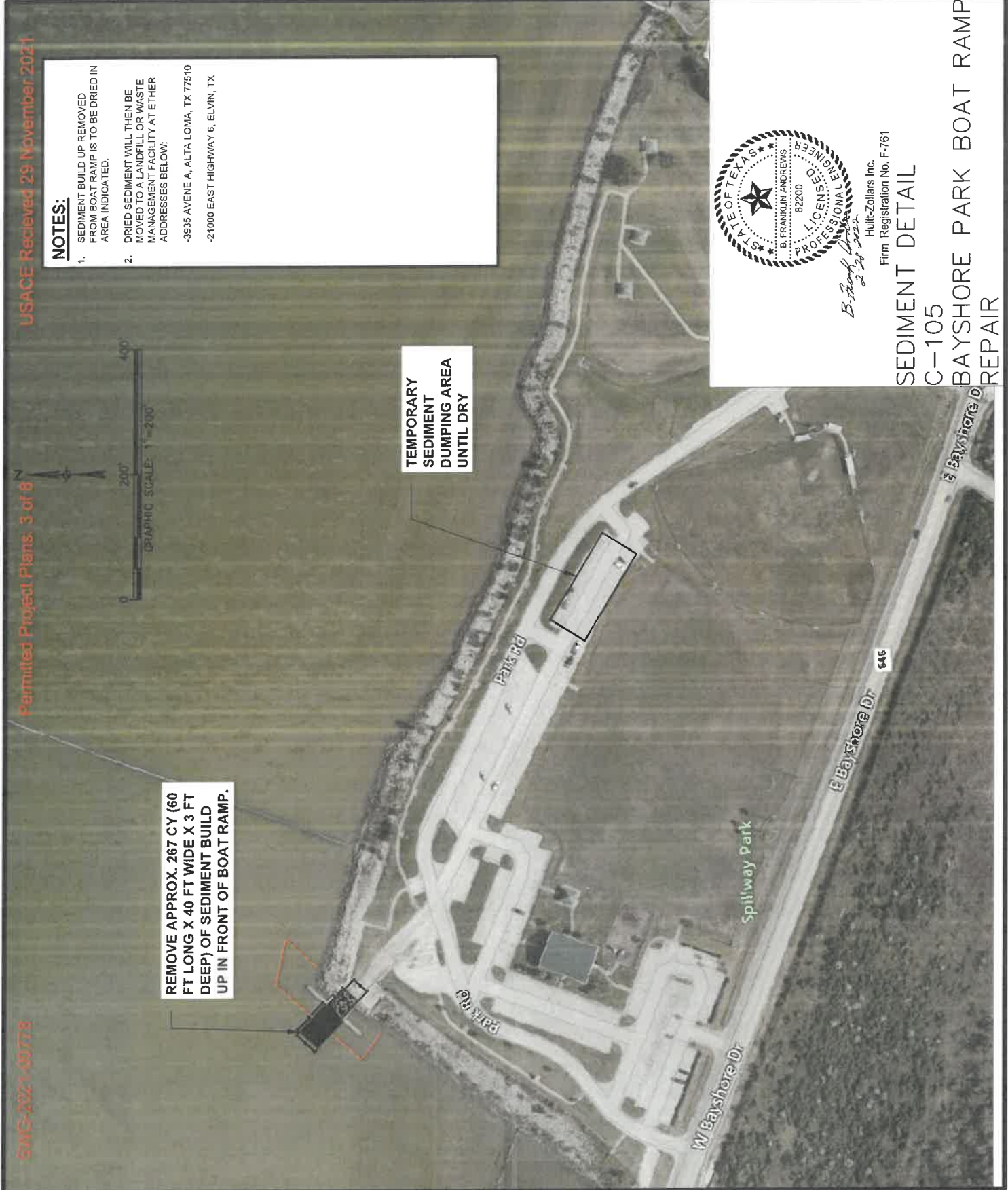
NOTES:

