US Army Corps
of Engineers ®
New Orleans District

Freshwater Bayou Waterway
Freshwater Bayou Lock

New Shops Building

Vermilion Parish, Louisiana

Construction Solicitation
and Specifications

06 November 2025

ED 22-050

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
7400 LEAKE AVENUE
NEW ORLEANS, LA 70118-3651

SOLICITATION: W912P826BA003 06 November 2025

FOR: Freshwater Bayou Waterway, Freshwater Bayou Lock, New Shops Building, Vermilion Parish, Louisiana

TO OPEN: TBA

Prospective Contractors must register in the System for Award Management (SAM). See FAR Clause 52.204-7 for required information. The website for SAM is https://www.sam.gov. As of April 4, 2022, the Federal Government has stopped using the DUNS Number as a unique identifier for entities and switched to a Unique Entity ID generated by SAM.gov. In addition, entities with DUNS Numbers but no SAM.gov registration have been able to get Unique Entity IDs without registering in SAM.gov since October 2021.
NOTE: The DUNS Number is no longer used in SAM.gov, eSRS, FSRS, FPDS, CPARS, or FAPIIS.

BIDDERS MUST PROVIDE FULL, ACCURATE AND COMPLETE INFORMATION AS REQUIRED BY THIS SOLICITATION AND ITS ATTACHMENTS. THE PENALTY FOR MAKING FALSE STATEMENTS IN BIDS IS PRESCRIBED IN 18 U.S.C. 1001. (FAR 52.214-4 APR 1984)

DESCRIPTION AND MAGNITUDE OF WORK: The work consists of procurement, delivery, and installation of precast concrete piles, precast concrete floor and ramp framing, pre-engineered metal building, metal stairs with concrete footings, miscellaneous metal work; and other related incidental work. The Freshwater Bayou Lock reservation can be accessed by land by via the Freshwater City Road (LA-3147) or via water by the Freshwater Bayou Canal. There is a 5-ton limit on the Humble Canal bridge along LA-3147.

CAUTION TO BIDDERS: **In delivery of hand-carried bids, bidders are cautioned to allow sufficient time for delays which may be encountered as a result of frequent trains which are subject to block all access roads to place of bid opening for various lengths of time and for visitor background checks by MVN security when entering the installation at place of bid opening.** ***Such delays DO NOT permit acceptance or consideration of late bids.***

NOTE: ALL WORK UNDER THESE SPECIFICATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF EM 385-1-1 "CORPS OF ENGINEERS SAFETY AND HEALTH REQUIREMENTS MANUAL", DATED 15 MARCH 2024.

ATTENTION: Contractors must complete, and submit with their bid, the provisions located in Section 00 45 00. A bidder may also submit, in lieu of the completed Section 00 45 00, a complete copy of their Online Representations and Certifications from SAM.gov with an expiration date on or after the date of award.

ALL INQUIRIES REGARDING THIS SOLICITATION

SHOULD BE MADE TO THE FOLLOWING:

TAYLOR BRANDON

CONTRACT SPECIALIST

U.S. ARMY CORPS OF ENGINEERS, NEW ORLEANS DISTRICT

E-MAIL: TAYLOR.H.BRANDON@USACE.ARMY.MIL

PHONE: (504) 862-1009

COLLECT CALLS NOT ACCEPTED

NOTE: FOR THE MOST PROMPT RESPONSE, PLEASE SEND ALL QUESTIONS VIA E-MAIL.

SOLICITATION, OFFER, AND AWARD

(Construction, Alteration, or Repair)

1. SOLICITATION NUMBER	2. TYPE OF SOLICITATION	3. DATE ISSUED	PAGE	OF	PAGES
W912P826BA003	[X] SEALED BID (IFB) INVITATION FOR BID [ ] NEGOTIATED (RFP) REQUEST FOR PROPOSAL	06 NOV 2025	1		44

IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.

4. CONTRACT NUMBER	5. REQUISITION/PURCHASE REQUEST NUMBER	6. PROJECT NUMBER
		ED 22-050

7. ISSUED BY	CODE	8. ADDRESS OFFER TO
W07V ENDIST N ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES TAYLOR BRANDON, EMAIL: TAYLOR.H.BRANDON@USACE.ARMY.MIL TELEPHONE: (504) 862-1009	W912P8	

9. FOR INFORMATION CALL:	a. NAME	b. TELEPHONE NUMBER *(Include area code) (NO COLLECT CALLS)*
	TAYLOR BRANDON	(504) 862-1009

SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid and "bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS *(Title, identifying number, date)*

PROJECT TITLE: FRESHWATER BAYOU WATERWAY, FRESHWATER BAYOU LOCK, NEW SHOPS BUILDING, VERMILION PARISH, LOUISIANA
PROJECT LOCATION: VERMILION PARISH, LA

THIS IS A COMPETITIVE 8(A) PROCUREMENT. THE NAICS CODE FOR THIS PROCUREMENT IS 236220.

THE MAGNITUDE OF CONSTRUCTION IS BETWEEN $5,000,000 AND $10,000,000.

THE WORK CONSISTS OF PROCUREMENT, DELIVERY, AND INSTALLATION OF PRECAST CONCRETE PILES, PRECAST CONCRETE FLOOR AND RAMP FRAMING, PRE-ENGINEERED METAL BUILDING, METAL STAIRS WITH CONCRETE FOOTINGS, MISCELLANEOUS METAL WORK; AND OTHER RELATED INCIDENTAL WORK. THE FRESHWATER BAYOU LOCK RESERVATION CAN BE ACCESSED BY LAND BY VIA THE FRESHWATER CITY ROAD (LA-3147) OR VIA WATER BY THE FRESHWATER BAYOU CANAL. THERE IS A 5-TON LIMIT ON THE HUMBLE CANAL BRIDGE ALONG LA-3147.

BID OPENING TO BE ESTABLISHED BY AMENDMENT

11. The contractor shall begin performance within 10 calendar days and complete it within 359 calendar days after receiving
[ ] award, [X] notice to proceed. This performance period is [X] mandatory [ ] negotiable. ***(See*** FAR 52.211-10 ***).***

12a. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? *(If "YES", indicate within how many calendar days after award in Item 12b.)*	12b. CALENDAR DAYS
[X] YES [ ] NO	5

13. ADDITIONAL SOLICITATION REQUIREMENTS:

a. Sealed offers in original and 0 copies to perform the work required are due at the place specified in Item 8 by TBA ***(hour)*** local time TBA (date). If this is a sealed bid solicitation, offers will be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

b. An offer guarantee [X] is, [ ] is not required.

c. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

d. Offers providing less than 60 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

OFFER *(Must be fully completed by offeror)*

14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*	15. TELEPHONE NUMBER *(Include area code)*
	16. REMITTANCE ADDRESS *(Include only if different than Item 14.)*
CODE FACILITY CODE	

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ calendar days after the date offers are due. *(Insert any number equal to or greater than the minimum requirement stated in Item 13d. Failure to insert any number means the offeror accepts the minimum in Item 13d.)*

AMOUNTS ▶

18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGMENT OF AMENDMENTS
(The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each)

AMENDMENT NUMBER										
DATE										

20a. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER *(Type or print)*	20b. SIGNATURE	20c. OFFER DATE

AWARD *(To be completed by Government)*

21. ITEMS ACCEPTED:

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA
24. SUBMIT INVOICES TO ADDRESS SHOWN IN *(4 copies unless otherwise specified)* ▶ ITEM	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO THE UNITED STATES CODE AT ☐ 10 U.S.C. 3204(a) ( ) ☐ 41 U.S.C. 3304(a) ( )
26. ADMINISTERED BY	27. PAYMENT WILL BE MADE BY

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

☐ 28. NEGOTIATED AGREEMENT *(Contractor is required to sign this document and return _____ copies to issuing office.)* Contractor agrees to furnish and deliver all items or perform all work requirements identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications incorporated by reference in or attached to this contract.	☐ 29. AWARD *(Contractor is not required to sign this document.)* Your offer on this solicitation is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.
30a. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN *(Type or print)*	31a. NAME OF CONTRACTING OFFICER *(Type or print)*
30b. SIGNATURE / 30c. DATE	31b. UNITED STATES OF AMERICA BY / 31c. DATE

Freshwater Bayou Waterway, Freshwater Bayou Lock,
New Shops Building, Vermilion Parish, Louisiana

Item	DESCRIPTION	Estimated Quantity	Unit	Unit Price	Estimated Amount
0001	Mobilization and Demobilization	1	JOB		
0002	Truck Wash-Down Rack	1	JOB		
0003	Cast-In-Place Concrete	1	JOB		
0004	Precast Concrete Framing	1	JOB		
0005	Steel Stairs	1	JOB		
0006	Aluminum Railings	1	JOB		
0007	Metal Building System	1	JOB		
0008	Ventilation System	1	JOB		
0009	Electrical Work	1	JOB		
0010	Precast Prestressed Concrete Piles	4,235	LF		
0011	Compression Pile Load Test	1	EA		
0012	Seeding and Mulching	0.8	AC		
0013	Fertilizer				
0013AA	First 80 LBS	80	LBS		
0013AB	All Over 80 LBS	40	LBS		
0014++	Lime Soil Amendment	1.6	TON		
0015++	Sulfur Soil Amendment	0.8	TON		
				TOTAL:	$

++Items not subject to the requirements of FAR 52.211-18 VARIATION IN ESTIMATED QUANTITY.

**The unit "JOB" as used in this Pricing Schedule is synonymous with the term "Lump Sum" used elsewhere within these plans and specifications.

Award will be made as a whole to one bidder.

NOTE 1: Offerors shall furnish unit prices for each item listed in the Schedule requiring a unit price. If the offeror fails to insert a unit price in the appropriate blank for required item(s), but does furnish an extended total, or an estimated amount for such item(s), the Government shall deem the unit price to be the quotient obtained by dividing the extended amount for that line item by the

quantity. IF A BIDDER OMITS BOTH THE UNIT PRICE AND THE EXTENDED TOTAL OR ESTIMATED AMOUNT FOR ANY ITEM, ITS OFFER SHALL BE DECLARED NON-RESPONSIVE AND THEREFORE INELIGIBLE FOR AWARD.

NOTE 2: Any offer may be rejected if the Contracting Officer determines in writing that it is unreasonable as to price. Unreasonableness of price includes not only total price of offer, but the price for individual line items as well. Any offer may be rejected if the prices for any line items or sub line items are materially unbalanced (See FAR 14.404-2, Rejection of Individual Bids).

NOTE 3: THE NOTICE TO PROCEED (NTP): The successful offeror is advised that performance and payment bonds shall be submitted in accordance with the time frame in block 12B of SF 1442. The NTP will be issued immediately after verification of acceptable performance and payment bonds. Within seven (7) days after issuance of the NTP, the Contractor shall initiate a meeting to discuss the submittal process with the Area or Resident Engineer or his authorized representative. Physical work cannot start until the Accident Prevention Plan, Contractor Quality Control Plan, and other submittals which may be required, have been submitted and approved and all preliminary meetings called for under the contract, have been conducted.

NOTE 4: RAPID VENDOR PAYMENT: Web based instructions for the submission of invoices;
http://www.mvn.usace.army.mil/BusinessWithUs/Contracting/RapidVendorPayment.aspx

EVALUATION OF SUBLINE ITEMS (Dec 2019 - AFARS 5152.211-9000).

Item No. 0013 are subdivided into two or more estimated quantities and are to be separately priced. The Government will evaluate each of these items on the basis of total price of its subline items.

(End of Clause)

VARIATIONS IN ESTIMATED QUANTITIES - SUBLINE ITEMS (Dec 2019) - AFARS 5152.211-9001).

This variation in estimated quantities clause is applicable only to item No. 0013.

(a) Variation from the estimated quantity in the actual work performed under any second or subsequent subline item or elimination of all work under such a second or subsequent subline item will not be the basis for an adjustment in contract unit price.

(b) Where the actual quantity of work performed for item No. 0013 is less than 85% of the quantity of the first subline item listed under such item, the contractor will be paid at the contract unit price for that subline item for the actual quantity of work performed and, in addition, an equitable adjustment shall be made in accordance with the clause at Federal Acquisition Regulation (FAR) 52.211-18, VARIATION IN ESTIMATED QUANTITY.

(c) If the actual quantity of work performed under item No. 0013 exceeds 115% or is less than 85% of the total estimated quantity of the subline item under that item and/or if the quantity of the work performed under the second subline item or any subsequent subline item under item Nos. NONE exceeds 115% or is less than 85% of the estimated quantity of any such subline item, and if such variation causes an increase or a decrease in the time required for performance of this contract the contract completion time will be adjusted in accordance with the clause FAR 52.211-18, VARIATION IN ESTIMATED QUANTITY.

(End of Clause)

Bid Bond (See Instructions on Page 3)	Date Bond Executed (Must Not Be Later Than Bid Opening Date)	**OMB Control Number: 9000-0001** **Expiration Date: 1/31/2027**

Principal (Legal Name And Business Address)	Type Of Organization ("X" One) ☐ Individual ☐ Partnership ☐ Joint Venture ☐ Corporation ☐ Other (Specify)
	State Of Incorporation

Surety(ies) (Name And Business Address)

Penal Sum Of Bond					Bid Identification	
Percent Of Bid Price	Amount Not To Exceed				Bid Date	Invitation Number
	Million(s)	Thousand(s)	Hundred(s)	Cents		
					For (Construction, Supplies Or Services)	

Obligation:

We, the Principal and Surety(ies) are firmly bound to the United States of America (hereinafter called the Government) in the above penal sum. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally. However, where the Sureties are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us. For all other purposes, each Surety binds itself, jointly and severally with the Principal, for the payment of the sum shown opposite the name of the Surety. If no limit of liability is indicated, the limit of liability is the full amount of the penal sum.

Conditions:

The Principal has submitted the bid identified above.

Therefore:

The above obligation is void if the Principal - (a) upon acceptance by the Government of the bid identified above, within the period specified therein for acceptance (sixty (60) days if no period is specified), executes the further contractual documents and gives the bond(s) required by the terms of the bid as accepted within the time specified (ten (10) days if no period is specified) after receipt of the forms by the Principal; or (b) in the event of failure to execute such further contractual documents and give such bonds, pays the Government for any cost of procuring the work which exceeds the amount of the bid.

Each Surety executing this instrument agrees that its obligation is not impaired by any extension(s) of the time for acceptance of the bid that the Principal may grant to the Government. Notice to the Surety(ies) of extension(s) is waived. However, waiver of the notice applies only to extensions aggregating not more than sixty (60) calendar days in addition to the period originally allowed for acceptance of the bid.

Witness:

The Principal and Surety(ies) executed this bid bond and affixed their seals on the above date.

Principal

Signature(s)	1. (Seal)	2. (Seal)	3. (Seal)	Corporate Seal
Name(s) And Title(s) (Typed)	1.	2.	3.	

Individual Surety(ies)

Signature(s)	1. (Seal)	2. (Seal)
Name(s) (Typed)	1.	2.

Corporate Surety(ies)

Surety A	Name And Address		State Of Incorporation	Liability Limit ($)	Corporate Seal
	Signature(s)	1.	2.		
	Name(s) And Title(s) (Typed)	1.	2.		
Surety B	Name And Address		State Of Incorporation	Liability Limit ($)	Corporate Seal
	Signature(s)	1.	2.		
	Name(s) And Title(s) (Typed)	1.	2.		
Surety C	Name And Address		State Of Incorporation	Liability Limit ($)	Corporate Seal
	Signature(s)	1.	2.		
	Name(s) And Title(s) (Typed)	1.	2.		
Surety D	Name And Address		State Of Incorporation	Liability Limit ($)	Corporate Seal
	Signature(s)	1.	2.		
	Name(s) And Title(s) (Typed)	1.	2.		

Surety E	Name And Address		State Of Incorporation	Liability Limit ($)	Corporate Seal
	Signature(s)	1.	2.		
	Name(s) And Title(s) (Typed)	1.	2.		
Surety F	Name And Address		State Of Incorporation	Liability Limit ($)	Corporate Seal
	Signature(s)	1.	2.		
	Name(s) And Title(s) (Typed)	1.	2.		
Surety G	Name And Address		State Of Incorporation	Liability Limit ($)	Corporate Seal
	Signature(s)	1.	2.		
	Name(s) And Title(s) (Typed)	1.	2.		

Instructions

1. This form is authorized for use when a bid guaranty is required. Any deviation from this form will require the written approval of the Administrator of General Services.
2. Insert the full legal name and business address of the Principal in the space designated "Principal" on the face of the form. An authorized person shall sign the bond. Any person signing in a representative capacity (e.g., an attorney-in-fact) must furnish evidence of authority if that representative is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved.
3. The bond may express penal sum as a percentage of the bid price. In these cases, the bond may state a maximum dollar limitation (e.g., 20% of the bid price but the amount not to exceed _____ dollars).
4. (a) Corporations executing the bond as sureties must appear on the Department of the Treasury's list of approved sureties and must act within the limitations listed therein. The value put into the Liability Limit block is the penal sum (i.e., the face value) of the bond, unless a co-surety arrangement is proposed.

(b) When multiple corporate sureties are involved, their names and addresses shall appear in the spaces (Surety A, Surety B, etc.) headed "Corporate Surety(ies)." In the space designated "Surety(ies)" on the face of the form, insert only the letter identifier corresponding to each of the sureties. Moreover, when co-surety arrangements exist, the parties may allocate their respective limitations of liability under the bond, provided that the sum total of their liability equals 100% of the bond penal sum.

(c) When individual sureties are involved, a completed Affidavit of Individual Surety (Standard Form 28) for each individual surety, shall accompany the bond. The Government may require the surety to furnish additional substantiating information concerning its financial capability.

5. Corporations executing the bond shall affix their corporate seals. Individuals shall execute the bond opposite the word "Corporate Seal"; and shall affix an adhesive seal if executed in Maine, New Hampshire, or any other jurisdiction requiring adhesive seals.
6. Type the name and title of each person signing this bond in the space provided.
7. In its application to negotiated contracts, the terms "bid" and "bidder" shall include "proposal" and "offeror."

Paperwork Reduction Act Statement - This information collection meets the requirements of 44 USC § 3507, as amended by section 2 of the Paperwork Reduction Act of 1995. You do not need to answer these questions unless we display a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 9000-0001. We estimate that it will take 1 hour to read the instructions, gather the facts, and answer the questions. Send only comments relating to our time estimate, including suggestions for reducing this burden, or any other aspects of this collection of information to: General Services Administration, Regulatory Secretariat Division (MVCB), 1800 F Street, NW, Washington, DC 20405.

SOLICITATION NUMBER: W912P826BA003

NOTE: BIDDERS MAY SUBMIT BIDS BY ONLY ONE METHOD: A) ELECTRONIC COMMERCE (EMAIL) OR BY 2) PHYSICAL SUBMISSION. BIDDERS SHALL LIMIT THE BID SUBMITTAL TO ONE OPTION OR THE OTHER, NOT BOTH.

Electronic Submission of Bids/Proposals (Email):

The New Orleans District utilizes electronic commerce (Email) for receipt of electronic bids under this IFB solicitation. To submit an electronic commerce (Email) bid please follow these steps:

1. Send an email containing your name, email address and bid/proposal to the following emails associated with the IFB (MUST include all emails):
    - Taylor.H.Brandon@usace.army.mil
    - Michelle.Dalmado@usace.army.mil

2. ALL BIDS SUBMITTED BY EMAIL MUST CONTAIN THE SOLICITATION NUMBER IN THE SUBJECT LINE.

3. Once the agency receives your bid/proposal at the above email addresses, you will then receive a confirmation email stating your bid/proposal was received. If a bidder does not receive a reply acknowledging receipt electronically from the New Orleans District, it is incumbent upon the bidder to seek confirmation from the issuing Contracting office by phone.

Note: The size limit for incoming emails is 35MB. Any bid/proposal over this size may not be accepted by the server and will constitute the bid not being received timely. Please note that embedded links, URLs, and other html language included may interfere with the USACE server security, which may cause emails to be removed prior to being received by the contracting office. Bidders are advised to refrain from including external links, embedded links, URLs, and other html language not germane to the proposal/bid. Please note it is a bidder's responsibility, when transmitting its bid electronically, to ensure the receipt of its bid to the proper designee at the proper time. See FAR 14.304(b)(1)(i) regarding untimely electronic bids. Please note, MVN's computer system firewall may cause a delay in receipt of emails, so be sure to allow ample time for possible delay. If your email would exceed 35MB you can use one of the following methods as a work-around:

- Use .zip files as attachments. Combine multiple files into a .zip file to compress file size prior to adding as an email attachment.
- Send multiple emails. Label each email with same subject line and indicate number of emails. For example: Smith Construction W912P826BXXXX (1 of 2) Smith Construction W912P826BXXXX (2 of 2).

Physical Submission of Bids:

Bidders may submit their bids by hand carrying or express mail to the New Orleans District Contracting Office in Room 172. Bidders are advised to allow adequate time to ensure timely

submission of its bid. Traffic onto the New Orleans District campus may be delayed by trains blocking the entrance or security either at the gate and/or inside of the building. Express delivery may be utilized but it is incumbent upon the bidder to ensure bid delivery time and date is before the receipt of bid cutoff time. See FAR 14.304(b)(1)(ii) and (c).

Bid Opening:
This bid opening is currently scheduled for TBA. The Contracting Officer and Contract Specialist will begin downloading bids at TBA, which is the bid submission receipt cutoff time. All bids received after TBA will be considered late.

Audio Teleconference Bid Opening Information:
The bid opening will be held electronically and can be accessed via: TBA

Section 00 21 00 - Instructions

FAR Clauses Incorporated by Reference

Number	Title	Effective Date	Alternate/ Deviation	Variation Effective Date
52.204-7	System for Award Management.	Nov 2024		
52.204-16	Commercial and Government Entity Code Reporting.	Aug 2020		
52.204-22	Alternative Line Item Proposal.	Jan 2017		
52.214-3	Amendments to Invitations for Bids.	Dec 2016		
52.214-4	False Statements in Bids.	Apr 1984		
52.214-5	Submission of Bids.	Dec 2016		
52.214-6	Explanation to Prospective Bidders.	Apr 1984		
52.214-7	Late Submissions, Modifications, and Withdrawals of Bids.	Nov 1999		
52.222-5	Construction Wage Rate Requirements-Secondary Site of the Work.	May 2014		
52.225-10	Notice of Buy American Requirement-Construction Materials.	May 2014		
52.225-12	Notice of Buy American Requirement-Construction Materials Under Trade Agreements.	May 2014		

DFARS Clauses Incorporated by Reference

Number	Title	Effective Date	Alternate/ Deviation	Variation Effective Date
252.204-7019	Notice of NIST SP 800-171 DoD Assessment Requirements.	Nov 2023		
252.215-7013	Supplies and Services Provided by Nontraditional Defense Contractors.	Jan 2023		

FAR Clauses Incorporated by Full Text

52.216-1 Type of Contract. (Apr 1984)

Type of Contract (Apr 1984)

The Government contemplates award of a firm fixed-price contract resulting from this solicitation.

(End of provision)

52.228-1 Bid Guarantee. (Sep 1996)

Bid Guarantee (Sept 1996)

(a) Failure to furnish a bid guarantee in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.

(b) The bidder shall furnish a bid guarantee in the form of a firm commitment, *e.g.,* bid bond supported by good and sufficient surety or sureties acceptable to the Government, postal money order, certified check, cashier's check, irrevocable letter of credit, or, under Treasury Department regulations, certain bonds or notes of the United States. The Contracting Officer will return bid guarantees, other than bid bonds-

(1) To unsuccessful bidders as soon as practicable after the opening of bids; and

(2) To the successful bidder upon execution of contractual documents and bonds (including any necessary coinsurance or reinsurance agreements), as required by the bid as accepted.

(c) The amount of the bid guarantee shall be twenty (20%) percent of the bid price or $3,000,000.00, whichever is less.

(d) If the successful bidder, upon acceptance of its bid by the Government within the period specified for acceptance, fails to execute all contractual documents or furnish executed bond(s) within 10 days after receipt of the forms by the bidder, the Contracting Officer may terminate the contract for default.

(e) In the event the contract is terminated for default, the bidder is liable for any cost of acquiring the work that exceeds the amount of its bid, and the bid guarantee is available to offset the difference.

(End of clause)

52.233-2 Service of Protest. (Sep 2006)

Service of Protest (Sept 2006)

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the Government Accountability Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from: Michelle Dalmado, Contracting Officer, U.S. Army Corps of Engineers, ATTN: CEMVN-CT, 7400 Leake Ave., New Orleans, LA 70118

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

(End of provision)

52.236-27 Site Visit (Construction). (Feb 1995)

Site Visit (Construction) (Feb 1995)

(a) The clauses at 52.236-2, Differing Site Conditions, and 52.236-3, Site Investigations and Conditions Affecting the Work, will be included in any contract awarded as a result of this solicitation. Accordingly, offerors or quoters are urged and expected to inspect the site where the work will be performed.

(b) Site visits may be arranged during normal duty hours by contacting:

Name: John Choate

Email Address: John.C.Choate@usace.army.mil

Telephone: (337) 737-2470

(End of Provision)

52.252-1 Solicitation Provisions Incorporated by Reference. (Feb 1998)

Solicitation Provisions Incorporated by Reference (Feb 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es):

https://www.acquisition.gov/

(End of provision)

52.252-3 Alterations in Solicitation. (Apr 1984)

Alterations in Solicitation (Apr 1984)

Portions of this solicitation are altered as follows:

____ ____ ____

(End of clause)

52.252-5 Authorized Deviations in Provisions. (Nov 2020)

Authorized Deviations in Provisions (Nov 2020)

(a) The use in this solicitation of any Federal Acquisition Regulation (48 CFR Chapter 1) provision with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the provision.

(b) The use in this solicitation of any Defense Federal Acquisition Regulation (48 CFR Chapter 2) provision with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of provision)

DFARS Clauses Incorporated by Full Text

252.215-7008 Only One Offer. **(Dec 2022)**

ONLY ONE OFFER (DEC 2022)

(a) *Cost or pricing data requirements*. After initial submission of offers, if the Contracting Officer notifies the Offeror that only one offer was received, the Offeror agrees to-

(1) Submit any additional cost or pricing data that is required in order to determine whether the price is fair and reasonable (10 U.S.C. 3705) or to comply with the statutory requirement for certified cost or pricing data (10 U.S.C. 3702 and FAR 15.403-3); and

(2) Except as provided in paragraph (b) of this provision, if the acquisition exceeds the certified cost or pricing data threshold and an exception to the requirement for certified cost or pricing data at FAR 15.403-1(b)(2) through (5) does not apply, certify all cost or pricing data in accordance with paragraph (c) of DFARS provision 252.215-7010, Requirements for Certified Cost or Pricing Data and Data Other Than Certified Cost or Pricing Data, of this solicitation.

(b) *Canadian Commercial Corporation*. If the Offeror is the Canadian Commercial Corporation, certified cost or pricing data are not required. If the Contracting Officer notifies the Canadian Commercial Corporation that additional data other than certified cost or pricing data are required in accordance with DFARS 225.870-4(c), the Canadian Commercial Corporation shall obtain and provide the following:

(1) Profit rate or fee (as applicable).

(2) Analysis provided by Public Works and Government Services Canada to the Canadian Commercial Corporation to determine a fair and reasonable price (comparable to the analysis required at FAR 15.404-1).

(3) Data other than certified cost or pricing data necessary to permit a determination by the U.S. Contracting Officer that the proposed price is fair and reasonable. Such data may include the identical types of data as certified cost or pricing data, consistent with Table 15-2 of 15.408, but without the certification.

(4) As specified in FAR 15.403-3(a)(4), an offeror who does not comply with a requirement to submit data that the U.S. Contracting Officer has deemed necessary to determine price reasonableness or cost realism is ineligible for award unless the head of the contracting activity determines that it is in the best interest of the Government to make the award to that offeror.

(c) *Subcontracts*. Unless the Offeror is the Canadian Commercial Corporation, the Offeror shall insert the substance of this provision, including this paragraph (c), in all subcontracts exceeding the simplified acquisition threshold defined in FAR part 2.

(End of provision)

"General Decision Number: LA20250053 07/04/2025

Superseded General Decision Number: LA20240053

State: Louisiana

Construction Type: Building

Counties: St Martin and Vermilion Counties in Louisiana.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

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)(1).

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:	Executive Order 14026 generally applies to the contract. The contractor must pay all covered workers at least $17.75 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 2025.
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:	Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least $13.30 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 2025.

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 http://www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2025
1	02/28/2025
2	06/20/2025
3	07/04/2025

ASBE0053-001 09/02/2024

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR	$ 32.66	9.86

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* CARP1098-017 07/01/2024

	Rates	Fringes
CARPENTER	$ 32.59	11.06

ENGI0406-002 07/01/2014

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Crane)	$ 23.46	8.35

CRANE PREMIUMS:
50-150 Tons $1.75
Over 150 Tons $2.25

IRON0623-020 01/01/2025

	Rates	Fringes
IRONWORKER, REINFORCING	$ 34.75	13.86

PAIN1244-011 12/01/2021

	Rates	Fringes
PAINTER (Spray)	$ 18.83	9.48

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* PLUM0060-003 06/02/2025

	Rates	Fringes
PIPEFITTER	$ 34.87	17.79

PLUM0198-004 12/08/2022

	Rates	Fringes
PLUMBER	$ 32.42	16.50

ROOF0317-001 12/01/2022

	Rates	Fringes
ROOFER	$ 23.04	9.34

SHEE0214-011 01/01/2024

	Rates	Fringes
SHEET METAL WORKER (Including HVAC Duct Installation)	$ 30.38	14.205

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* SULA2012-038 09/22/2014

	Rates	Fringes
BRICKLAYER	$ 20.00	0.00
CEMENT MASON/CONCRETE FINISHER	$ 16.24 **	2.56
ELECTRICIAN	$ 21.62	7.19
IRONWORKER, STRUCTURAL	$ 19.07	7.52
LABORER: Common or General	$ 12.31 **	0.00
LABORER: Mason Tender - Brick	$ 12.17 **	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 19.07	0.00
PAINTER (Brush and Roller)	$ 18.30	8.91
TILE SETTER	$ 20.00	0.00
TRUCK DRIVER: Dump Truck	$ 17.26 **	0.00

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

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($17.75) or 13658 ($13.30). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

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) (iii)).

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

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate 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. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the 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. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007

01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

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

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

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

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail 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 an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail 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 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.

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END OF GENERAL DECISION"

Section 00 45 00 - Representations and Certifications

FAR Clauses Incorporated by Reference

Number	Title	Effective Date	Alternate/ Deviation	Variation Effective Date
52.204-24	Representation Regarding Certain Telecommunications and Video Surveillance Services or Equipment.	Nov 2021		
52.204-26	Covered Telecommunications Equipment or Services-Representation.	Oct 2020		
52.209-7	Information Regarding Responsibility Matters.	Oct 2018		
52.209-13	Violation of Arms Control Treaties or Agreements-Certification.	Nov 2021		
52.219-2	Equal Low Bids.	Oct 1995		
52.225-25	Prohibition on Contracting With Entities Engaging in Certain Activities or Transactions Relating to Iran-Representation and Certifications.	Jun 2020		
52.229-12	Tax on Certain Foreign Procurements.	Feb 2021		

DFARS Clauses Incorporated by Reference

Number	Title	Effective Date	Alternate/ Deviation	Variation Effective Date
252.203-7005	Representation Relating to Compensation of Former DoD Officials.	Sep 2022		
252.204-7008	Compliance with Safeguarding Covered Defense Information Controls.	Oct 2016		
252.204-7016	Covered Defense Telecommunications Equipment or Services-Representation.	Dec 2019		
252.204-7017	Prohibition on the Acquisition of Covered Defense Telecommunications Equipment or Services-Representation.	May 2021		
252.225-7055	Representation Regarding Business Operations with the Maduro Regime.	May 2022		
252.225-7057	Preaward Disclosure of Employment of Individuals Who Work in the People's Republic of China.	Aug 2022		
252.225-7059	Prohibition on Certain Procurements from the Xinjiang Uyghur Autonomous Region-Representation.	Jun 2023		

FAR Clauses Incorporated by Full Text

52.204-29 Federal Acquisition Supply Chain Security Act Orders-Representation and Disclosures. (Dec 2023)

Federal Acquisition Supply Chain Security Act Orders-Representation and Disclosures (Dec 2023)

(a) Definitions. As used in this provision, Covered article, FASCSA order, Intelligence community, National security system, Reasonable inquiry, Sensitive compartmented information, Sensitive compartmented information system, and Source have the meaning provided in the clause 52.204-30, Federal Acquisition Supply Chain Security Act Orders-Prohibition.

(b) Prohibition. Contractors are prohibited from providing or using as part of the performance of the contract any covered article, or any products or services produced or provided by a source, if the prohibition is set out in an applicable Federal Acquisition Supply Chain Security Act (FASCSA) order, as described in paragraph (b)(1) of FAR 52.204-30, Federal Acquisition Supply Chain Security Act Orders-Prohibition.

(c) Procedures.

(1) The Offeror shall search for the phrase "FASCSA order" in the System for Award Management (SAM)(https://www.sam.gov) for any covered article, or any products or services produced or provided by a source, if there is an applicable FASCSA order described in paragraph (b)(1) of FAR 52.204-30, Federal Acquisition Supply Chain Security Act Orders-Prohibition.

(2) The Offeror shall review the solicitation for any FASCSA orders that are not in SAM, but are effective and do apply to the solicitation and resultant contract (see FAR 4.2303(c)(2)).

(3) FASCSA orders issued after the date of solicitation do not apply unless added by an amendment to the solicitation.

(d) Representation. By submission of this offer, the offeror represents that it has conducted a reasonable inquiry, and that the offeror does not propose to provide or use in response to this solicitation any covered article, or any products or services produced or provided by a source, if the covered article or the source is prohibited by an applicable FASCSA order in effect on the date the solicitation was issued, except as waived by the solicitation, or as disclosed in paragraph (e).

(e) Disclosures. The purpose for this disclosure is so the Government may decide whether to issue a waiver. For any covered article, or any products or services produced or provided by a source, if the covered article or the source is subject to an applicable FASCSA order, and the Offeror is unable to represent compliance, then the Offeror shall provide the following information as part of the offer:

(1) Name of the product or service provided to the Government;

(2) Name of the covered article or source subject to a FASCSA order;

(3) If applicable, name of the vendor, including the Commercial and Government Entity code and unique entity identifier (if known), that supplied the covered article or the product or service to the Offeror;

(4) Brand;

(5) Model number (original equipment manufacturer number, manufacturer part number, or wholesaler number);

(6) Item description;

(7) Reason why the applicable covered article or the product or service is being provided or used;

(f) Executive agency review of disclosures. The contracting officer will review disclosures provided in paragraph (e) to determine if any waiver may be sought. A contracting officer may choose not to pursue a waiver for covered articles or sources otherwise subject to a FASCSA order and may instead make an award to an offeror that does not require a waiver.

(End of provision)

52.209-11 Representation by Corporations Regarding Delinquent Tax Liability or a Felony Conviction under any Federal Law. (Feb 2016)

Representation by Corporations Regarding Delinquent Tax Liability or a Felony Conviction under any Federal Law (Feb 2016)

(a) As required by sections 744 and 745 of Division E of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235), and similar provisions, if contained in subsequent appropriations acts, the Government will not enter into a contract with any corporation that-

(1) Has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, where the awarding agency is aware of the unpaid tax liability, unless an agency has considered suspension or debarment of the corporation and made a determination that suspension or debarment is not necessary to protect the interests of the Government; or

(2) Was convicted of a felony criminal violation under any Federal law within the preceding 24 months, where the awarding agency is aware of the conviction, unless an agency has considered suspension or debarment of the corporation and made a determination that this action is not necessary to protect the interests of the Government.

(b) The Offeror represents that-

(1) It is [ ] is not [ ] a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability; and

(2) It is [ ] is not [ ] a corporation that was convicted of a felony criminal violation under a Federal law within the preceding 24 months.

(End of provision)

DFARS Clauses Incorporated by Full Text

252.204-7007 Alternate A, Annual Representations and Certifications. (Oct 2025) Alternate A (Oct 2025)

ALTERNATE A, ANNUAL REPRESENTATIONS AND CERTIFICATIONS (OCT 2025)

Substitute the following paragraphs (b), (d), and (e) for paragraphs (b) and (d) of the provision at FAR 52.204-8:

(b)(1) If the provision at 52.204-7, System for Award Management, is included in this solicitation, paragraph (e) of this provision applies.

(2) If the provision at 52.204-7, System for Award Management, is not included in this solicitation, and the Offeror has an active registration in the System for Award Management (SAM), the Offeror may choose to use paragraph (e) of this provision instead of completing the corresponding individual representations and certifications in the solicitation. The Offeror shall indicate which option applies by checking one of the following boxes:

[ ] (i) Paragraph (e) applies.

[ ] (ii) Paragraph (e) does not apply and the Offeror has completed the individual representations and certifications in the solicitation.

(d)(1) The following representations or certifications in the SAM database are applicable to this solicitation as indicated:

(i) 252.204-7016, Covered Defense Telecommunications Equipment or Services-Representation. Applies to all solicitations.

(ii) 252.216-7008, Economic Price Adjustment-Wage Rates or Material Prices Controlled by a Foreign Government. Applies to solicitations for fixed-price supply and service contracts when the contract is to be performed wholly or in part in a foreign country, and a foreign government controls wage rates or material prices and may during contract performance impose a mandatory change in wages or prices of materials.

(iii) 252.225-7042, Authorization to Perform. Applies to all solicitations when performance will be wholly or in part in a foreign country.

(iv) 252.225-7049, Prohibition on Acquisition of Certain Foreign Commercial Satellite Services-Representations. Applies to solicitations for the acquisition of commercial satellite services.

(v) 252.225-7050, Disclosure of Ownership or Control by the Government of a Country that is a State Sponsor of Terrorism. Applies to all solicitations expected to result in contracts of $200,000 or more.

(vi) 252.229-7012, Tax Exemptions (Italy)-Representation. Applies to solicitations and contracts when contract performance will be in Italy.

(vii) 252.229-7013, Tax Exemptions (Spain)-Representation. Applies to solicitations and contracts when contract performance will be in Spain.

(2) The following representations or certifications in SAM are applicable to this solicitation as indicated by the Contracting Officer: [Contracting Officer check as appropriate.]

[ ](i) 252.209-7002, Disclosure of Ownership or Control by a Foreign Government.

[ ](ii) 252.225-7000, Buy American-Balance of Payments Program Certificate.

[ ](iii) 252.225-7020, Trade Agreements Certificate.

[ ] Use with Alternate I.

[ ](iv) 252.225-7031, Secondary Arab Boycott of Israel.

[ ](v) 252.225-7035, Buy American-Free Trade Agreements-Balance of Payments Program Certificate.

[ ] Use with Alternate I.

[ ] Use with Alternate II.

[ ] Use with Alternate III.

[ ] Use with Alternate IV.

[ ] Use with Alternate V.

[ ](vi) 252.226-7002, Representation for Demonstration Project for Contractors Employing Persons with Disabilities.

[ ](vii) 252.232-7015, Performance-Based Payments-Representation.