1. SEDIMENT BUILD UP REMOVED FROM BOAT RAMP IS TO BE DRIED IN AREA INDICATED.
2. DRIED SEDIMENT WILL THEN BE MOVED TO A LANDFILL OR WASTE MANAGEMENT FACILITY AT EITHER ADDRESSES BELOW:
-3935 AVENUE A, ALTA LOMA, TX 77510
-21000 EAST HIGHWAY 6, ELVIN, TX



B. Franklin Andrews
2/28/2022
Hult-Zollars Inc.
Firm Registration No. F-761

SEDIMENT DETAIL
C-105
BAYSHORE PARK BOAT RAMP REPAIR



Galveston Bay



SITE

HTL

LEGEND

- Site
- High Tide Line

Project:
Wetlands & Water Body
Delineation
Bayshore Park Boat Ramp
Baciff, Galveston County, TX

WETLAND & WATER BODY MAP
SOURCE: GOOGLE EARTH
IMAGE DATE: 1/25/2019



Client: Galveston County c/o
Huitt-Zollars, Inc

Scale: 1 in. ≈ 50 ft

Project No.: 21.01.014



REMOVE APPROX. 267 CY
(60 FT LONG X 40 FT WIDE
X 3 FT DEEP) OF
SEDIMENT BUILD UP IN
FRONT OF BOAT RAMP.
SEE NOTE 8 FOR MORE
DETAILS.

REMOVE APPROX. 267 CY
(60 FT LONG X 40 FT WIDE
X 3 FT DEEP) OF
SEDIMENT BUILD UP IN
FRONT OF BOAT RAMP.
SEE NOTE 8 FOR MORE
DETAILS.

9" THICK BY 4' DEEP
TOE WALL WITH
RIPRAP GRADATION
NO. 2.
SEE SHEET C-102
DETAIL 6.

GALVESTON
BAY

375 LF AQUA BARRIER
COFFERDAM

MATCH EXIST.
ELEVATIONS

B SEE SHEET
C-104

MATCH EXIST.
ELEVATIONS

9" THICK
BY 3' DEEP
TOE WALL
(TYP.)

A SEE SHEET
C-104

EXIST
CONCRETE
PAVEMENT

DEMOLISH
EXISTING
CONCRETE
BOAT RAMP.
SEE NOTE 4.

PROPOSED CONCRETE
RAMP. SEE SECTIONS ON
SHEETS C-103 & C-104
MATCH EXIST ELEVATIONS.

EXIST RIP RAP

LEGEND



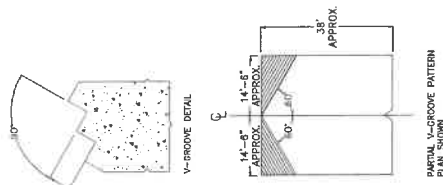
PROP CONC RAMP
SEDIMENT BUILD UP
M.H.W +0.88
M.S.L 0.0
M.L.W -0.52

- GROOVE PATTERN FOR PROPOSED BOAT RAMP. SEE SHEET C-102 DETAIL 1.
- BOAT RAMP CONSTRUCTION IN DRY CONDITIONS CONSTRUCTION MEANS AND METHODS TO BE DETERMINED BY CONTRACTOR, TO BE APPROVED
- REMOVE:
4 EACH (13.5' (L) X 4' (W) X 0.5' (D)) OF PRE-CAST CONCRETE PLANKS
10 EACH (13.5' (L) X 6' (W) X 0.5' (D)) OF PRE-CAST CONCRETE PLANKS.
- CONTRACTOR TO LOCATE ALL UTILITIES INCLUDING EXISTING BURIED CABLES, GAS LINES, IRRIGATION LINES & AT&T CONDUITS AS APPLICABLE BEFORE START OF WORK. CONTRACTOR SHALL NOT USE HEAVY MACHINERY IN AREAS OF EXISTING UTILITIES, USE HAND DIGGING.
- PRIOR TO BOAT RAMP DEMOLITION, CONTRACTOR SHALL INFORM ENGINEER OF START AND END OF RAMP ELEVATIONS.
- SEDIMENT BUILD UP ON RAMP IS TO BE REMOVED BY CLAM SHELL AND TRANSPORTED TO A LANDFILL FACILITY. SEE SHEET C-105 FOR MORE DETAILS.
- AREA OF IMPACT IS 0.08 ACRES.
- NO WETLANDS ARE AFFECTED BY THIS WORK.

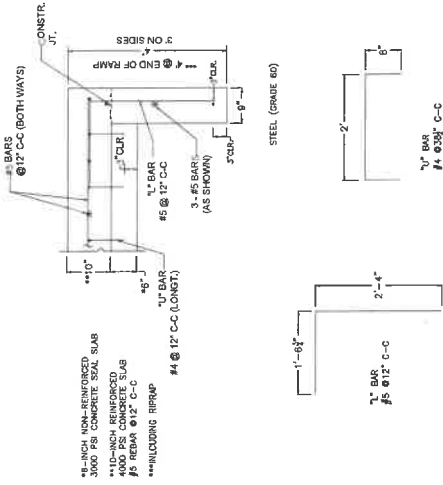


B. Franklin Andrews
2/28/2022
PROFESSIONAL ENGINEER
B. FRANKLIN ANDREWS
82200
Lic. No.
Hutt-Zollars Inc.
Firm Registration No. F-761

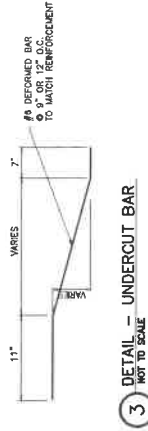
CIVIL SITE PLAN
C-101
BAYSHORE PARK BOAT RAMP
REPAIR



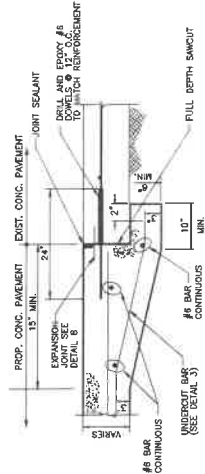
1 BOAT RAMP LAYOUT SHOWING V-GROOVE PATTERN
NOT TO SCALE



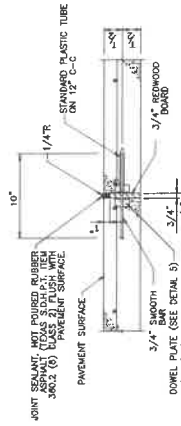
2 BOAT RAMP CONCRETE SLAB DETAIL
NOT TO SCALE



3 DETAIL - UNDERCUT BAR
NOT TO SCALE

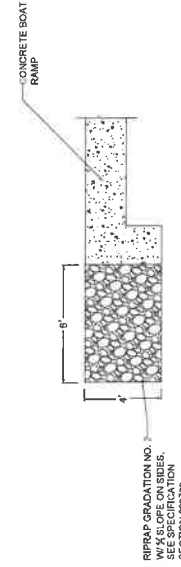


4 SECTION - TYP. PAVEMENT TIE-IN
NOT TO SCALE



1. EXPANSION JOINTS SHALL MATCH LOCATIONS IN EXIST. CONC. PAVEMENT. SHALL BE PLACED AT THE END OF EACH CURB RUNS, AND SHALL BE SPACED AT A MAXIMUM OF 80'-0\"/>
- 2. STAKES FOR TRANSVERSE JOINTS SHALL NOT BE PLACED CLOSER THAN 6\"/>
- 3. ALTERNATIVE JOINT TYPE: CAST MALLEABLE IRON LOAD TRANSMISSION UNIT, STAR-LUG, MODEL P-27, ON EQUAL, ON 12'-0\"/>