(e) The Offeror has completed the annual representations and certifications electronically via the SAM website at https://www.sam.gov. After reviewing the SAM database information, the Offeror verifies by submission of the offer that the representations and certifications currently posted electronically that apply to this solicitation as indicated in FAR 52.204-8(c) and paragraph (d) of this provision have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer, and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below [Offeror to insert changes, identifying change by provision number, title, date]. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

FAR/DFARS Provision #	Title	Date	Change
____	____	____	____

Any changes provided by the Offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications located in the SAM database.

(End of provision)

Section 00 70 00 - Conditions of the Contract

FAR Clauses Incorporated by Reference

Number	Title	Effective Date	Alternate/ Deviation	Variation Effective Date
52.222-3	Convict Labor.	Jun 2003		
52.222-7	Withholding of Funds.	May 2014		
52.222-9	Apprentices and Trainees. (DEVIATION 2025-O0003)	Jul 2005	Deviation 2025-O0003	Mar 2025
52.223-10	Waste Reduction Program. (DEVIATION 2025-O0004)	May 2024	Deviation 2025-O0004	Mar 2025
52.223-23	Sustainable Products and Services. (DEVIATION 2025-O0004)	May 2024	Deviation 2025-O0004	Mar 2025
52.228-11	Pledges of Assets (DEVIATION 2020-O0016)	Feb 2021	Deviation 2020-O0016	Apr 2020
52.240-1	Prohibition on Unmanned Aircraft Systems Manufactured or Assembled by American Security Drone Act-Covered Foreign Entities.	Nov 2024		
52.244-6	Subcontracts for Commercial Products and Commercial Services. (DEVIATION 2025-O0003)	Oct 2025	Deviation 2025-O0003	Mar 2025

DFARS Clauses Incorporated by Reference

Number	Title	Effective Date	Alternate/ Deviation	Variation Effective Date
252.204-7012	Safeguarding Covered Defense Information and Cyber Incident Reporting. (DEVIATION 2024-O0013 REVISION 1)	May 2024	Deviation 2024-O0013	May 2024
252.226-7003	Drug-Free Work Force.	Aug 2024		
252.232-7004	DoD Progress Payment Rates (DEVIATION 2020-O0010)	Oct 2014	Deviation 2020-O0010	Mar 2020

FAR Clauses Incorporated by Full Text

52.204-8 Annual Representations and Certifications. (DEVIATION 2025-O0003 and 2025-O0004) (Oct 2025) Deviation 2025-O0004 (Mar 2025)

Annual Representations and Certifications (MAR 2025)(DEVIATION 2025-O0003 and 2025-O0004)

(a)

(1) The North American Industry Classification System (NAICS) code for this acquisition is 236220.

(2) The small business size standard is $45,000,000.00.

(3) The small business size standard for a concern that submits an offer, other than on a construction or service acquisition, but proposes to furnish an end item that it did not itself manufacture, process, or produce is 500 employees, or 150 employees for information technology value-added resellers under NAICS code 541519 if the acquisition-

(i) Is set aside for small business and has a value above the simplified acquisition threshold;

(ii) Uses the HUBZone price evaluation preference regardless of dollar value, unless the offeror waives the price evaluation preference; or

(iii) Is an 8(a), HUBZone, service-disabled veteran-owned, economically disadvantaged women-owned, or women-owned small business set-aside or sole-source award regardless of dollar value.

(b)

(1) If the provision at 52.204-7, System for Award Management, is included in this solicitation, paragraph (d) of this provision applies.

(2) If the provision at 52.204-7, System for Award Management, is not included in this solicitation, and the Offeror has an active registration in the System for Award Management (SAM), the Offeror may choose to use paragraph (d) of this provision instead of completing the corresponding individual representations and certifications in the solicitation. The Offeror shall indicate which option applies by checking one of the following boxes:

(i) Paragraph (d) applies.

(ii) Paragraph (d) does not apply and the offeror has completed the individual representations and certifications in the solicitation.

(c)

(1) The following representations or certifications in SAM are applicable to this solicitation as indicated:

(i) 52.203-2, Certificate of Independent Price Determination. This provision applies to solicitations when a firm-fixed-price contract or fixed-price contract with economic price adjustment is contemplated, unless-

(A) The acquisition is to be made under the simplified acquisition procedures in part 13;

(B) The solicitation is a request for technical proposals under two-step sealed bidding procedures; or

(C) The solicitation is for utility services for which rates are set by law or regulation.

(ii) 52.203-11, Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions. This provision applies to solicitations expected to exceed $150,000.

(iii) 52.203-18, Prohibition on Contracting with Entities that Require Certain Internal Confidentiality Agreements or Statements-Representation. This provision applies to all solicitations.

(iv) 52.204-3, Taxpayer Identification. This provision applies to solicitations that do not include the provision at 52.204-7, System for Award Management.

(v) 52.204-5, Women-Owned Business (Other Than Small Business). This provision applies to solicitations that-

(A) Are not set aside for small business concerns;

(B) Exceed the simplified acquisition threshold; and

(C) Are for contracts that will be performed in the United States or its outlying areas.

(vi) 52.204-26, Covered Telecommunications Equipment or Services-Representation. This provision applies to all solicitations.

(vii) 52.209-2, Prohibition on Contracting with Inverted Domestic Corporations-Representation.

(viii) 52.209-5, Certification Regarding Responsibility Matters. This provision applies to solicitations where the contract value is expected to exceed the simplified acquisition threshold.

(ix) 52.209-11, Representation by Corporations Regarding Delinquent Tax Liability or a Felony Conviction under any Federal Law. This provision applies to all solicitations.

(x) 52.214-14, Place of Performance-Sealed Bidding. This provision applies to invitations for bids except those in which the place of performance is specified by the Government.

(xi) 52.215-6, Place of Performance. This provision applies to solicitations unless the place of performance is specified by the Government.

(xii) 52.219-1, Small Business Program Representations (Basic, Alternates I, and II). This provision applies to solicitations when the contract is for supplies to be delivered or services to be performed in the United States or its outlying areas, or when the contracting officer has applied part 19 in accordance with 19.000(b)(1)(ii).

(A) The basic provision applies when the solicitations are issued by other than DoD, NASA, and the Coast Guard.

(B) The provision with its Alternate I applies to solicitations issued by DoD, NASA, or the Coast Guard.

(C) The provision with its Alternate II applies to solicitations that will result in a multiple-award contract with more than one NAICS code assigned.

(xiii) 52.219-2, Equal Low Bids. This provision applies to solicitations when contracting by sealed bidding and the contract is for supplies to be delivered or services to be performed in the United States or its outlying areas, or when the contracting officer has applied part 19 in accordance with 19.000(b)(1)(ii).

(xiv) [Reserved]

(xv) [Reserved]

(xvi) 52.222-38, Compliance with Veterans' Employment Reporting Requirements. This provision applies to solicitations when it is anticipated the contract award will exceed the simplified acquisition threshold and the contract is not for acquisition of commercial products or commercial services.

(xvii) 52.223-1, Biobased Product Certification. This provision applies to solicitations that require the delivery or specify the use of biobased products in USDA-designated product categories; or include the clause at 52.223-2, Reporting of Biobased Products Under Service and Construction Contracts.

(xviii) 52.223-4, Recovered Material Certification. This provision applies to solicitations that are for, or specify the use of, EPA-designated items.

(xix) [Reserved]

(xx) 52.225-2, Buy American Certificate. This provision applies to solicitations containing the clause at 52.225-1.

(xxi) 52.225-4, Buy American-Free Trade Agreements-Israeli Trade Act Certificate. (Basic, Alternates II and III.) This provision applies to solicitations containing the clause at 52.225-3.

(A) If the acquisition value is less than $50,000, the basic provision applies.

(B) If the acquisition value is $50,000 or more but is less than $100,000, the provision with its Alternate II applies.

(C) If the acquisition value is $100,000 or more but is less than $102,280, the provision with its Alternate III applies.

(xxii) 52.225-6, Trade Agreements Certificate. This provision applies to solicitations containing the clause at 52.225-5.

(xxiii) 52.225-20, Prohibition on Conducting Restricted Business Operations in Sudan-Certification. This provision applies to all solicitations.

(xxiv) 52.225-25, Prohibition on Contracting with Entities Engaging in Certain Activities or Transactions Relating to Iran-Representation and Certifications. This provision applies to all solicitations.

(xxv) 52.226-2, Historically Black College or University and Minority Institution Representation. This provision applies to solicitations for research, studies, supplies, or services of the type normally acquired from higher educational institutions.

(2) The following representations or certifications are applicable as indicated by the Contracting Officer:

[*Contracting Officer check as appropriate.*]

X (i) 52.204-17, Ownership or Control of Offeror.

X (ii) 52.204-20, Predecessor of Offeror.

(iii) 52.222-18, Certification Regarding Knowledge of Child Labor for Listed End Products.

(iv) 52.222-48, Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment- Certification.

(v) 52.222-52, Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services-Certification.

(vi) 52.227-6, Royalty Information.

(A) Basic.

(B) Alternate I.

(vii) 52.227-15, Representation of Limited Rights Data and Restricted Computer Software.

(d) The offeror has completed the annual representations and certifications electronically in SAM website accessed through https://www.sam.gov. After reviewing the SAM information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically that apply to this solicitation as indicated in paragraph (c) of this provision have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below [*offeror to insert changes, identifying change by clause number, title, date*]. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

FAR Clause # Title Date Change
_____

Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted on SAM.

(End of provision)

52.219-14 Limitations on Subcontracting (DEVIATION 2021-O0008) (Oct 2022) Deviation 2021-O0008 (Feb 2023)

LIMITATIONS ON SUBCONTRACTING (FEB 2023) (DEVIATION 2021-O0008)

(a) This clause does not apply to the unrestricted portion of a partial set-aside.

(b) *Definition. Similarly situated entity*, as used in this clause, means a first-tier subcontractor, including an independent contractor, that--

(1) Has the same small business program status as that which qualified the prime contractor for the award (e.g., for a small business set-aside contract, any small business concern, without regard to its socioeconomic status); and

(2) Is considered small for the size standard under the North American Industry Classification System (NAICS) code the prime contractor assigned to the subcontract.

(c) *Applicability.* This clause applies only to--

(1) Contracts that have been set aside for any of the small business concerns identified in 19.000(a)(3);

(2) Part or parts of a multiple-award contract that have been set aside for any of the small business concerns identified in 19.000(a)(3);

(3) Contracts that have been awarded on a sole-source basis in accordance with subparts 19.8, 19.13, 19.14, and 19.15;

(4) Orders expected to exceed the simplified acquisition threshold and that are--

(i) Set aside for small business concerns under multiple-award contracts, as described in 8.405-5 and 16.505(b)(2)(i)(F); or

(ii) Issued directly to small business concerns under multiple-award contracts as described in 19.504(c)(1)(ii);

(5) Orders, regardless of dollar value, that are--

(i) Set aside in accordance with subparts 19.8, 19.13, 19.14, or 19.15 under multiple-award contracts, as described in 8.405-5 and 16.505(b)(2)(i)(F); or

(ii) Issued directly to concerns that qualify for the programs described in subparts 19.8, 19.13, 19.14, or 19.15 under multiple-award contracts, as described in 19.504(c)(1)(ii); and

(6) Contracts using the HUBZone price evaluation preference to award to a HUBZone small business concern unless the concern waived the evaluation preference.

(d) *Independent contractors.* An independent contractor shall be considered a subcontractor.

(e) *Limitations on subcontracting.* By submission of an offer and execution of a contract, the Contractor agrees that in performance of a contract assigned a North American Industry Classification System (NAICS) code for--

(1) Services (except construction), it will not pay more than 50 percent of the amount paid by the Government for contract performance, excluding certain other direct costs and certain work performed outside the United States (see paragraph (e)(1)(i)), to subcontractors that are not similarly situated entities. Any work that a similarly situated entity further subcontracts will count towards the prime contractor's 50 percent subcontract amount that cannot be exceeded. When a contract includes both services and supplies, the 50 percent limitation shall apply only to the service portion of the contract. The following services may be excluded from the 50 percent limitation:

(i) Other direct costs, to the extent they are not the principal purpose of the acquisition and small business concerns do not provide the service. Examples include airline travel, work performed by a transportation or disposal entity under a contract assigned the environmental remediation NAICS code 562910), cloud computing services, or mass media purchases.

(ii) Work performed outside the United States on awards made pursuant to the Foreign Assistance Act of 1961, or work performed outside the United States required to be performed by a local contractor.

(2) Supplies (other than procurement from a nonmanufacturer of such supplies), it will not pay more than 50 percent of the amount paid by the Government for contract performance, excluding the cost of materials, to subcontractors that are not similarly situated entities. Any work that a similarly situated entity further subcontracts will count towards the prime contractor's 50 percent subcontract amount that cannot be exceeded. When a contract includes both supplies and services, the 50 percent limitation shall apply only to the supply portion of the contract;

(3) General construction, it will not pay more than 85 percent of the amount paid by the Government for contract performance, excluding the cost of materials, to subcontractors that are not similarly situated entities. Any work that a similarly situated entity further subcontracts will count towards the prime contractor's 85 percent subcontract amount that cannot be exceeded; or

(4) Construction by special trade contractors, it will not pay more than 75 percent of the amount paid by the Government for contract performance, excluding the cost of materials, to subcontractors that are not similarly situated entities. Any work that a similarly situated entity further subcontracts will count towards the prime contractor's 75 percent subcontract amount that cannot be exceeded.

(f) The Contractor shall comply with the limitations on subcontracting as follows:

(1) For contracts, in accordance with paragraphs (c)(1), (2), (3) and (6) of this clause--

[Contracting Officer check as appropriate.]

X By the end of the base term of the contract and then by the end of each subsequent option period; or

By the end of the performance period for each order issued under the contract.

(2) For orders, in accordance with paragraphs (c)(4) and (5) of this clause, by the end of the performance period for the order.

(g) A joint venture agrees that, in the performance of the contract, the applicable percentage specified in paragraph (e) of this clause will be performed by the aggregate of the joint venture participants.

(1) In a joint venture comprised of a small business protege and its mentor approved by the Small Business Administration, the small business protege shall perform at least 40 percent of the work performed by the joint venture. Work performed by the small business protege in the joint venture must be more than administrative functions.

(2) In an 8(a) joint venture, the 8(a) participant(s) shall perform at least 40 percent of the work performed by the joint venture. Work performed by the 8(a) participants in the joint venture must be more than administrative functions.

(End of clause)

52.228-15 Performance and Payment Bonds-Construction (Deviation 2020-O0016) (Jun 2020) Deviation 2020-O0016 (Apr 2020)

PERFORMANCE AND PAYMENT BONDS-CONSTRUCTION (APR 2020) (DEVIATION 2020-O0016)

(a) Definitions. As used in this clause-

Original contract price means the award price of the contract; or, for requirements contracts, the price payable for the estimated total quantity; or, for indefinite-quantity contracts, the price payable for the specified minimum quantity. Original contract price does not include the price of any options, except those options exercised at the time of contract award.

(b) Amount of required bonds. Unless the resulting contract price is $150,000 or less, the successful offeror shall furnish performance and payment bonds to the Contracting Officer as follows:

(1) Performance bonds (Standard Form 25, except that no seal is required). The penal amount of performance bonds at the time of contract award shall be 100 percent of the original contract price.

(2) Payment bonds (Standard Form 25A, except that no seal is required). The penal amount of payment bonds at the time of contract award shall be 100 percent of the original contract price.

(3) Additional bond protection.

(i) The Government may require additional performance and payment bond protection if the contract price is increased. The increase in protection generally will equal 100 percent of the increase in contract price.

(ii) The Government may secure the additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(c) Furnishing executed bonds. The Contractor shall furnish all executed bonds, including any necessary reinsurance agreements, to the Contracting Officer, within the time period specified in the Bid Guarantee provision of the solicitation, or otherwise specified by the Contracting Officer, but in any event, before starting work.

(d) Surety or other security for bonds. The bonds shall be in the form of firm commitment, supported by corporate sureties whose names appear on the list contained in Treasury Department Circular 570, individual sureties, or by other acceptable security such as postal money order, certified check, cashier's check, irrevocable letter of credit, or, in accordance with Treasury Department regulations, certain bonds or notes of the United States. Treasury Circular 570 is published in the Federal Register or may be obtained from the U.S. Department of the Treasury, Financial Management Service, Surety Bond Branch, 3700 East West Highway, Room 6F01, Hyattsville, MD 20782. Or via the internet at http://www.fms.treas.gov/c570/.

(e) Notice of subcontractor waiver of protection (40 U.S.C. 3133(c)). Any waiver of the right to sue on the payment bond is void unless it is in writing, signed by the person whose right is waived, and executed after such person has first furnished labor or material for use in the performance of the contract.

(End of clause)

52.236-1 Performance of Work by the Contractor. (Apr 1984)

Performance of Work by the Contractor (Apr 1984)

The Contractor shall perform on the site, and with its own organization, work equivalent to at least twenty (20%) percent of the total amount of work to be performed under the contract. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government.

(End of clause)

DFARS Clauses Incorporated by Full Text

252.219-7010 Notification of Competition Limited to Eligible 8(a) Participants-Partnership Agreement. (Oct 2019)

NOTIFICATION OF COMPETITION LIMITED TO ELIGIBLE 8(A) PARTICIPANTS-PARTNERSHIP AGREEMENT (OCT 2019)

(a) Offers are solicited only from small business concerns expressly certified by the Small Business Administration (SBA) for participation in SBA's 8(a) Program and which meet the following criteria at the time of submission of offer:

(1) The Offeror is in conformance with the 8(a) support limitation set forth in its approved business plan.

(2) The Offeror is in conformance with the Business Activity Targets set forth in its approved business plan or any remedial action directed by SBA.

(3) If the competition is to be limited to 8(a) concerns within one or more specific SBA regions or districts, then the offeror's approved business plan is on the file and serviced by N/A.

(b) By submission of its offer, the Offeror represents that it meets all of the criteria set forth in paragraph (a) of this clause.

(c) Any award resulting from this solicitation will be made directly by the Contracting Officer to the successful 8(a) offeror selected through the evaluation criteria set forth in this solicitation.

(d)(1) Unless SBA has waived the requirements of paragraphs (d)(1)(i) through (iii) and (d)(2) of this clause in accordance with 13 CFR 121.1204, a small business concern that provides an end item it did not manufacture, process, or produce, shall-

(i) Provide an end item that a small business has manufactured, processed, or produced in the United States or its outlying areas; for kit assemblers, see paragraph (d)(2) of this clause instead;

(ii) Be primarily engaged in the retail or wholesale trade and normally sell the type of item being supplied; and

(iii) Take ownership or possession of the item(s) with its personnel, equipment, or facilities in a manner consistent with industry practice; for example, providing storage, transportation, or delivery.

(2) When the end item being acquired is a kit of supplies, at least 50 percent of the total cost of the components of the kit shall be manufactured, processed, or produced by small businesses in the United States or its outlying areas.

(3) The requirements of paragraphs (d)(1)(i) through (iii) and (d)(2) of this clause do not apply to construction or service contracts.

(e) The contractor will notify the U.S. Army Corps of Engineers, New Orleans District Contracting Officer in writing immediately upon entering an agreement (either oral or written) to transfer all or part of its stock or other ownership interest to any other party.

(End of clause)

Section 00 72 00 - General Conditions

FAR Clauses Incorporated by Reference

Number	Title	Effective Date	Alternate/ Deviation	Variation Effective Date
52.202-1	Definitions.	Jun 2020		
52.203-3	Gratuities.	Apr 1984		
52.203-5	Covenant Against Contingent Fees.	May 2014		
52.203-6	Restrictions on Subcontractor Sales to the Government.	Jun 2020		
52.203-7	Anti-Kickback Procedures.	Jun 2020		
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity.	May 2014		
52.203-10	Price or Fee Adjustment for Illegal or Improper Activity.	May 2014		
52.203-12	Limitation on Payments to Influence Certain Federal Transactions.	Jun 2020		
52.203-13	Contractor Code of Business Ethics and Conduct.	Nov 2021		
52.203-19	Prohibition on Requiring Certain Internal Confidentiality Agreements or Statements.	Jan 2017		
52.204-10	Reporting Executive Compensation and First-Tier Subcontract Awards.	Jun 2020		
52.204-13	System for Award Management Maintenance.	Oct 2018		
52.204-18	Commercial and Government Entity Code Maintenance.	Aug 2020		
52.204-19	Incorporation by Reference of Representations and Certifications.	Dec 2014		
52.204-23	Prohibition on Contracting for Hardware, Software, and Services Developed or Provided by Kaspersky Lab Covered Entities.	Dec 2023		
52.204-25	Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.	Nov 2021		
52.204-27	Prohibition on a ByteDance Covered Application.	Jun 2023		
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, Proposed for Debarment, or Voluntarily Excluded	Jan 2025		
52.209-9	Updates of Publicly Available Information Regarding Responsibility Matters.	Oct 2018		
52.209-10	Prohibition on Contracting with Inverted Domestic Corporations.	Nov 2015		
52.210-1	Market Research.	Nov 2021		
52.211-18	Variation in Estimated Quantity.	Apr 1984		
52.214-18	Preparation of Bids-Construction.	Apr 1984		
52.214-19	Contract Award-Sealed Bidding-Construction.	Aug 1996		
52.219-6	Notice of Total Small Business Set-Aside.	Nov 2020		
52.219-8	Utilization of Small Business Concerns.	Jan 2025		
52.222-4	Contract Work Hours and Safety Standards -Overtime Compensation.	May 2018		
52.222-6	Construction Wage Rate Requirements.	Aug 2018		
52.222-8	Payrolls and Basic Records.	Jul 2021		
52.222-10	Compliance with Copeland Act Requirements.	Feb 1988		
52.222-11	Subcontracts (Labor Standards).	May 2014		
52.222-12	Contract Termination-Debarment.	May 2014		
52.222-13	Compliance with Construction Wage Rate Requirements and Related Regulations.	May 2014		
52.222-14	Disputes Concerning Labor Standards.	Feb 1988		
52.222-15	Certification of Eligibility.	May 2014		
52.222-35	Equal Opportunity for Veterans.	Jun 2020		
52.222-36	Equal Opportunity for Workers with Disabilities.	Jun 2020		
52.222-37	Employment Reports on Veterans.	Jun 2020		
52.222-40	Notification of Employee Rights Under the National Labor Relations Act.	Dec 2010		
52.222-50	Combating Trafficking in Persons.	Oct 2025		
52.222-54	Employment Eligibility Verification.	Jan 2025		
52.222-55	Minimum Wages for Contractor Workers Under Executive Order 14026.	Jan 2022		
52.222-62	Paid Sick Leave Under Executive Order 13706.	Jan 2022		
52.223-5	Pollution Prevention and Right-to-Know Information.	May 2024		
52.223-21	Foams.	May 2024		
52.225-13	Restrictions on Certain Foreign Purchases.	Feb 2021		
52.226-7	Drug-Free Workplace.	May 2024		
52.226-8	Encouraging Contractor Policies to Ban Text Messaging While Driving.	May 2024		
52.227-1	Authorization and Consent.	Jun 2020		
52.227-2	Notice and Assistance Regarding Patent and Copyright Infringement.	Jun 2020		
52.227-4	Patent Indemnity-Construction Contracts.	Dec 2007		
52.228-2	Additional Bond Security.	Oct 1997		
52.228-5	Insurance-Work on a Government Installation.	Jan 1997		
52.228-14	Irrevocable Letter of Credit.	Nov 2014		
52.229-3	Federal, State, and Local Taxes.	Feb 2013		
52.229-11	Tax on Certain Foreign Procurements-Notice and Representation.	Jun 2020		
52.232-17	Interest.	May 2014		
52.232-23	Assignment of Claims.	May 2014		
52.232-27	Prompt Payment for Construction Contracts.	Jan 2017		
52.232-33	Payment by Electronic Funds Transfer-System for Award Management.	Oct 2018		

52.232-39	Unenforceability of Unauthorized Obligations.	Jun 2013		
52.232-40	Providing Accelerated Payments to Small Business Subcontractors.	Mar 2023		
52.233-1	Disputes.	May 2014		
52.233-3	Protest after Award.	Aug 1996		
52.233-4	Applicable Law for Breach of Contract Claim.	Oct 2004		
52.236-2	Differing Site Conditions.	Apr 1984		
52.236-3	Site Investigation and Conditions Affecting the Work.	Apr 1984		
52.236-5	Material and Workmanship.	Apr 1984		
52.236-6	Superintendence by the Contractor.	Apr 1984		
52.236-7	Permits and Responsibilities.	Nov 1991		
52.236-8	Other Contracts.	Apr 1984		
52.236-9	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements.	Apr 1984		
52.236-10	Operations and Storage Areas.	Apr 1984		
52.236-11	Use and Possession Prior to Completion.	Apr 1984		
52.236-12	Cleaning Up.	Apr 1984		
52.236-13	Accident Prevention.	Nov 1991		
52.236-14	Availability and Use of Utility Services.	Apr 1984		
52.236-15	Schedules for Construction Contracts.	Apr 1984		
52.236-16	Quantity Surveys.	Apr 1984		
52.236-17	Layout of Work.	Apr 1984		
52.236-21	Specifications and Drawings for Construction.	Feb 1997		
52.236-26	Preconstruction Conference.	Feb 1995		
52.242-13	Bankruptcy.	Jul 1995		
52.242-14	Suspension of Work.	Apr 1984		
52.243-4	Changes.	Jun 2007		
52.246-12	Inspection of Construction.	Aug 1996		
52.246-21	Warranty of Construction.	Mar 1994		
52.249-2	Termination for Convenience of the Government (Fixed-Price). (Alternate I)	Apr 2012	Alternate I	Sep 1996
52.249-10	Default (Fixed-Price Construction).	Apr 1984		

DFARS Clauses Incorporated by Reference

Number	Title	Effective Date	Alternate/ Deviation	Variation Effective Date
252.201-7000	Contracting Officer's Representative.	Dec 1991		
252.203-7000	Requirements Relating to Compensation of Former DoD Officials.	Sep 2011		
252.203-7001	Prohibition on Persons Convicted of Fraud or Other Defense-Contract-Related Felonies.	Jan 2023		
252.203-7002	Requirement to Inform Employees of Whistleblower Rights.	Dec 2022		
252.203-7003	Agency Office of the Inspector General.	Aug 2019		
252.203-7004	Display of Hotline Posters.	Jan 2023		
252.204-7003	Control of Government Personnel Work Product.	Apr 1992		
252.204-7018	Prohibition on the Acquisition of Covered Defense Telecommunications Equipment or Services.	Jan 2023		
252.204-7020	NIST SP 800-171 DoD Assessment Requirements.	Nov 2023		
252.209-7004	Subcontracting with Firms that are Owned or Controlled by the Government of a Country that is a State Sponsor of Terrorism.	May 2019		
252.222-7006	Restrictions on the Use of Mandatory Arbitration Agreements.	Jan 2023		
252.223-7006	Prohibition on Storage, Treatment, and Disposal of Toxic or Hazardous Materials.	Sep 2014		
252.223-7008	Prohibition of Hexavalent Chromium.	Jan 2023		
252.225-7012	Preference for Certain Domestic Commodities.	Apr 2022		
252.225-7048	Export-Controlled Items.	Jun 2013		
252.225-7056	Prohibition Regarding Business Operations with the Maduro Regime.	Jan 2023		
252.225-7058	Postaward Disclosure of Employment of Individuals Who Work in the People's Republic of China.	Jan 2023		
252.225-7060	Prohibition on Certain Procurements from the Xinjiang Uyghur Autonomous Region.	Jun 2023		
252.226-7001	Utilization of Indian Organizations, Indian-Owned Economic Enterprises, and Native Hawaiian Small Business Concerns.	Jan 2023		
252.232-7003	Electronic Submission of Payment Requests and Receiving Reports.	Dec 2018		
252.232-7010	Levies on Contract Payments.	Dec 2006		
252.236-7000	Modification Proposals--Price Breakdown.	Dec 1991		
252.236-7002	Obstruction of Navigable Waterways.	Dec 1991		
252.243-7001	Pricing of Contract Modifications.	Dec 1991		
252.243-7002	Requests for Equitable Adjustment.	Dec 2022		
252.244-7000	Subcontracts for Commercial Products or Commercial Services.	Nov 2023		

FAR Clauses Incorporated by Full Text

52.211-10 Commencement, Prosecution, and Completion of Work. (Apr 1984)

Commencement, Prosecution, and Completion of Work (Apr 1984)

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than 359 calendar days after the date of receipt by him of notice to proceed. The time stated for completion shall include final cleanup of the premises.

(End of clause)

52.211-12 Liquidated Damages-Construction. (Sep 2000)

Liquidated Damages-Construction (Sept 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of $4,310.00 for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of clause)

52.219-28 Postaward Small Business Program Rerepresentation. (Jan 2025)

Postaward Small Business Program Rerepresentation (Jan 2025)

(a) Definitions. As used in this clause-

Long-term contract means a contract of more than five years in duration, including options. However, the term does not include contracts that exceed five years in duration because the period of performance has been extended for a cumulative period not to exceed six months under the clause at 52.217-8, Option to Extend Services, or other appropriate authority.

Small business concern-

(1) Means a concern, including its affiliates, that is independently owned and operated, not dominant in its field of operation, and qualified as a small business under the criteria in 13 CFR part 121 and the size standard in paragraph (d) of this clause.

(2) Affiliates, as used in this definition, means business concerns, one of whom directly or indirectly controls or has the power to control the others, or a third party or parties control or have the power to control the others. In determining whether affiliation exists, consideration is given to all appropriate factors including common ownership, common management, and contractual relationships. SBA determines affiliation based on the factors set forth at 13 CFR 121.103.

(b) If the Contractor represented that it was any of the small business concerns identified in 19.000(a)(3) prior to award of this contract, the Contractor shall rerepresent its size and socioeconomic status according to paragraph (f) of this clause or, if applicable, paragraph (h) of this clause, upon occurrence of any of the following:

(1) Within 30 days after execution of a novation agreement or within 30 days after modification of the contract to include this clause, if the novation agreement was executed prior to inclusion of this clause in the contract.

(2) Within 30 days after a merger or acquisition that does not require a novation or within 30 days after modification of the contract to include this clause, if the merger or acquisition occurred prior to inclusion of this clause in the contract.

(3) For long-term contracts-

(i) Within 60 to 120 days prior to the end of the fifth year of the contract; and

(ii) Within 60 to 120 days prior to the date specified in the contract for exercising any option thereafter.

(c) If the Contractor represented its status as any of the small business concerns identified at 19.000(a)(3) prior to award of this contract, the Contractor shall rerepresent its size and socioeconomic status according to paragraph (f) of this clause or, if applicable, paragraph (h) of this clause, for the NAICS code assigned to an order (except that paragraphs (c)(1) through (3) of this clause do not apply to an order issued under a Federal Supply Schedule contract at subpart 8.4)-

(1) Set aside exclusively for a small business concern identified at 19.000(a)(3) that is issued under an unrestricted multiple-award contract, unless the order is issued under the reserved portion of an unrestricted multiple-award contract (e.g., an order set aside for a woman-owned small business under a multiple-award contract that is not set-aside, unless the order is issued under the reserved portion of the multiple-award contract);

(2) Issued under a multiple-award contract set aside for small businesses that is further set aside for a specific socioeconomic category that differs from the underlying multiple-award contract (e.g., an order set aside for a HUBZone small business concern under a multiple-award contract that is

set aside for small businesses);

(3) Issued under the part of the multiple-award contract that is set aside for small businesses that is further set aside for a specific socioeconomic category that differs from the underlying set-aside part of the multiple-award contract (e.g., an order set aside for a WOSB concern under the part of the multiple-award contract that is partially set aside for small businesses); and

(4) When the Contracting Officer explicitly requires it for an order issued under a multiple-award contract, including for an order issued under a Federal Supply Schedule contract (see 8.405-5(b) and 19.301-2(b)(2)).

(d) The Contractor shall rerepresent its size status in accordance with the size standard in effect at the time of this rerepresentation that corresponds to the North American Industry Classification System (NAICS) code(s) assigned to this contract. The small business size standard corresponding to this NAICS code(s) can be found at https://www.sba.gov/document/support--table-size-standards.

(e) The small business size standard for a Contractor providing an end item that it does not manufacture, process, or produce itself, for a contract other than a construction or service contract, is 500 employees, or 150 employees for information technology value-added resellers under NAICS code 541519, if the acquisition-

(1) Was set aside for small business and has a value above the simplified acquisition threshold;

(2) Used the HUBZone price evaluation preference regardless of dollar value, unless the Contractor waived the price evaluation preference; or

(3) Was an 8(a), HUBZone, service-disabled veteran-owned, economically disadvantaged women-owned, or women-owned small business set-aside or sole-source award regardless of dollar value.

(f) Except as provided in paragraph (h) of this clause, the Contractor shall make the representation(s) required by paragraphs (b) and (c) of this clause by validating or updating all its representations in the Representations and Certifications section of the System for Award Management (SAM) and its other data in SAM, as necessary, to ensure that they reflect the Contractor's current status. The Contractor shall notify the contracting officer in writing within the timeframes specified in paragraph (b) of this clause, or with its offer for an order (see paragraph (c) of this clause), that the data have been validated or updated, and provide the date of the validation or update.

(g) If the Contractor represented that it was other than a small business concern prior to award of this contract, the Contractor may, but is not required to, take the actions required by paragraphs (f) or (h) of this clause.

(h) If the Contractor does not have representations and certifications in SAM, or does not have a representation in SAM for the NAICS code applicable to this contract, the Contractor is required to complete the following rerepresentation and submit it to the contracting office, along with the contract number and the date on which the rerepresentation was completed:

(1) The Contractor represents that it [ ] is, [ ] is not a small business concern under ____NAICS Code assigned to ____contract number.

(2) [Complete only if the Contractor represented itself as a small business concern in paragraph (h)(1) of this clause.] The Contractor represents that it [ ] is, [ ] is not, a small disadvantaged business concern as defined in 13 CFR 124.1001.

(3) [Complete only if the Contractor represented itself as a small business concern in paragraph (h)(1) of this clause.] The Contractor represents that it [ ] is, [ ] is not a women-owned small business concern.

(4) Women-owned small business (WOSB) joint venture eligible under the WOSB Program. The Contractor represents that it [ ] is, [ ] is not a joint venture that complies with the requirements of 13 CFR 127.506(a) through (c). [____The Contractor shall enter the name and unique entity identifier of each party to the joint venture: __.]

(5) Economically disadvantaged women-owned small business (EDWOSB) joint venture. The Contractor represents that it [ ] is, [ ] is not a joint venture that complies with the requirements of 13 CFR 127.506(a) through (c). [____The Contractor shall enter the name and unique entity identifier of each party to the joint venture: __ .]

(6) [Complete only if the Contractor represented itself as a small business concern in paragraph (h)(1) of this clause.] The Contractor represents that it [ ] is, [ ] is not a veteran-owned small business concern.

(7) [Complete only if the Contractor represented itself as a veteran-owned small business concern in paragraph (h)(6) of this clause.] The Contractor represents that it [ ] is, [ ] is not a service-disabled veteran-owned small business concern.

(8) Service-disabled veteran-owned small business (SDVOSB) joint venture eligible under the SDVOSB Program. The Contractor represents that it [ ] is, [ ] is not an SDVOSB joint venture eligible under the SDVOSB Program that complies with the requirements of 13 CFR 128.402. [____The Contractor shall enter the name and unique entity identifier of each party to the joint venture: __.]

(9) [Complete only if the Contractor represented itself as a small business concern in paragraph (h)(1) of this clause.] The Contractor represents that-

(i) It [ ] is, [ ] is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material changes in ownership and control, principal office, or HUBZone employee percentage have occurred since it was certified in accordance with 13 CFR part 126; and

(ii) It [ ] is, [ ] is not a HUBZone joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (h)(8)(i) of this clause is accurate for each HUBZone small business concern participating in the HUBZone joint venture. [____The Contractor shall enter the names of each of the HUBZone small business concerns participating in the HUBZone joint venture: .] Each HUBZone small business concern

participating in the HUBZone joint venture shall submit a separate signed copy of the HUBZone representation.

[____Contractor to sign and date and insert authorized signer's name and title.]

(End of clause)

52.223-9 Estimate of Percentage of Recovered Material Content for EPA-Designated Items. (May 2008)

Estimate of Percentage of Recovered Material Content for EPA-Designated Items (May 2008)

(a) *Definitions*. As used in this clause-

Postconsumer material means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of "recovered material."

"Recovered material" means waste materials and by-products recovered or diverted from solid waste, but the term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process.

(b) The Contractor, on completion of this contract, shall-

(1) Estimate the percentage of the total recovered material content for EPA-designated item(s) delivered and/or used in contract performance, including, if applicable, the percentage of post-consumer material content; and

(2) Submit this estimate in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

(End of clause)

52.225-9 Buy American-Construction Materials. (Oct 2022)

Buy American-Construction Materials (Oct 2022)

(a) *Definitions*. As used in this clause-

Commercially available off-the-shelf (COTS) item-

(1) Means any item of supply (including construction material) that is-

(i) A commercial product (as defined in paragraph (1) of the definition of "commercial product" at Federal Acquisition Regulation (FAR) 2.101);

(ii) Sold in substantial quantities in the commercial marketplace; and

(iii) Offered to the Government, under a contract or subcontract at any tier, without modification, in the same form in which it is sold in the commercial marketplace; and

(2) Does not include bulk cargo, as defined in 46 U.S.C. 40102(4), such as agricultural products and petroleum products.

"Construction material" means an article, material, or supply brought to the construction site by the Contractor or a subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

Cost of components means-

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the construction material (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the construction material.

Critical component means a component that is mined, produced, or manufactured in the United States and deemed critical to the U.S. supply chain. The list of critical components is at FAR 25.105.

Critical item means a domestic construction material or domestic end product that is deemed critical to U.S. supply chain resiliency. The list of critical items is at FAR 25.105.

Domestic construction material means-

(1) For construction material that does not consist wholly or predominantly of iron or steel or a combination of both-

(i) An unmanufactured construction material mined or produced in the United States; or

(ii) A construction material manufactured in the United States, if-

(A) The cost of its components mined, produced, or manufactured in the United States exceeds 60 percent of the cost of all its components, except that the percentage will be 65 percent for items delivered in calendar years 2024 through 2028 and 75 percent for items delivered starting in calendar year 2029. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic. Components of unknown origin are treated as foreign; or

(B) The construction material is a COTS item; or

(2) For construction material that consists wholly or predominantly of iron or steel or a combination of both, a construction material manufactured in the United States if the cost of foreign iron and steel constitutes less than 5 percent of the cost of all components used in such construction material. The cost of foreign iron and steel includes but is not limited to the cost of foreign iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the construction material and a good faith estimate of the cost of all foreign iron or steel components excluding COTS fasteners. Iron or steel components of unknown origin are treated as foreign. If the construction material contains multiple components, the cost of all the materials used in such construction material is calculated in accordance with the definition of "cost of components".

Fastener means a hardware device that mechanically joins or affixes two or more objects together. Examples of fasteners are nuts, bolts, pins, rivets, nails, clips, and screws.

Foreign construction material means a construction material other than a domestic construction material.

Foreign iron and steel means iron or steel products not produced in the United States. Produced in the United States means that all manufacturing processes of the iron or steel must take place in the United States, from the initial melting stage through the application of coatings, except metallurgical processes involving refinement of steel additives. The origin of the elements of the iron or steel is not relevant to the determination of whether it is domestic or foreign.

Predominantly of iron or steel or a combination of both means that the cost of the iron and steel content exceeds 50 percent of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of iron or steel components excluding COTS fasteners.

Steel means an alloy that includes at least 50 percent iron, between 0.02 and 2 percent carbon, and may include other elements.

"United States" means the 50 States, the District of Columbia, and outlying areas.

(b) Domestic preference.

(1) This clause implements 41 U.S.C.chapter 83, Buy American, by providing a preference for domestic construction material. In accordance with 41 U.S.C. 1907, the domestic content test of the Buy American statute is waived for construction material that is a COTS item, except that for construction material that consists wholly or predominantly of iron or steel or a combination of both, the domestic content test is applied only to the iron and steel content of the construction materials, excluding COTS fasteners. (See FAR 12.505(a)(2)). The Contractor shall use only domestic construction material in performing this contract, except as provided in paragraphs (b)(2) and (b)(3) of this clause.

(2) This requirement does not apply to information technology that is a commercial product or to the construction materials or components listed by the Government as follows:

NONE

(3) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(2) of this clause if the Government determines that-

(i) The cost of domestic construction material would be unreasonable.

(A) *For domestic construction material that is not a critical item or does not contain critical components*.

(1) The cost of a particular domestic construction material subject to the requirements of the Buy American statute is unreasonable when the cost of such material exceeds the cost of foreign material by more than 20 percent;

(2) For construction material that is not a COTS item and does not consist wholly or predominantly of iron or steel or a combination of both, if the cost of a particular domestic construction material is determined to be unreasonable or there is no domestic offer received, and the low offer is for foreign construction material that is manufactured in the United States and does not exceed 55 percent domestic content, the Contracting Officer will treat the lowest offer of foreign construction material that exceeds 55 percent domestic content as a domestic offer and determine whether the cost of that offer is unreasonable by applying the evaluation factor listed in paragraph (b)(3)(i)(A)*(1)* of this clause.

(3) The procedures in paragraph (b)(3)(i)(A)*(2)* of this clause will no longer apply as of January 1, 2030.

(B) *For domestic construction material that is a critical item or contains critical components*.

(1) The cost of a particular domestic construction material that is a critical item or contains critical components, subject to the requirements of the Buy American statute, is unreasonable when the cost of such material exceeds the cost of foreign material by more than 20 percent plus the additional preference factor identified for the critical item or construction material containing critical components listed at FAR 25.105.

(2) For construction material that does not consist wholly or predominantly of iron or steel or a combination of both, if the cost of a particular domestic construction material is determined to be unreasonable or there is no domestic offer received, and the low offer is for foreign construction material that does not exceed 55 percent domestic content, the Contracting Officer will treat the lowest foreign offer of construction material that is manufactured in the United States and exceeds 55 percent domestic content as a domestic offer, and determine whether the cost of that offer is unreasonable by applying the evaluation factor listed in paragraph (b)(3)(i)(B)*(1)* of this clause.

(3) The procedures in paragraph (b)(3)(i)(B)*(2)* of this clause will no longer apply as of January 1, 2030.

(ii) The application of the restriction of the Buy American statute to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American statute.

(1)

(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(3) of this clause shall include adequate information for Government evaluation of the request, including-

(A) A description of the foreign and domestic construction materials;

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American statute applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(3)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American statute applies, use of foreign construction material is noncompliant with the Buy American statute.

(d) *Data*. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

	Foreign and Domestic Construction Materials Price Comparison				
	Construction Material Description	Unit of Measure	Quantity	Price (dollars)*	

	Item1:				
	Foreign construction material	____	____	____	
	Domestic construction material	____	____	____	
	Item2:				
	Foreign construction material	____	____	____	
	Domestic construction material	____	____	____	

(End of clause)

52.225-11 Buy American-Construction Materials under Trade Agreements. (Nov 2023)

Buy American-Construction Materials under Trade Agreements (Nov 2023)

(a) *Definitions*. As used in this clause-

Caribbean Basin country construction material means a construction material that-

(1) Is wholly the growth, product, or manufacture of a Caribbean Basin country; or

(2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a Caribbean Basin country into a new and different construction material distinct from the materials from which it was transformed.

Commercially available off-the-shelf (COTS) item-

(1) Means any item of supply (including construction material) that is-

(i) A commercial product (as defined in paragraph (1) of the definition of "commercial product" at Federal Acquisition Regulation (FAR) 2.101);

(ii) Sold in substantial quantities in the commercial marketplace; and

(iii) Offered to the Government, under a contract or subcontract at any tier, without modification, in the same form in which it is sold in the commercial marketplace; and

(2) Does not include bulk cargo, as defined in 46 U.S.C.40102(4), such as agricultural products and petroleum products.

Component means an article, material, or supply incorporated directly into a construction material.

Construction material means an article, material, or supply brought to the construction site by the Contractor or subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

Cost of components means-

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the construction material (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the construction material.

Critical component means a component that is mined, produced, or manufactured in the United States and deemed critical to the U.S. supply chain. The list of critical components is at FAR 25.105.

Critical item means a domestic construction material or domestic end product that is deemed critical to U.S. supply chain resiliency. The list of critical items is at FAR 25.105.

Designated country means any of the following countries:

(1) A World Trade Organization Government Procurement Agreement (WTO GPA) country (Armenia, Aruba, Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea (Republic of), Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Montenegro, Netherlands, New Zealand, North Macedonia, Norway, Poland, Portugal, Romania, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Taiwan, Ukraine, or United Kingdom);

(2) A Free Trade Agreement (FTA) country (Australia, Bahrain, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Korea (Republic of), Mexico, Morocco, Nicaragua, Oman, Panama, Peru, or Singapore);

(3) A least developed country (Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Haiti, Kiribati, Laos, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Nepal, Niger, Rwanda, Samoa, Sao Tome and Principe, Senegal, Sierra Leone, Solomon Islands, Somalia, South Sudan, Tanzania, Timor-Leste, Togo, Tuvalu, Uganda, Vanuatu, Yemen, or Zambia); or

(4) A Caribbean Basin country (Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bonaire, British Virgin Islands, Curacao, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saba, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Sint Eustatius, Sint Maarten, or Trinidad and Tobago).

Designated country construction material means a construction material that is a WTO GPA country construction material, an FTA country construction material, a least developed country construction material, or a Caribbean Basin country construction material.

Domestic construction material means-

(1) For construction material that does not consist wholly or predominantly of iron or steel or a combination of both-

(i) An unmanufactured construction material mined or produced in the United States; or

(ii) A construction material manufactured in the United States, if-

(A) The cost of its components mined, produced, or manufactured in the United States exceeds 60 percent of the cost of all its components, except that the percentage will be 65 percent for items delivered in calendar years 2024 through 2028 and 75 percent for items delivered starting in calendar year 2029.

(B) The construction material is a COTS item; or

(2) For construction material that consists wholly or predominantly of iron or steel or a combination of both, a construction material manufactured in the United States if the cost of foreign iron and steel constitutes less than 5 percent of the cost of all components used in such construction material. The cost of foreign iron and steel includes but is not limited to the cost of foreign iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the construction material and a good faith estimate of the cost of all foreign iron or steel components excluding COTS fasteners. Iron or steel components of unknown origin are treated as foreign. If the construction material contains multiple components, the cost of all the materials used in such construction material is calculated in accordance with the definition of "cost of components".

Fastener means a hardware device that mechanically joins or affixes two or more objects together. Examples of fasteners are nuts, bolts, pins, rivets, nails, clips, and screws.

Foreign construction material means a construction material other than a domestic construction material.

Foreign iron and steel means iron or steel products not produced in the United States. Produced in the United States means that all manufacturing processes of the iron or steel must take place in the United States, from the initial melting stage through the application of coatings, except metallurgical processes involving refinement of steel additives. The origin of the elements of the iron or steel is not relevant to the determination of whether it is domestic or foreign.

Free Trade Agreement country construction material means a construction material that-

(1) Is wholly the growth, product, or manufacture of a Free Trade Agreement (FTA) country; or

(2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a FTA country into a new and different construction material distinct from the materials from which it was transformed.

Least developed country construction material means a construction material that-

(1) Is wholly the growth, product, or manufacture of a least developed country; or

(2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a least developed country into a new and different construction material distinct from the materials from which it was transformed.

Predominantly of iron or steel or a combination of both means that the cost of the iron and steel content exceeds 50 percent of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of iron or steel components excluding COTS fasteners.

Steel means an alloy that includes at least 50 percent iron, between 0.02 and 2 percent carbon, and may include other elements.

United States means the 50 States, the District of Columbia, and outlying areas.

WTO GPA country construction material means a construction material that-

(1) Is wholly the growth, product, or manufacture of a WTO GPA country; or

(2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a WTO GPA country into a new and different construction material distinct from the materials from which it was transformed.

(b) Construction materials.

(1) This clause implements 41 U.S.C.chapter 83, Buy American, by providing a preference for domestic construction material. In accordance with 41 U.S.C.1907, the domestic content test of the Buy American statute is waived for construction material that is a COTS item, except that for construction material that consists wholly or predominantly of iron or steel or a combination of both, the domestic content test is applied only to the iron and steel content of the construction material, excluding COTS fasteners. (See FAR 12.505(a)(2)). In addition, the Contracting Officer has determined that the WTO GPA and Free Trade Agreements (FTAs) apply to this acquisition. Therefore, the Buy American restrictions are waived for designated country construction materials.

(2) The Contractor shall use only domestic or designated country construction material in performing this contract, except as provided in paragraphs (b)(3) and (b)(4) of this clause.

(3) The requirement in paragraph (b)(2) of this clause does not apply to information technology that is a commercial product or to the construction materials or components listed by the Government as follows:

NONE

(4) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(3) of this clause if the Government determines that-

(i) The cost of domestic construction material would be unreasonable.

(A) *For domestic construction material that is not a critical item or does not contain critical components*.

(1) The cost of a particular domestic construction material subject to the restrictions of the Buy American statute is unreasonable when the cost of such material exceeds the cost of foreign material by more than 20 percent;

(2) For construction material that is not a COTS item and does not consist wholly or predominantly of iron or steel or a combination of both, if the cost of a particular domestic construction material is determined to be unreasonable or there is no domestic offer received, and the low offer is for foreign construction material that does not exceed 55 percent domestic content, the Contracting Officer will treat the lowest offer of foreign construction material that is manufactured in the United States and exceeds 55 percent domestic content as a domestic offer and determine whether the cost of that offer is unreasonable by applying the evaluation factor listed in paragraph (b)(4)(i)(A)*(1)* of this clause.

(3) The procedures in paragraph (b)(4)(i)(A)*(2)* of this clause will no longer apply as of January 1, 2030.

(B) *For domestic construction material that is a critical item or contains critical components*.

(1) The cost of a particular domestic construction material that is a critical item or contains critical components, subject to the requirements of the Buy American statute, is unreasonable when the cost of such material exceeds the cost of foreign material by more than 20 percent plus the additional preference factor identified for the critical item or construction material containing critical components listed at FAR 25.105.

(2) For construction material that does not consist wholly or predominantly of iron or steel or a combination of both, if the cost of a particular domestic construction material is determined to be unreasonable or there is no domestic offer received, and the low offer is for foreign construction material that does not exceed 55 percent domestic content, the Contracting Officer will treat the lowest offer of foreign construction material that is manufactured in the United States and exceeds 55 percent domestic content as a domestic offer, and determine whether the cost of that offer is unreasonable by applying the evaluation factor listed in paragraph (b)(4)(i)(B)*(1)* of this clause.

(3) The procedures in paragraph (b)(4)(i)(B)*(2)* of this clause will no longer apply as of January 1, 2030.

(ii) The application of the restriction of the Buy American Act to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American statute.

(1)

(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(4) of this clause shall include adequate information for Government evaluation of the request, including-

(A) A description of the foreign and domestic construction materials;

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American statute applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(4)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American statute applies, use of foreign construction material is noncompliant with the Buy American statute.

(d) *Data*. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison			
Construction Material Description	Unit of Measure	Quantity	Price (Dollars)*
Item1			
Foreign construction material	___	___	___
Domestic construction material	___	___	___

Item1			
Foreign construction material	___	___	___
Domestic construction material	___	___	___

(End of clause)

52.232-5 Payments under Fixed-Price Construction Contracts. (May 2014)

Payments under Fixed-Price Construction Contracts (May 2014)

(a) Payment of price. The Government shall pay the Contractor the contract price as provided in this contract.

(b) Progress payments. The Government shall make progress payments monthly as the work proceeds, or at more frequent intervals as determined by the Contracting Officer, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer.

(1) The Contractor's request for progress payments shall include the following substantiation:

(i) An itemization of the amounts requested, related to the various elements of work required by the contract covered by the payment requested.

(ii) A listing of the amount included for work performed by each subcontractor under the contract.

(iii) A listing of the total amount of each subcontract under the contract.

(iv) A listing of the amounts previously paid to each such subcontractor under the contract.

(v) Additional supporting data in a form and detail required by the Contracting Officer.

(2) In the preparation of estimates, the Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration. Material delivered to the Contractor at locations other than the site also may be taken into consideration if-

(i) Consideration is specifically authorized by this contract; and

(ii) The Contractor furnishes satisfactory evidence that it has acquired title to such material and that the material will be used to perform this contract.

(c) Contractor certification. Along with each request for progress payments, the Contractor shall furnish the following certification, or payment shall not be made: (However, if the Contractor elects to delete paragraph (c)(4) from the certification, the certification is still acceptable.)

I hereby certify, to the best of my knowledge and belief, that-

(1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

(2) All payments due to subcontractors and suppliers from previous payments received under the contract have been made, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements and the requirements of Chapter 39 of Title 31, United States Code;

(3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract; and

(4) This certification is not to be construed as final acceptance of a subcontractor's performance.

____ (Name)

____ (Title)

____ (Date)

(d) Refund of unearned amounts. If the Contractor, after making a certified request for progress payments, discovers that a portion or all of such

request constitutes a payment for performance by the Contractor that fails to conform to the specifications, terms, and conditions of this contract (hereinafter referred to as the "unearned amount"), the Contractor shall-

(1) Notify the Contracting Officer of such performance deficiency; and

(2) Be obligated to pay the Government an amount (computed by the Contracting Officer in the manner provided in paragraph (j) of this clause) equal to interest on the unearned amount from the 8 thday after the date of receipt of the unearned amount until-

(i) The date the Contractor notifies the Contracting Officer that the performance deficiency has been corrected; or

(ii) The date the Contractor reduces the amount of any subsequent certified request for progress payments by an amount equal to the unearned amount.

(e) Retainage. If the Contracting Officer finds that satisfactory progress was achieved during any period for which a progress payment is to be made, the Contracting Officer shall authorize payment to be made in full. However, if satisfactory progress has not been made, the Contracting Officer may retain a maximum of 10 percent of the amount of the payment until satisfactory progress is achieved. When the work is substantially complete, the Contracting Officer may retain from previously withheld funds and future progress payments that amount the Contracting Officer considers adequate for protection of the Government and shall release to the Contractor all the remaining withheld funds. Also, on completion and acceptance of each separate building, public work, or other division of the contract, for which the price is stated separately in the contract, payment shall be made for the completed work without retention of a percentage.

(f) Title, liability, and reservation of rights. All material and work covered by progress payments made shall, at the time of payment, become the sole property of the Government, but this shall not be construed as-

(1) Relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or

(2) Waiving the right of the Government to require the fulfillment of all of the terms of the contract.

(g) Reimbursement for bond premiums. In making these progress payments, the Government shall, upon request, reimburse the Contractor for the amount of premiums paid for performance and payment bonds (including coinsurance and reinsurance agreements, when applicable) after the Contractor has furnished evidence of full payment to the surety. The retainage provisions in paragraph (e) of this clause shall not apply to that portion of progress payments attributable to bond premiums.

(h) Final payment. The Government shall pay the amount due the Contractor under this contract after-

(1) Completion and acceptance of all work;

(2) Presentation of a properly executed voucher; and

(3) Presentation of release of all claims against the Government arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned under the Assignment of Claims Act of1940 (31 U.S.C.3727 and 41 U.S.C.6305).

(i) Limitation because of undefinitized work. Notwithstanding any provision of this contract, progress payments shall not exceed 80 percent on work accomplished on undefinitized contract actions. A "contract action" is any action resulting in a contract, as defined in FAR subpart 2.1, including contract modifications for additional supplies or services, but not including contract modifications that are within the scope and under the terms of the contract, such as contract modifications issued pursuant to the Changes clause, or funding and other administrative changes.

(j) Interest computation on unearned amounts. In accordance with 31 U.S.C.3903(c)(1), the amount payable under paragraph (d)(2) of this clause shall be-

(1) Computed at the rate of average bond equivalent rates of 91-day Treasury bills auctioned at the most recent auction of such bills prior to the date the Contractor receives the unearned amount; and

(2) Deducted from the next available payment to the Contractor.

(End of clause)

52.236-4 Physical Data. (Apr 1984)

Physical Data (Apr 1984)

Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

(a) The indications of physical conditions on the drawings and in the specifications are the result of site investigations by surveys and borings. Field notes, graphic boring logs, field and laboratory test results, and other data on which this information is based are available at U.S. Army Engineer District, New Orleans, Corps of Engineers, Attn: CEMVN-ED, 7400 Leake Avenue, New Orleans, LA 70118-3651, and access thereto may be had upon request.

(b) Transportation Facilities. The Freshwater Bayou Lock reservation can be accessed by land via the Freshwater City Road (LA-3147) or via water by the Freshwater Bayou Canal. There is a 5-ton limit on the Humble Canal bridge along LA 3147.

(c) The Contractor is responsible for keeping streets free of mud, tracking, spillage and/or other surface pollution from his equipment and operations. Contractor shall take whatever means required (i.e., street cleaners, manual labor, water trucks with sprayers) as often as needed to maintain clean streets near the work site. All debris resulting from street cleaning operations shall be hauled off-site and disposed of properly.

(d) Estimates of quantities involved in certain items of work for which offers are being solicited on a job basis have been made for the use of the Government. Copies of these quantity estimates may be viewed/obtained by contacting the Contract Specialist for this contract, same address as stated in subparagraph (a) above. It is expressly understood that the accuracy of these estimates is in no way warranted and that the furnishing of this information to an offeror will not relieve him of his responsibility to estimate the quantities involved.

(End of clause)

52.248-3 Value Engineering-Construction. (Oct 2025)

Value Engineering-Construction (Oct 2025)

(a) General. The Contractor is encouraged to develop, prepare, and submit value engineering change proposals (VECP's) voluntarily. The Contractor shall share in any instant contract savings realized from accepted VECP's, in accordance with paragraph (f) of this clause.

(b) Definitions. "Collateral costs," as used in this clause, means agency costs of operation, maintenance, logistic support, or Government-furnished property.

Collateral savings, as used in this clause, means those measurable net reductions resulting from a VECP in the agency's overall projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.

Contractor's development and implementation costs, as used in this clause, means those costs the Contractor incurs on a VECP specifically in developing, testing, preparing, and submitting the VECP, as well as those costs the Contractor incurs to make the contractual changes required by Government acceptance of a VECP.

Government costs, as used in this clause, means those agency costs that result directly from developing and implementing the VECP, such as any net increases in the cost of testing, operations, maintenance, and logistic support. The term does not include the normal administrative costs of processing the VECP.

Instant contract savings, as used in this clause, means the estimated reduction in Contractor cost of performance resulting from acceptance of the VECP, minus allowable Contractor's development and implementation costs, including subcontractors' development and implementation costs (see paragraph (h) of this clause).

Value engineering change proposal (VECP) means a proposal that-

(1) Requires a change to this, the instant contract, to implement; and

(2) Results in reducing the contract price or estimated cost without impairing essential functions or characteristics; provided, that it does not involve a change-

(i) In deliverable end item quantities only; or

(ii) To the contract type only.

(c) VECP preparation. As a minimum, the Contractor shall include in each VECP the information described in paragraphs (c)(1) through (7) of this clause. If the proposed change is affected by contractually required configuration management or similar procedures, the instructions in those procedures relating to format, identification, and priority assignment shall govern VECP preparation. The VECP shall include the following:

(1) A description of the difference between the existing contract requirement and that proposed, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, and the effect of the change on the end item's performance.

(2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revisions.

(3) A separate, detailed cost estimate for (i) the affected portions of the existing contract requirement and (ii) the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under paragraph (h) of this clause.

(4) A description and estimate of costs the Government may incur in implementing the VECP, such as test and evaluation and operating and support costs.

(5) A prediction of any effects the proposed change would have on collateral costs to the agency.

(6) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

(7) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved, and previous Government actions, if known.

(d) Submission. The Contractor shall submit VECP's to the Resident Engineer at the worksite, with a copy to the Contracting Officer.

(e) Government action.

(1) The Contracting Officer will notify the Contractor of the status of the VECP within 45 calendar days after the contracting office receives it. If additional time is required, the Contracting Officer will notify the Contractor within the 45-day period and provide the reason for the delay and the expected date of the decision. The Government will process VECP's expeditiously; however, it will not be liable for any delay in acting upon a VECP.

(2) If the VECP is not accepted, the Contracting Officer will notify the Contractor in writing, explaining the reasons for rejection. The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Government. The Contracting Officer may require that the Contractor provide written notification before undertaking significant expenditures for VECP effort.

(3) Any VECP may be accepted, in whole or in part, by the Contracting Officer's award of a modification to this contract citing this clause. The Contracting Officer may accept the VECP, even though an agreement on price reduction has not been reached, by issuing the Contractor a notice to proceed with the change. Until a notice to proceed is issued or a contract modification applies a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The decision to accept or reject all or part of any VECP is a unilateral decision made solely at the discretion of the Contracting Officer.

(f) Sharing-

(1) Rates. The Government's share of savings is determined by subtracting Government costs from instant contract savings and multiplying the result by-

(i) 45 percent for fixed-price contracts; or

(ii) 75 percent for cost-reimbursement contracts.

(2) Payment. Payment of any share due the Contractor for use of a VECP on this contract shall be authorized by a modification to this contract to-

(i) Accept the VECP;

(ii) Reduce the contract price or estimated cost by the amount of instant contract savings; and

(iii) Provide the Contractor's share of savings by adding the amount calculated to the contract price or fee.

(g) Collateral savings. If a VECP is accepted, the Contracting Officer will increase the instant contract amount by 20 percent of any projected collateral savings determined to be realized in a typical year of use after subtracting any Government costs not previously offset. However, the Contractor's share of collateral savings will not exceed the contract's firm-fixed-price or estimated cost, at the time the VECP is accepted, or $100,000, whichever is greater. The Contracting Officer is the sole determiner of the amount of collateral savings.

(h) Subcontracts. The Contractor shall include an appropriate value engineering clause in any subcontract of $90,000 or more and may include one in subcontracts of lesser value. In computing any adjustment in this contract's price under paragraph (f) of this clause, the Contractor's allowable development and implementation costs shall include any subcontractor's allowable development and implementation costs clearly resulting from a VECP accepted by the Government under this contract, but shall exclude any value engineering incentive payments to a subcontractor. The Contractor may choose any arrangement for subcontractor value engineering incentive payments; provided, that these payments shall not reduce the Government's share of the savings resulting from the VECP.

(i) Data. The Contractor may restrict the Government's right to use any part of a VECP or the supporting data by marking the following legend on the affected parts:

These data, furnished under the Value Engineering-Construction clause of contract ____, shall not be disclosed outside the Government or duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate a value engineering change proposal submitted under the clause. This restriction does not limit the Government's right to use information contained in these data if it has been obtained or is otherwise available from the Contractor or from another source without limitations.

If a VECP is accepted, the Contractor hereby grants the Government unlimited rights in the VECP and supporting data, except that, with respect to data qualifying and submitted as limited rights technical data, the Government shall have the rights specified in the contract modification implementing the VECP and shall appropriately mark the data. (The terms "unlimited rights" and "limited rights" are defined in part 27 of the Federal Acquisition Regulation.)

(End of clause)

52.252-2 Clauses Incorporated by Reference. (Feb 1998)

Clauses Incorporated By Reference (Feb 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

https://www.acquisition.gov/

(End of clause)

52.252-4 Alterations in Contract. (Apr 1984)

Alterations in Contract (Apr 1984)

Portions of this contract are altered as follows:

____ ____ ____

(End of clause)

52.252-6 Authorized Deviations in Clauses. (Nov 2020)

Authorized Deviations in Clauses (Nov 2020)

(a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the clause.

(b) The use in this solicitation or contract of any Defense Federal Acquisition Regulation (48 CFR Chapter 2) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of clause)

DFARS Clauses Incorporated by Full Text

252.219-7009 Section 8(a) Direct Award. (Oct 2018)

SECTION 8(a) DIRECT AWARD (OCT 2018)

(a) This contract is issued as a direct award between the contracting office and the 8(a) Contractor pursuant to the Partnership Agreement between the Small Business Administration (SBA) and the Department of Defense. Accordingly, the SBA, even if not identified in Section A of this contract, is the prime contractor and retains responsibility for 8(a) certification, for 8(a) eligibility determinations and related issues, and for providing counseling and assistance to the 8(a) Contractor under the 8(a) Program. The cognizant SBA district office is:

U.S. Small Business Administration
Louisiana District Office
500 Poydras St., Suite 828

New Orleans, LA 70130

(b) The contracting office is responsible for administering the contract and for taking any action on behalf of the Government under the terms and conditions of the contract; provided that the contracting office shall give advance notice to the SBA before it issues a final notice terminating performance, either in whole or in part, under the contract. The contracting office also shall coordinate with the SBA prior to processing any novation agreement. The contracting office may assign contract administration functions to a contract administration office.

(c) The 8(a) Contractor agrees that it will notify the Contracting Officer, simultaneous with its notification to the SBA (as required by SBA's 8(a) regulations at 13 CFR 124.515), when the owner or owners upon whom 8(a) eligibility is based plan to relinquish ownership or control of the concern. Consistent with section 407 of Public Law 100-656, transfer of ownership or control shall result in termination of the contract for convenience, unless the SBA waives the requirement for termination prior to the actual relinquishing of ownership and control.

(End of clause)

252.236-7001 Contract Drawings and Specifications. (Aug 2000)

CONTRACT DRAWINGS AND SPECIFICATIONS (AUG 2000)

(a) The Government will provide to the Contractor, without charge, one set of contract drawings and specifications, except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Officer.

(b) The Contractor shall-

(1) Check all drawings furnished immediately upon receipt;

(2) Compare all drawings and verify the figures before laying out the work;

(3) Promptly notify the Contracting Officer of any discrepancies;

(4) Be responsible for any errors that might have been avoided by complying with this paragraph (b); and

(5) Reproduce and print contract drawings and specifications as needed.

(c) In general--

(1) Large-scale drawings shall govern small-scale drawings; and

(2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work that are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. The Contractor shall perform such details as if fully and correctly set forth and described in the drawings and specifications.

(e) The work shall conform to the specifications and the contract drawings identified on the following index of drawings:

Title	File	Drawing No.
		G-001 thru G-004 C-101, C-101A C-102, C-102A C-103, C-104 S-001 S-101 thru S-105 S-201 thru S-202

Freshwater Bayou Waterway, Freshwater Bayou Lock New Shops Building, Vermilion Parish, Louisiana	H-4-48601	S-301 S-401 thru S-404 S-501 S-901 thru S-902 E-001 E-100 thru E-102 E-200, E-300, E-301 M-201, M-202 B-101 thru B-104 REF-100, REF-101

(End of clause)

NOTE:

PLAN DRAWING SIGNATURES: The plan drawings accompanying this solicitation have been submitted and approved by the individuals shown in the title blocks on the plans. The actual signatures of the individuals shown on the plans are on file and are available for inspection at U.S. Army Engineer District, New Orleans, Corps of Engineers, Attn: CEMVN-ED, 7400 Leake Avenue, New Orleans, LA 70118-3651, and access thereto may be had upon request.

252.236-7004 Payment for Mobilization and Demobilization. (Dec 1991)

PAYMENT FOR MOBILIZATION AND DEMOBILIZATION (DEC 1991)

(a) The Government will pay all costs for the mobilization and demobilization of all of the Contractor's plant and equipment at the contract lump sum price for this item.

(1) Sixty (60%) percent of the lump sum price upon completion of the contractor's mobilization at the work site.

(2) The remaining forty (40%) percent upon completion of demobilization.

(b) The Contracting Officer may require the Contractor to furnish cost data to justify this portion of the bid if the Contracting Officer believes that the percentages in paragraphs (a)(1) and (2) of this clause do not bear a reasonable relation to the cost of the work in this contract.

(1) Failure to justify such price to the satisfaction of the Contracting Officer will result in payment, as determined by the Contracting Officer, of-

(i) Actual mobilization costs at completion of mobilization;

(ii) Actual demobilization costs at completion of demobilization; and

(iii) The remainder of this item in the final payment under this contract.

(2) The Contracting Officer's determination of the actual costs in paragraph (b)(1)of this clause is not subject to appeal.

(End of clause)

Special Contract Requirements:
1) FAR provision 52.229-11 and FAR clause 52.229-12

FAR provision 52.229-11 and FAR clause 52.229-12 are included in this solicitation. This provision and clause concern the imposition of a 2 percent Federal excise tax withholding on any resultant contract award or payment request. This rule applies to Federal Government contracts for goods or services that are awarded to foreign persons – such as foreign contractors. It implements the Department of the Treasury's final regulations published in the Federal Register at 81 FR 55133 on August 18, 2016, under section 5000C of the Internal Revenue Code relating to the 2 percent tax on payments made by the U.S. Government to foreign persons pursuant to certain contracts.

Pursuant to the FAR 52.229-3 Federal, State, and Local Taxes, taxes imposed under 26 U.S.C. 5000 C may not be included in the contract price or reimbursed.

Exemptions from this excise tax must be claimed by an Offeror when it submits, with its offer, a U.S. Department of Treasury Internal Revenue Service (IRS) Form W-14, Certificate of Foreign Contracting Party Receiving Federal Procurement Payments, available via the internet at www.irs.gov/W14. If not submitted with the offer, exemptions will not be applied to any resulting contract and the Government will withhold a full 2 percent on each contract payment. Failure to submit an IRS Form W-14 with each payment request will also result in an automatic withholding of 2 percent from the payment request.

When filling out the IRS Form W-14 the following information may be used to complete Part I, Lines 6 and 7.

Line 6 Contract/reference number: *W912P826BA003*
Line 7 "Name and address of the acquiring agency": *USACE, New Orleans District*

Any exemption claimed and self-certified is subject to audit by the IRS. Any disputes concerning this tax are adjudicated by the IRS because the Section 5000C tax is a tax matter not a contract issue.

Offerors are encouraged to seek guidance from their own tax professionals for advice concerning the provision, clause, and exclusions exclusion/submission of IRS Form W-14. Additional information is also available at:

Notwithstanding the above, the USACE does not have a means of withholding this excise tax at this time. As a result, contractors are expected to comply with the instructions above and to properly complete and return the W-14 at proposal submission, and with each pay application. The amount due for each withholding will be confirmed by USACE, BUT WILL NOT BE WITHHELD. It is the contractor's responsibility to set aside, or remit to the IRS, the amount confirmed by USACE. Whether the contractor sets the money aside for future payment to the IRS, or makes payment to the IRS, is the contractor's discretion, based on its analysis of the regulations regarding the excise tax. In the event that USACE is able to withhold during contract performance, it will notify the contractor and make such a withholding (including any catch up withholdings); no advance notice is required to the contractor prior to the withholding. Under no circumstances is USACE liable for any tax not paid by the contractor. The contractor is liable for the tax, to the extent required by law, regardless of whether USACE makes a withholding.

FAR 29.204 expressly states that “[a]gencies merely withhold the tax (section 5000C tax) for the Internal Revenue Service (IRS). All substantive issues regarding the underlying section 5000C tax, e.g., the imposition of, and exemption from the tax, are matters under the jurisdiction of the IRS.” Therefore, we cannot help you determine how the tax law applies to you. We strongly recommend that you contact the IRS and/or a tax professional should you have any questions of this nature. To be clear, this information does not constitute tax advice or a representation of your tax liability. Furnishing this information does not create liability for the USACE for any Federal, state, or local taxes applicable to the above-referenced contract or any other contract.

****

For submission requirements and basis of evaluation:

Executed FAR Provision 52.229-11.
Completed IRS Form W-14, Certificate of Foreign Contracting Party Receiving Federal Procurement Payments, if applicable. If not submitted with the offer, exemptions will not be applied to any resulting contract and the Government will withhold a full 2 percent on each payment.

Section 00 73 00 - Supplementary Conditions

Overall Contract Inspection/Acceptance Locations

0001	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0002	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0003	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0004	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0005	Inspection and Acceptance Location

	Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0006	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0007	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0008	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0009	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS

	KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0010	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0011	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0012	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0013AA	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0013AB	Inspection and Acceptance Location

	Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0014	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0015	Inspection and Acceptance Location Both Other Instructions: See specifications. DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES

Overall Contract Delivery Period

From date of lead time event to beginning of performance
10 Calendar Days
Date of Notice to Proceed Receipt

From date of lead time event to completion of performance
359 Calendar Days
Date of Notice to Proceed Receipt

Line Item	Delivery Schedule	Quantity	Address and POC
0001	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	1 Job	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651

			UNITED STATES
0002	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	1 Job	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0003	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	1 Job	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0004	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	1 Job	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0005	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	1 Job	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0006	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	1 Job	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0007	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	1 Job	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651

			UNITED STATES
0008	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	1 Job	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0009	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	1 Job	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0010	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	4,235 Linear Foot	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0011	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	1 Each	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0012	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	0.8 Acre	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0013AA	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	80 Pound	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651

			UNITED STATES
0013AB	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	40 Pound	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0014	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	1.6 Net Ton (2,000 LB).	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES
0015	Delivery Schedule From date of lead time event to completion of performance 359 Calendar Days Date of Notice to Proceed Receipt	0.8 Net Ton (2,000 LB).	Place of Performance DoDAAC: W912P8 CountryCode: USA W07V ENDIST NEW ORLEANS KO CONTRACTING DIVISION, 7400 LEAKE AVE NEW ORLEANS, LA 70118-3651 UNITED STATES

Additional Regulation or Supplemental Clauses Incorporated by Full Text

5152.211-9000 VARIATIONS IN ESTIMATED QUANTITIES — SUB LINE ITEMS (Dec 2019)

Item No. 0013 is subdivided into two or more estimated quantities and are to be separately priced. The Government will evaluate each of these items on the basis of total price of its subline items.

5152.211-9001 VARIATIONS IN ESTIMATED QUANTITIES — SUB LINE ITEMS (Dec 2019)

This variation in estimated quantities clause is applicable only to item No. 0013.

(a) Variation from the estimated quantity in the actual work performed under any second or subsequent subline item or elimination of all work under such a second or subsequent subline item will not be the basis for an adjustment in contract unit price.

(b) Where the actual quantity of work performed for item No. 0013 is less than 85% of the quantity of the first subline item listed under such item, the contractor will be paid at the contract unit price for that subline item for the actual quantity of work performed and, in addition, an equitable adjustment shall be made in accordance with the clause at Federal Acquisition Regulation (FAR) 52.211-18, Variation in Estimated Quantities.

(c) If the actual quantity of work performed under item No. 0013 exceeds 115% or is less than 85% of the total estimated quantity of the subline item under that item and/or if the quantity of the work performed under the second subline item or any subsequent subline item under item Nos. NONE exceeds 115% or is less than 85% of the estimated quantity of any such subline item, and if such variation causes an increase or a decrease in the time required for performance of this contract the contract completion time will be adjusted in accordance with the clause FAR 52.211-18,Variation in Estimated Quantities.

(End of clause)

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SECTION 01100 - GENERAL PROVISIONS

1. TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

(a) This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the Contract Clause in Section 00700, entitled Default (Fixed Price Construction) (FAR 52.249-10). In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied.

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

(b) The following schedule of monthly anticipated adverse weather delays is based upon data collected by the Louisiana Office of State Climatology for temperature, precipitation and wet ground conditions or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities. The adverse weather days apply to rain, fog, high winds, high/low tides, hail, lightning, and high/low temperatures as indicated on the Weather Data Sheet and will be used by the Government to record weather during construction.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY WORK DAYS
BASED ON (5) DAY WORK WEEK

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7	5	3	4	4	4	4	5	3	3	4	5

(c) Upon receipt of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor shall record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day.

(d) The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), and shall be calculated chronologically from the first to the last day of each month, and shall be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph b, above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the Contract Clause in Section 00700, entitled DEFAULT (FIXED PRICE CONSTRUCTION) (FAR 52.249-10).

2. DAMAGE TO WORK

The responsibility for damage to any part of the permanent work shall be as set forth in the Contract Clause in Section 00700, entitled PERMITS AND RESPONSIBILITIES (FAR 52.236-7). However, if, in the judgment of the Contracting Officer, any part of the permanent work performed by the Contractor is damaged by flood, earthquake, hurricane, or tornado which damage is not due to the failure of the Contractor to take reasonable precautions or to exercise sound engineering and construction practices in the conduct of the work, the Contractor shall make the repairs as ordered by the Contracting Officer and full compensation for such repairs will be made at the applicable contract unit price or job prices as fixed and established in the contract. If, in the opinion of the Contracting Officer, there is no contract unit or job prices applicable to any part of such work, an equitable adjustment shall be made pursuant to the Contract Clause in Section 00700, entitled CHANGES (FAR 52.243-4). Except as herein provided, damage to all work (including temporary construction), utilities, materials, equipment and plant shall be repaired to the satisfaction of the Contracting Officer at the Contractor's expense, regardless of the cause of such damage.

3. SAFETY PROVISIONS

The safety provisions as specified herein refer to the USACE Safety and Occupational Health Requirements EM 385-1-1 dated 15 March 2024. The most current edition can be found at:

https://www.publications.usace.army.mil/Portals/76/EM%20385-1-1%20_EFFECTIVE%2015March2024.pdf

(a) Accident Investigation and Reporting. The reporting and associated investigation of accidents and near misses is considered a leading indicator. Utilize ENG Form 3394, U.S. Army Corps of Engineers Mishap Notification and Investigation, to report accidents and near misses. Link to ENG Form 3394:

https://www.publications.usace.army.mil/Portals/76/Publications/EngineerForms/Eng_Form_3394_2021Aug.pdf.

Contractors must investigate, analyze, and report all accidents and near misses occurring incidentally to an operation, project, or facility according to EM 385-1-1, Table 2-1 Accident Reporting Required Timeline.

(b) Accident Prevention Plan (APP). (See the Contract Clause in Section 00700, entitled ACCIDENT PREVENTION (FAR 52.236-13).) Within 15 days after receipt of Notice of Award of the contract, and at least 7 days prior to the prework conference, an electronic copy and one hard copy of the Accident Prevention Plan (APP) Worksheet (ENG FORM 6293) shall be submitted to the Contracting Officer for review and acceptance. Link to ENG form 6293 (APP):

https://www.publications.usace.army.mil/Portals/76/Eng_Form_6293_Aug%202024%20-%20FINAL.pdf

The Plan shall be prepared in the following format:

(1) Activity Hazard Analysis (AHA) Requirements. The Contractor shall complete the Activity Hazard Analysis (AHA) Requirements on ENG form 6206 in accordance with EM 385-1-1, Chapter 2-6. Specific AHA requirements are identified in paragraph 6 of each chapter of EM 385-1-1. Link to fillable ENG form 6206 (AHA form):

https://www.publications.usace.army.mil/Portals/76/Eng_Form_6206_2023Aug24.pdf

(2) The Contractor shall submit ENG Form 6282 (Site Safety and Health Officer Designation Letter). A Designation Letter is required for all levels of onsite SSHOs. The Contractor shall maintain a copy of the accepted form at the site of work. Link to ENG form 6282:

https://www.publications.usace.army.mil/Portals/76/Eng_Form_6282_2023Aug28.pdf?ver=_1GgPT1ZS1AFX9P8AKU5og%3d%3d.