5 SECTION - TYP. EXPANSION JOINT
NOT TO SCALE



6 SECTION - TYP. RIP RAP AT END OF CONCRETE BOAT RAMP
NOT TO SCALE

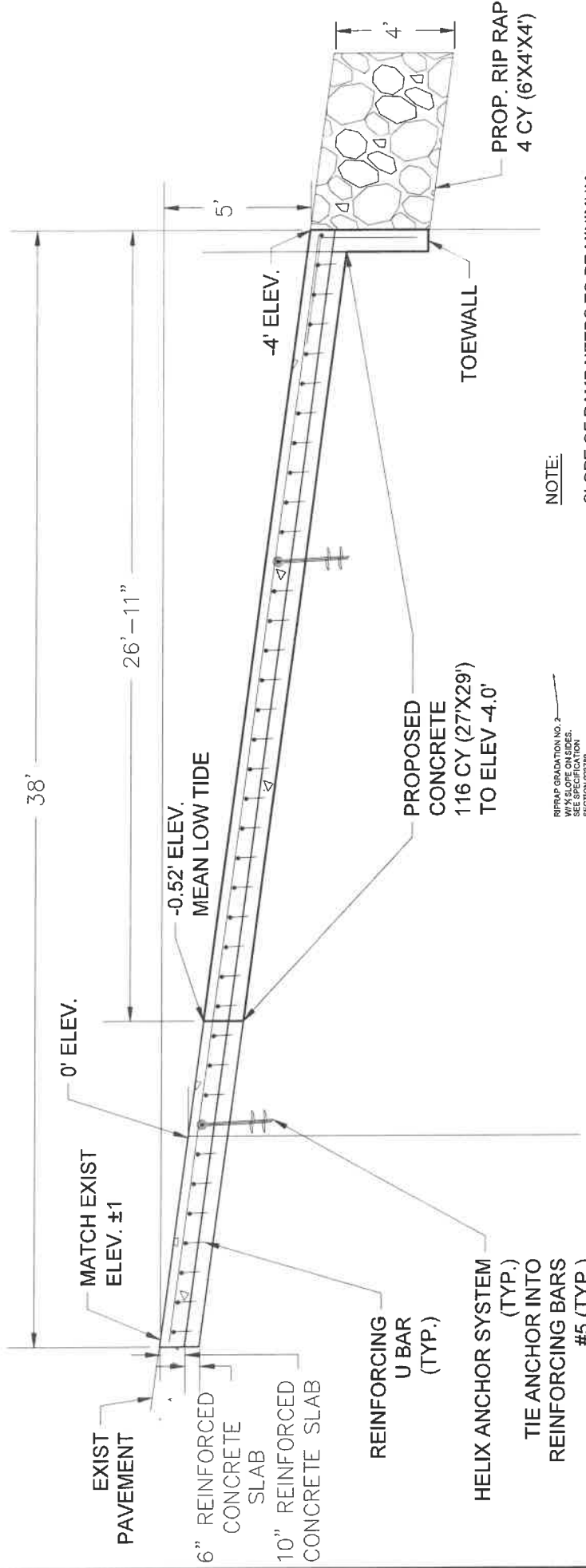


B. Franklin Andrews
 8-28-2021

Huit-Zollars Inc.
 Firm Registration No. F-761

CONCRETE SLAB DETAILS
 C-102
 BAYSHORE PARK BOAT RAMP
 REPAIR

M.S.L 0.0
M.L.W -0.52



NOTE:
SLOPE OF RAMP NEEDS TO BE MINIMUM 12% AND MAXIMUM 15%

RIPRAP GRADATION NO. 2
MAX. SIZE ON SIDES
MAX. SIZE ON BOTTOM
SECTION 023790

A BOAT RAMP SECTION A-A
SCALE: 1"=60'