(3) Site Safety and Health Officer (SSHO). The Contractor must employ a minimum of one (1) Level 1 Full-time Site Safety and Health Officer to function as the primary Level 1 SSHO responsible for ensuring all site personnel are implementing Safety and Occupational Health requirements according to the contract, EM 385-1-1, applicable federal, state, and local requirements. A designated Level 1 SSHO must be at the site of work whenever work is performed. The SSHO shall meet the training and experience requirements of EM 385-1-1, Chapter 2-3.b. Level 1 SSHOs are not permitted to supervise non-safety personnel at the site of work.

(4) A copy of company policy statement regarding accident prevention.

(5) When marine plant and equipment are in use under a contract, the method of fuel oil transfer shall be included on MVN Form 385-10 (Latest Edition), Fuel Oil Transfer (attached at the end of this section), (Refer to 33 CFR 156).

(c) The Contractor shall not commence physical work at the site until the Contracting Officer, or his/her authorized representative has accepted the Accident Prevention Plan. The Contractor may submit its Accident Prevention Plan only for the first phase of construction provided that it is accompanied by an outline of the remaining phases of construction. All remaining phases shall be submitted and accepted prior to the beginning of work in each phase. Also refer to Section 1 of EM 385-1-1.

(d) Hazard Communication (HazCom) Program. The Contractor shall develop, implement, and maintain at the workplace a written, Hazard Communication Program (see EM 385-1-1, Chapter 6-7) that includes identification of potential hazards as prescribed in 29 CFR Part 1910.1200 and/or 1926.59, effects of exposure and control measures to be used for chemical products and physical agents that may be encountered during the performance of work on this contract, provisions for container labeling, Safety Data Sheets, and employee training program, and other criteria in accordance with 29 CFR Part 1910.1200 and/or 1926.59. Training shall include communication methods and systems to be used (i.e., voice, hand signals, radios or other means), and training in the use and understanding of safety data sheets and chemical product hazard warning labels. Prior to bringing hazardous substances, as defined in 29 CFR 1910.1200 and/or 1926.59, onto the job site, a copy of the Hazard Communication Program and the Safety Data Sheets of each substance shall be submitted to the Contracting Officer and made available to the Contractor's employees as part of its Accident Prevention Plan. A site map shall be attached to the inventory showing where the inventoried hazardous substances are stored. The inventory list and site map shall be updated monthly to assure accuracy.

(e) Daily Inspections. The Contractor shall perform daily safety inspections and record them on the forms approved by the Contracting Officer. Reports of daily inspections shall be maintained at the jobsite in accordance with Section 01 45 04.00 10 "CONTRACTOR QUALITY CONTROL. The reports shall be records of the daily inspections and resulting actions. Each report shall include, as a minimum, the following:

(1) Phase(s) of construction underway during the inspection.

(2) Locations of areas where inspections were made.

(3) Results of inspections, including nature of deficiencies observed and corrective actions taken, or to be taken, date, and signature of the person responsible for its contents.

(f) Safety Sign. The Contractor shall furnish, erect, and maintain a safety sign at the site where indicated by the Contracting Officer. The sign shall conform to the requirements of this paragraph and the drawing included at the end of this section. The lettering shall be black, the safety circle and cross green, and the background white. When placed on a floating plant, the sign may be half size. The sign shall be erected as soon as practicable, but not later than 15 calendar days after the date established for commencement of work. The data required shall be current. The sign coordinator is Timothy Lacoste @ 504.862.2663.

(g) Ground Fault Protection Equipment. Electrical equipment used on this contract shall be equipped with ground fault circuit interrupters in accordance with EM 385-1-1, Chapter 11-8.

(h) Means of Escape for Personnel Quartered, or Working on Floating Plant. Two means of escape shall be provided for assembly, sleeping, and messing areas on floating plants. For areas involving 10 or more persons, both means of egress shall be through standard size doors opening to different exit routes. Where nine or fewer persons are involved, one of the means of escape may be a window (minimum dimensions 24-inches by 36-inches), which leads to a different exit route. Refer to EM 385-1-1, Chapter 19-8.h.

(i) Hurricane Plan. A detailed plan for protection and evacuation of personnel and the construction site, in the event of an impending hurricane or storm, is required as an enclosure to the Contractor's Accident Prevention Plan. This plan shall be submitted to the Contracting Officer, or his/her representative, for review and approval prior to the preconstruction conference. Work being performed to satisfy the Hurricane Plan will not be measured for payment. Payment for all work associated with the Hurricane Plan, and providing the equipment required for the duration specified, shall be distributed amongst the existing bid items. The Hurricane Plan shall include at least the following:

(1) The time each phase of the plan will be put in effect. The time shall be the number of hours remaining for the storm to reach the worksite if it continues at the predicted speed and direction.

(2) The estimated time necessary to secure and evacuate the site including any emergency flood protection.

(3) The safe harbor for personnel and plant specifically identified.

(4) The name of the boat which will be used to move the plant, its type, capacity, speed, and availability.

(5) The estimated time necessary to move the plant to the safe harbor after movement is started.

NOTE: Floating plant, boat, or other marine activities must submit an Emergency Plan for Marine Activities which includes a Severe Weather Plan for Marine Activities per EM 385-1-1, Chapters 19-7.a and 19-7.b.

(j) Hazardous Energy Control Program. The Contractor shall develop, implement and maintain at the workplace, a written Hazardous Energy Control Program (HECP). Refer to EM 385-1-1, Chapter 12-7.

(k) Cranes. The Contractor (including subcontractors) shall have cage boom guards, insulating links, or proximity warning devices on cranes that will be working adjacent to power lines. These devices shall not alter the requirements of any other regulation of this part - even if such device is required by law or other regulation. Insulating links shall be rated for the energized lines they are working near (EM 385-1-1, Chapter 11-8.t.6.d). Calibration records or stamped date of required manufacturer inspection of proximity warning devices shall be kept on the crane. Additionally, prior to any work commencing an Activity Hazard Analysis) identifying and satisfying EM 385-1-1, Chapter 2-6, requirements shall be submitted and accepted by the Contracting Officer.

(l) Emergency Drills. The Contractor shall conduct its drills in accordance with EM 385-1-1, Chapter 19-8.b.

(m) Equipment Operator Authorization. The Contractor shall submit a list of designated personnel qualified and authorized to operate machinery and mechanized equipment in accordance with EM 385-1-1, Chapter 16-3.

(n) Overhead Power Lines. In locations where trucks and other equipment will be passing beneath overhead power lines, the Contractor shall install at least 2 signs on either side of the crossings warning drivers of the overhead lines. The signs shall face both directions of travel. The signs shall have arrows pointing upward and state 'Overhead Electric'. The Contractor’s proposed sign design shall be submitted to the Contracting Officer for approval.

4. INSPECTOR'S FIELD OFFICE

(a) The Contractor shall furnish, throughout the contract period, for the exclusive use of the Government employees, a temporary waterproof building, or trailer, to be utilized as a field office. It shall be conveniently located at the site of construction and shall be independent of any building, or trailer, used by the Contractor. Toilet facilities and potable water, including bottled water with water cooler, shall be provided within the Inspector's office. It shall be equipped with approved electrical wiring, private telephone service, a telephone answering

machine, a fax / copier / printer machine. It shall be equipped with ceiling lamps, double convenience outlets, and the required switches and fuses, to provide 110-volt power for lighting and operating a laptop computer and printer. It shall be equipped with an air conditioning unit to provide cooling in warm or hot weather, and a heater, properly installed and vented in accordance with the National Fire Protection Association Code, for heating in cold weather, as required. The Contractor shall make the necessary arrangements to obtain or to generate the power required to operate the air conditioning unit, lights, and laptop computer and printer, and the power or fuel required for the heater, and shall bear the cost thereof. A drafting table providing a working surface having dimensions of at least 4-feet by 6-feet (which may consist of a piece of plywood, at least 3/4-inch thick, hinged to a wall of the building with hinged legs) shall be installed in the building. The building shall have a built-in locker, extending from the floor to the ceiling, having dimensions of at least 2- feet by 5-feet, with a shelf 12-inch from the top, and one door equipped with two hinges, a hasp and a padlock. All exterior doors and window frames of the building shall be equipped with iron security guards. The door shall also be equipped with butt hinges and a cylinder lock. Two strong chairs and two desks shall be provided. The building or trailer shall conform to the following minimum requirements:

Ceiling height, not less than	6-feet 9-inches
Floor space, no less than	240 square feet
Windows, not less than	2
Doors, outside	1
Rooms	2
Ceiling lamp receptacles	2
Double convenience outlets	2

Screens over windows; walls and ceilings shall be insulated; and interior walls finished.

(b) The building, or trailer, shall be removed by the Contractor after completion of all work under this contract and before final acceptance thereof. No separate payment will be made for furnishing, maintaining, providing the prescribed utilities, and removing the inspector's field office, but the cost of the same shall be distributed throughout the existing bid items. In the event the Contractor fails to furnish the required facilities, the Government may elect to procure the required facilities and deduct all costs from amounts due or to become due under this contract.

(c) The Contractor shall provide daily janitorial services for this and other buildings at the site throughout the life of the contract. The cost of this service

shall be distributed throughout the existing bid items and there shall be no separate payment.

(d) The Contractor shall provide the inspector's field office with a hard line broadband high speed internet service and associated equipment for the exclusive use of the Government. If this service is not practical at the jobsite, the Contractor may instead provide the inspector's field office with a cellular wireless Broadband / WiFi 802.11n capable router that accepts cellular data signals through Express Card / Air Card or USB modems. This service must be capable of providing adequate connection to allow the inspectors to import/export files through RMS. The Contractor must field verify that the service provider chosen has adequate continuous coverage at the construction site. This service shall provide a minimum download speed of 20 Mbps and a minimum upload speed of 5 Mbps. The Contractor shall be responsible for the installation, the maintenance of, and the monthly service fees necessary to provide continuous high speed internet service for the duration of the contract.

(e) The Government and Contractor's field offices shall be placed within the location and limits of the Government environmentally cleared right of way (ROW) or Limits of Construction (LOC).

5. PROJECT SIGN

Prior to commencement of work, the Contractor shall construct a project sign at the site of the work at a location directed by the Contracting Officer. The sign, which will identify the BIL work with the Corps of Engineers shall be 4 feet by 6 feet in size and shall conform to the requirements of the PROJECT SIGN drawing and installation instructions attached at the end of this section. The lettering for the 2 feet by 4 feet section of the sign with the Corps logo and Army Star shall be white; all other lettering shall be black. Lettering for the project name shall be Helvetica Bold, all other lettering shall be Helvetica Regular. The sign coordinator is Timothy Lacoste @ 504.862.2663. No separate payment will be made for construction and erection of the project sign and all costs in connection therewith will be considered an incidental obligation of the Contractor. Upon completion of the work, the sign shall become the property of the Contractor and shall be removed from the job site.

6. RIGHTS-OF-WAY

(a) The rights of entry required for the work to be constructed under this contract, within the rights-of-way limits indicated on the drawings, have been obtained by the Government and are provided without cost to the Contractor. The Contractor shall make its own investigations to determine the conditions, restrictions, and difficulties that may be encountered in the transportation of equipment and material to and from the work site. The proposed work, including rights-of-way, as defined by these specifications and as shown on the drawings, is in compliance with all applicable Federal and state environmental laws and

regulations. Upon completion of the Contractor's work, rights-of-way furnished by the Government shall be returned to its original condition prior to construction unless otherwise noted.

(b) If the Contractor proposes a deviation from the Government furnished rights-of-way for his convenience, the Contractor shall notify the Contracting Officer or its representative in writing. Contractor shall not provide any permanent rights-of-way for the project. The Contractor is cautioned that any deviation to the Government furnished rights-of-way is subject to all applicable Federal and state environmental laws and regulations. Compliance with these environmental laws and regulations may require additional National Environmental Policy Act (NEPA) documents, cultural resources surveys, coordination with the Louisiana State Historical Preservation Officer, water quality certification, modification of the Federal consistency determination, etc. The Government is ultimately responsible for environmental compliance; therefore, the Government will determine the additional environmental coordination and documentation necessary for a proposed deviation to the Government furnished rights-of-way. For any environmental investigations the Government is to perform on areas outside of Government furnished rights-of-way, the Contractor shall provide sufficient rights of entry to the Government. The Contracting Officer will advise the Contractor of the additional environmental coordination and documentation that must be completed. The Government shall be responsible for any additional environmental compliance; however, the Contractor may conduct specific tasks identified by the Government. The Government will offer advice and assistance to the Contractor in conducting these tasks. Depending on the environmental impact of the proposed deviation, obtaining the coordination and documentation may not be approved or could take as much as 180 days for approval by the Government. The Government must review, approve and ensure distribution of all environmental compliance documentation and ensure all comments on the same have been resolved before any utilization of any areas outside of the Government furnished rights-of-way. The Contractor shall reimburse the Government for actual expenses incurred for assistance in completing or attempting to complete additional environmental coordination and documentation, which expenses will not exceed one hundred thousand ($100,000.00) dollars. There is no guarantee that environmental compliance will be obtained; therefore, the Contractor shall assume all risks and liabilities associated with pursuing a deviation. Any delays resulting from the deviation and/or the environmental coordination and documentation shall not be made the basis of any Contractor claim for increase in the contract cost and/or increase in contract time. Deviations will be at Contractor's sole risk and liability, including, but not limited to, such liabilities associated with items such as hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601 et. seq.), and at no cost to the Government. Government assistance in obtaining additional environmental clearances does not relieve the Contractor of responsibility for complying with other Federal, state or local licenses and permits.

7. CERTIFICATES OF COMPLIANCE

Any certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in three (3) copies. Each certificate shall be signed by an official authorized to certify on behalf of the manufacturing company and shall contain the name and address of the Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if, after tests are performed on selected samples, the material is found not to meet specified requirements.

8. ENVIRONMENTAL LITIGATION

(a) The term "environmental litigation", as used herein, means a lawsuit alleging that the work has an adverse effect on the environment or that the Government has not duly considered, either substantively or procedurally, the effect of the work on the environment.

(b) If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined above, the Contracting Officer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a Subcontractor at any tier not required by the terms of this contract. If the order is not due in any part to acts or omissions of the Contractor (or a Subcontractor at any tier) other than as required by this contract, such suspension, delay, or interruption shall be as if ordered by the Contracting Officer under the Contract Clause in Section 00700, entitled SUSPENSION OF WORK (FAR 52.242-14). The period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

9. UTILITIES AND IMPROVEMENTS

(a) All known utilities within the limits of the work, such as pipes, communication lines, power lines, etc., that would interfere with construction work will be removed, modified or relocated by local interests or utility companies at no cost to the Contractor unless otherwise noted in the plans and/or specifications. The Contractor, however, shall cooperate with the authorities or company representatives and shall conduct his/her operations in such manner as to result in a minimum of inconveniences to the owners of said utilities. The Contractor shall notify each utility owner by certified mail 45 days, 15 days, and again 72

hours prior to the date utilities must be moved and provide a copy of these notifications to the Contracting Officer.

(b) Any unidentified pipes or structures which may be found within the limits of the work during the course of construction shall not be disturbed nor shall construction or excavation be performed at these locations unless and until approved by the Contracting Officer.

Power Company Contact:
SLEMCO
2727 SE Evangeline Thruway
Lafayette, LA 70508
337-896-5384

10. PERMISSIBLE HOURS OF WORK

When the Contractor elects to work weekends, holidays, and nights, notice shall be given to the Contracting Officer, in writing, 36 hours in advance of commencement of such operations to permit suitable arrangements for inspections to be made. Adequate lighting for safe operations and thorough inspection of night operations shall be provided by the Contractor at his/her own expense.

11. EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE

(a) This clause does not apply to terminations.

(b) Allowable costs for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a Contractor or Subcontractor at any tier shall be based on actual cost data for each piece of equipment or groups of similar serial and series for which the Government can determine both ownership and operating costs from the Contractor's accounting records. When both ownership and operating costs cannot be determined for any piece of equipment or groups of similar serial or series equipment from the Contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of Engineering Pamphlet (EP) 1110-1-8, "Construction Equipment Ownership and Operating Expense Schedule," Region III. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the Contracting Officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retroactive pricing, the schedule in effect at the time the work was performed shall apply.

(c) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(2) (ii) and FAR 31.205-36, Rental Costs. Rates for equipment rented

from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements, will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees.

(d) When actual equipment costs are proposed and the total amount of the pricing action exceeds the simplified acquisition threshold (SAT), the Contracting Officer will request the Contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet.

NOTE: A copy of the "EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE" for Region III can be obtained from the following website:

https://www.publications.usace.army.mil/Portals/76/Users/182/86/2486/EP%201110-1-8_RV1-12.pdf?ver=x6psY-gBPGg5dSOqQdjEMg%3d%3d

12. AGGREGATE SOURCES

(a) Concrete aggregates meeting the quality requirements of these specifications have been produced from the sources listed below:

April 2025

PRODUCER	NEAREST TOWN PIT*	TYPE	PIT DESIGNATION
Arcosa	Watson, LA	S, G	Glaciel Lease
Arcosa	Watson, LA	S, G	Mullins Lease
Arcosa	Watson, LA	S, G	Weyerhauser Lease
Arcosa	Watson, LA	S, G	Clemons Plant
Arcosa	Independence, LA	S, G	Plant 1341
Arcosa	Franklinton, LA	S, G	Plant 1345
Arcosa	Hattiesburg, MS	S	Plant 63
Arcosa	Hattiesburg, MS	S	Plant 80
Arcosa	Enon, LA	S, G	Enon Pit (C-10 & CZ-30 leases)
Arcosa	Franklinton, LA	G	Green Lakes Plant
Arcosa	Pearl River, LA	S, G	Mitchell - 11 Plant
Arcosa	Pearl River, LA	S, G	Nicholson Plant (Nic-9)
Arcosa	Clinton, LA	S, G	Plant 1342
B. & M. B., Inc.	Jackson, LA	S, G	Dudley Pit
B. & M. B., Inc.	Wakefield, LA	S, G	Island Pit
B. & M. B., Inc.	Jackson, LA	S, G	Thompson Pit

PRODUCER	NEAREST TOWN PIT*	TYPE	PIT DESIGNATION
Barriere's Construction Co., LLC	Arcola, LA	S, G	Ponder Pit
Bayou Sand and Gravel, LLC	Amite, LA	S, G	Bayou Sand and Gravel
Blain Sand & Gravel, Inc.	Georgetown, MS	S, G	Bailey Pit
Bunch Gravel Co.	Clinton, LA	G	Bunch Gravel Plant #1
Bunch Gravel Co.	Darlington, LA	S, G	Bunch Gravel Plant #2
DK Aggregates, LLC	Nicholson, MS	S, G	DK Aggregates Pit
Fleniken Sand & Gravel Co.	Grangeville, LA	S, G	Flen-Rock Pit (Spears Lease)
Irv Daniel	Wakefield, LA	S, G	Island Pit
JM Norsworthy	St. Francisville	S*, G	Evergreen Pit (Island Rd)
Lafarge North America	Pearl River, LA	S, G	Honey Island Operation
Lafarge North America	Sun, LA	S, G	Isabel Plant
Martin Marietta Aggregates	Smithland, KY	LS	Three Rivers Quarry
Mears Sand & Gravel Co.	Watson, LA	S, G	Penny & Easterly Lease
Norris Springs Gravel	Sicily Island, LA	S, G	Norris Springs Gravel Pit
Pine Bluff Sand & Gravel Co.	Delaware, AR	SS	River Mountain Quarry
Texas Industries, Inc.	Perryville, LA	S, G	Perryville Plant
Texas Industries, Inc.	Woodworth, LA	S, G	Woodworth Plant
Tower Rock Stone Co.	Scott City, MO	LS	Grays Point Quarry
Trinity Materials, Inc	DeRidder, LA	S, G	Anacoco Creek Plant
Vulcan Materials Co.	Lake City, KY	LS	Grand Rivers Quarry
**Vulcan Materials Co.	Playa del Carmen, Mexico	LS	Calica Pit
Warren Paving Co.	Salem, KY	LS	Slats Lucas Quarry

Type:			
G = Gravel	LS = Limestone	S = Sand	SS = Sandstone

*"Nearest Town to Pit" according to LDOTD Official State Highway Map and Rand McNally Road Atlas copyrighted 2010.

(b) Concrete aggregates may be furnished from any of the above listed sources or at the option of the Contractor may be furnished from any other source designated by the Contractor and approved by the Contracting Officer, subject to the conditions hereinafter stated and as specified in Sections 03 30 04.00 12, 03 45 33, and 31 62 13.20 12.

(c) After the award of the contract, the Contractor shall designate in writing only one source or one combination of sources to furnish aggregates. If the Contractor proposes to furnish aggregates from a source or from sources not listed above, a single source or single combination of sources of aggregates may be designated. If a source for coarse and/or fine aggregate so designated by the Contractor is not approved for use by the Contracting Officer, the Contractor may

not submit for approval other sources but shall furnish the coarse and/or fine aggregate, as the case may be, from a source listed above at no additional cost to the Government.

(d) The listings of the names of the aggregate suppliers do not constitute an endorsement of such companies. Approval of a source of concrete aggregate is not to be construed as approval of all material from that source. The right is reserved to reject materials from certain localized areas, zones, strata, or channels, when such materials do not conform to the quality requirements of ASTM C 33-2011, Concrete Aggregates. Aggregate gradations shall be in accordance with the specified requirements of Sections 03 30 04.00 12, 03 45 33, and 31 62 13.20 12.

(e) The Contractor shall determine that the aggregate source or combination of sources selected is capable of supplying the quantities and gradations needed and at the rates needed to maintain the scheduled progress of the work. The inability of a source or combination of sources to maintain the necessary volume shall not be the basis for any claim for a time extension.

13. SIGNAL LIGHTS

The Contractor shall display signal lights and conduct his/her operations in accordance with U. S. Coast Guard regulations governing lights and day signals to be displayed, as set forth in Commandant, U. S. Coast Guard Instruction M16672.2C, Navigation Rules, International - Inland (COMDTINST M16672); 33 CFR 81, Appendix A (International); and 33 CFR 84 through 33 CFR 90 (Inland) as applicable.

14. FORMAT OF SURVEYS

(a) The Contractor shall submit compliance surveys upon completion of certain construction activities. The compliance surveys shall be performed by, and reports signed and sealed by, a surveyor licensed by the State of Louisiana. The survey shall be collected in accordance with the “USACE New Orleans District Minimum Survey Standards” and delivered in USACE EM Format as described in “Engineering Manual File Format Specifications”. Links to these documents are shown below:

http://www.mvn.usace.army.mil/Missions/Engineering/SurveySection/SurveyingGuidelines.aspx

http://www.mvn.usace.army.mil/portals/56/docs/engineering/Geospatial/EM_Format09.pdf

(b) Each surveyed point should be listed on a separate line as a comma-delimited list of the following:

(1) Point ID, northing, easting, elevation, code

(2) Surveyed points that are part of a profile shall be grouped under the appropriate #P01 record for that profile.

(3) Surveyed points that are part of a cross-section shall be grouped under the appropriate #X01 record for that cross-section.

(4) All other points shall be grouped under the appropriate #M01 record.

(c) Each Project Control Point (PCP) shall be included as #V/#T records with the surveyed elevation #V/T06, and vertical datum and epoch information. Absolute vertical and horizontal accuracies shall be shown in the #H03 and #H17 records. The USACE Survey Drivers shall be used to check for proper formatting.

http://www.mvn.usace.army.mil/Missions/Engineering/GeospatialSection/USACESurveyDrivers.aspx

(d) A survey report shall be delivered which includes a brief synopsis of the survey methodology (traverse run, level loops, GPS). Copies of all supporting field books shall be signed and sealed by a Licensed Surveyor registered in the state in which the work is being performed. If static GPS is collected, minimally and fully constrained GPS adjustment reports must be delivered as well as any other notes, reports, raw data, and supporting documentation.

(e) All surveys shall adhere to the requirements of the “USACE New Orleans District Minimum Survey Standards” and be performed by a licensed surveyor registered in the state in which the work is being performed. The point of contact for survey information is Dwayne Blanchard @ 504.862.1589.

15. BENCHMARK VERIFICATION SURVEYS

(a) Project Control Points. For purposes of vertical control, Project Control Points may be referred to as Project Benchmarks. Project Control Points located at the project site may be used as Local Project Control Points and referred to as Site Benchmarks. To ensure local / internal consistency, the Contractor shall verify all Project Benchmarks and Site Benchmarks using differential leveling following Section J of the “USACE New Orleans District Minimum Survey Standards”. All benchmarks serve as vertical control for the entire project. The benchmark verification survey shall constrain to the Primary Benchmark as shown on the drawings. The differential levels must be to Second Order Class II closure standards, as defined in Appendix 4 of the Minimum Survey Standards, and as follows: closure error (in feet) must be less than or equal to 0.035 x √(distance in miles). Significant closure error (any random error whose magnitude would affect the final elevation of benchmarks when significant digits are considered) shall be distributed through all benchmarks (Project Benchmarks

and Site Benchmarks) according to their relative distance along the loop. Verification of all benchmarks shall be performed within 14 days of receipt of the Notice to Proceed and at least every 6 months using differential leveling.

(b) Site Benchmarks. At all established hurricane protection, flood control, shore protection, and navigation projects, three permanent site benchmarks (new or existing) shall be identified/established at the immediate work site (situated as nearly as practicable at the middle and at each end of the project) and referenced to the applicable required epoch of NAVD88. Site Benchmarks are Local Project Control Points provided on the drawings or monuments set by the Contractor according to EM 1110-1-1002, Survey Markers and Monumentation. Site Benchmarks set by the Contractor are limited to types A, B, C, F, or G as described in Chapter 3 of EM 1110-1-1002 and the type and location must be approved in advance by the District Datum Coordinator (DDC). Vertical positioning for all construction activities shall be constrained to a Project or Site Benchmark. To obtain pre-approval for a proposed Site Benchmark, the Contractor shall submit the following to the Contracting Officer's representative (COR): the approximate proposed x, y position; the type of monument; and 5 photos of the proposed location: 1 of the proposed site, and 4 photos taken from the proposed site facing in 4 cardinal directions.

http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-1-1002.pdf

(c) Survey Report. The benchmark verification survey data shall be submitted in a Survey Report signed and sealed by a Licensed Surveyor registered in the state in which the work is being performed. The survey report shall be updated and submitted with each benchmark verification survey. The survey report shall include a table of all Project and Site Benchmark measurements and all previous benchmark verification measurements for comparison purposes. The report shall include a graphic that shows the approximate positions of all control points, the route of the differential level loop, and the approximate distances between control points. The report shall include clear, legible field notes that show the daily "Two-Peg Test", all measurements and calculations, and the closure error for each closed loop. Any raw data such as digital level pre or post-processing reports should be included. Each level loop shall be reviewed and initialed in the field book by a person independent of the field crew performing the level loop. Only the field notes for the current benchmark verification survey should be included in each report.

(d) Submittals. Survey Reports of the benchmark verifications shall be submitted to the Contracting Officer's Representative (COR) in electronic format via RMS-CM within 7 days of the completion of the benchmark verification. If the file is too large to submit via RMS-CM, contact the COR for alternate methods. The COR shall be notified immediately if any errors or inconsistencies in the benchmark verifications are found. The Survey Report of the first benchmark

verification survey must be received within 14 days of receipt of the Notice to Proceed or as required by the COR.

16. REQUIRED INSURANCE SCHEDULE

The Contractor and subcontractor shall procure and maintain during the entire period of this performance under this contract the following minimum insurance.

(a) Employer's Liability Insurance. The Contractor shall furnish evidence of Employer's Liability Insurance in an amount of not less than $100,000.

(b) General Liability Insurance. Bodily injury liability insurance in the minimum limits of $500,000 per occurrence on the comprehensive form of policy.

(c) Automobile Liability Insurance. Minimum limits of $200,000 per person and $500,000 per occurrence for bodily injury and $20,000 per accident for property damage. This insurance shall cover the operation of all automobiles used in performance of the contract. All vehicles to be used in the performance of this contract shall be expressly designated in the insurance policy. A copy of the list of such vehicles shall be submitted to the Contracting Officer. In the event that the Contractor acquires a new vehicle for use on this contract after his/her insurance policy has been obtained, he/she shall immediately amend his/her policy to reflect the inclusion of the new vehicle on the policy. In no event shall the Contractor drive a vehicle on the Government installation without first obtaining the required coverage for said vehicle.

17. COMMERCIAL WARRANTY

The Contractor agrees that the standard commercial equipment furnished under this contract shall be covered by the most favorable commercial warranties the manufacturer gives to any customer for such equipment, and that the remedies provided herein are in addition to and do not limit any rights afforded to the Government by any other clause of this contract. Two copies of the warranties shall be furnished by the Contractor to the Contracting Officer.

18. ACCESS PLAN

The Contractor shall submit an Access Plan to be reviewed and approved by the Contracting Officer to include, as a minimum, the following:

(a) Layout drawings showing the location of all equipment, office structures, toilets, and storage areas for materials.

(b) Show mobilization and demobilization routing and locations of large equipment, such as draglines, cranes, etc. while on the jobsite.

(c) Show waterway channels or canals used to mobilize and demobilize equipment and materials and show access routes and docking areas of all marine equipment with respect to the jobsite.

19. EXISTING FACILITIES

(a) Protection and Relocation of Existing Structures and Utilities. The Contractor shall assume full responsibility for the protection of all structures and utilities, public or private, including poles, signs, services to building utilities, in the street, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the drawings. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's negligence shall be repaired by him at his expense. (See related General Provision entitled "DAMAGED STRUCTURES AND ROADWAYS" below.)

(b) The Contractor shall bear full responsibility for locating all underground structures and utilities (including existing water services, drain lines, and sewers) as indicated on the plan drawings. Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by the Contractor.

(c) If, in the opinion of the Contracting Officer, permanent relocation of a utility owned by the Parish is required and is not indicated on the plans, he may direct the Contractor in writing, to perform the work. Work so ordered will be paid for by an equitable adjustment under the Contract Clause in Section 00700, entitled CHANGES (FAR 52.243-4). If relocation of a privately owned utility is required, the Contractor shall notify the utility owner and shall have no claim for delay due to such relocation.

(d) Care and Protection of Property. The Contractor shall be responsible for the preservation of all public and private property and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in another manner acceptable to the Contracting Officer.

(e) Sidewalks and Curbs. All sidewalks which are disturbed by the Contractor's operations shall be restored to their original or better condition by the use of similar or comparable materials. All curbing shall be restored in a condition equal to the original construction and in accordance with the current Federal (American Disability Act - ADA), State and local code requirements.

(f) Other Features. Along the location of this work, all fences, walks, bushes, trees, shrubbery, and other physical features noted on the drawings to remain, shall be protected and restored in a thoroughly workmanlike manner.

(g) Trees. Trees close to the work shall be boxed or otherwise protected against injury. The Contractor shall trim all branches that are liable to damage because of his operations, but in no case shall any tree be cut or removed without prior notification of the Contracting Officer. All injuries to bark, trunk, limbs, and roots of trees shall be repaired.

(h) The protection, removal, and replacement of existing physical features along the line of work shall be a part of the work under the contract, and all costs in connection therewith shall be included in the applicable contract unit and/or job prices for which the work is incidental.

(i) Water for Construction Purposes. In locations where public water supply is available, the Contractor may purchase water for all construction purposes. The express approval of the Water Department of the Parish shall be obtained in writing. Hydrants shall only be operated under the supervision of the Water Department personnel of the Parish.

20. DAMAGED ROADWAYS

Any roadways damaged by the Contractor's negligence shall be removed and replaced at his/her expense, as directed by the Contracting Officer. The Contractor shall coordinate the work with the Contracting Officer's representative.

21. FIELD VERIFICATION OF UTILITY LOCATIONS

Documentation on the exact locations of various underground utilities is not available except as shown in the reference drawings. In particular, the exact locations of water service and septic system field lines are not precisely known. The Contractor shall verify the locations of underground utilities prior to digging for any purpose.

22. SECURITY

Federal Government agencies, including the US Army Corps of Engineers, may institute restrictive security procedures at their sites when such are deemed necessary. Security levels and associated procedures may change without advance warning. Contractors and Subcontractors shall abide by all security measures in force at any time during the duration of the contract.

(a) Personnel Identification

All Contractor and Subcontractor personnel shall have photo identification issued by a State or Federal Government agency on their persons at all times they are on the Government reservation. Identification that does not include a photograph

is not acceptable, nor is identification issued by a company, school, or other agency other than a Federal or State Government agency authorized to issue identification. Personnel may be required to show identification in order to enter the Government reservation or while on the grounds of the reservation, and may be denied access, or may be required to leave the site, if such identification is not valid or not carried.

(b) Vehicle Identification

All vehicles used by Contractor or Subcontractor personnel, whether company- or privately-owned, shall have valid license plates, safety inspection stickers, and registration documents from the state(s) in which the vehicles are registered.

(c) Vehicle Searches

All vehicles, privately or corporately owned, are subject to search while on the grounds of any Government reservation. Entering the reservation constitutes consent to search. Any contraband found during a search is subject to seizure. The drivers and/or occupants of a vehicle carrying contraband are subject to criminal prosecution, and any vehicle found to contain contraband is subject to impoundment by the appropriate law enforcement agency. Contraband includes but is not limited to, firearms, explosives, and drugs or other controlled substances.

(d) Site Access

The main entrance to the lock reservation is controlled by an electronically-operated gate. Contractor and Subcontractor personnel will not be given the entrance code, but instead shall be required to request access each day from the Government personnel operating the gate. During some high levels of security preparedness, Government personnel may deny the Contractor access to the work site. In such a case, the contract duration will be extended one day for each day the Contractor was denied access, but no other compensation or consideration will be made for such delays. Contractor will not have access to the interior of any buildings on the site without COR approval. The Contractor will not have access to the USACE network nor computers.

23. VIDEO AND PHOTOGRAPHIC DOCUMENTATION

The pre-construction and post-construction conditions of permanent roads, streets, driveways, sidewalks, above-ground utilities, and existing structures shall be verified and documented by the use of Contractor-furnished photographs and videos. Use of uncrewed aircraft (drone) to accomplish video and photographic documentation of conditions must be performed in accordance with EM 385-1-1 Chapter 33, which defines restrictions on flight safety, types of equipment and coordination/flight clearance requirements for UAS (drone) operations. All video and photographic documentation shall follow:

(1) Videos shall be digital format (DVD) with voice over commentary describing all pertinent or unusual conditions.

(2) Videos shall have a stamped date.

(3) Photographs shall be 35 mm or digital, color, and 4 inch x 6 inch size minimum, and shall have stamped date.

(4) The Contractor shall provide two (2) copies of the DVD and two (2) copies of photos with negatives or CDs containing files to the Contracting Officer for the Contract file.

(5) Electronic photos shall be accompanied by a log describing the content of each photo.

(6) Two (2) hard copies shall be assembled in a report form with a cover letter attached.

(7) In the report, a description of each picture identifying and describing the location and indicating the date of the photograph shall be typed beneath each picture.

(8) On the reverse of each photograph, the Contractor shall affix a self-adhesive label on the reverse of each picture that shall identify the location, describe the photographed object and indicate the date of the photograph and name of the person who documents the information.

(9) All the information on the label shall be typewritten in black.

(10) Additionally, the name shall also be signed.

(11) The Contractor shall coordinate so that representatives of the Contracting Officer are present during the pre- and post-construction documentation.

No separate measurement or payment will be made for video and photographic documentation. Payment will be included in the contract job price for "Mobilization and Demobilization".

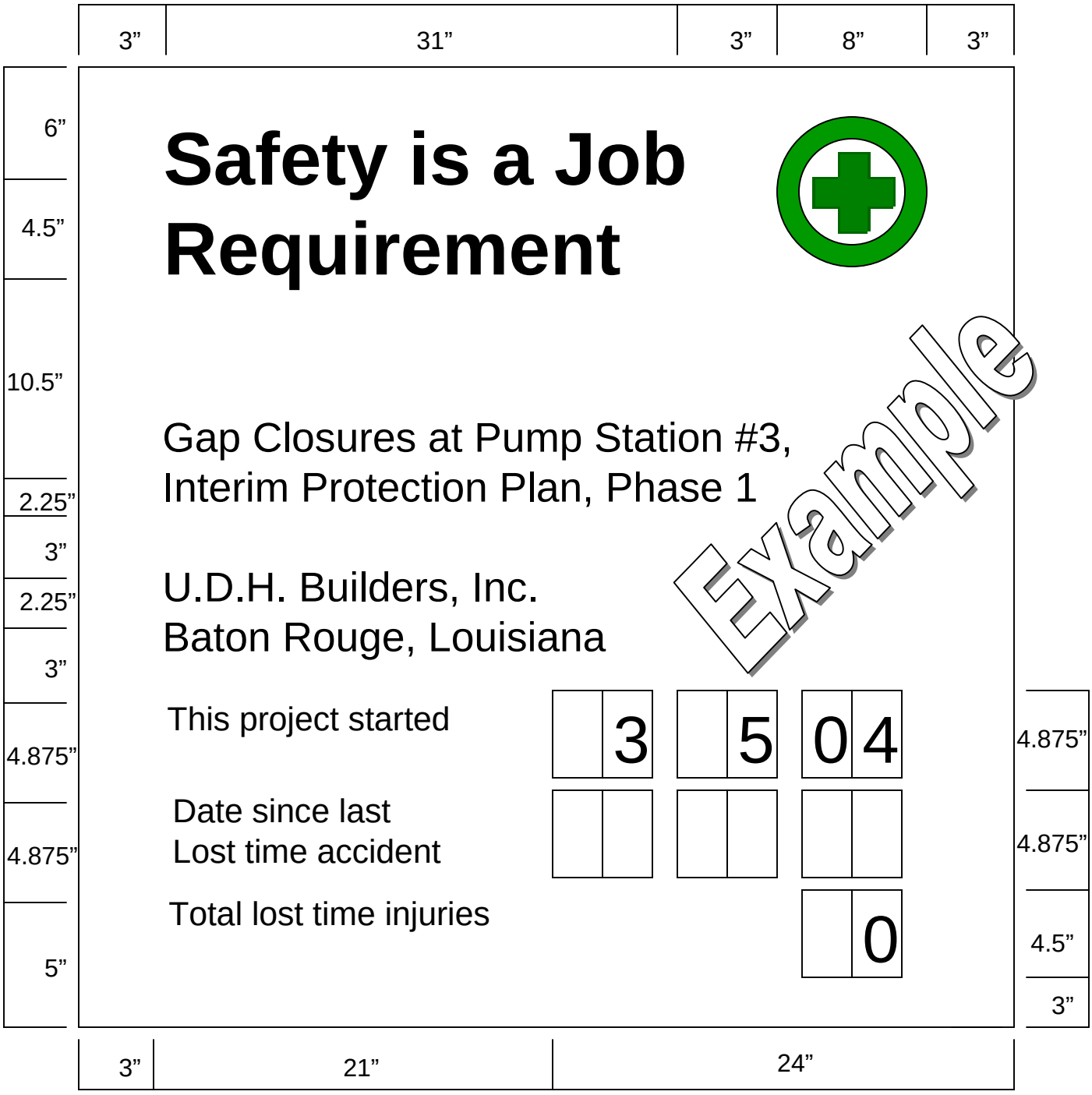
24. SECURITY REQUIREMENTS

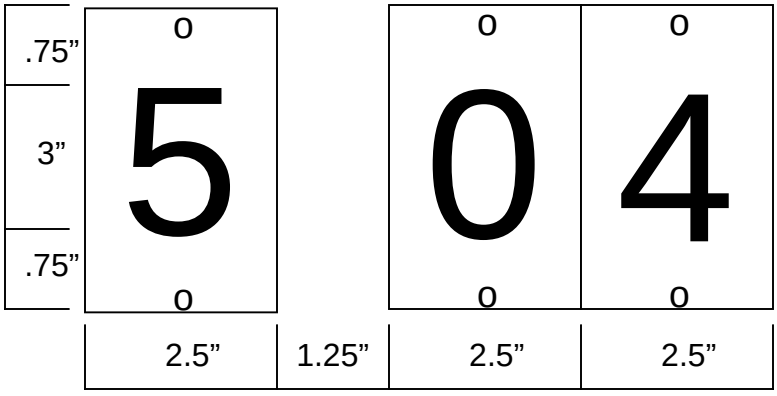
(a) Suspicious Activity Reporting Training (e.g. iWATCH, CorpsWatch, or See Something, Say Something). The Contractor will not have access to the CORPS network. This is an unclassified contract, and the Contractor will not have access to critical information. The Contractor and all associated sub-contractors shall receive locally developed training provided by the New Orleans District Security Office on the Local Suspicious Activity Reporting Program. This training will be

used to inform employees of the types of behavior to watch for and instruct employees to report suspicious activity relating to the project manager, security representative or law enforcement entity. The Contractor shall provide local background checks to New Orleans District Security Office before performing work. Point of contact is Rhonda Brown, 251.694.4436. This training shall be completed within 30 calendar days of contract award and within 30 calendar days of new employees commencing performance. The results of this training shall be reported to the COR within 5 calendar days after the completion of the training.

(b) Pre-Screen Candidates Using E-Verify Program. The Contractor shall pre-screen Candidates using the E-verify Program (https://www.uscis.gov/e-verify) website to meet the established employment eligibility requirements. The Contractor shall ensure that the Candidate has two valid forms of Government issued identification prior to enrollment to ensure the correct information is entered into the E-verify system. An initial list of verified/eligible Candidates shall be provided to the COR no later than 3 business days after the initial contract award. When contracts are with individuals, the individuals shall complete a Form I-9, Employment Eligibility Verification, with the designated Government representative. The completed Form I-9 shall be provided to the Contracting Officer and shall become part of the official contract file.

3″
21″
3″
42″
3″
Design and Construction
Supervised by:
US Army Corps
of Engineers
New Orleans District
U.S.ARMY
7.875″
Replacement of
North Spillway
Gates
Vertically center the featured text group for the project location (below), depending on the number of text lines in the above project title.
Lock and Dam 12
Mississippi River
Contractor:
Oscar Construction Co.
Kansas City, Missouri
Consulting Engineer:
Wilmington, Rotheau, and
Eddings Engineering, Inc.
Chicago, Illinois
21″
1″
21″
2″


3”
31”
3”
8”
3”
6”
4.5”
10.5”
2.25”
3”
2.25”
3”
4.875”
4.875”
5”
Safety is a Job Requirement
Example
Gap Closures at Pump Station #3,
Interim Protection Plan, Phase 1
U.D.H. Builders, Inc.
Baton Rouge, Louisiana
This project started
3
5
0 4
Date since last
Lost time accident
Total lost time injuries
0
4.875”
4.875”
4.5”
3”
3”
21”
24”


.75”
3”
.75”
5
0 4
2.5”
1.25”
2.5”
2.5”

(NOT TO SCALE)

Below are two samples of the construction project identification sign showing how this panel is adaptable for use to identify either military (top), or civil works projects (bottom). The graphic format for this 4′ x 6′ sign panel follows the legend guidelines and layout as specified below. The large 4′ x 4′ section of the panel on the right is to be white with black legend. The 2′ x 4′ section of the sign on the left with the full Corps signature (reverse version) is to be screen printed Communications Red on the white background.

This sign is to be placed with the Safety Performance Sign shown on the following page. Mounting and fabrication details are provided on page 16.4.

Special applications or situations not covered in these guidelines should be referred to the District/Division sign coordinator.

Legend Group 1: One- to two-line description of Corps relationship to project.
Color: White
Typeface: 1.25″ Helvetica Regular
Maximum line length: 19″

Legend Group 2: Division or District Name (optional). Placed below 10.5″ Reverse Signature (6″ Castle).
Color: White
Typeface: 1.25″ Helvetica Regular

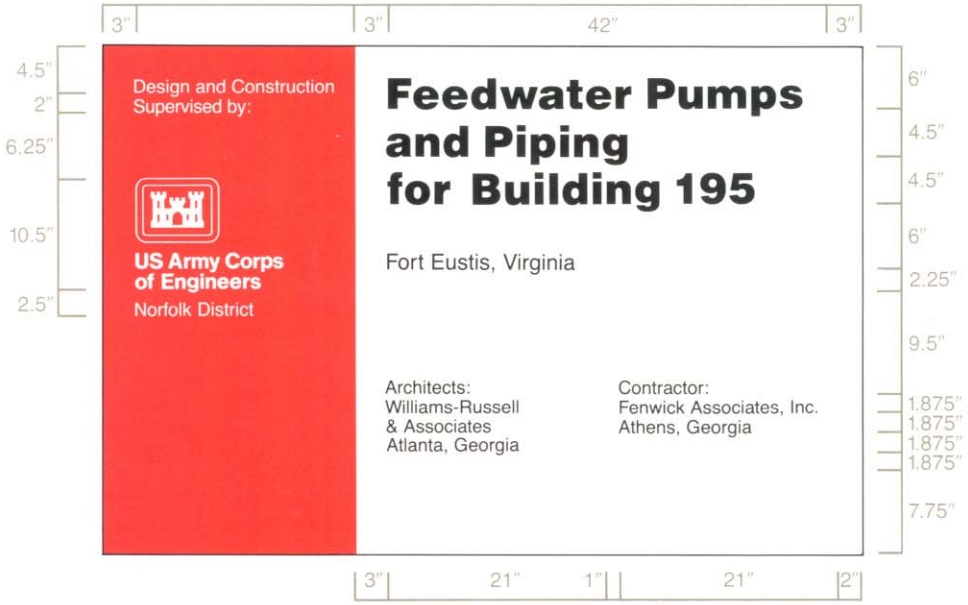
Legend Group 3: One- to three-line project title legend describes the work being done under this contract.
Color: Black
Typeface: 3″ Helvetica Bold
Maximum line length: 42″

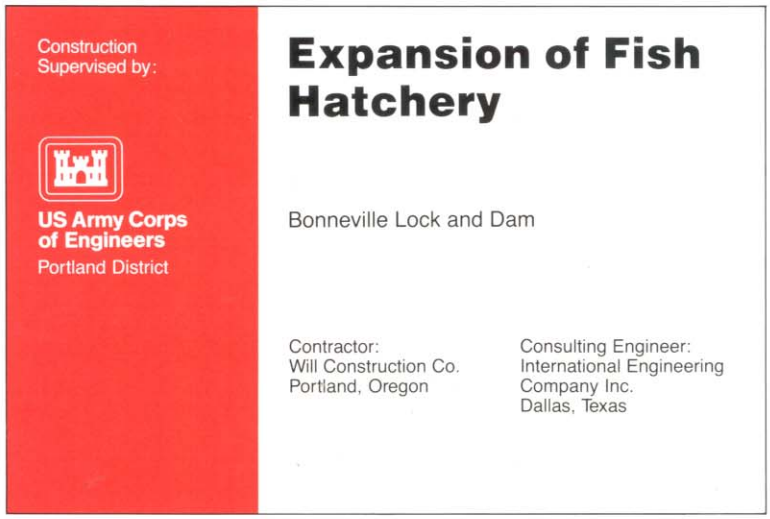
Legend Group 4: One- to two-line identification of project or facility (civil works) or name of sponsoring department (military).
Color: Black
Typeface: 1.5″ Helvetica Regular
Maximum line length: 42″

Cross-align the first line of Legend Group 4 with the first line of the Corps Signature (US Army Corps) as shown.

Legend Groups 5a-b: One- to five-line identification of prime contractors including: type (architect, general contractor, etc.), corporate or firm name, city, state. Use of Legend Group 5 is optional.
Color: Black
Typeface: 1.25″ Helvetica Regular
Maximum line length: 21″

All typography is flush left and rag right, upper and lower case with initial capitals only as shown. Letter- and word-spacing to follow Corps standards as specified in Appendix D.





Sign Type	Legend Size	Panel Size	Post Size	Specification Code	Mounting Height	Color Bkg/Lgd
CID-01	various	4″ x 6″	4″ x 4″	HDO-3	48″	WH-RD/BK

Each contractor's safety record is to be posted on Corps managed or supervised construction projects and mounted with the construction project identification sign specified on page 16.2.

The graphic format, color, size and typefaces used on the sign are to be reproduced exactly as specified below. The title with First Aid logo in the top section of the sign, and the performance record captions are standard for all signs of this type. Legend Groups 2 and 3 below identify the project and the contractor and are to be placed on the sign as shown.

Safety record numbers are mounted on individual metal plates and are screw-mounted to the background to allow for daily revisions to posted safety performance record.

Special applications or situations not covered in these guidelines should be referred to the District/Division sign coordinator.

Legend Group 1: Standard two-line title "Safety is a Job Requirement", with (8" od.) Safety Green First Aid logo. Color: To match PMS 347
Typeface: 3" Helvetica Bold
Color: Black

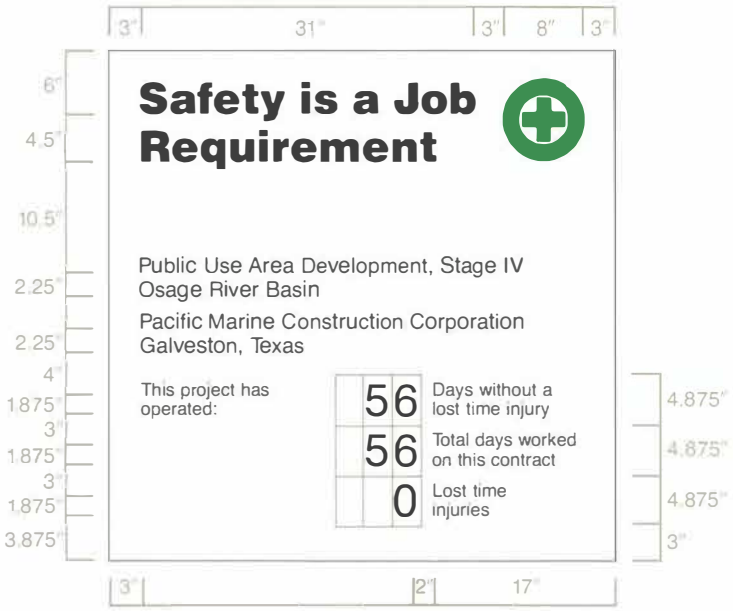
Legend Group 2: One- to two-line project title legend describes the work being done under this contract and name of host project.
Color: Black
Typeface: 1.5" Helvetica Regular
Maximum line length: 42"

Legend Group 3: One- to two-line identification: name of prime contractor and city, state address.
Color: Black
Typeface: 1.5" Helvetica Regular
Maximum line length: 42"

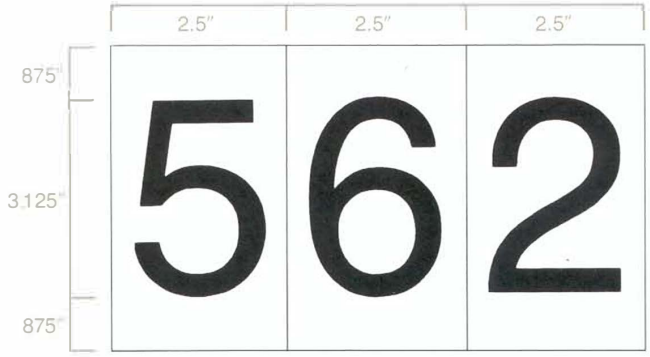
Legend Group 4: Standard safety record captions as shown.
Color: Black
Typeface: 1.25" Helvetica Regular

Replaceable numbers are to be mounted on white .060 aluminum plates and screw-mounted to background.
Color: Black
Typeface: 3" Helvetica Regular
Plate size: 2.5" x .5"

All typography is flush left and rag right, upper and lower case with initial capitals only as shown. Letter- and word-spacing to follow Corps standards as specified in Appendix D.



Sign Type	Legend Size	Panel Size	Post Size	Specification Code	Mounting Height	Color Bkg/Lgd
CID-02	various	4" x 4"	4" x 4"	HDO-3	48"	WH/BK-GR



All Construction Project Identification signs and Safety Performance signs are to be fabricated and installed as described below. The signs are to be erected at a location designated by the contracting officer and shall conform to the size, format, and typographic standards shown on pages 16.2-3. Detailed specifications for HDO plywood panel preparation are provided in Appendix B.

Shown below the mounting diagram is a panel layout grid with spaces provided for project information. Photocopy this page and use as a worksheet when preparing sign legend orders.

For additional information on the proper method to prepare sign panel graphics, contact the District sign coordinator.

The sign panels are to be fabricated from .75" High Density Overlay Plywood. Panel preparation to follow HDO specifications provided in Appendix B.

Sign graphics to be prepared on a white non-reflective vinyl film with positionable adhesive backing.

All graphics except for the Communications Red background with Corps signature on the project sign are to be die-cut or computer-cut non-reflective vinyl, pre-spaced legends prepared in the sizes and typefaces specified and applied to the background panel following the graphic formats shown on pages 16.2-3.

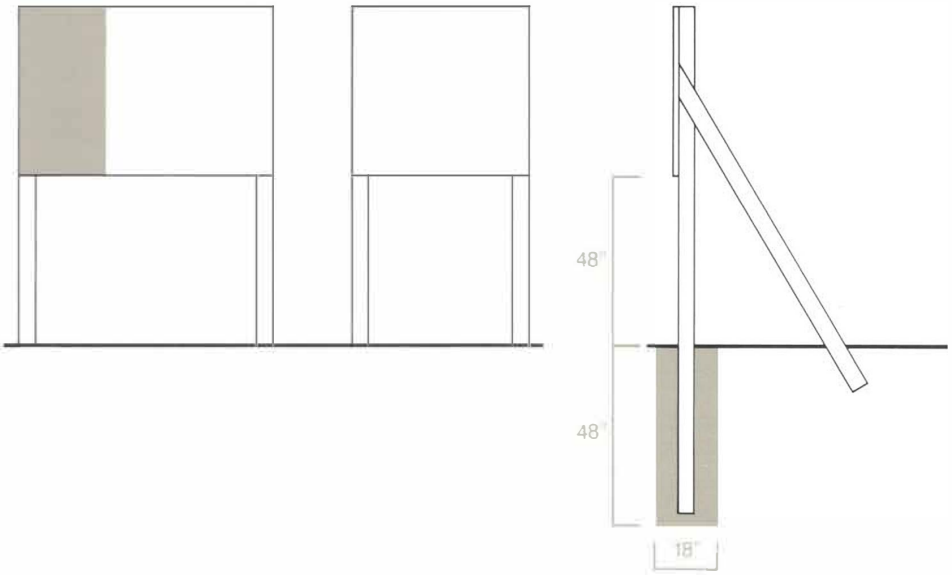
The 2' x 4' Communications Red panel (to match PMS-032) with full Corps signature (reverse version) is to be screen printed on the white background. Identification of the District or Division may be applied under the signature with white cut vinyl letters prepared to Corps standards. Large scale reproduction artwork for the signature is provided on page 4.8 (photographically enlarge from 6.875" to 10.5").

Drill and insert six (6) .375" T-nuts from the front face of the HDO sign panel. Position holes as shown. Flange of T-nut to be flush with sign face.

Apply graphic panel to prepared HDO plywood panel following manufacturers' instructions.

Sign uprights to be structural grade 4" x 4" treated Douglas Fir or Southern Yellow Pine, No.1 or better. Post to be 12' long. Drill six (6) .375" mounting holes in uprights to align with T-nuts in sign panel. Countersink (.5") back of hole to accept socket head cap screw (4" x .375").

Assemble sign panel and uprights. Embed assembled sign panel and uprights in 4' hole. Local soil conditions and/or wind loading may require bolting additional 2" x 4" struts on inside face of uprights to reinforce installation as shown.



Construction Project Sign
Legend Group 1: Corps Relationship

1. _____
2. _____

Legend Group 2: Division/District Name

1. _____
2. _____

Legend Group 3: Project Title

1. _____
2. _____
3. _____

Legend Group 4: Facility Name

1. _____
2. _____

Legend Group 5a: Contractor/A&E

1. _____
2. _____
3. _____
4. _____
5. _____

Legend Group 5b: Contractor/A&E

1. _____
2. _____
3. _____
4. _____
5. _____

Safety Performance Sign
Legend Group 1: Project Title

1. _____
2. _____

Legend Group 2: Contractor/A&E

1. _____
2. _____

ACCIDENT PREVENTION PLAN

FUEL OIL TRANSFER -- FLOATING PLANT

U.S. Army Engineer District, New Orleans

EM 385-1-1, Chapter 19-8.d

1) Contractor	2) Contract Name & Number	3) Date	
4) Officer in Charge of Fuel Transfer	4a) Name of Vessel	4b) Fuel to be Transferred	
5) Name of Vessel	5a) Names of Qualified Tankermen	5b) Type of Certification and expiration date	

6) Name of Vessel	6a) Type of fill nozzle or connection on Vessel	6b) Location of fill pipes openings	6c) Location of vents openings	
7) Type, number, and size of fire fighting equipment to be available during fuel transfer operations.				
8) Sequential steps to be followed when taking on fuel.				

_____	_____	_____	_____	
Contractor's Signature	Date	C.O. or C.O.R. Signature	Date	

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PROJECT SCHEDULE

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for construction progress schedules, and all costs associated therewith shall be included in the applicable contract unit or job prices contained in the Pricing Schedule.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AACE INTERNATIONAL (AACE)

AACE 29R-03	(2011) Forensic Schedule Analysis
AACE 52R-06	(2006) Time Impact Analysis - As Applied in Construction

U.S. ARMY CORPS OF ENGINEERS (USACE)

ER 1-1-11	(2017) Administration -- Project Schedules

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Project Scheduler Qualifications; G

Preliminary Project Schedule; G

Initial Project Schedule; G

Periodic Schedule Update; G

1.4 PROJECT SCHEDULER QUALIFICATIONS

Designate an authorized representative to be responsible for the preparation of the schedule and all required updating and production of reports. The authorized representative must have a minimum of 2-years experience scheduling construction projects similar in size and nature to this project with scheduling software that meets the requirements of this specification. Representative must have a comprehensive knowledge of CPM scheduling principles and application.

PART 2 PRODUCTS

2.1 SOFTWARE

The scheduling software utilized to produce and update the schedules required herein must be capable of meeting all requirements of this specification.

2.1.1 Government Default Software

The Government will be using Primavera P6.

2.1.2 Contractor Software

Scheduling software used by the Contractor must be commercially available from the software vendor for purchase with vendor software support agreements available. The software routine used to create the required SDEF file must be created and supported by the software manufacturer.

2.1.2.1 Primavera

The Contractor shall provide the "xer" export file in a version of P6 importable by the Government system.

2.1.2.2 Other Than Primavera

If the Contractor chooses software other than Primavera P6, that is compliant with this specification, provide for the Government's use two licenses, two computers, and training for two Government employees in the use of the software. These computers will be stand-alone and not connected to Government network. Computers and licenses will be returned at project completion.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Prepare for approval a Project Schedule, as specified herein, pursuant to FAR Clause 52.236-15 SCHEDULES FOR CONSTRUCTION CONTRACTS. Show in the schedule the proposed sequence to perform the work and dates contemplated for starting and completing all schedule activities. The scheduling of the entire project is required. The scheduling of construction is the responsibility of the Contractor. Contractor management personnel must actively participate in its development. Subcontractors and suppliers working on the project must also contribute in developing and maintaining an accurate Project Schedule. Provide a schedule that is a forward planning as well as a project monitoring tool. Use the Critical Path Method (CPM) of network calculation to generate all Project Schedules. Prepare each Project Schedule using the Precedence Diagram Method (PDM).

3.2 BASIS FOR PAYMENT AND COST LOADING

The schedule is the basis for determining contract earnings during each update period and therefore the amount of each progress payment. The aggregate value of all activities coded to a contract CLIN must equal the value of the CLIN.

3.2.1 Activity Cost Loading

Activity cost loading must be reasonable and without front-end loading. Provide additional documentation to demonstrate reasonableness if requested by the Contracting Officer.

3.2.2 Withholdings / Payment Rejection

Failure to meet the requirements of this specification may result in the disapproval of the preliminary, initial, or periodic schedule updates and subsequent rejection of payment requests until compliance is met. In the event that the Contracting Officer directs schedule revisions and those revisions have not been included in subsequent Project Schedule revisions or updates, the Contracting Officer may withhold 10 percent of pay request amount from each payment period until such revisions to the project schedule have been made.

3.3 PROJECT SCHEDULE DETAILED REQUIREMENTS

3.3.1 Level of Detail Required

Develop the Project Schedule to the appropriate level of detail to address major milestones and to allow for satisfactory project planning and execution. Failure to develop the Project Schedule to an appropriate level of detail will result in its disapproval. The Contracting Officer will consider, but is not limited to, the following characteristics and requirements to determine appropriate level of detail:

3.3.2 Activity Durations

Reasonable activity durations are those that allow the progress of ongoing activities to be accurately determined between update periods. Less than 2 percent of all non-procurement activities may have Original Durations (OD) greater than 20 work days or 30 calendar days.

3.3.3 Procurement Activities

Include activities associated with the critical submittals and their approvals, procurement, fabrication, and delivery of long lead materials, equipment, fabricated assemblies, and supplies. Long lead procurement activities are those with an anticipated procurement sequence of over 90 calendar days.

3.3.4 Mandatory Tasks

Include the following activities/tasks as they are applicable to the project in the initial project schedule and all updates.

a. Submission, review and acceptance of SD-01 Preconstruction Submittals (individual activity for each).

b. Submission of mechanical/electrical/information systems layout drawings.

c. Long procurement activities

d. Submission and approval of O & M manuals.

e. Submission and approval of as-built drawings.

f. Submission and approval of DD1354 data and installed equipment lists.

g. Submission and approval of testing and air balance (TAB).

h. Submission of TAB specialist design review report.

i. Submission and approval of fire protection specialist.

j. Submission and approval of Building Commissioning Plan, test data, and reports: Develop the schedule logic associated with testing and commissioning of mechanical systems to a level of detail consistent with the contract commissioning requirements. All tasks associated with all building testing and commissioning will be completed prior to submission of building commissioning report and subsequent contract completion.

k. Air and water balancing.

l. Building commissioning - Functional Performance Testing.

m. Controls testing plan submission.

n. Controls testing.

o. Performance Verification testing.

p. Other systems testing, if required.

q. Contractor's pre-final inspection.

r. Correction of punch list from Contractor's pre-final inspection.

s. Government's pre-final inspection.

t. Correction of punch list from Government's pre-final inspection.

u. Final inspection.

3.3.5 Government Activities

Show Government and other agency activities that could impact progress. These activities include, but are not limited to: approvals, environmental permit approvals by State regulators, inspections, utility tie-in, Government Furnished Equipment (GFE) and Notice to Proceed (NTP) for phasing requirements.

3.3.6 Standard Activity Coding Dictionary

Use the activity coding structure defined in the Standard Data Exchange Format (SDEF) in ER 1-1-11. This exact structure is mandatory. Develop and assign all Activity Codes to activities as detailed herein. A template SDEF compatible schedule backup file is available on the QCS web site: http://rms.usace.army.mil.

The SDEF format is as follows:

Field	Activity Code	Length	Description
1	WRKP	3	Workers per day
2	RESP	4	Responsible party
3	AREA	4	Area of work
4	MODF	6	Modification Number
5	BIDI	6	Pricing Schedule Item (CLIN)
6	PHAS	2	Phase of work
7	CATW	1	Category of work
8	FOW	20	Feature of work*
*Some systems require that FEATURE OF WORK values be placed in several activity code fields. The notation shown is for Primavera P6. Refer to the specific software guidelines with respect to the FEATURE OF WORK field requirements.			

3.3.6.1 Workers Per Day (WRKP)

Assign Workers per Day for all field construction or direct work activities, if directed by the Contracting Officer. Workers per day is based on the average number of workers expected each day to perform a task for the duration of that activity.

3.3.6.2 Responsible Party Coding (RESP)

Assign responsibility code for all activities to the Prime Contractor, Subcontractor(s) or the Government agency responsible for performing the activity.

a. Activities coded with a Government Responsibility code include, but are not limited to: Government approvals, Government design reviews, environmental permit approvals by State regulators, Government Furnished Property/Equipment (GFP) and Notice to Proceed (NTP) for phasing requirements.

b. Activities cannot have more than one Responsibility Code. Examples of acceptable activity code values are: DOR (for the designer of record); ELEC (for the electrical subcontractor); MECH (for the mechanical subcontractor); and GOVT (for USACE).

3.3.6.3 Area of Work Coding (AREA)

Assign Work Area code to activities based upon the work area in which the activity occurs. Define work areas based on resource constraints or space constraints that would preclude a resource, such as a particular trade or craft work crew from working in more than one work area at a time due to restraints on resources or space. Examples of Work Area Coding include different areas within a floor of a building, different floors within a building, and different buildings within a complex of buildings. Activities cannot have more than one Work Area Code. Not all activities

are required to be Work Area coded. A lack of Work Area coding indicates the activity is not resource or space constrained.

3.3.6.4 Modification Number (MODF)

Assign a Modification Number Code to any activity or sequence of activities added to the schedule as a result of a Contract Modification, when approved by Contracting Officer. Key all Code values to the Government's modification numbering system. An activity can have only one Modification Number Code.

3.3.6.5 Pricing Schedule Item Coding (BIDI)

Assign a Pricing Item Code to all activities using the Contract Line Item Schedule (CLIN) to which the activity belongs, even when an activity is not cost loaded. An activity can have only one BIDI Code.

3.3.6.6 Phase of Work Coding (PHAS)

Assign Phase of Work Code to all activities. Examples of phase of work are submittal phase, procurement phase, and construction phase. Each activity can have only one Phase of Work code.

a. Code proposed fast track design and construction phases proposed to allow filtering and organizing the schedule by fast track design and construction packages.

b. If the contract specifies phasing with separately defined performance periods, identify a Phase Code to allow filtering and organizing the schedule accordingly.

3.3.6.7 Category of Work Coding (CATW)

Assign a Category of Work Code to all activities. Category of Work Codes include, but are not limited to construction submittal, procurement, fabrication, weather sensitive installation, non-weather sensitive installation, start-up, and testing activities. Each activity can have no more than one Category of Work Code.

3.3.6.8 Feature of Work Coding (FOW)

Assign a Feature of Work Code to appropriate activities based on the Definable Feature of Work to which the activity belongs based on the approved QC plan.

Definable Feature of Work is defined in Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL. An activity can have only one Feature of Work Code.

3.3.7 Contract Milestones and Constraints

Milestone activities are to be used for significant project events including, but not limited to, project phasing, project start and end activities, or interim completion dates. The use of artificial float constraints such as "zero free float" or "zero total float" are prohibited. Mandatory constraints that ignore or effect network logic are prohibited. No constrained dates are allowed in the schedule other than those specified herein. Submit additional constraints to the Contracting Officer for approval on a case by case basis.

3.3.7.1 Project Start Date Milestone and Constraint

The first activity in the project schedule must be a start milestone titled "NTP Acknowledged," which must have a "Start On" constraint date equal to the date that the NTP is acknowledged.

3.3.7.2 End Project Finish Milestone and Constraint

The last activity in the schedule must be a finish milestone titled "End Project."

Constrain the project schedule to the Contract Completion Date in such a way that if the schedule calculates an early finish, then the float calculation for "End Project" milestone reflects positive float on the longest path. If the project schedule calculates a late finish, then the "End Project" milestone float calculation reflects negative float on the longest path. The Government is under no obligation to accelerate Government activities to support a Contractor's early completion.

3.3.7.3 Interim Completion Dates and Constraints

Constrain contractually specified interim completion dates to show negative float when the calculated late finish date of the last activity in that phase is later than the specified interim completion date.

3.3.7.3.1 Start Phase

Use a start milestone as the first activity for a project phase. Call the start milestone "Start Phase X" where "X" refers to the phase of work.

3.3.7.3.2 End Phase

Use a finish milestone as the last activity for a project phase. Call the finish milestone "End Phase X" where "X" refers to the phase of work.

3.3.8 Calendars

a. Schedule activities on a Calendar to which the activity logically belongs. Develop calendars to accommodate any contract defined work period such as a 7-day calendar for Government Acceptance activities, concrete cure times, etc. Develop the default Calendar to match the physical work plan with non-work periods identified including weekends and holidays. Develop sSeasonal Calendar(s) and assign to seasonally affected activities as applicable.

b. If an activity is weather sensitive it should be assigned to a calendar showing non-work days on a monthly basis, with the non-work days selected at random across the weeks of the calendar, using the anticipated adverse weather delay work days provided in the Section 01100 - GENERAL PROVISIONS, paragraph TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER. Assign non-work days over a seven-day week as weather records are compiled on seven-day weeks, which may cause some of the weather related non-work days to fall on weekends.

3.3.9 Open Ended Logic

a. Only two open ended activities are allowed: the first activity "NTP Acknowledged" may have no predecessor logic, and the last activity -"End Project" may have no successor logic.

b. Predecessor open ended logic may be allowed in a time impact analyses upon the Contracting Officer's approval.

3.3.10 Default Progress Data Disallowed

Actual Start and Finish dates must not automatically update with default mechanisms included in the scheduling software. Updating of the percent complete and the remaining duration of any activity must be independent functions. Disable program features that calculate one of these parameters from the other. Activity Actual Start (AS) and Actual Finish (AF) dates assigned during the updating process must match those dates provided in the Contractor Quality Control Reports. Failure to document the AS and AF dates in the Daily Quality Control report will result in disapproval of the Contractor's schedule.

3.3.11 Out-of-Sequence Progress

Activities that have progressed before all preceding logic has been satisfied (Out-of-Sequence Progress) will be allowed only on a case-by-case basis subject to approval by the Contracting Officer. Propose logic corrections to eliminate out of sequence progress or justify not changing the sequencing for approval prior to submitting an updated project schedule. Address out of sequence progress or logic changes in the Narrative Report and in the periodic schedule update meetings.

3.3.12 Added and Deleted Activities

Do not delete activities from the project schedule or add new activities to the schedule without approval from the Contracting Officer. Activity ID and description changes are considered new activities and cannot be changed without Contracting Officer approval.

3.3.13 Original Durations

Activity Original Durations (OD) must be reasonable to perform the work item. OD changes are prohibited unless justification is provided and approved by the Contracting Officer.

3.3.14 Leads, Lags, and Start to Finish Relationships

Lags must be reasonable as determined by the Government and not used in place of realistic original durations, must not be in place to artificially absorb float, or to replace proper schedule logic.

a. Leads (negative lags) are prohibited.

b. Start to Finish (SF) relationships are prohibited.

3.3.15 Retained Logic

Schedule calculations must retain the logic between predecessors and successors ("retained logic" mode) even when the successor activity(s) starts and the predecessor activity(s) has not finished (out-of-sequence progress). Software features that in effect sever the tie between predecessor and successor activities when the successor has started and the predecessor logic is not satisfied ("progress override") are not be allowed.

3.3.16 Percent Complete

Update the percent complete for each activity started, based on the realistic assessment of earned value. Activities which are complete but for remaining minor punch list work and which do not restrain the initiation of successor activities may be declared 100 percent complete to allow for proper schedule management.

3.3.17 Remaining Duration

Update the remaining duration for each activity based on the number of estimated work days it will take to complete the activity. Remaining duration may not mathematically correlate with percentage found under paragraph entitled Percent Complete.

3.3.18 Cost Loading of Closeout Activities

Cost load the "Correction of punch list from Government pre-final inspection" activity(ies) not less than 1 percent of the present contract value. Activity(ies) may be declared 100 percent complete upon the Government's verification of completion and correction of all punch list work identified during Government pre-final inspection(s).

3.3.18.1 As-Built Drawings

If there is no separate contract line item (CLIN) for as-built drawings, cost load the "Submission and approval of as-built drawings" activity not less than $35,000 or 1 percent of the present contract value, which ever is greater, up to $200,000. Activity will be declared 100 percent complete upon the Government's approval.

3.3.18.2 O & M Manuals

Cost load the "Submission and approval of O & M manuals" activity not less than $20,000. Activity will be declared 100 percent complete upon the Government's approval of all O & M manuals.

3.3.19 Early Completion Schedule and the Right to Finish Early

An Early Completion Schedule is an Initial Project Schedule (IPS) that indicates all scope of the required contract work will be completed before the contractually required completion date.

a. No IPS indicating an Early Completion will be accepted without being fully resource-loaded (including crew sizes and manhours) and the Government agreeing that the schedule is reasonable and achievable.

b. The Government is under no obligation to accelerate work items it is responsible for to ensure that the early completion is met nor is it responsible to modify incremental funding (if applicable) for the project to meet the Contractor's accelerated work.

3.4 PROJECT SCHEDULE SUBMISSIONS

Provide the submissions as described below. The data file, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS. If the Contractor fails or refuses to furnish the information and schedule updates as set forth herein, then the Contractor will be deemed not to have provided an estimate upon which a progress

payment can be made. Review comments made by the Government on the schedule(s) do not relieve the Contractor from compliance with requirements of the Contract Documents.

3.4.1 Preliminary Project Schedule Submission

Within 15 calendar days after the NTP is acknowledged submit the Preliminary Project Schedule defining the planned operations detailed for the first 90 calendar days for approval. The approved Preliminary Project Schedule will be used for payment purposes not to exceed 90 calendar days after NTP. Completely cost load the Preliminary Project Schedule to balance the contract award CLINS shown on the Price Schedule. The Preliminary Project Schedule may be summary in nature for the remaining performance period. It must be early start and late finish constrained and logically tied as specified. The Preliminary Project Schedule forms the basis for the Initial Project Schedule specified herein and must include all of the required plan and program preparations, submissions and approvals identified in the contract (for example, Quality Control Plan, Safety Plan, and Environmental Protection Plan) as well as design activities, planned submissions of all early design packages, permitting activities, design review conference activities, and other non-construction activities intended to occur within the first 90 calendar days. Government acceptance of the associated design package(s) and all other specified Program and Plan approvals must occur prior to any planned construction activities. Activity code any activities that are summary in nature after the first 90 calendar days with Pricing Schedule Item (CLIN) code (BIDI), Responsibility Code (RESP) and Feature of Work code (FOW).

3.4.2 Initial Project Schedule Submission

Submit the Initial Project Schedule for approval within 42 calendar days after Notice to Proceed is issued. The schedule must demonstrate a reasonable and realistic sequence of activities which represent all work through the entire contract performance period. No payment will be made for work items not fully detailed in the Project Schedule.

3.4.3 Periodic Schedule Updates

Update the Project Schedule on a regular basis, monthly at a minimum. Provide a draft Periodic Schedule Update for review at the schedule update meetings as prescribed in the paragraph Periodic Schedule Update Meetings. These updates will enable the Government to assess Contractor's progress.

a. Update information including Actual Start Dates (AS), Actual Finish Dates (AF), Remaining Durations (RD), and Percent Complete is subject to the approval of the Government at the meeting.

b. AS and AF dates must match the date(s) reported on the Contractor's Quality Control Report for an activity start or finish.

3.5 SUBMISSION REQUIREMENTS

Submit the following items for the Preliminary Schedule, Initial Schedule, and every Periodic Schedule Update throughout the life of the project:

3.5.1 Data Submission

Provide the data containing the current project schedule and all previously submitted schedules in the format of the scheduling software (e.g. .xer).

Also include in the data submitted the Narrative Report and all required Schedule Reports. The data reports shall indicate the type of schedule (Preliminary, Initial, Update), full contract number, Data Date and file name. Each schedule must have a unique file name and use project specific settings. The Contractor shall email the files in the format of the scheduling software to the Contracting Officer's representative responsible for the inspection of this contract.

3.5.2 Narrative Report

Provide a Narrative Report with each schedule submission. The Narrative Report is expected to communicate to the Government the thorough analysis of the schedule output and the plans to compensate for any problems, either current or potential, which are revealed through that analysis. Include the following information as minimum in the Narrative Report:

a. Identify and discuss the work scheduled to start in the next update period.

b. A description of activities along the two most critical paths where the total float is less than or equal to 20 work days.

c. A description of current and anticipated problem areas or delaying factors and their impact and an explanation of corrective actions taken or required to be taken.

d. Identify and explain why activities based on their calculated late dates should have either started or finished during the update period but did not.

e. Identify and discuss all schedule changes by activity ID and activity name including what specifically was changed and why the change was needed. Include at a minimum new and deleted activities, logic changes, duration changes, calendar changes, lag changes, resource changes, and actual start and finish date changes.

f. Identify and discuss out-of-sequence work.

3.5.3 Schedule Reports

The format, filtering, organizing and sorting for each schedule report will be as directed by the Contracting Officer. Typically, reports shall contain: Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float, Actual Start Date, Actual Finish Date, and Percent Complete. Provide the reports electronically in .pdf format. One or all of these reports may be requested for each schedule submission. The following lists typical reports that will be requested:

3.5.3.1 Activity Report

List of all activities sorted according to activity number.

3.5.3.2 Logic Report

List of detailed predecessor and successor activities for every activity in ascending order by activity number.

3.5.3.3 Total Float Report

A list of all incomplete activities sorted in ascending order of total float. List activities which have the same amount of total float in ascending order of Early Start Dates. Do not show completed activities on this report.

3.5.3.4 Earnings Report by CLIN

A compilation of the Total Earnings on the project from the NTP to the data date, which reflects the earnings of activities based on the agreements made in the schedule update meeting defined herein. Provided a complete schedule update has been furnished, this report serves as the basis of determining progress payments. Group activities by CLIN number and sort by activity number. Provide a total CLIN percent earned value, CLIN percent complete, and project percent complete. The printed report must contain the following for each activity: the Activity Number, Activity Description, Original Budgeted Amount, Earnings to Date, Earnings this period, Total Quantity, Quantity to Date, and Percent Complete (based on cost).

3.5.3.5 Schedule Log

Provide a Scheduling/Leveling Report generated from the current project schedule being submitted.

3.5.4 Network Diagram

The Network Diagram is required for the Preliminary, Initial and Periodic Updates. Depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The Contracting Officer will use, but is not limited to, the following conditions to review compliance with this paragraph:

3.5.4.1 Continuous Flow

Show a continuous flow from left to right with no arrows from right to left. Show the activity number, description, duration, and estimated earned value on the diagram.

3.5.4.2 Project Milestone Dates

Show dates on the diagram for start of project, any contract required interim completion dates, and contract completion dates.

3.5.4.3 Critical Path

Show all activities on the critical path. The critical path is defined as the longest path.

3.5.4.4 Banding

Organize activities using the WBS or as otherwise directed to assist in the understanding of the activity sequence. Typically, this flow will group activities by major elements of work, category of work, work area and/or responsibility.

3.5.4.5 Cash Flow / Schedule Variance Control (SVC) Diagram

With each schedule submission, provide a SVC diagram showing 1) Cash Flow

S-Curves indicating planned project cost based on projected early and late activity finish dates, and 2) Earned Value to-date.

3.6 PERIODIC SCHEDULE UPDATE

3.6.1 Periodic Schedule Update Meetings

Conduct periodic schedule update meetings for the purpose of reviewing the proposed Periodic Schedule Update, Narrative Report, Schedule Reports, and progress payment. Conduct meetings at least monthly within five days of the proposed schedule data date. Provide a computer with the scheduling software loaded and a projector which allows all meeting participants to view the proposed schedule during the meeting. The Contractor's authorized scheduler must organize, group, sort, filter, perform schedule revisions as needed and review functions as requested by the Contractor and/or Government. The meeting is a working interactive exchange which allows the Government and Contractor the opportunity to review the updated schedule on a real time and interactive basis. The meeting will last no longer than 8 hours. Provide a draft of the proposed narrative report and schedule data file to the Government a minimum of two workdays in advance of the meeting. The Contractor's Project Manager and scheduler must attend the meeting with the authorized representative of the Contracting Officer. Superintendents, foremen and major subcontractors must attend the meeting as required to discuss the project schedule and work. Following the periodic schedule update meeting, make corrections to the draft submission. Include only those changes approved by the Government in the submission and invoice for payment.

3.6.2 Update Submission Following Progress Meeting

Submit the complete Periodic Schedule Update of the Project Schedule containing all approved progress, revisions, and adjustments, pursuant to paragraph SUBMISSION REQUIREMENTS not later than 4 work days after the periodic schedule update meeting.

3.7 WEEKLY PROGRESS MEETINGS

Conduct a weekly meeting with the Government (or as otherwise mutually agreed to) between the meetings described in paragraph entitled Periodic S chedule Update Meetings for the purpose of jointly reviewing the actual progress of the project as compared to the as planned progress and to review planned activities for the upcoming two weeks. Use the current approved schedule update for the purposes of this meeting and for the production and review of reports. At the weekly progress meeting, address the status of RFIs, RFPs and Submittals.

3.8 REQUESTS FOR TIME EXTENSIONS

Provide a justification of delay to the Contracting Officer in accordance with the contract provisions and clauses for approval within 10 days of a delay occurring. Also prepare a time impact analysis for each Government request for proposal (RFP) to justify time extensions.

3.8.1 Justification of Delay

Provide a description of the event(s) that caused the delay and/or impact to the work. As part of the description, identify all schedule activities impacted. Show that the event that caused the delay/impact was the responsibility of the Government. Provide a time impact analysis that

demonstrates the effects of the delay or impact on the project completion date or interim completion date(s). Evaluate multiple impacts chronologically; each with its own justification of delay. With multiple impacts consider any concurrency of delay. A time extension and the schedule fragnet becomes part of the project schedule and all future schedule updates upon approval by the Contracting Officer.

3.8.2 Time Impact Analysis (Prospective Analysis)

Prepare a time impact analysis for approval by the Contracting Officer based on industry standard AACE 52R-06. Utilize a copy of the last approved schedule prior to the first day of the impact or delay for the time impact analysis. If Contracting Officer determines the time frame between the last approved schedule and the first day of impact is too great, prepare an interim updated schedule to perform the time impact analysis. Unless approved by the Contracting Officer, no other changes may be incorporated into the schedule being used to justify the time impact.

3.8.3 Forensic Schedule Analysis (Retrospective Analysis)

Prepare an analysis for approval by the Contracting Officer based on industry standard AACE 29R-03.

3.8.4 Fragmentary Network (Fragnet)

Prepare a proposed fragnet for time impact analysis consisting of a sequence of new activities that are proposed to be added to the project schedule to demonstrate the influence of the delay or impact to the project's contractual dates. Clearly show how the proposed fragnet is to be tied into the project schedule including all predecessors and successors to the fragnet activities. The proposed fragnet must be approved by the Contracting Officer prior to incorporation into the project schedule.

3.8.5 Time Extension

The Contracting Officer must approve the Justification of Delay including the time impact analysis before a time extension will be granted. No time extension will be granted unless the delay consumes all available Project Float and extends the projected finish date ("End Project" milestone) beyond the Contract Completion Date. The time extension will be in calendar days. Actual delays that are found to be caused by the Contractor's own actions, which result in a calculated schedule delay will not be a cause for an extension to the performance period, completion date, or any interim milestone date.

3.8.6 Impact to Early Completion Schedule

No extended overhead will be paid for delay prior to the original Contract Completion Date for an Early Completion IPS unless the Contractor actually performed work in accordance with that Early Completion Schedule. The Contractor must show that an early completion was achievable had it not been for the impact.

3.9 FAILURE TO ACHIEVE PROGRESS

Should the progress fall behind the approved project schedule for reasons other than those that are excusable within the terms of the contract, the Contracting Officer may require provision of a written recovery plan for approval. The plan must detail how progress will be made-up to include

which activities will be accelerated by adding additional crews, longer work hours, extra work days, etc.

3.9.1 Artificially Improving Progress

Artificially improving progress by means such as, but not limited to, revising the schedule logic, modifying or adding constraints, shortening activity durations, or changing calendars in the project schedule is prohibited. Indicate assumptions made and the basis for any logic, constraint, duration and calendar changes used in the creation of the recovery plan. Any additional resources, manpower, or daily and weekly work hour changes proposed in the recovery plan must be evident at the work site and documented in the daily report along with the Schedule Narrative Report.

3.9.2 Failure to Perform

Failure to perform work and maintain progress in accordance with the supplemental recovery plan may result in an interim and final unsatisfactory performance rating and may result in corrective action directed by the Contracting Officer pursuant to FAR 52.236-15 SCHEDULES FOR CONSTRUCTION CONTRACTS, FAR 52.249-10 Default (Fixed-Price Construction), and other contract provisions.

3.9.3 Recovery Schedule

Should the Contracting Officer find it necessary, submit a recovery schedule pursuant to FAR 52.236-15 SCHEDULES FOR CONSTRUCTION CONTRACTS.

3.10 OWNERSHIP OF FLOAT

Except for the provision given in the paragraph Impact to Early Completion S chedule, float available in the schedule, at any time, may not be considered for the exclusive use of either the Government or the Contractor including activity and/or project float. Activity float is the number of work days that an activity can be delayed without causing a delay to the "End Project" finish milestone. Project float (if applicable) is the number of work days between the projected early finish and the contract completion date milestone.

3.11 TRANSFER OF SCHEDULE DATA INTO RMS/QCS

Import the schedule data into the Quality Control System (QCS) and export the QCS data to the Government. This data is considered to be additional supporting data in a form and detail required by the Contracting Officer pursuant to FAR 52.232-5 PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS. The receipt of a proper payment request pursuant to FAR 52.232-27 PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS is contingent upon the Government receiving both acceptable and approvable hard copies and matching electronic export from QCS of the application for progress payment. The Contractor shall submit schedules and schedule updates electronically via RMS, in .XCER format using Primavera 6 Professional 19 (x64) or an older version. The Contractor shall verify with Government personnel the version of Primavera being used at the time of their initial submittal.

3.12 PRIMAVERA P6 MANDATORY REQUIREMENTS

The Contractor shall request a backup file template (.xer) from the

Government, if one is available, prior to building the schedule. The following settings are mandatory and required in all schedule submissions to the Government:

a. Activity Codes must be Project Level, not Global or EPS level.

b. Calendars must be Project Level, not Global or Resource level.

c. Activity Duration Types must be set to "Fixed Duration & Units".

d. Percent Complete Types must be set to "Physical".

e. Time Period Admin Preferences must remain the default "8.0 hr/day, 40 hr/week, 172 hr/month, 2000 hr/year". Set Calendar Work Hours/Day to 8.0 Hour days.

f. Set Schedule Option for defining Critical Activities to "Longest Path".

g. Set Schedule Option for defining progressed activities to "Retained Logic".

h. Set up cost loading using a single lump sum labor resource. The Price/Unit must be $1/hr, Default Units/Time must be "8h/d", and settings "Auto Compute Actuals" and "Calculate costs from units" selected.

i. Activity ID's must not exceed 10 characters.

j. Activity Names must have the most defining and detailed description within the first 30 characters.

-- End of Section --

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 33 00

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-- End of Section Table of Contents --

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for submittal requirements as specified herein. Payment for the work covered under this section shall be distributed throughout the existing Pricing Schedule items. Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

1.2 DEFINITIONS

1.2.1 Submittal Descriptions (SD)

Submittals requirements are specified in the technical sections. Submittals are identified by SD numbers and titles as follows.

SD-01 Preconstruction Submittals

Certificates of insurance.
Surety bonds.
List of proposed subcontractors.
List of proposed products.
Construction Progress Schedule.
Submittal register.
Schedule of prices.
Health and safety plan.
Work plan.
Quality control plan.
Environmental protection plan.
Traffic Control Plan.

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials, systems or equipment for some portion of the work.

Samples of warranty language when the contract requires extended

product warranties.

SD-04 Samples

Fabricated or unfabricated physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

Design calculations, mix designs, analyses or other data pertaining to a part of work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports.

Daily logs and checklists.

Final acceptance test and operational test procedure.

SD-07 Certificates

Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a manufacturer, supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

Confined space entry permits.

Text of posted operating instructions.

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and Safety Data Sheets concerning impedances, hazards and safety precautions.

SD-10 Operation and Maintenance Data

Data that is furnished by the manufacturer, or the system provider, to the equipment operating and maintenance personnel. This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

This Data is intended to be incorporated in an operations and maintenance manual or control system.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

1.2.2 Approving Authority

Office or designated person authorized to approve submittal.

1.2.3 Work

As used in this section, on-site and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Submittal Register; G

1.4 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.4.1 Government Approved

Governmental approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Clause in Section 00700 CONTRACT CLAUSES, entitled SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FAR 52.236-21), they are considered to be "shop drawings." Any reference to Government approval by

the Contracting Officer (CO) includes the approving authority of the CO, the Administrative Contracting Officer (ACO), or the Contracting Officer's Representative (COR).

1.4.2 Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.5 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.6 DISAPPROVED SUBMITTALS

The Contractor shall respond to all concerns expressed by the Contracting Officer and promptly make any corrections necessary to address those concerns. The Contractor shall promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Clause in Section 00700 CONTRACT CLAUSE, entitled CHANGES (FAR 52.243-4), shall be given promptly to the Contracting Officer.

1.7 GENERAL

The Contractor shall submit all items listed on the Submittal Register (ENG Form 4288) or specified in the other sections of these specifications. The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) representative and each item shall be stamped, signed, and dated by the CQC representative indicating action taken. Each submittal shall be submitted, with its complete backup material, in both paper and electronic form. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in

accordance with manufacturer's Safety Data Sheets (SDS) and in compliance with existing laws and regulations. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe. The Contractor shall also submit electronic copies (i.e., .pdf files) of all submittals to expedite the review and approval process.

1.8 SUBMITTAL REGISTER

At the end of this section is a submittal register showing items of equipment and materials for which submittals are required by the specifications; this submittal register may not be all inclusive and additional submittals may be required. The Contractor shall maintain a submittal register for the project in accordance with Section 01 45 00.15 10 RESIDENT MANAGEMENT SYSTEM CONTRACTOR MODE (RMS CM). The Government will provide the initial submittal register in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall track all submittals.

1.9 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

1.10 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) attached to this section shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms are included in the QCS software that the Contractor is required to use for this contract. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

1.11 SUBMITTAL PROCEDURES

Submittals shall be made as follows:

1.11.1 Procedures

Procedures for submittals will be stipulated by the Contracting Officer at the preconstruction conference.

1.11.2 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

1.12 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register".

1.13 GOVERNMENT APPROVED SUBMITTALS

All submittals shall be received through RMS, including any attachments. Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. The Contractor shall provide at least one (1) hard copy to the Government Inspector of all submittals. This copy will be retained by the Contracting Officer. If the Contractor requires the return of any hard copies for their records, these copies shall be provided in addition to the one (1) Government copy at the time of submittal.

1.14 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals.

1.15 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR (Firm Name)   _____ Approved _____ Approved with corrections as noted on submittal data and/or attached sheets(s).   SIGNATURE: _____ TITLE: _____ DATE: _____

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

U.S. Army Corps of Engineers (USACE)

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE

For use of this form, see ER 415-1-10; the proponent agency is CECW-CE.

DATE	TRANSMITTAL NO.

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (*This section will be initiated by the contractor*)

TO:	FROM:	CONTRACT NO.	CHECK ONE: ☐ THIS IS A NEW TRANSMITTAL ☐ THIS IS A RESUBMITTAL OF TRANSMITTAL _____

SPECIFICATION SEC. NO. (*Cover only one section with each transmittal*)	PROJECT TITLE AND LOCATION	THIS TRANSMITTAL IS FOR: (*Check one*) ☐ FIO ☐ GA ☐ DA ☐ CR ☐ DA/CR ☐ DA/GA

ITEM NO. (*See Note 3*) **a.**	**DESCRIPTION OF SUBMITTAL ITEM** (*Type size, model number/etc.*) **b.**	**SUBMITTAL TYPE CODE** (*See Note 8*) **c.**	**NO. OF COPIES** **d.**	**CONTRACT DOCUMENT REFERENCE**		**CONTRACTOR REVIEW CODE** **g.**	**VARIATION** Enter "Y" if requesting a variation (*See Note 6*) **h.**	**USACE ACTION CODE** (*Note 9*) **i.**
				SPEC. PARA. NO. **e.**	**DRAWING SHEET NO.** **f.**			

REMARKS

I certify that the above submitted items had been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.

NAME OF CONTRACTOR	SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED (*List by item No.*)	NAME AND TITLE OF APPROVING AUTHORITY	SIGNATURE OF APPROVING AUTHORITY	DATE

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.

2. Each Transmittal shall be numbered consecutively. The Transmittal Number typically includes two parts separated by a dash (-). The first part is the specification section number. The second part is a sequential number for the submittals under that spec section. If the Transmittal is a resubmittal, then add a decimal point to the end of the original Transmittal Number and begin numbering the resubmittal packages sequentially after the decimal.

3. The "Item No." for each entry on this form will be the same "Item No." as indicated on ENG FORM 4288-R.

4. Submittals requiring expeditious handling will be submitted on a separate ENG Form 4025-R.

5. Items transmitted on each transmittal form will be from the same specification section. Do not combine submittal information from different specification sections in a single transmittal.

6. If the data submitted are intentionally in variance with the contract requirements, indicate a variation in column h, and enter a statement in the Remarks block describing he detailed reason for the variation.

7. ENG Form 4025-R is self-transmitting - a letter of transmittal is not required.

8. When submittal items are transmitted, indicate the "Submittal Type" (*SD-01 through SD-11*) in column c of Section I.
   Submittal types are the following:
   SD-01 - Preconstruction SD-02 - Shop Drawings SD-03 - Product Data SD-04 - Samples SD-05 - Design Data SD-06 - Test Reports
   SD-07 - Certificates SD-08 - Manufacturer's Instructions SD-09 - Manufacturer's Field Reports SD-10 - O&M Data SD-11 - Closeout

9. For each submittal item, the Contractor will assign Submittal Action Codes in column g of Section I. The U.S. Army Corps of Engineers approving authority will assign Submittal Action Codes in column i of Section I. The Submittal Action Codes are:

   A -- Approved as submitted.
   B -- Approved, except as noted on drawings. Resubmission not required.
   C -- Approved, except as noted on drawings. Refer to attached comments. Resubmission required.
   D -- Will be returned by separate correspondence.
   E -- Disapproved. Refer to attached comments.
   F -- Receipt acknowledged.
   X -- Receipt acknowledged, does not comply with contract requirements, as noted.
   G -- Other action required *(Specify)*
   K -- Government concurs with intermediate design. (*For D-B contracts*)
   R -- Design submittal is acceptable for release for construction. (*For D-B contracts*)

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract.

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Freshwater Bayou New Shop Building

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					REMARKS
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 32 01.00 12	SD-01 Preconstruction Submittals															
			Project Scheduler Qualifications	1.4	G													
			Preliminary Project Schedule	3.4.1	G													
			Initial Project Schedule	3.4.2	G													
			Periodic Schedule Update	3.6.2	G													
		01 33 00	SD-01 Preconstruction Submittals															
			Submittal Register	1.7	G													
		01 33 29	SD-01 Preconstruction Submittals															
			Preliminary High Performance	1.6.3.2	G													
			and Sustainable Building Checklist															
			Sustainability Action Plan	1.5.1	G													
			Preliminary Sustainability	1.6.3.2	G													
			eNotebook															
			SD-11 Closeout Submittals															
			Final High Performance and	1.6.3.2	G													
			Sustainable Building Checklist															
			Final Sustainability eNotebook	1.6.3.2	G													
		01 35 26	SD-01 Preconstruction Submittals															
			Accident Prevention Plan (APP)	1.9	G													
			SD-06 Test Reports															
			Accident Reports	1.13.2	G													
			LHE Inspection Reports	1.13.3														
			Monthly Exposure Reports	1.6	G													
			SD-07 Certificates															
			Activity Hazard Analysis (AHA)	1.10	G													
			Certificate of Compliance	1.13.4														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Freshwater Bayou New Shop Building

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					REMARKS
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 35 26	Hot Work Permit	1.14														
			License Certificates	1.15														
			Portable Gauge Operations	1.15.1	G													
			Planning Worksheet															
			Radiography Operation Planning	1.15.1	G													
			Work Sheet															
			Standard Lift Plan	1.13.4	G													
		01 45 04.00 10	SD-01 Preconstruction Submittals															
			Contractor Quality Control Plan	3.2	G	CD												
		01 57 20.00 12	SD-01 Preconstruction Submittals															
			Protective Material	1.6.1	G	PDSN												
		01 74 19	SD-01 Preconstruction Submittals															
			Construction Waste Management	1.7	G													
			Plan															
			SD-11 Closeout Submittals															
			Final Construction Waste	1.9														
			Diversion Report															
		01 78 02.00 10	SD-02 Shop Drawings															
			'As-Built' Drawings	1.3.1	G	DO												
			SD-11 Closeout Submittals															
			Recycled Material Content	1.1	S													
		03 21 00.00 12	SD-02 Shop Drawings															
			Fabrication and Placement	3.1														
			SD-03 Product Data															
			Mechanical Butt-Splices	3.1.3														
			Materials	2.1														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Freshwater Bayou New Shop Building

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAG# RAPH	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		03 21 00.00 12	SD-06 Test Reports															
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		03 30 04.00 12	SD-03 Product Data															
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			Concrete Mixture Proportions	1.6.3	G													
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		03 45 33	SD-02 Shop Drawings															
			Drawings of Precast Members	2.1.1.2	G													
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		03 45 33	Concrete Mix Design	1.6.3	G													
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		05 05 20	SD-07 Certificates															
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		08 71 00	SD-08 Manufacturer's Instructions															
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			Chips															
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		13 34 19	Lateral Force Calculations	1.8.1	G													
			SD-07 Certificates															
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			Coil Stock Certificates	1.8.1	G													
			Qualification of Manufacturer	1.8.1	G													
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			Installation of Roof and Wall	1.8.2														
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		23 08 91	Supply Fan Assemblies	1.7	G EDS													
			Supply Fan Assemblies	2.7	G EDS													
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		26 05 19.10 10	SD-03 Product Data															
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		26 20 00	Marking Strips	3.1.6.1	G													
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			Receptacles	2.10	G													
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		26 41 00	SD-07 Certificates																
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SUSTAINABILITY REQUIREMENTS AND REPORTING

PART 1 GENERAL

1.1 SCOPE

This section includes requirements for sustainability documentation and reporting submittals per the federally mandated High Performance and Sustainable Building (HPSB) or HPSB "Guiding Principles" (GP), in accordance with UFC 1-200-02 and other identified requirements.

1.2 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for sustainability requirements and reporting as specified herein. Payment for the work covered under this section shall be distributed throughout the existing Pricing Schedule items.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

COUNCIL ON ENVIRONMENTAL QUALITY (CEQ) (WHITE HOUSE)

HPSB Guiding Principles	(2016) Guiding Principles for Sustainable Federal Buildings and Determining Compliance with the Guiding Principles for Sustainable Federal Buildings

INTERNATIONAL CODE COUNCIL (ICC)

ICC IgCC	(2018) International Green Construction Code

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 1-200-02	(2020; with Change 1, 2020; Change 2, 2022) High Performance and Sustainable Building Requirements
UFC 3-600-01	(2016; with Change 6, 2021) Fire Protection Engineering for Facilities

U.S. DEPARTMENT OF ENERGY (DOE)

Energy Star	(1992; R 2006) Energy Star Energy Efficiency Labeling System (FEMP)

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 247	Comprehensive Procurement Guideline for Products Containing Recovered Materials

1.4 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Preliminary High Performance and Sustainable Building Checklist; G

Sustainability Action Plan; G

Preliminary Sustainability eNotebook; G

SD-11 Closeout Submittals

Final High Performance and Sustainable Building Checklist; G

Final Sustainability eNotebook; G

1.5 GUIDING PRINCIPLES VALIDATION (GPV)

Provide the following sustainability activities and documentation to verify achievement of HPSB Guiding Principles Validation (GPV):

a. Analysis of each Guiding Principle Requirement and how project complies. Include final government approved narrative(s) in the HPSB Checklist submittal. Multiple checklists indicate multiple buildings that require individual HPSB Checklist tracking.

b. No changes to the HPSB Checklist are allowed without approval from the Contracting Officer, in accordance with Section 01 33 00 SUBMITTAL PROCEDURES. Immediately bring to the attention of the Contracting Officer any project changes that impact meeting the approved HPSB Guiding Principles Requirements for this contract. Demonstrate the change will not increase the life-cycle cost and maintains or improves the building performance.

c. Documentation of all work required to incorporate the applicable HPSB Guiding Principles requirements indicated on the HPSB Checklist and in this contract, including all "S" submittals.

d. Sustainability Action Plan.

e. Construction related documentation for the project Sustainability eNotebook and keep updated with regularly-scheduled Construction Quality Control Meetings. Include construction related documentation containing the following components:

(1) HPSB Checklist(s)

(3) Documentation illustrating HPSB Guiding Principles Requirements compliance, including "S" submittals

1.5.1 Sustainability Action Plan

Include the following information in the Sustainability Action Plan:

a. Analysis of each HPSB Guiding Principles Requirement and how project will comply. Final government approved narrative(s) must be included in the HPSB Checklist submittal.

b. Name and contact information for: Contractor's point of contact (POC) ensuring sustainability goals are accomplished and documentation is assembled. For TPC that include on-site visit by third party representative, provide list of required attendees.

c. Indoor Air Quality Plan.

1.6 SUSTAINABILITY SUBMITTALS

Provide HPSB Checklist and other documentation in the Sustainability eNotebook to indicate compliance with the sustainability requirements of the project.

1.6.1 High Performance Sustainable Building (HPSB) Checklist

Provide construction documentation that provides proof of, and supports compliance with, the completed HPSB Checklist.

1.6.1.1 HPSB Checklist Submittals

Submit updated HPSB Checklist with each Sustainability eNotebook submittal. Include the final HPSB Checklist(s) with the interim DD1354 Real Property Record Submittal.

1.6.2 "S" Submittals for Sustainability Documentation

"S" submittals are the sustainability documentation requirements cited in the various sections of this contract. Submit the GPV sustainability documentation required in this section as "S" submittals in all affected sections within this contract.

a. Highlight GPV compliance data in "S" submittal.

b. Add "S" submittals to the Sustainability eNotebook only after submittal approval, and bookmark them as required in paragraph Sustainability eN otebook.

c. Ensure all approved "S" submittals are included in each Sustainability eNotebook submittal.

1.6.3 Sustainability eNotebook

The Sustainability eNotebook is an electronic organizational file that serves as a repository for all required sustainability submittals. To support documentation of compliance with an approved HPSB checklist, provide and maintain a comprehensive and current Sustainability eNotebook. Include all required data in Sustainability eNotebook, to support full compliance with the HPSB Guiding Principles Requirements, including:

a. HPSB checklist

b. Sustainability Action Plan

c. Labels

d. "S" submittals

1.6.3.1 Sustainability eNotebook Format

Provide Sustainability eNotebook in the form of an Adobe PDF file; bookmark each HPSB Guiding Principles Requirement and sub-bookmark at each document. Match format to HPSB Guiding Principles numbering system indicated herein. Maintain up-to-date information, such as spreadsheets, templates, with each current submittals. The Contracting Officer may deduct from the monthly progress payment accordingly if Sustainability eNotebook information is not current and on track in accordance to this contracts goals.

1.6.3.2 Sustainability eNotebook Submittal Schedule

Provide Sustainability eNotebook submittals at the following milestones of the project:

a. Preliminary Sustainability eNotebook

b. Submit preliminary Sustainability eNotebook with updated Preliminary High Performance and Sustainable Building Checklist at the first post award meeting.

c. Construction Quality Control Meetings.

d. Provide up-to-date GP documentation in the Sustainability eNotebook for each meeting.

e. Final Sustainability eNotebook

f. Submit updated Sustainability eNotebook with updated Final High Performance and Sustainable Building Checklist at Beneficial Occupancy Date (BOD). Final progress payment retainage may be held by Contracting Officer until Final Sustainability construction phase documentation is complete.

1.7 DOCUMENTATION REQUIREMENTS

a. Incorporate each of the following HPSB Guiding Principles requirements into project and provide documentation that proves compliance with each listed requirement. Items below are organized by HPSB Guiding Principles. For life-cycle cost analysis requirements, one document with all analyses is acceptable, with Contracting Officer approval.

b. For each of the following paragraphs that require the use of products listed on Government-required websites, provide documentation of the process used to select products, or process used to determine why listed products do not meet project performance requirements.

1.7.1 Energy Efficient Products

Provide only energy-using products that are Energy Star rated or have Federal Energy Management Program (FEMP) recommended efficiency. Where Energy Star or FEMP recommendations have not been established, provide most efficient products that are life-cycle cost-effective. Provide only energy using products that meet FEMP requirements for low standby power consumption. Energy efficient products can be found at:

https://www.energy.gov/eere/femp/federal-energy-management-program and http://www.energystar.gov/.

For construction submittal documentation, provide proof that product is labeled energy efficient and complies with the cited requirements.

1.7.2 Reduce Volatile Organic Compounds (VOC) (Low-Emitting Materials)

Meet the requirements of Table 3-1 at the end of this section.

For construction submittal documentation, provide certifications or labels that demonstrate compliance with cited requirements, based on the attached TABLE 3-1.

1.7.3 Indoor Air Quality During Construction

Prior to construction, create indoor air quality plan. Develop and implement an IAQ construction management plan during construction and flush building air before occupancy.

For new construction and for renovation of unoccupied existing buildings, meet the requirements of ICC IgCC 1001.3.1.5 (10.3.1.4) Indoor Air Quality (IAQ) Construction Management.

Provide documentation showing that after construction ends and prior to occupancy, building air was flushed out in accordance with the cited standard.

1.7.4 Recycled Content

Comply with 40 CFR 247. Refer to: https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program for assistance identifying products cited in 40 CFR 247. Selected products must comply with non-proprietary requirements of the Federal Acquisition Regulation and must meet performance requirements.

1.7.4.1 Construction Submittal Documentation

a. Provide manufacturers' documents stating the recycled content by material, or written justification for claiming one of the exceptions allowed on the cited website.

b. Substitutions: Submit for Government approval for proposed alternative products or systems that provide equivalent performance and appearance and have greater contribution to project recycled content requirements. For all such proposed substitutions, submit with the Sustainability Action Plan accompanied by product data demonstrating equivalence.

c. In order to complete compliance with FAR 52.223-9 Estimate of Percentage of Recovered Material Content for EPA Designated Items, refer to submittal requirement for recycled/recovered material content in Section 01 78 02.00 10 CLOSEOUT SUBMITTALS.

1.7.5 Waste Material Management (Recycling - Construction)

Divert demolition and construction debris in accordance with Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 SUSTAINABILITY COORDINATION

Provide sustainability focus and coordination at all meetings to achieve sustainability goals. Coordinate meeting requirements with other UFGS Sections meeting requirements in this project. Ensure the designated sustainability professional responsible for GP documentation participates in these meetings to coordinate documentation completion. Review GP sustainability requirements, HPSB Checklist documentation, Sustainability Action Plan, and completeness status of Sustainability eNotebook at the following meetings:

a. Pre-Construction Conference

b. Construction Quality Control Meetings

c. Conduct review no later than 60 days before final turnover and identify any outstanding issues that affect correct completion of all documentation, and actions that will achieve requirements. Conduct corrective actions prior to turnover, to ensure all requirements are achieved.

3.2 TABLE 3-1 VOLATILE ORGANIC COMPOUNDS (VOC) (LOW EMITTING MATERIALS) REQUIREMENTS

TABLE 3-1 Volatile Organic Compounds (VOC) (Low Emitting Materials) Requirements Source: ICC IgCC Chapter 8 (Materials) (Interior Applications Only)				
MATERIAL CATEGORY	**EMISSIONS REQUIREMENT**		**MATERIALS WITH ADDED VOC REQUIREMENT**	**EMISSIONS REQUIREMENTS**
Adhesives and Sealants	**CDPH/EHLB/Standard method V1.1 (California Section 01350)** (Use "office" or "classroom" space limits for all applications)	or	Adhesives (carpet, resilient, wood flooring; base cove; ceramic tile; drywall and panel; primers) Sealants (acoustical; firestop; HVAC Air duct; primers) Caulks	**SCAQMD Rule 1168** (Use "other" category for HVAC duct sealant) (for firestop adhesive, UFC 3-600-01 overrides conflicting requirements)
			Aerosol adhesives	**Section 3 of Green Seal Standard GS-36** (except: cleaners, solvent cements, and primers used with plastic piping and conduit in plumbing, fire suppression, and electrical systems; HVAC air duct sealants when the application space air temp is less than 40 F (4.5 C).

TABLE 3-1 Volatile Organic Compounds (VOC) (Low Emitting Materials) Requirements Source: ICC IgCC Chapter 8 (Materials) (Interior Applications Only)				
MATERIAL CATEGORY	**EMISSIONS REQUIREMENT**		**MATERIALS WITH ADDED VOC REQUIREMENT**	**EMISSIONS REQUIREMENTS**
Paints and Coatings	**CDPH/EHLB/Standard method V1.1 (California Section 01350)** (Use "office" or "classroom" space limits for all applications)	or	Flat and nonflat, nonflat high-gloss, specialty, basement specialty, fire-resistive, floor, low-solids, rust preventative, wood, reflective wall coatings; concrete/masonry sealers; primers; sealers; undercoaters; shellacs (clear and opaque); stains; varnishes; conjugated oil varnish; lacquer; clear brushing lacquer	**Green Seal Standard GS-11**

TABLE 3-1 Volatile Organic Compounds (VOC) (Low Emitting Materials) Requirements Source: ICC IgCC Chapter 8 (Materials) (Interior Applications Only)				
MATERIAL CATEGORY	**EMISSIONS REQUIREMENT**		**MATERIALS WITH ADDED VOC REQUIREMENT**	**EMISSIONS REQUIREMENTS**
Paints and Coatings	**CDPH/EHLB/Standard method V1.1 (California Section 01350)** (Use "office" or "classroom" space limits for all applications)	or	Concrete curing compounds; dry fog, faux finishing, graphic arts (sign paints), industrial maintenance, mastic texture, metallic pigmented, multicolor, recycled coatings; pretreatment wash primers, reactive penetrating sealers; specialty primers, wood preservatives, and zinc primers	**California Air Resources Board (CARB) Suggested Control Measure for Architectural Coatings** or **SCAQMD Rule 1113r**
Paints and Coatings	**CDPH/EHLB/Standard method V1.1 (California Section 01350)** (Use "office" or "classroom" space limits for all applications)	or	High-temperature coatings; stone consolidants; swimming-pool coatings; tub- and tile-refining coatings; and waterproofing membranes	**California Air Resources Board (CARB) Suggested Control Measure for Architectural Coatings**

TABLE 3-1 Volatile Organic Compounds (VOC) (Low Emitting Materials) Requirements Source: ICC IgCC Chapter 8 (Materials) (Interior Applications Only)				
MATERIAL CATEGORY	**EMISSIONS REQUIREMENT**		**MATERIALS WITH ADDED VOC REQUIREMENT**	**EMISSIONS REQUIREMENTS**
Floor Covering Materials	For carpet, all locations: **CDPH/EHLB/Standard Method V1.1 (California Section 01350)** or label for **Section 9** of **CDPH/EHLB/Standard Method V1.1 (California Section 01350)**		none	none
Insulation	**CDPH/EHLB/Standard method V1.1** (California Section 01350) (Use "office" or "classroom" space limits for all applications)		none	none

TABLE 3-1 Volatile Organic Compounds (VOC) (Low Emitting Materials) Requirements

Source: ICC IgCC Chapter 8 (Materials) (Interior Applications Only)

MATERIAL CATEGORY	**EMISSIONS REQUIREMENT**		**MATERIALS WITH ADDED VOC REQUIREMENT**	**EMISSIONS REQUIREMENTS**
Composite Wood, Wood Structural Panel, and Agrifiber Products, no added urea-formaldehyde resins including laminating adhesives for composite wood and agrifiber assemblies - particleboard, medium density fiberboard (MDF), wheatboard, strawboard, panel substrates, door cores	Third-party certification (approved by CARB) of **California Air Resource Board's (CARB) regulation** Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products	or	none	**CDPH/EHLB/Standa method V1.1** (California Section 01350) (Use "office" or "classroom" space limits for all applications) (except: Structural panel components such as plywood, particle board, wafer board, and oriented strand board identified as "EXPOSURE 1," "EXTERIOR," or "HUD-APPROVED" are considered acceptable for
Office Furniture Systems and Seating installed prior to occupancy	**ANSI/BIFMA X7.1 ANSI/BIFMA X7.1:** (95-percent of installed office furniture system workstations and seating units) **Section 7.6.2 of ANSI/BIFMA e3** (50-percent of office furniture system workstations and seating units)		none	none

TABLE 3-1 Volatile Organic Compounds (VOC) (Low Emitting Materials) Requirements

Source: ICC IgCC Chapter 8 (Materials) (Interior Applications Only)

MATERIAL CATEGORY	**EMISSIONS REQUIREMENT**		**MATERIALS WITH ADDED VOC REQUIREMENT**	**EMISSIONS REQUIREMENTS**
Ceiling and Wall assemblies and systems including: acoustical treatments; ceiling panels and tiles; tackable wall panels and coverings; wall coverings; wall and ceiling paneling and planking	**CDPH/EHLB/Standard method V1.1 (California Section 01350)** (Use "office" or "classroom" space limits for all applications)		none	none

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SECTION 01 35 26

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SECTION 01 35 26

GOVERNMENTAL SAFETY REQUIREMENTS

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for the safety requirements as specified herein. Payment for work covered under this section shall be distributed throughout the existing pricing schedule items.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY OF SAFETY PROFESSIONALS (ASSP)

ANSI/ASSP A10.34	(2021) Protection of the Public on or Adjacent to Construction Sites
ANSI/ASSP A10.44	(2020) Control of Energy Sources (Lockout/Tagout) for Construction and Demolition Operations

ASTM INTERNATIONAL (ASTM)

ASTM F855	(2020) Standard Specifications for Temporary Protective Grounds to Be Used on De-energized Electric Power Lines and Equipment

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 1048	(2016) Guide for Protective Grounding of Power Lines
IEEE C2	(2023) National Electrical Safety Code

INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION (ISEA)

ANSI/ISEA Z89.1	(2014; R 2019) American National Standard for Industrial Head Protection

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 51B	(2024) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 70	(2023; ERTA 1 2024; TIA 24-1) National Electrical Code
NFPA 70E	(2024) Standard for Electrical Safety in the Workplace

NFPA 241	(2022) Standard for Safeguarding Construction, Alteration, and Demolition Operations
NFPA 306	(2024) Standard for the Control of Gas Hazards on Vessels

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2024) Safety -- Safety and Occupational Health (SOH) Requirements

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

10 CFR 20	Standards for Protection Against Radiation
29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1915	Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment
29 CFR 1926	Safety and Health Regulations for Construction
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
CPL 2.100	(1995) Application of the Permit-Required Confined Spaces (PRCS) Standards, 29 CFR 1910.146

1.3 DEFINITIONS

The following definitions are for the convenience of the reader. If there is a referenced document in the text of this specification section, that is the document that should define terms for that paragraph. If further clarification is needed, contact the Contracting Officer.

1.3.1 Site Safety and Health Officer (SSHO)

A Contractor Employee that is responsible for overseeing and ensuring implementation of the prime Contractor's Safety and Occupational Health (SOH) program according to the Contract, EM 385-1-1, applicable federal, state, and local requirements.

1.3.1.1 Level One SSHO

A designated employee with full-time SOH responsibility that meets and follows the requirements of EM 385-1-1.

1.3.1.2 Level Two SSHO

A designated employee with Level Two SSHO responsibility that meets and follows the requirements of EM 385-1-1. Level Two SSHOs cannot be assigned to projects that have a residual Risk Assessment Code (RAC) of high or extremely high.

1.3.1.3 Level Three SSHO

A designated Qualified Person or Competent Person with SOH responsibility that meets and follows the requirements of EM 385-1-1. Level 3 SSHOs cannot be assigned to projects that have a residual RAC of high or extremely high.

1.3.1.4 Alternate SSHO

An employee that meets the definition of the contract-required level SSHO, but is not the primary SSHO.

1.3.2 Competent Person (CP)

The CP is a person designated in writing, who, through training, knowledge and experience, is capable of identifying, evaluating, and addressing existing and predictable hazards in the working environment or working conditions that are unsanitary, hazardous, or dangerous to personnel, and who has authorization to take prompt corrective measures to eliminate them.

1.3.3 Qualified Person (QP)

The QP is a person designated in writing, who, by possession of a recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems related to the subject matter, the work, or the project.

1.4 SUBMITTALS

Government Acceptance or Approval does not remove responsibility from the Contractors for their actions or liability.

Government approval is required for submittals with a "G" classification. Submittals not having a "G" classification are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Accident Prevention Plan (APP); G

SD-06 Test Reports

Accident Reports; G

LHE Inspection Reports

Monthly Exposure Reports; G

SD-07 Certificates

Activity Hazard Analysis (AHA); G

Certificate of Compliance

Hot Work Permit

License Certificates

Portable Gauge Operations Planning Worksheet; G

Radiography Operation Planning Work Sheet; G

Standard Lift Plan; G

1.5 PUBLIC HEALTH EMERGENCIES

In the event of a declared public health emergency, follow safety precautions as required by the Occupational Safety and Health Administration (OSHA) www.osha.gov, the Centers for Disease Control and Prevention (CDC) www.cdc.gov, and as required by federal, state and local requirements.

1.6 MONTHLY EXPOSURE REPORTS

Provide a Monthly Exposure Report by the fifth of each month. This report is a compilation of employee-hours worked each month for all site workers, both Prime and subcontractor. Failure to submit the report may result in retention of up to 10 percent of the progress payment.

1.7 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this Contract, comply with the most recent edition of USACE EM 385-1-1, and the following federal, state, and locallaws, ordinances, criteria, rules and regulations at the date of the Solicitation for this Contract. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern.

1.8 SITE QUALIFICATIONS, DUTIES, AND MEETINGS

1.8.1 Site Safety and Health Officer (SSHO)

1.8.1.1 Qualifications of SSHO

All SSHOs will have met the training, experience requirements identified in the EM 385-1-1 and this Contract.

1.8.1.2 Duties of SSHO

All SSHOs will carry out the roles and responsibilities as identified in this Contract and the EM 385-1-1. All SSHOs will be designated on an ENG Form 6282, provided by the Contracting Officer. Superintendent, QC Manager, and SSHO are subject to dismissal if their required duties are not being effectively carried out. If either the Superintendent, QC Manager, or SSHO are dismissed, project work will be stopped and will not be allowed to resume until a suitable replacement is approved and the above duties are again being effectively carried out.

1.8.1.3 Safety Meetings

Conduct safety meetings to review past activities, plan for new or changed operations, review pertinent aspects of appropriate AHA (by trade), establish safe working procedures for anticipated hazards, and provide pertinent Safety and Occupational Health (SOH) training and motivation.

Conduct meetings at least once a month for all supervisors at the project location. The SSHO, supervisors, or foremen must conduct meetings at least once a week for the trade workers. Document meeting minutes to include the date, persons in attendance, subjects discussed, and names of individual(s) who conducted the meeting. Maintain documentation on-site and furnish copies to the Contracting Officer on request. Notify the Contracting Officer of all scheduled meetings 7 calendar days in advance.

1.8.2 Roles and Responsibilities of Prime Contractor and SSHO

The Prime Contractor and SSHO must ensure that the requirements of all applicable OSHA and EM 385-1-1 are met for the project. The Prime Contractor must ensure an SSHO or an equally qualified Alternate SSHO(s) is at the worksite at all times to implement and administer the Contractor's safety program and Government accepted Accident Prevention Plan. If the required SSHO has to temporarily (that is, up to 24 hours / 1 day) leave the site of work due to unforeseen or emergency situations, a Level One, Two, or Three SSHO may be used in the interim and must be on the site of work at all times when work is being performed.

If the SSHO must be off-site for a period longer than 24 hours / 1 day, a qualified alternate that meets the contract requirements must be onsite.

a. Prime Contractor must ensure all SSHOs will:

(1) Are designated on an ENG Form 6282.

(2) Meet minimum training and experience requirements identified in EM 385-1-1.

(3) Execute roles and responsibilities identified in EM 385-1-1.

1.8.3 Contract Site Safety And Health Officer(s)(SSHOs) Minimum Requirements

Provide a minimum of one Level One SSHO that meets the requirements of EM 385-1-1 for this project.

1.8.4 Competent Person for Confined Space Entry

Provide a CP for Confined Space Entry who meets the requirements of EM 385-1-1 and herein. The CP for Confined Space Entry must supervise the entry into each confined space in accordance with EM 385-1-1.

Since this work may involves operations that handle combustible or hazardous materials, this person must have the ability to understand and follow through on the air sampling, Personal Protective Equipment (PPE), and instructions of a Marine Chemist, Coast Guard authorized persons, or Certified Industrial Hygienist. Confined space and enclosed space work must comply with NFPA 306, 29 CFR 1915, "Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment," or as applicable in 29 CFR 1910 for general industry, 29 CFR 1926 for construction.

1.8.5 Preconstruction Conference

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project must attend the preconstruction conference. This includes the project superintendent, Site Safety and Occupational Health Officer, quality control manager, or any other assigned safety and health professionals who participated

in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

b. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the Contract. This list of proposed AHAs will be reviewed and an agreement will be reached between the Contractor and the Contracting Officer as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, and Government review of AHAs to preclude project delays. The creation of the APP and Schedule will be created after being given Notice to Proceed.

c. Deficiencies in the submitted APP, identified during the Contracting Officer's review, must be corrected, and the APP re-submitted for review prior to the start of construction. Work is not permitted to begin until an APP is established that is acceptable to the Contracting Officer.

1.9 ACCIDENT PREVENTION PLAN (APP)

1.9.1 Accident Prevention Plan (APP)

Submit the Accident Prevention Plan (APP) for review and acceptance by the Government within 15 calendar days after given Notice of Award of this contract. A competent person must prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of EM 385-1-1, ENG Form 6293, and herein. The APP must be job-specific and address any unusual or unique aspects of the project or activity for which it is written. The APP must interface with the Contractor's overall safety and occupational health program referenced in the APP in the applicable APP element, and made site-specific. Describe the methods to evaluate past safety performance of potential subcontractors in the selection process. Also, describe innovative methods used to ensure and monitor safe work practices of subcontractors. The Government considers the Prime Contractor to be the "controlling employer" for all worksite safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the Contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP must be signed in accordance with the APP and ENG Form 6293 Accident Prevention Plan Worksheet. The SSHO must provide and maintain the APP and a log of signatures by each subcontractor foreman, attesting that they have read and understand the APP, and make the APP and log available on-site to the Contracting Officer. If English is not the foreman's primary language, the Prime Contractor must provide an interpreter.

Submit the APP to the Contracting Officer at least 7 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP. Once reviewed and accepted by the Contracting Officer, the APP and attachments will be enforced as part of the Contract. Disregarding the provisions of this Contract or the accepted APP is cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified. Continuously review and amend the APP, as necessary, throughout the life of the Contract. Changes to the accepted APP must be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and Quality Control

Manager. Incorporate unusual or high-hazard activities not identified in the original APP as they are discovered. Should any severe hazard exposure (i.e., imminent danger) become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate and remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ANSI/ASSP A10.34), and the environment.

1.9.2 Names and Qualifications

Provide plans in accordance with the requirements outlined in EM 385-1-1, including the following:

a. Names and qualifications (resumes including education, training, experience and certifications) of site safety and health personnel designated to perform work on this project to include the designated Site Safety and Health Officer and other competent and qualified personnel to be used. Specify the duties of each position.

b. As a minimum, designate and submit qualifications of Competent Persons (CP) for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; and personal protective equipment and clothing to include selection, use and maintenance. Designate and submit qualifications for additional CPs as applicable to the work performed under this Contract.

1.10 ACTIVITY HAZARD ANALYSIS (AHA)

Before beginning each activity, task or Definable Feature of Work (DFOW) involving a type of work presenting hazards not experienced in previous project operations, or where a new work crew or subcontractor is to perform the work, the Contractor(s) performing that work activity must prepare an AHA. AHAs must be developed by the Prime Contractor, subcontractor, or supplier performing the work, and provided for Prime Contractor review and approval before submitting to the Contracting Officer. AHAs must be signed by the SSHO, Superintendent, QC Manager and the subcontractor Foreman performing the work. Format the AHA in accordance with EM 385-1-1 or as directed by the Contracting Officer. Submit the AHA for review at least 15 working days prior to the start of each activity task, or DFOW. The Government reserves the right to require the Contractor to revise and resubmit the AHA if it fails to effectively identify the work sequences, specific anticipated hazards, site conditions, equipment, materials, personnel and the control measures to be implemented.

AHAs must identify competent persons required for phases involving high risk activities, including confined entry, crane and rigging, excavations, trenching, electrical work, fall protection, and scaffolding.

1.10.1 AHA Management

Review the AHA list periodically (at least monthly) at the Contractor supervisory safety meeting, and update as necessary when procedures, scheduling, or hazards change. Use the AHA during daily inspections by the SSHO to ensure the implementation and effectiveness of the required safety and health controls for that work activity.

1.10.2 AHA Signature Log

Each employee performing work as part of an activity, task or DFOW must review the AHA for that work and sign a signature log specifically maintained for that AHA prior to starting work on that activity. The SSHO must maintain a signature log on site for every AHA. Provide employees whose primary language is other than English, with an interpreter to ensure a clear understanding of the AHA and its contents.

1.11 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in paragraph REFERENCES. Maintain applicable equipment manufacturer's manuals.

1.12 EMERGENCY MEDICAL TREATMENT

Contractors must arrange for their own emergency medical treatment in accordance with EM 385-1-1. The Government has no responsibility to provide emergency medical treatment.

1.13 NOTIFICATIONS AND REPORTS

1.13.1 Accident Notification

Notify the Contracting Officer in accordance with the EM 385-1-1 Accident Reporting Timeline.

Table
Accident Reporting Required Timeline

Accident Type	**Notify KO or COR**	**Complete Final Accident Report on ENG 3394 and provide to KO or COR**
Fatality, in-patient hospitalization, amputation, eye loss, or property damage over $600,000.	Immediately, no later than (NLT) 8 Hours	Within 7 Days
All other accidents and near misses	Immediately, no later than (NLT) 24 Hours	Within 7 Days

Within notification include Contractor name; Contract title; type of Contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (for example, type of construction equipment used and PPE used). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted. Assist and cooperate fully with the Government's investigation(s) of any accident or near miss.

1.13.2 Accident Reports

a. Conduct an accident investigation for recordable injuries and illnesses, property damage, and near misses as defined in EM 385-1-1, to establish the root cause(s) of the accident. All accidents are reportable, regardless of whether or not it is recordable. Complete the applicable USACE Accident Report, ENG Form 3394, and provide the report to the Contracting Officer within 7 calendar days of the accident. The Contracting Officer will provide copies of any required or special forms. All accidents are reportable, regardless of whether or not it is recordable.

b. Near Misses: For Army projects, report all "Near Misses" to the Contracting Officer using local accident reporting procedures, within 24 hours. The Contracting Officer will provide the Contractor the required forms. Near miss reports are considered positive and proactive Contractor safety management actions.

1.13.3 LHE Inspection Reports

Submit LHE inspection reports required in accordance with EM 385-1-1 and as specified herein with Daily Reports of Inspections.

1.13.4 Certificate of Compliance and Pre-lift Plan/Checklist for LHE and Rigging

Provide a Certificate of Compliance for LHE entering an activity under this Contract and in accordance with EM 385-1-1. Post certifications on the crane.

Develop a Standard Lift Plan (SLP) in accordance with EM 385-1-1 and using Standard Pre-Lift Crane Plan/Checklist for each lift planned. Submit SLP to the Contracting Officer for approval within 15 calendar days in advance of planned lift.

1.14 HOT WORK PERMIT

1.14.1 Permit and Personnel Requirements

Submit and obtain a written permit prior to performing "Hot Work" (i.e., welding or cutting) or operating other flame-producing/spark producing devices. Contractors are required to meet all criteria before a permit is issued. Provide at least two 20 pound 4A:20 BC rated extinguishers for normal "Hot Work". The extinguishers must be current inspection tagged, and contain an approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch must be trained in accordance with NFPA 51B and remain on-site for a minimum of 1 hour after completion of the task or as specified on the hot work permit.

When starting work at the job site, require personnel to familiarize themselves with the location of the nearest fire extinguisher and place in memory the emergency phone number. Report any fire, no matter how small, to the responsible Fire Divisionimmediately.

1.14.2 Work Around Flammable Materials

Obtain permit approval from a NFPA Certified Marine Chemist, or Certified Industrial Hygienist for "Hot Work" within or around flammable materials

(such as fuel systems or welding/cutting on fuel pipes) or confined spaces (such as sewer wet wells, manholes, or vaults) that have the potential for flammable or explosive atmospheres.

Whenever these materials, except beryllium and chromium (VI), are encountered in indoor operations, local mechanical exhaust ventilation systems that are sufficient to reduce and maintain personal exposures to within acceptable limits must be used and maintained in accordance with manufacturer's instruction and supplemented by exceptions noted in EM 385-1-1.

1.15 RADIATION SAFETY REQUIREMENTS

Submit License Certificates, employee training records, and Leak Test Reports for radiation materials and equipment to the Contracting Officer and Radiation Safety Office (RSO) for all specialized and licensed material and equipment proposed for use on the construction project (excludes portable machine sources of ionizing radiation including moisture density and X-Ray Fluorescence (XRF)). Maintain on-site records whenever licensed radiological materials or ionizing equipment are on Government property.

Protect workers from radiation exposure in accordance with 10 CFR 20, ensuring any personnel exposures are maintained As Low As Reasonably Achievable.

1.15.1 Radiography Operation Planning Work Sheet

Submit a Gamma and X-Ray Radiography Operation Planning Work Sheet to Contracting Officer 14 days prior to commencement of operations involving radioactive materials or radiation generating devices. For portable machine sources of ionizing radiation, including moisture density and XRF, use and submit the Portable Gauge Operations Planning Worksheet instead. The Contracting Officer will review the submitted worksheet and provide questions and comments.

Contractors must use primary dosimeters process by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory.

1.15.2 Site Access and Security

Coordinate site access and security requirements with the Contracting Officer for all radiological materials and equipment containing ionizing radiation that are proposed for use on a Government facility. For gamma radiography materials and equipment, a Government escort is required for any travels on the Installation. The Government authorized representative will meet the Contractor at a designated location outside the Installation, ensure safety of the materials being transported, and will escort the Contractor for gamma sources onto the Installation, to the job site, and off the Installation. For portable machine sources of ionizing radiation, including moisture density and XRF, the Government authorized representative will meet the Contractor at the job site.

Provide a copy of all calibration records, and utilization records for radiological operations performed on the site.

1.15.3 Loss or Release and Unplanned Personnel Exposure

Loss or release of radioactive materials, and unplanned personnel exposures must be reported immediately to the Contracting Officer, RSO, and Base

Security Department Emergency Number.

1.15.4 Site Demarcation and Barricade

Properly demark and barricade an area surrounding radiological operations to preclude personnel entrance, in accordance with EM 385-1-1, Nuclear Regulatory Commission, and Applicable State regulations and license requirements, and in accordance with requirements established in the accepted Radiography Operation Planning Work Sheet.

Do not close or obstruct streets, walks, and other facilities occupied and used by the Government without written permission from the Contracting Officer.

1.15.5 Security of Material and Equipment

Properly secure the radiological material and ionizing radiation equipment at all times, including keeping the devices in a properly marked and locked container, and secondarily locking the container to a secure point in the Contractor's vehicle or other approved storage location during transportation and while not in use. While in use, maintain a continuous visual observation on the radiological material and ionizing radiation equipment. In instances where radiography is scheduled near or adjacent to buildings or areas having limited access or one-way doors, make no assumptions as to building occupancy. Where necessary, the Contracting Officer will direct the Contractor to conduct an actual building entry, search, and alert. Where removal of personnel from such a building cannot be accomplished and it is otherwise safe to proceed with the radiography, position a fully instructed employee inside the building or area to prevent exiting while external radiographic operations are in process.

1.15.6 Transportation of Material

Comply with 49 CFR 173 for Transportation of Regulated Amounts of Radioactive Material. Notify Local Fire authorities and the site Radiation Safety Officer (RSO) of any Radioactive Material use.

1.15.7 Schedule for Exposure or Unshielding

Actual exposure of the radiographic film or unshielding the source must not be initiated until after 5 p.m. on weekdays.

1.15.8 Transmitter Requirements

Adhere to the base policy concerning the use of transmitters, such as radios and cell phones. Obey Emissions control (EMCON) restrictions.

1.16 CONFINED SPACE ENTRY REQUIREMENTS

Confined space entry must comply with EM 385-1-1, 29 CFR 1926, 29 CFR 1910, and Directive CPL 2.100. Any potential for a hazard in the confined space requires a permit system to be used.

1.16.1 Rescue Procedures and Coordination with Local Emergency Responders

Develop and implement an on-site rescue and recovery plan and procedures. The rescue plan must not rely on local emergency responders for rescue from a confined space.

1.17 DIVE SAFETY REQUIREMENTS

When any diving is to be performed, develop a Dive Operations Plan, AHA, emergency management plan, and personnel list that includes qualifications, for each separate diving operation. Submit these documents to the District Dive Coordinator (DDC) via the Contracting Officer, for review and approval at least 15 working days prior to commencement of diving operations. These documents must be at the diving location at all times. Provide each of these documents as a part of the project file.

1.18 SEVERE STORM PLAN

In the event of a severe storm warning, the Contractor must comply with the applicable Storm Plan and:

a. Secure outside equipment and materials and place materials that could be damaged in protected areas.

b. Check surrounding area, including roof, for loose material, equipment, debris, and other objects that could be blown away or against existing facilities.

c. Ensure that temporary erosion controls are adequate.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CONSTRUCTION AND OTHER WORK

Comply with EM 385-1-1, NFPA 70, NFPA 70E, NFPA 241, the APP, the AHA, Federal and State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard prevails.

PPE is governed in all areas by the nature of the work the employee is performing. Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks. Safety glasses must be worn or carried/available on each person. Mandatory PPE includes:

a. Head Protection that meets ANSI/ISEA Z89.1

b. Long Pants

c. Appropriate Safety Footwear

d. Appropriate Class Reflective Vests

3.1.1 Worksite Communication

Employees working alone in a remote location or away from other workers must be provided an effective means of emergency communications (i.e., cellular phone, two-way radios, land-line telephones or other acceptable means). The selected communication must be readily available (easily within the immediate reach) of the employee and must be tested prior to the start of work to verify that it effectively operates in the area/environment. Develop an employee check-in/check-out communication

procedure to ensure employee safety.

3.1.2 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this Contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint, and hexavalent chromium, are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials. Low mercury lamps used within fluorescent lighting fixtures are allowed as an exception without further Contracting Officer approval. Notify the Radiation Safety Officer (RSO) prior to excepted items of radioactive material and devices being brought on base.

3.1.3 Unforeseen Hazardous Material

Contract documents identify materials such as PCB, lead paint, and friable and non-friable asbestos and other OSHA regulated chemicals (i.e., 29 CFR Part 1910.1000). If material(s) that may be hazardous to human health upon disturbance are encountered during demolition, repair, renovation, or construction operations. Stop that portion of work and notify the Contracting Officer immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification.

3.2 UTILITY OUTAGE REQUIREMENTS

Apply for utility outages at least 7 days in advance. At a minimum, the written request must include the location of the outage, utilities being affected, duration of outage, any necessary sketches, and a description of the means to fulfill energy isolation requirements in accordance with EM 385-1-1. In accordance with EM 385-1-1, where outages involve Government or Utility personnel, coordinate with the Government on all activities involving the control of hazardous energy.

These activities include, but are not limited to, a review of Hazardous Energy Control Program (HECP) and HEC procedures, as well as applicable Activity Hazard Analyses (AHAs). In accordance with EM 385-1-1 and NFPA 70E, work on energized electrical circuits must not be performed without prior Government authorization. Government permission is considered through the permit process and submission of a detailed AHA. Energized work permits are considered only when de-energizing introduces additional or increased hazard or when de-energizing is infeasible.

3.3 OUTAGE COORDINATION MEETING

After the utility outage request is approved and prior to beginning work on the utility system requiring shut-down, conduct a pre-outage coordination meeting in accordance with EM 385-1-1. This meeting must include the Prime Contractor, the Prime and subcontractors performing the work, the Contracting Officer, the Installation representative and Public Utilities representative. All parties must fully coordinate HEC activities with one another. During the coordination meeting, all parties must discuss and

coordinate on the scope of work, HEC procedures (specifically, the lock-out/tag-out procedures for worker and utility protection), the AHA, assurance of trade personnel qualifications, identification of competent persons, and compliance with HECP training in accordance with EM 385-1-1. Clarify when personal protective equipment is required during switching operations, inspection, and verification.

3.4 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

Provide and operate a Hazardous Energy Control Program (HECP) in accordance with EM 385-1-1, 29 CFR 1910, 29 CFR 1915, ANSI/ASSP A10.44, NFPA 70E.

3.4.1 Safety Preparatory Inspection Coordination Meeting with the Government or Utility

For electrical distribution equipment that is to be operated by Government or Utility personnel, the Prime Contractor and the subcontractor performing the work must attend the safety preparatory inspection coordination meeting, which will also be attended by the Contracting Officer's Representative, and required by EM 385-1-1. The meeting will occur immediately preceding the start of work and following the completion of the outage coordination meeting. Both the safety preparatory inspection coordination meeting and the outage coordination meeting must occur prior to conducting the outage and commencing with lockout/tagout procedures.

3.4.2 Lockout/Tagout Isolation

Where the Government or Utility performs equipment isolation and lockout/tagout, the Contractor must place their own locks and tags on each energy-isolating device and proceed in accordance with the HECP. Before any work begins, both the Contractor and the Government or Utility must perform energy isolation verification testing while wearing required PPE detailed in the Contractor's AHA and required by EM 385-1-1. Install personal protective grounds, with tags, to eliminate the potential for induced voltage in accordance with EM 385-1-1.

3.4.3 Lockout/Tagout Removal

Upon completion of work, conduct lockout/tagout removal procedure in accordance with the HECP. In accordance with EM 385-1-1, each lock and tag must be removed from each energy isolating device by the authorized individual or systems operator who applied the device. Provide formal notification to the Government (by completing the Government form if provided by Contracting Officer's Representative), confirming that steps of de-energization and lockout/tagout removal procedure have been conducted and certified through inspection and verification. Government or Utility locks and tags used to support the Contractor's work will not be removed until the authorized Government employee receives the formal notification.

3.5 FALL PROTECTION PROGRAM

Establish a fall protection program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify roles and responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures in accordance with EM 385-1-1.

3.5.1 Fall Protection Equipment and Systems

Enforce use of personal fall protection equipment and systems designated (to include fall arrest, restraint, and positioning) for each specific work activity in the Site Specific Fall Protection and Prevention Plan and AHA at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards as specified in EM 385-1-1.

Provide personal fall protection equipment, systems, subsystems, and components that comply with EM 385-1-1 and 29 CFR 1926.

3.5.1.1 Additional Personal Fall Protection Measures

In addition to the required fall protection systems, other protective measures such as safety skiffs, personal floatation devices, and life rings, are required when working above or next to water in accordance with EM 385-1-1. Personal fall protection systems and equipment are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall protection systems are required when operating other equipment such as scissor lifts. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, travel, or while performing work.

3.5.1.2 Personal Fall Protection Equipment

Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. The use of body belts is not acceptable. Harnesses must have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Snap hooks and carabineers must be self-closing and self-locking, capable of being opened only by at least two consecutive deliberate actions and have a minimum gate strength of 3,600 lbs in all directions. Use webbing, straps, and ropes made of synthetic fiber. The maximum free fall distance when using fall arrest equipment must not exceed 6 feet, unless the proper energy absorbing lanyard is used. Always take into consideration the total fall distance and any swinging of the worker (pendulum-like motion), that can occur during a fall, when attaching a person to a fall arrest system. Equip all full body harnesses with Suspension Trauma Preventers such as stirrups, relief steps, or similar in order to provide short-term relief from the effects of orthostatic intolerance in accordance with EM 385-1-1.

3.6 EQUIPMENT

3.6.1 Use of Explosives

Explosives must not be used or brought to the project site without prior written approval from the Contracting Officer. Such approval does not relieve the Contractor of responsibility for injury to persons or for damage to property due to blasting operations.

Storage of explosives, when permitted on Government property, must be only where directed and in approved storage facilities. These facilities must be kept locked at all times except for inspection, delivery, and withdrawal of explosives.

3.7 ELECTRICAL

Perform electrical work in accordance with EM 385-1-1.

3.7.1 Electrical Work

As described in EM 385-1-1, electrical work is to be conducted in a de-energized state unless there is no alternative method for accomplishing the work. In those cases obtain an energized work permit from the Contracting Officer. The energized work permit application must be accompanied by the AHA and a summary of why the equipment/circuit needs to be worked energized. Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Attach temporary grounds in accordance with ASTM F855 and IEEE 1048. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator is allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method.

When working in energized substations, only qualified electrical workers are permitted to enter. When work requires work near energized circuits as defined by NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety footwear, insulating gloves and electrical arc flash protection for personnel as required by NFPA 70E. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA. Ensure that each employee is familiar with and complies with these procedures and 29 CFR 1910.

3.7.2 Qualifications

Electrical work must be performed by QP with verifiable credentials who are familiar with applicable code requirements. Verifiable credentials consist of State, National and Local Certifications or Licenses that a Master or Journeyman Electrician may hold, depending on work being performed, and must be identified in the appropriate AHA. Journeyman/Apprentice ratio must be in accordance with State, Local requirements applicable to where work is being performed.

3.7.3 Arc Flash

Conduct a hazard analysis/arc flash hazard analysis whenever work on or near energized parts greater than 50 volts is necessary, in accordance with NFPA 70E.

All personnel entering the identified arc flash protection boundary must be QPs and properly trained in NFPA 70E requirements and procedures. Unless permitted by NFPA 70E, no Unqualified Person is permitted to approach nearer than the Limited Approach Boundary of energized conductors and circuit parts. Training must be administered by an electrically qualified source and documented.

3.7.4 Grounding

Ground electrical circuits, equipment and enclosures in accordance with NFPA 70 and IEEE C2 to provide a permanent, continuous and effective path to ground unless otherwise noted by EM 385-1-1.

3.7.5 Testing

Temporary electrical distribution systems and devices must be inspected, tested and found acceptable for Ground-Fault Circuit Interrupter (GFCI) protection, polarity, ground continuity, and ground resistance before initial use, before use after modification and at least monthly. Monthly inspections and tests must be maintained for each temporary electrical distribution system, and signed by the electrical CP or QP.

-- End of Section --

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PART 1 GENERAL

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SECTION 01 42 00

SOURCES FOR REFERENCE PUBLICATIONS

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number.

AMERICAN CONCRETE INSTITUTE (ACI)
38800 Country Club Drive
Farmington Hills, MI 48331
Ph: 248-848-3700
Fax: 248-848-3701
E-mail: bkstore@concrete.org
Internet: http://www.concrete.org

AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL (AMCA)
30 West University Drive
Arlington Heights, IL 60004-1893
Ph: 847-394-0150
Fax: 847-253-0088
E-mail: amca@amca.org
Internet: http://www.amca.org

ALUMINUM ASSOCIATION (AA)
National Headquarters
1525 Wilson Boulevard, Suite 600
Arlington, VA 22209
Ph: 703-358-2960
Fax: 703-358-2961
Internet: http://www.aluminum.org

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)
1827 Walden Office Square
Suite 550
Schaumburg, IL 60173-4268
Ph: 847-303-5664

Fax: 847-303-5774
E-mail: webmaster@aamanet.org
Internet: http://www.aamanet.org

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
444 North Capital Street, NW, Suite 249
Washington, DC 20001
Ph: 202-624-5800
Fax: 202-624-5806
E-Mail: info@aashto.org
Internet: http://www.aashto.org

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
One East Wacker Drive
Chicago, IL 60601-1802
Ph: 312-670-2400
Fax: 312-670-5403
Publications: 800-644-2400
E-mail: pubs@aisc.org
Internet: http://www.aisc.org

AMERICAN IRON AND STEEL INSTITUTE (AISI)
1140 Connecticut Avenue, NW, Suite 705
Washington, DC 20036
Ph: 202-452-7100
Fax: 202-463-6573
Internet: http://www.steel.org

--- ANSI documents beginning with the letter "S" can be ordered from:

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
1801 Alexander Bell Drive
Reston, VA 20191-4400
Ph: 703-295-6300 - 800-548-2723
Fax: 703-295-6222
E-mail: marketing@asce.org
Internet: http://www.asce.org

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)
1791 Tullie Circle, NE
Atlanta, GA 30329
Ph: 800-527-4723 or 404-636-8400
Fax: 404-321-5478
E-mail: ashrae@ashrae.org
Internet: http://www.ashrae.org

AMERICAN WELDING SOCIETY (AWS)
550 N.W. LeJeune Road
Miami, FL 33126
Ph: 800-443-9353 - 305-443-9353
Fax: 305-443-7559
E-mail: info@aws.org
Internet: http://www.aws.org

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
Three Park Avenue, M/S 10E
New York, NY 10016
Ph: 212-591-7722 or 800-843-2763
Fax: 212-591-7674
E-mail: infocentral@asme.org
Internet: http://www.asme.org

ASTM INTERNATIONAL (ASTM)
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959
Ph: 610-832-9500
Fax: 610-832-9555
E-mail: service@astm.org
Internet: http://www.astm.org

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)
355 Lexington Avenue
17th Floor
New York, NY 10017
Ph: 212-297-2122
Fax: 212-370-9047
E-mail: assocmgmt@aol.com
Internet: http://www.buildershardware.com

DOOR AND ACCESS SYSTEM MANUFACTURERS ASSOCIATION (DASMA)
1300 Sumner Avenue
Cleveland, OH 44115-2851
Ph: 216-241-7333
Fax: 216-241-0105
E-mail: dasma@dasma.com
Internet: http://www.dasma.com

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RESIDENT MANAGEMENT SYSTEM CONTRACTOR MODE (RMS CM)

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for resident management system requirements as specified herein. Payment for the work covered under this section shall be distributed throughout the existing bid items.

1.2 REFERENCES

The publications listed below form a part of this section to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2024) Safety - Safety and Occupational Health (SOH) Requirements
RMS CM Guide	(2025) Resident Management System (RMS) User Manual For Contractors

1.3 CONTRACT ADMINISTRATION

The Government will use the Resident Management System (RMS) to assist in its monitoring and administration of this contract. The Government accesses the system using the Government Mode of RMS (RMS GM) and the Contractor accesses the system using the Contractor Mode (RMS CM), RMS CM Guide. The term RMS will be used in the remainder of this section for both RMS GM and RMS CM. The joint Government-Contractor use of RMS facilitates electronic exchange of information and overall management of the contract. The Contractor accesses RMS to record, maintain, input, track, and electronically share information with the Government throughout the contract period in the following areas:

Administration
Finances
Quality Control
Submittal Monitoring
Scheduling
Closeout
Import/Export of Data

The Contractor must be prepared to transition from the Resident Management System (RMS) to the new Construction Management Platform (CMP) at any time during the period of performance of this contract, once the USACE enterprise implements this change. The Contractor's obligation to transition from RMS to the CMP system is a requirement of this contract. Therefore, additional time or cost increase to complete this transition will not be considered. In the event of the transition, RMS project information will be migrated to CMP by the Government and available in the CMP system. After the transition, the Contractor must utilize the CMP

system to perform all contract administration functions previously required in RMS, including all areas listed above. After the transition, "RMS" and "CMP" will be synonymous for all "Resident Management System" and "RMS" references in this contract's specification. To facilitate the transition from RMS to CMP, online training for the CMP system will be made available to the Contractor with enough time to train staff, prior to the transition occurring.

1.3.1 Correspondence and Electronic Communications

For ease and speed of communications, exchange correspondence and other documents in electronic format to the maximum extent feasible. Some documents such as correspondence, including pay requests and payrolls, may be required in paper format with original signatures. Paper documents will govern in the event of discrepancy with the electronic version. Contracting Officer will determine which documents require submission of paper copies.

1.3.2 Other Factors

Other portions of this document have a direct relationship to the reporting accomplished through RMS. Particular attention is directed to FAR 52.236-15 Schedules for Construction Contracts; FAR 52.232-27 Prompt Payment for Construction Contracts; FAR 52.232-5 Payments Under Fixed-Priced Construction Contracts; Section 01 32 01.00 12 PROJECT SCHEDULE; Section 01 33 00 SUBMITTAL PROCEDURES; Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS; and Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL.

1.4 RMS SOFTWARE

RMS is a web based application. Download, install and be able to utilize the latest version of RMS within 7 calendar days of receipt of the Notice to Proceed. RMS software, user manuals, access and installation instructions, program updates and training information are available from the RMS website (https://rms.usace.army.mil). The Government and the Contractor will have different access authorities to the same contract database through RMS. The common database will be updated automatically each time a user finalizes an entry or change.

1.5 CONTRACT DATABASE - GOVERNMENT

The Government will enter the basic contract award data in RMS prior to granting the Contractor access. The Government entries into RMS will generally be related to submittal reviews, correspondence status, and Quality Assurance(QA)comments, as well as other miscellaneous administrative information.

1.6 CONTRACT DATABASE - CONTRACTOR

Contractor entries into RMS establish, maintain, and update data throughout the duration of the contract. Contractor entries generally include prime and subcontractor information, daily reports, submittals, RFI's, schedule updates and payment requests. RMS includes the ability to import attachments and export reports in many of the modules, including submittals. The Contractor responsibilities for entries in RMS typically include the following items:

1.6.1 Administration

1.6.1.1 Contractor Information

Enter all current Contractor administrative data and information into RMS within 7 calendar days of receiving access to the contract in RMS. This includes, but is not limited to, Contractor's name, address, telephone numbers, management staff, and other required items.

1.6.1.2 Subcontractor Information

Enter all missing subcontractor administrative data and information into RMS CM within seven calendar days of receiving access to the contract in RMS or within seven calendar days of the signing of the subcontractor agreement for agreements signed at a later date. This includes name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor is listed separately for each trade to be performed.

1.6.1.3 Correspondence

Identify all Contractor correspondence to the Government with a serial number. Prefix correspondence initiated by the Contractor's site office with "S". Prefix letters initiated by the Contractor's home (main) office with "H". Letters are numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C" or "RFP".

1.6.1.4 Equipment

Enter and maintain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates in accordance with Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL.

1.6.1.5 Reports

Track the status of the project using the reports available in RMS. The value of these reports reflects the quality of the data input. These reports include but are not limited to the Progress Payment Request worksheet, Quality Control (QC) comments, Deficiency Tracking Log, Submittal Register Status, and Three-Phase Control worksheets in accordance with Sections Section 01 32 01.00 12 PROJECT SCHEDULE, 01 33 00 SUBMITTAL PROCEDURES, and 01 45 04.00 10 CONTRACTOR QUALITY CONTROL.

1.6.1.6 Request For Information (RFI)

Create and track all Requests For Information (RFI) in the RMS Administration Module for Government review and response. Provide status at weekly progress meeting in accordance with Section 01 32 01.00 12 PROJECT SCHEDULE.

1.6.2 Finances

1.6.2.1 Pay Activity Data

Develop and enter a list of pay activities in conjunction with the project schedule in accordance with Section 01 32 01.00 12 PROJECT SCHEDULE. The sum of pay activities equals the total Contract amount, including

modifications. Each pay activity must be assigned to a Contract Line Item Number (CLIN). The sum of the activities assigned to a CLIN equals the amount of each CLIN.

1.6.2.2 Payment Requests

Prepare all progress payment requests using RMS. Update the work completed under the Contract at least monthly, measured as percent or as specific quantities. After the update, generate a payment request and prompt payment certification using RMS. Submit the signed prompt payment certification and payment request as well as supporting data, either electronically or by hard copy.

1.6.3 Quality Control (QC)

Enter and track implementation of the 3-phase QC Control System, QC testing, transferred and installed property and warranties in RMS. Link each deficiency and QC test to a pay activity. Prepare daily reports, identify and track deficiencies, document progress of work, and support other Contractor QC requirements in RMS. Maintain all data on a daily basis. Ensure that RMS reflects all quality control methods, tests and actions contained within the Contractor Quality Control (CQC) Plan and Government review comments. Provide within seven calendar days of Government acceptance of the CQC Plan.

1.6.3.1 Quality Control (QC) Reports

The Contractor's Quality Control (QC) Daily Report in RMS is the official report. The Contractor can use other supplemental formats to record QC data, but information from any supplemental formats are to be consolidated and entered into the RMS QC Daily Report. Any supplemental information may be entered into RMS as an attachment to the report. QC Daily Reports must be finalized and signed in RMS within 24 hours after the date covered by the report. Provide the Government a printed signed copy of the QC Daily Report, unless waived by the Contracting Officer.

1.6.3.2 Deficiency Tracking

Use the QC Daily Report Module to enter and track deficiencies. Deficiencies identified and entered into RMS by the Contractor or the Government will be sequentially numbered with a QC or QA prefix for tracking purposes. Enter each deficiency into RMS the same day that the deficiency is identified. Monitor, track and resolve all QC and QA entered deficiencies. A deficiency is not considered to be corrected until the Government indicates concurrence in RMS.

1.6.3.3 Three-Phase Control Meetings

Maintain scheduled and actual dates and times of preparatory and initial control meetings in RMS, and upload meeting minutes of the meetings. Worksheets for the three-phase control meetings are generated within RMS.

1.6.3.4 Labor and Equipment Hours

Enter labor and equipment exposure hours on a daily basis. Roll up the labor and equipment exposure data into a monthly exposure report.

1.6.3.5 Accident/Safety Reporting

Both the Contractor and the Government enter safety related comments in RMS as a deficiency. The Contractor must monitor, track and show resolution for safety issues in the QC Daily Report area of the RMS QC Module. In addition, follow all reporting requirements for accidents and incidents as required in EM 385-1-1, Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS and as required by any other applicable Federal, State or local agencies.

1.6.3.6 Definable Features of Work

Enter each feature of work, as defined in the approved CQC Plan, into the RMS QC Module. A feature of work may be associated with a single or multiple pay activities, however a pay activity is only to be linked to a single feature of work.

1.6.3.7 Activity Hazard Analysis

Import activity hazard analysis electronic document files into the RMS QC Module utilizing the document package manager. Prepare activity hazard analysis in accordance with Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS.

1.6.4 Submittal Management

Enter all current submittal register data and information into RMS within seven calendar days of receiving access to the Contract in RMS. Contractor is responsible for entering Activity Numbers for each submittal item corresponding to their Schedule. The Contractor will import the information shown in the submittal register following the specification Section 01 33 00 SUBMITTAL PROCEDURES unless otherwise directed by the Contracting Officer. Group electronic submittal documents into transmittal packages to send to the Government, except very large electronic files, samples, spare parts, mock ups, color boards, or where hard copies are specifically required. Track transmittals and update the submittal register in RMS on a daily basis throughout the duration of the Contract. Submit hard copies of all submittals unless waived by the Contracting Officer. Contractor may request submittals to be added to RMS throughout the lifecycle of the project. Approval/disapproval of Contractor requests is at the discretion of the Contracting Officer. Submittals entry into RMS must be updated daily or as practical for performance of the Contract, as approved by the Contracting Officer.

1.6.5 Schedule

Enter and update the contract project schedule in RMS by either manually entering all schedule data or by importing the Standard Data Exchange Format (SDEF) file, based on the requirements in Section 01 32 01.00 12 PROJECT SCHEDULE.

1.6.6 Closeout

Closeout documents, processes and forms are managed and tracked in RMS by both the Contractor and the Government. Ensure that all closeout documents are entered, completed and documented within RMS.

1.7 IMPLEMENTATION

Use of RMS as described in the preceding paragraphs is mandatory. Ensure

that sufficient resources are available to maintain contract data within the RMS system. RMS is an integral part of the Contractor's required management of quality control.

1.8 NOTIFICATION OF NONCOMPLIANCE

Take corrective action within seven calendar days after receipt of notice of RMS non-compliance by the Contracting Officer.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

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SECTION 01 45 04.00 10

CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for providing and maintaining an effective Contractor Quality Control program, and all costs associated therewith shall be included in the applicable contract unit or job prices contained in the Pricing Schedule.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Contractor Quality Control Plan; G, CD

1.3 ELECTRONIC TEST REPORT DATA

As part of the Contractor's Quality Control Program, his/her selected QC laboratory shall provide electronic transmission of the test report data in the prescribed formats with the original hard copy test report data to the Government. The New Orleans District Construction Control Manual (NODCC Manual) specifies the minimum number of tests to be performed, and includes forms which shall be used to report the number of tests to be performed, and the test data. The technical specification sections may include testing and/or frequency requirements other than those listed in the NODCC Manual. These additional requirements shall also be followed. Test results shall be emailed to mvn-cd-q-testresults@usace.army.mil and to the Government project engineer. All test results shall also be uploaded to RMS. A copy of the NODCC Manual is attached at the end of the section. Test results shall be emailed to mvn-cd-q-testresults@usace.army.mil and to the Government Project Engineer. In addition, all test results shall be uploaded to the Resident Management System Contractor Mode (RMS CM).

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause in Section 00700 entitled INSPECTION OF CONSTRUCTION (FAR 52.246-12). The quality control system shall consist of plans, procedures,

and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent and Quality Control Manager will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

3.2 CONTRACTOR QUALITY CONTROL (CQC) PLAN

The Contractor shall furnish for review by the Government, not later than 15 days after receipt of notice of award, the Contractor Quality Control Plan proposed to implement the requirements of the Contract Clause in Section 00700 entitled INSPECTION OF CONSTRUCTION (FAR 52.246-12). The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started. A sample CQC Plan is attached at the end of the section.

3.2.1 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager and alternate who shall report to the project superintendent.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite

fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities approved by the Contracting Officer shall be used.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.2 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his/her CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.3 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 PRE-WORK MEETINGS

Prior to the start of construction, the Contractor shall meet with the Contracting Officer, or his/her authorized representative in a Pre-Construction Conference and a Pre-Work Coordination Meeting. At least 14 calendar days prior to the Pre-Construction Conference, the Contractor shall submit to the Government for review and approval, his/her Contractor Accident Prevention and Contractor Quality Control (CQC) Plan

3.3.1 Pre-work coordination meeting

After the Pre-Construction Conference, and before the start of construction, the Contractor Shall meet witht he Contracting OFficer, or his/her authorized representative, in a Pre-Work Coordination Meeting to

discuss the CQC. During this meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's management and control witht he Governments Quality Assurance inspections. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understanding and/or address deficiencies in teh CQC system or procedures which may require corrective action by the coordinator.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager shall serve as a member of the CQC staff. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, shop drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a construction person with a minimum of 3 years (full time) experience in related equivalent work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager may not have any other duties than quality control. An alternate for the CQC System Manager shall be identified in the QC Plan to serve in the event of the System Manager's absence. When the alternate is activated, he shall also have no other duties than quality control.

3.4.3 CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager for the following areas: electrical, mechanical, structural, materials technician, and submittals clerk. These individuals may be employees of the prime or subcontractor; be responsible to the CQC System Manager; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must

be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan. A single person may cover more than one area provided that they are qualified to perform QC activities in each designated field of expertise and if his/her workload allows.

Experience Matrix

	Area	Qualifications
a.	Mechanical	Graduate Mechanical Engineer or Construction Manager with 2 yrs experience or person with 5 yrs related experience
b.	Electrical	Graduate Electrical Engineer or Construction Manager with 2 yrs related experience or person with 5 yrs related experience
c.	Structural	Graduate Structural Engineer or Construction Manager with 2 yrs experience or person with 5 yrs related experience
d.	Submittals	Submittal Clerk with 1 yr experience
e.	Concrete, Pavements and Soils	Materials Technician with 2 yrs experience for the appropriate area

3.4.4 Additional Requirement

In addition to the above experience and education requirements the CQC System Manager, and his/her alternate, shall have completed the course entitled "Construction Quality Management for Contractors" within the past 3 years. This course is periodically offered at the New Orleans District and other Corps of Engineers districts.

3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, shall be made as specified in Section 01 33 00 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures

that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of the construction work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

a. A review of each paragraph of applicable specifications

b. A review of the contract drawings.

c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. Discussion of the initial control phase.

k. The Government Quality Assurance personnel shall be notified at least 48 hours in advance of beginning the preparatory control phase. The Contractor shall submit a written agenda of the topics to be discussed at the preparatory meeting on the day prior to the meeting date. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), Government Quality Assurance personnel, and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of

work. The following shall be accomplished:

a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. The Contractor shall notify the Contracting Officer's Representative (COR) at least 24 hours prior to all quality control testing in order to coordinate simultaneous quality assurance tests if the COR elects to do so. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by

the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. Depending upon the workload by the Government inspecting agency, acceptance or rejection of the Contractor proposed testing laboratory is usually done approximately 60 to 120 days after notification is received from the Contractor. The certification will be valid for two years. The Contractor shall perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

f. Field soil sampling and testing locations shall be recorded using GPS coordinates accurate to the meter range.

g. An informational electronic copy (PDF file of actual test result) of all material tests performed (regardless of whether performed by an offsite test facility or an on-site test facility) shall be electronically transmitted to mvn-cd-q-testresults@usace.army.mil and to the Government project engineer. In addition, all test results shall be uploaded to RMS within 24 hours of test report completion. An electronic data entry form (Excel based) will be provided by the Government to enter electronic data, in a format prescribed by the Government. This data file shall contain the results of the required material tests. The required template for data transmission is covered in the attached Construction Control Manual_Appendices A-C at the end of this section.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

All laboratory facilities, personnel, and equipment used to test soil, concrete, and asphalt shall be part of a validated laboratory that has been inspected or audited by the USACE Materials Testing Center, Vicksburg, MS.

3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of $5000.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of Engineers Division Laboratory, f.o.b., at the following address:

For All Materials Except Painting Materials and Quality Assurance Concrete Test Cylinders:

U.S. Army Engineer Research and Development Center (ERDC)
Waterways Experiment Station
Geotechnical and Structures Laboratory
3909 Halls Ferry Road
Vicksburg, Mississippi 39180-6199

For Quality Assurance Concrete Test Cylinders:

U.S. Army Corps of Engineers
New Orleans District Soils and Materials Processing Unit
Room 105
7400 Leake Ave
New Orleans, Louisiana 70118-3651

Concrete test cylinders shall only be delivered on Federal workdays between 8:30 AM and 3:00 PM. Coordination for each specific test, exact delivery location, and dates will be made through the Area Office. Details on the soils and materials testing laboratory and additional instructions for delivery of the QA samples will be given at the preconstruction conference.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the Contract Clause in Section 00700 entitled COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (FAR 52.211-10) or stated elsewhere in the specifications, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the work is complete and ready to be occupied. A Government Pre-Final Punch

List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at this inspection. Additional Government personnel including, but not limited to, those from the New Orleans District, Mississippi Valley Division, and local interest may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the Contract Clause in Section 00700 entitled INSPECTION OF CONSTRUCTION (FAR 52.246-12).

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

a. Contractor/subcontractor and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.

g. Offsite surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 12 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --

US Army Corps
of Engineers ®
New Orleans District

Construction Control Manual

Sampling & Testing Construction Materials
Reporting Test Results

CEMVN CD 415-Q-11
14 March 2016

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
7400 LEAKE AVENUE
NEW ORLEANS, LOUISIANA 70118

CEMVDN-CD

Pamphlet
Number CEMVN-CD-415-Q-11 14 March 2016

Construction

CONSTRUCTION CONTROL MANUAL

1. Purpose. This manual describes the means and methods for the Contractor Quality Control (QC) and Government Quality Assurance (QA) testing of some of the more common construction materials incorporated into New Orleans District projects. Information is given on sampling, the test required, testing frequency, reporting requirements, and database maintenance. This manual only describes a minimum testing program on a limited number of common construction materials and the specifications may require additional tests that demonstrate compliance with the contract documents.

2. Applicability. This manual applies to all New Orleans District elements having responsibility for the design and construction of assigned projects.

3. Scope of the Manual. This manual is intended to guide the Quality Control and Quality Assurance process and provide for the construction of a project whose quality and durability is a direct reflection of the Contractor's and the Government's efforts in meeting the project's goals and objectives. If there is a conflict between this manual and the technical specification sections, the most stringent requirements shall govern.

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

Number CEMVN-CD-415-Q-11

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Chapter 1 Introduction

1. General:

This manual describes the means and methods for the Contractor Quality Control and Government Quality Assurance testing of construction materials incorporated into the New Orleans District (CEMVN) projects. Information is given on sampling, the test required, testing frequency, reporting requirements, and database maintenance. This manual only describes a minimum testing program on a limited number of common construction materials and the specifications may require additional tests that demonstrate compliance with the contract documents. If there is a conflict between this manual and the technical specification sections, the most stringent requirements shall govern. The most recent version of this manual at the time of contract solicitation will supplement the construction material control requirements for a specific contract unless noted otherwise.

The Contractor shall only use those laboratories, including his own that have been validated by an inspection or audit performed by the USACE Materials Testing Center, Vicksburg, MS.

2. Definitions:

a. Quality Management System. Quality management is defined as all control, inspection, and other assurance activities instituted to achieve the product quality established by the contract plans and specifications.

b. Contractor Quality Control. Contractor Quality Control (QC) is that part of the system by which the Contractor regulates, tests and inspects their own, suppliers, and sub-Contractors procedures, equipment, materials, and personnel so that the completed product will comply with the requirements of the project's contract documents.

c. Government Quality Assurance. Government Quality Assurance (QA) is that part of the system by which the Government verifies or assures that the Contractor's Quality Control system is performing properly and the completed product conforms to the contract documents. The number of QC test observed by QA personnel should be generally related to the consistency in QC and QA test results.

3. Responsibility, Compilation, and Submittal of Test Results:

a. The Contractor is responsible for complying with the contract documents in the performance of all required tests and the preparation, submittal, and maintenance of those test reports outlined in this manual and the contract specifications. The test results from QC and QA testing shall be compiled separately as outlined in this manual.

b. The Contractors' QC Laboratory shall appoint a Registered Professional Civil Engineer to certify QC inspections and test results prior to the start of work. The certification shall state that the tests and observations were performed by or under the direct supervision of the Registered Professional Civil Engineer and that the results are representative of the

materials and conditions being certified by the tests. The certification shall be submitted within two weeks after final inspections and testing is complete. The certification shall be submitted to USACE for the referenced project in accordance with the New Orleans Construction Control Manual, Appendix A. Failure to submit certifications as stated may result in nonpayment for related work performed and disapproval of the QC test facility for this contract.

c. Acceptance of the Contractors' QC plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes to the QC Plan and operations including removal of personnel and QC Laboratory, as necessary, to obtain the quality specified.

d. All test results will be entered into the CEMVN Quality Assurance Control Center (QACC) construction material testing database as described in Appendix A by the QC laboratory performing the testing. Test results will be entered into the testing database within 48 hours from sampling. Payment for any material placed, as well as for any subsequent construction, will not be made until test results are entered into the database and analyzed by Quality Assurance personnel. The Contractor shall maintain a hard copy of the materials testing log, test reports and control charts at the Contractor's field office. These records will be available at all times for review by Government personnel. The original test report will be distributed to the Administrative Contracting Officer (ACO) within 48 of completion of the test. This original test report (supporting documentation) submission is in addition to any required electronic submission.

e. Any tests not conforming to the contract documents will be immediately reported to the Administrative Contracting Officer along with the recommended corrective action to bring the work into complete compliance with the specifications. The Administrative Contracting Officer may designate additional re-sampling or retesting to verify the work represented by the failing test. This testing is at the Contractor's expense.

f. Reference to standard test methods and testing procedures for sampling and testing of common construction materials are given in each chapter of this manual. Additional testing may also be required in the contract documents.

g. Laboratory Facilities. For work that involves aggregates, concrete, masonry, rock or soil the QC Laboratory shall, at its own expense, obtain and maintain validation as an approved testing laboratory by the Materials Testing Center (MTC) of the Engineering Research and Development Center (ERDC). This shall be done in accordance with ER 1110-1- 8100 and ER 1110-1-261. Appendix B further describes this requirement. Refer to Chapter 4 for welding laboratories.

For work that involves vibration, steel, steel reinforcing bars, coatings inspections and other specialized construction material testing and inspection the QC Laboratory shall maintain personnel, procedures and equipment that meet applicable industry standards.

h. Field sampling and testing locations shall be recorded using Latitude/Longitude coordinates reported in decimal degree format to the millionth decimal and be surveyed using techniques to achieve ±10 feet accuracy.
Report Form input example: 29.934003, -90.133745

Chapter 2 Soils

1. Scope:

This chapter specifies methods and procedures for the Contractor Quality Control (QC) and Government Quality Assurance (QA) testing of materials used, but not limited to, compacted levee embankments, compacted berms, un-compacted berms, ramps, and structural backfill. The Government will also perform checks, and assurance testing of control testing required by the Contractor.

2. Samples:

Samples shall be collected and secured in accordance applicable ASTM testing procedures.

3. Testing Personnel:

The individuals who inspect, monitor, sample and test Embankment construction as required in this specification shall meet the following minimum criteria of certification and/or documented experience. Work experience shall be related to the field for which the inspector is being qualified and may be obtained by working either for an inspection/testing agency or engineering firm as a technician, inspector or engineer.

- Current NICET Level II certification in Geotechnical Engineering technology/construction, or
- Current ICC Soils Special Inspector with one year related experience, or
- Geologist-in-Training with one year related experience, or
- Engineer Intern with one year related experience, or
- Registered Geologist, or
- Registered Professional Engineer.

The Contractors' QC laboratory shall submit certification and/or documentation to provide evidence of qualification. The appointed Registered Professional Civil Engineer, identified in Chapter 1, Section 3.b to certify inspections and test results, remains responsible for compliance of all inspection and testing activities.

All Laboratory facilities, personnel and equipment used to test soils as required in this specification shall be part of a Laboratory that has been validated by the USACE Materials Testing Center, Vicksburg, MS.

4. Typical Test Requirements:

Testing and reporting shall be performed in accordance with the latest American Society of Testing and Materials (ASTM) Standard, as indicated in Table 2-1.

Table 2-1
ASTM References

Gradation	
ASTM C 117	Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing
ASTM C 136	Sieve Analysis of Fine and Course Aggregates
ASTM D 1140	Amount of Material in Soils Finer than No. 200 (75-μm) Sieve
ASTM D 6913	Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis
Moisture Content	
ASTM D 2216	Laboratory Determination of Water, (Moisture) Content of Soil and Rock by Mass (Method B)
ASTM D 4643	Determination of Water (Moisture) Content of Soil by Microwave Method
Moisture/Density Relationship	
ASTM D 698	Laboratory Compaction Characteristics of Soil Using Standard Efforts (12,400ft lbs/ft^3 (6000KN))
ASTM D 1557	Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3))
Field Density	
ASTM D 1556	Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 6938	In-Place Density and Water Content of Soil and Soil-Aggregate Nuclear Methods (Shallow Depth)
Materials Classification	
ASTM D 2487	Classification of Soils for Engineering Purposes
ASTM D 4318	Liquid Limit (One-Point Method B), Plastic Limit, and Plasticity Index of Soils
Organic Content	
ASTM D 2974	Moisture, Ash, and Organic Matter of Peat and Other Organic Soils (Method C)
Unconfined Compressive Strength	
ASTM D 1633	Compressive Strength of Molded Soil-Cement Cylinders
ASTM D 2166	Unconfined Compressive Strength of Cohesive Soil

5. Sampling and Testing of Compacted Fill:

This sampling and testing shall be in accordance with the standard procedures referred to in this manual. The minimum number of QC tests to be performed shall be as indicated in Table 2-2. The Government will also perform checks, and assurance testing of the other control testing required by the Contractor.

Table 2-2
Type of Tests and Frequency of Testing
Compacted Embankments and Berms, Ramps, and Structural Backfill Material

Property	Form	Minimum Frequency	Standard
Nuclear Field Density	MVNQS11	One test per 1,500 cubic yards of compacted fill placed per lift, but not less than one density test per 500 linear feet per lift. A lift placed on any one side of an existing embankment will be considered as a separate lift. At least one test shall be performed in any shift that compacted fill is placed.	ASTM D 1556 or ASTM D 6938
Nuclear Field Density Relative Density	MVNQS12	Used to record test results from testing uncohesive material. One density test per lift per 150 linear feet of the base course. Isolated repairs (less than 150 linear feet) must have at least one density test per isolated area per lift.	ASTM D 6938
Sand Cone Field Density	MVNQS03	One test to be obtained for every ten (10) Nuclear Field Density locations to verify Nuclear Field Density.	ASTM D 1556
Compaction Control Curve	MVNQS02	Control Compaction Curves shall be established in accordance with ASTM D 698 - Laboratory Compaction Characteristics of Soil Using Standard Effort. A Compaction Control Curve will be required for each type of material from each source or a minimum of one Compaction Control Curve every 25,000 cubic yards of compacted fill placement. Where construction operations result in the blending of material, two representative Compaction Control Curves will be required for each resulting blend of material. The samples collected for the resultant blended material shall be collected from separate locations. If the borrow or source of fill material changes, new Compaction Control Curves shall be performed. Material test samples for Compaction Control Curve shall be prepared by air-dry, rewet, and cured.	ASTM D 698
One-Point Proctor Verification	MVNQS02	One test to be obtained for every five (5) field density locations.	ASTM D 698 (modified)
Moisture Content	MVNQS11	One test at each field density test location.	ASTM D 2216 or ASTM D 4643
Organic Content	MVNQS07	One test at each field density test location.	ASTM D 2974 (Method C)
Materials Classification	MVNQS06	One test obtained for each Control Compaction Curve and one test for each field density test. Determine Atterberg Limits (LL One-Point Method B), minus #200 and Sand Content.	ASTM D 2487 ASTM D 1140 ASTM D 4318
Unconfined Compressive (UC) Strength	MVNQS05	For Deep Soil Mixing (DSM) QC operations a minimum of three percent of the DSM columns per site will be drilled and three UC strength samples collected and tested at each test column.	ASTM D 2166 ASTM D 1633

6. Sampling and Testing of Un-Compacted Berm Material:

This sampling and testing shall be in accordance with the standard procedures referred to in this manual. The minimum number of QC tests to be performed shall be as indicated in Table 2-3. The Government will also perform check and assurance testing of the other control testing required by the Contractor.

Table 2-3
Type of Tests and Frequency of Testing
Un-Compacted Berm Material

Property	Form	Frequency	Standard
Organic Content	MVNQS07	One test at materials classification test location.	ASTM D 2974 (Method C)
Materials Classification	MVNQS06	One test per 3,000 cubic yards of un-compacted fill placed, but not less than one test per 1,000 linear feet of un-compacted fill placed. At least one test shall be performed in any shift that un-compacted fill is placed. Determine Atterberg Limits (LL One-Point Method B), minus #200 and Sand Content.	ASTM D 2487 ASTM D 1140 ASTM D 4318

7. Compilation of Test Data for Submittal:

The results of the test and inspections shall be recorded in the MVN database as directed in Appendix. Samples of the reporting forms and instruction for each form are provided on the MVN SharePoint site; **Test Form Examples** and are described as follows. The latest forms should be referenced on the MVN SharePoint site and described in Appendices. All data is to be submitted electronically **within 24 hours of completion of the tests by the laboratory performing the testing.**

a. **MVNQS01** Sieve Analysis – ASTM C 117, ASTM C 136 and ASTM D 1140. This form is to be used in reporting the material finer than No 200 sieve and a sieve analysis of coarse grain material.

b. **MVNQS02 (**Compaction Control Curve) ASTM D 698. This form is to be used in reporting the determination of the optimum moisture content and the maximum dry density. The moisture-density curve shall be plotted based on a minimum of five compaction test specimens. A one-point Proctor test – ASTM D 698 (modified, Figure 2-2) shall be obtained for every five (5) field density test locations, and reported with same. The soil One-Point proctor result obtained from the in-place density test location will serve as the basis for determining the applicable compaction control curve.

c. **MVNQS03 (**Field Density Sand Cone Method) ASTM D 1556. This form is to be used in reporting the determination of the degree of compaction and moisture content. Contract specifications shall govern the required compaction effort.

d. **MVNQS05** (Unconfined Compressive Strength) ASTM D 2166. This form is to be used to report the compressive strength of an intact, remolded or reconstituted cohesive soil, using a strain-controlled application of the axial load. Contract specifications shall govern the acceptable strength requirements.

e. **MVNQS06** (Unified Soil Classification System) ASTM D 2487. This form is to be used to report the determination of the liquid limit (One-point Method B), plastic limit, plasticity index, % sand content and % fines. MVNQS01 Sieve Analysis – ASTM C 117 and ASTM C 136 is to be used to report the results of gradation tests of the material if a granular material is specified. The final soil classification in accordance with ASTM D 2487 shall be stated on the same forms. Contract specifications shall govern the acceptable Atterberg limits, gradation limits, and material classification. If the Nuclear Method (ASTM D 6938) is used for field density determinations, the soil sample utilized for material classification shall come from within a radius of 12 inches of the center of the in-place density test site. The soil classification obtained from in-place density test location will serve as a basis for determining the applicable compaction control curves.

f. **MVNQS07 (**Moisture, Ash, and Organic Content Determination) ASTM D 2974 (Method C). This form is to be used in reporting the determination of the organic content of the material. Determination of organic content shall be performed in accordance with ASTM D 2974; Method C. Contract specifications shall govern the acceptable limits of organic content.

g. **MVNQS09 (**Moisture Content Determination) ASTM D 2216, ASTM D 4643 and ASTM D 6938. This form is to be used in reporting the determination of the moisture content of the in-place material when ASTM D 2216, ASTM D 4643 or ASTM D 6938 is the test method utilized. This form is not to be used when performing Field Density Test Nuclear Method with Moisture Content Determination. Contract specifications shall govern the acceptable limits of moisture content.

h. **MVNQS11** (Field Density Test Nuclear Method). This form is to be used in reporting the determination of the degree of compaction and moisture content by oven, microwave or nuclear gauge. Contract specifications shall govern the required compaction effort and moisture range. If the nuclear method is selected for field density testing, the Sand-Cone Method shall be used to confirm the accuracy of the Nuclear Method. This shall be accomplished by performing an initial comparison test of the two methods when a nuclear gage is brought on-site for the first time. If the Nuclear Method wet density is within 3 percent of the Sand Cone Method, no correction of the Nuclear Method wet density will be required and the testing may continue with the Nuclear Method. The Nuclear Method wet density shall be verified throughout the project at a rate of one Sand-Cone test for every ten nuclear tests per nuclear gage thereafter. If the variance at any time between the Nuclear Method and the Sand Cone Method exceeds 3 percent, testing

with the Nuclear Method shall stop until the Contractor provides a Root Cause Analysis and five consecutive comparison tests are performed as evidence that Corrective Actions will provide results within 3 percent. For comparison purposes, the nuclear and sand-cone wet densities should represent the same layer thickness within the testing area selected. When a nuclear density result is in doubt, the sand-cone density test shall be used for acceptance.

i. **MVNQS12** (Field Density (Relative Density) Nuclear Method). This form is to be used in reporting the determination of the Relative degree of compaction as determined based on relationship of the Minimum Dry density and Maximum Dry density. Contract specifications shall govern the required Relative Density.

8. Soil Electronic Conductivity (EC) and Total Soluble Salt Analysis:

The following test method shall be used for determining the Total Soluble Salt (Total Salinity) of Embankment soils. This method shall be followed when testing embankment soil salinity levels. Sampling of materials shall be performed by a USACE Validated Laboratory.

A. Sampling; Sampling shall consist of one 12,500 gram composite sample per 1,000 linear feet per lift. A Composite soil sample is defined as 5 separate representative 2,500 gram samples taken randomly at relatively evenly spaced intervals within the 1,000 linear foot. A lift on any one side of the levee will be considered one lift. The locations of the samples shall be as directed by the Contracting Officer. When a composite soil sample is collected, it should be handled in accordance with ASTM D 4220, Group B Standard Practices for Preserving and Transporting Soil Samples.

   As directed by the Contracting Officer, when samples are to be split for replicate testing, the entire composite sample shall be processed over a No. 4 (4.75 mm) sieve by the contractors QC laboratory. The material passing the No. 4 sieve shall be thoroughly mixed and split in accordance with ASTM C 702 Standard Practice for Reducing Samples of Aggregate to Testing Size.

B. Sample Preparation; Composite soil samples passing a No. 4 sieve are to be thoroughly remixed and reduced to a minimum 200 g sample for testing in accordance with ASTM C 702 Standard Practice for Reducing Samples of Aggregate to Testing Size.

   The reduced composite soil sample is air dried at a temperature not to exceed 140^{o} F for a minimum of 18 hours. After the sample is air dried, process and collect material passing No. 10 (2 mm) sieve. Material retained on the No. 10 sieve will be discarded.

C. Procedure; (EC 1:2 preparation) To determine soil EC, collect a representative 20 gram sample from the sieved air-dried material and mix with 40 mL deionized water in a 125 mL Erlenmeyer flask.

   The container is sealed and the mixture is either agitated for 1 hour in a mechanical shaker or mixed by hand every 30 minutes for 3 hours.

The mixture is filtered through a Whatman 42 filter paper. EC (dS/m) of the filtrate is determined immediately using a standard conductivity meter. Follow manufacture's direction for standard conductivity meter operations and temperature corrections.

D. Reporting; The directly-measured EC 1:2 is converted to Saturated Extract-Equivalent EC (EC_e) by multiplying by a factor of 2. (Southern Cooperative Series Bulletin No. 419 ISBN# 1581614195 January, 2014)

Total soluble salts (TSS) concentration in ppm (mg/L) is calculated by multiplying EC_e (dS/m) by 640 for EC readings <5.0 dS/m or by 800 for EC readings >5.0 dS/m. (Rhoades, 1996)

The report shall include at a minimum;

1. All sample identifications documented during sampling that at a minimum include, sample date, received date, test/sample number, location of composite sample (GPS, station, lift, , elevation, offset)
2. USCS visual description
3. Make/Model and Serial # of conductivity meter
4. Notes should include any deviations from this test method.
5. The Soil Electronic Conductivity (EC) shall be reported in decisiemens per metre (dS/m).
6. Total Soluble Salt shall be reported as Total Salinity in parts per million (ppm).

9. Field and Laboratory Determination of Non-Soil Volume for Levee Fill:

A. The field excavation testing shall be performed by excavating a 10' wide x 10' long and to a depth of the lift thickness for each lift that is in question. The volume of the excavation shall be verified using the end area method through measuring the dimensions of the excavation with the use of survey equipment at each corner of the hole. A difference of +/- 10% of the theoretical excavation is allowed. The Contractor shall bring all material excavated to the lab in sealed airtight containers. All excavations shall be completely backfilled by the Contractor within 72 hours of inspection unless directed otherwise by the COR. All backfill shall be in accordance with the existing contract documents, especially EMBANKMENT.

B. The unit weight of the soil shall be determined by ASTM D 6938 Field Density – Nuclear Method, ASTM D 1556 Field Density – Sand Cone Method, or ASTM D 698 Compaction Characteristics of Soil. All material testing shall be performed by a Corps validated lab.

C. Once all the excavated material is delivered to a Corps validated lab, any clay pieces adhering to the non-soil pieces that can be removed by hand without damaging the non-soil piece shall be removed.

D. All non-soil pieces shall be weighed in their existing conditions immediately prior to testing (wet weight as excavated). If all non-soil pieces do not fit in the Measure Box, then the non-soil pieces may be split into smaller sampling sizes for testing purposes and the cumulative volume reported.

E. Sturdy Measure Box containers shall be used for the non-soil volume determination processes. The minimum volume of the Measure Box is 0.8 cubic feet. This volume dimension is a minimum and may be enlarged if desired. The weight of the empty containers shall be determined using a calibrated scale and with the weight recorded to the nearest 0.1 lb. The container shall be filled in two layers with silica sand. The first layer of sand shall be densified by use of a Shake Table and vibrated such that the Silica sand achieves its maximum density. The second layer of silica sand shall be added and vibrated, with additional sand added as needed to "top off" the container as the sand achieves a greater density. The weight of the container filled with densified Silica sand shall be recorded to the nearest 0.1 lb using a calibrated scale. Determine the weight of the measure container plus sand three times to determine the average value. The maximum unit weight of the silica sand is the weight of the measure plus sand minus the weight of the measure divided by the known volume of the container and reported to the nearest 0.1 lb/ft3.

F. The volume of the non-soil shall be determined by the following USACE MVN developed procedure, Non-Soil Volume Determination.

1) **Volume and Weight Determination of Measures (annual):** The volume of the Measure Box shall be determined and verified on an annual basis by the water filled method as specified in ASTM C29/C29M paragraph 8 and recorded to the nearest 0.1 ft^3.

2) **Density Sand**: Obtain silica sand also known as US Silica Sand. Verify that the quality of the silica or "Silica" sand meets the requirements specified in ASTM D1556 paragraph 6.2. The sand can be re-used, but it should be cleaned to comply with the previously referenced standard by sieving and/or rinsing, and oven drying prior to reuse.

3) **Determining Densified Sand within a Measure Box**: Before any tests determining non-soil volume content, a calibration test shall be run each day that testing is to be performed, to determine the standard weight of the sand in the Measure Box as discussed in section E. The three repeated determinations of densified sand weight per unit volume shall be within 2.0 pcf of each other.

   A Measure Box shall be used to determine the densified sand and will be based upon use of a Shake Table and placement within layers. Clean and dry silica sand is placed loosely within each layer using a large scoop or the edge of a bucket by flowing and distributing the sand evenly across the surface area. The Shake Table is then to be used. The number and duration of vibrations will be determined as noted in the following trial. These times are approximate and should be modified by each laboratory to fit the Shake Table being used to achieve a consistent sand weight per unit volume.

MEASURE BOX – (1) Position measure over a large catch pan for collecting excess sand. Place loose Silica sand in one layer (half height of measure); (2) Using the Shake Table, vibrate the sand for 4-8 seconds; (3) Place loose silica sand in a second layer (full height of measure); (4) Vibrate the sand for 4-8 seconds. The sand should consolidate below the top rim of the measure; (5) Place additional (excess) sand above the top of the measure. It should appear to overflow. Vibrate for the sand for an additional 3-4 seconds. It is desired to have excess sand above the top of the rim after vibration of about 1/8 inch; (6) Using a straight metal bar, strike off the excess sand, leaving the sand flush with the top rim of the measure; (7) Weigh the measure and densified sand recorded to the nearest 0.1 lb; (8) Determine the weight per unit volume of the measure by subtracting the weight of the measure plus sand minus the weight of the measure then dividing by the known volume of the container and report to the nearest 0.1 lb/ft3; (9) Repeat steps 1 thru 8 for a total of three determinations of densified sand weight per unit volume, and calculate the average weight per unit volume to the nearest 0.1 lb/ft3.

4) **Standard Wood or Metal for Verification (annual)**: Eight pieces of wood or metal, labeled A thru G, measuring 5 inches by 1 inch by 2 inches are to be used to verify the volume determination by the densified sand method as detailed in 5) below. Determine the weight and linearly measured volume of the eight standard pieces of wood or metal to verify the calculated non-soil content from the use of densified silica sand within Measure Boxes of known volume.

5) **Non-soil Verification (annual)**: Wood or metal pieces measured in Step 4) above will be used in each measure by densifying sand and four wood or metal pieces in each layer, for a total of eight wood or metal pieces within each measure. The same procedures outlined in Step 4) above are used to place and densify the sand and wood or metal within the measures. The wood or metal is placed within each layer with at least ½ inch of loose sand beneath and around the wood or metal pieces. The weight of the densified sand, measure, and wood or metal is used to determine the density and subsequent volume of the wood or metal. The calculated volumes shall be compared to the known volumes of the wood or metal pieces to see if any change in shaking time or sand type is needed. If the calculated and known volumes are within +/- 2% of each other, the test verification is successful. See below for the step by step procedures for this:

MEASURE BOX - (1) Determine the volume and weight of the measure as noted in Step 1) above; (2) Determine the average densified sand weight per unit volume as noted in Step 3) above; (3) Determine volume and weight of pre-cut pieces of wood or metal as noted in Step 4) above; (4) Densify wood or metal in layers following the similar method noted in Step 3) above; (5) Determine the densified sand and wood or metal weight in the unit measure; (6) Calculate the volume of wood or metal as shown below:

(a) Volume of Measure Box (ft^3)
(b) Weight of Measure Box (lb)

(c) Average weight per unit volume of densified sand (lb/ft^3)
(d) Wood or metal Pieces total weight (lb)
(e) Wood or metal Pieces total volume (ft^3)
(f) Average determined densified sand, wood or metal, & measure weight (lb)
(g) Densified sand only weight (no wood or metal) = (c) x (a)
(h) Densified sand only weight (with wood or metal) = (f) – (b) – (d)
(i) Volume of wood or metal (from densified sand test) = [(g) – (h)] / (c)
(j) % actual volume wood or metal = 100 x (e) / (a)
(k) % tested volume wood or metal = 100 x (i) / (a)

6) **Non-soil Volume Determination**: Determination of non-soil volume for a test sample is as follows. Determine the wet weight of the sample prior to placement into the loose sand layers. Cleaned non-soil pieces from a sample are placed in one of the tested measures above by following procedures as outlined in Step 3). The non-soil pieces are placed within each layer of loose sand with at least ½ inch of loose sand beneath and around the various non-soil pieces. The non-soil piece may be cut to fit into the measure but care should be used to ensure that all pieces of the sample are measured. The weight of the combined densified sand, measure, and non-soil shall be recorded to the nearest 0.1 lb. To determine the density and subsequent volume of the non-soil pieces, see calculations below.

MEASURE BOX - (1) Determine the volume and weight of the measure as noted in Step 1) above; (2) Determine the average densified sand weight per unit volume as noted in Step 3) above; (3) Determine weight of sample pieces of non-soil; (4) Densify non-soil pieces in layers following the similar method noted in Step 3) above; Determine the densified sand and non-soil pieces weight in the unit measure; (5) Calculate the volume of non-soil pieces as shown below:

(a) Volume of Measure Box (ft3)
(b) Weight of Measure Box (lb)
(c) Average weight per unit volume of densified sand (lb/ft3)
(d) Weight of Sample Non-soil Pieces (lb)
(e) Determined densified sand, non-soil pieces, & measure weight (lb)
(f) Densified sand only weight (no non-soil pieces) = (c) x (a)
(g) Densified sand only weight (with non-soil pieces) = (e) – (b) – (d)
(h) Volume of non-soil pieces (from densified sand test) = [(f) – (g)] / (c)
(i) Volume of excavation (ft3)
(j) % tested volume non-soil pieces = 100 x (h) / (i)

7) **Documentation**: As a minimum, calibrations of Measure Boxes should be documented annually on the Unit Weight Measure Volume Determination Record. The Densified Sand unit weight shall be documented on the Densified Sand Calibration Record. Test records for samples shall be documented on the Non-soil pieces Volume Determination Record. Contact MVN-CD-Q for latest test forms.

G. The percent volume determined in Step 6) (j) above shall be compared versus the acceptable value listed in the specifications. If the test shows the percent volume is greater than the acceptable value, the Contractor shall follow the corrective actions as noted in the contract specifications.

10. Additional Testing:

In addition to the above frequency of tests, additional tests may be required as follows:

a. Where the Administrative Contracting Officer (ACO) or Contracting Officer's Representative (COR) has reason to doubt the adequacy of the compaction, moisture content, or organic content control.

b. Where the Contractor is concentrating fill operations over a relatively small area.

c. When embankment materials change substantially, the Administrative Contracting Officer or Contracting Officer's Representative (COR) may direct additional testing.

d. Where special compaction procedures are being used.

e. When the contract specifications require additional testing.

f. When areas are found not meeting the specified in-place density, Atterberg limits, moisture content, and/or in-place organic content requirements; the Contractor shall retest, at no additional costs to the Government, after corrective measures have been applied.

Chapter 3 Concrete

1. Scope:

This chapter specifies methods and procedures for the Contractor Quality Control (QC) and Government Quality Assurance (QA) methods and procedures for the testing of fresh concrete and concrete aggregate. The Government will also perform checks, and assurance testing of control testing required by the Contractor.

2. Samples:

Fresh concrete samples shall be secured in accordance with ASTM C 172. Concrete aggregates shall be sampled in accordance with ASTM D 75. Sampling locations shall be randomly selected.

3. Testing Personnel:

The individuals who inspect, monitor, sample and test Concrete construction as required in this specification shall meet the following minimum criteria of certification and/or documented experience. Work experience shall be related to the field for which the inspector is being qualified and may be obtained by working either for an inspection/testing agency or engineering firm as a technician, inspector or engineer.

- Current ICC Reinforced Concrete Certificate with 1 year related experience, or
- ACI Concrete Construction Special Inspector Certificate, or
- Engineer Intern with one year related experience, or
- Registered Professional Engineer.

The individuals who perform testing of concrete or the constituents of concrete as required in this specification shall have an applicable and current ACI certification for testing being performed; ACI Concrete Strength Testing, ACI Concrete Laboratory Testing – Level 1, ACI Aggregate Testing Technician – Level 1, ACI Concrete Field Grade I.

The Contractors' QC laboratory shall submit certification and/or documentation to provide evidence of qualification. The appointed Registered Professional Civil Engineer, identified in Chapter 1, Section 3.b to certify inspections and test results, remains responsible for compliance of all inspection and testing activities.

All Laboratory facilities, personnel and equipment used to test soils as required in this specification shall be part of a Laboratory that has been validated by the USACE Materials Testing Center, Vicksburg, MS.

4. Typical Test Requirements:

Test requirements specified in the contracts documents may be more stringent than those listed below in Tables 3-2, 3-3 and 3-4. All test results will be entered into the MVN material testing database as described in Appendices by the laboratory performing the testing. Acceptable test values are contained in the contract documents.

The laboratory performing the tests shall be validated by the Materials Testing Center, Vicksburg, MS. and conform to ASTM C 1077.

Table 3-1
ASTM References

Concrete Lab Testing	
ASTM C 33	Specification for Concrete Aggregates
ASTM C 39	Compressive Strength of Cylindrical Concrete Specimens
ASTM C 117	Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing
ASTM C 136	Sieve Analysis of Fine and Course Aggregates
ASTM C 511	Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes
ASTM C 566	Total Evaporable Moisture Content of Aggregate by Drying
ASTM C 617	Capping Cylindrical Concrete Specimens
ASTM C 702	Reducing Samples of Aggregate to Testing Size
ASTM C 1231	Practice for Use of Unbonded Caps in Determination of Compressive Strength of Hardened Concrete Cylinders
CRD-C 104	Calculation of Fineness Modulus of Aggregate
Concrete Field Testing	
ASTM C 31	Making and Curing Concrete Test Specimens in the Field
ASTM C 138	Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
ASTM C 143	Slump of Hydraulic-Cement Concrete
ASTM C 172	Sampling Freshly Mixed Concrete
ASTM C 173	Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C 231	Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 1064	Temperature of Freshly Mixed Hydraulic-Cement Concrete
ASTM D 75	Sampling Aggregates