Hult-Zollars Inc.
Firm Registration No. F-761

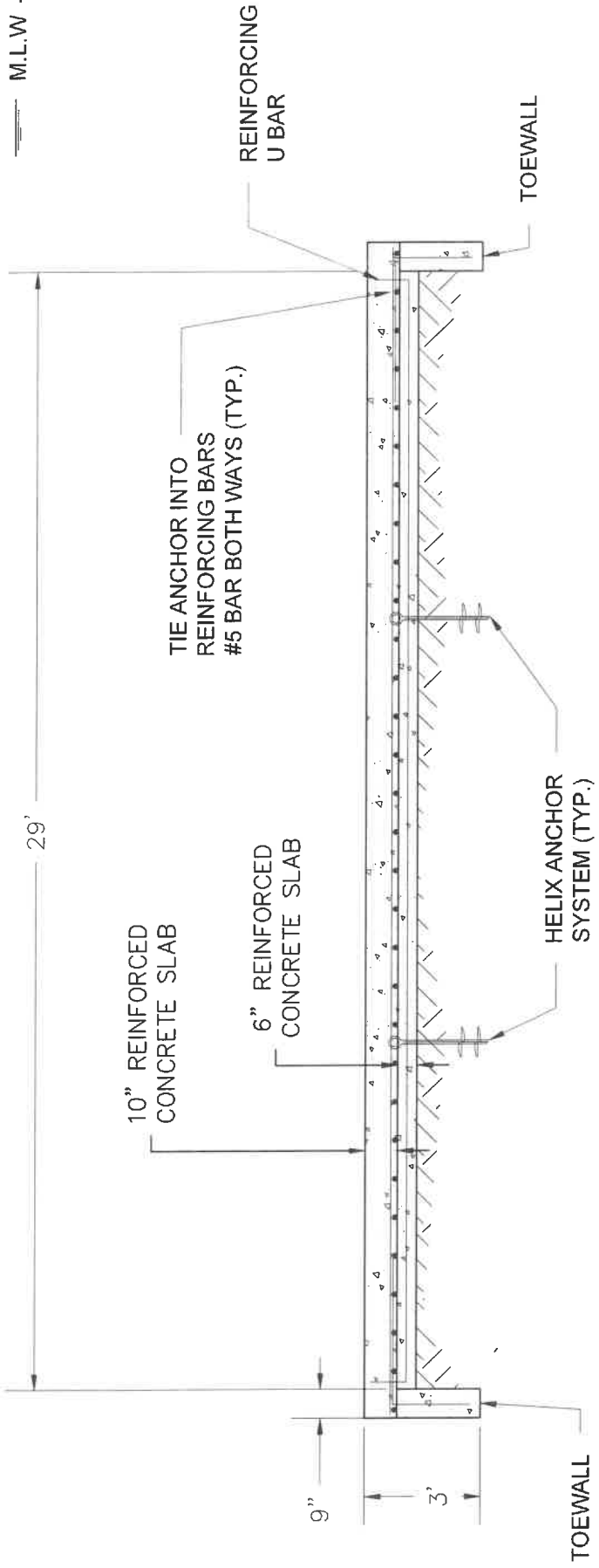
RAMP SECTION A
C-103
BAYSHORE PARK BOAT
RAMP REPAIR

SWG-2021-00778

Permitted Project Plans: 8 of 8

USACE Received 29 November 2021

M.H.W +0.88
M.S.L 0.0
M.L.W -0.52



B BOAT RAMP SECTION B-B
SCALE: 1"=60'



B. Franklin Andrews
Professional Engineer
Hult-Zollars Inc.
Firm Registration No. F-761

RAMP SECTION B
C-104
BAYSHORE PARK BOAT
RAMP REPAIR

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND
REQUEST FOR APPEAL**

Applicant: County of Galveston Texas		File Number: SWG-2021-00778	Date:
Attached is:			See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of Permission)		A
X	PROFFERED PERMIT (Standard Permit or Letter of Permission)		B
	PERMIT DENIAL		C
	APPROVED JURISDICTIONAL DETERMINATION		D
	PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://www.usace.army.mil/inet/functions/cw/cecwo/reg/> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved jurisdictional determination (JD) or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Cecilia Askins, Regulatory Specialist
CESWG-PE-RB, P.O. Box 1229
Galveston, Texas 77553-1229
Telephone: 409-766-3856; FAX: 409-766-3931

If you only have questions regarding the appeal process you may also contact:

Mr. Jamie Hyslop, Administrative Appeals Review Officer
Southwestern Division USACE (CESWD-PD-O)
U.S. Army Corps of Engineers
1100 Commerce Street, Suite 831
Dallas, Texas 75242-1317
Email: Jamie.r.hyslop@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or authorized agent.

Date:

Telephone number: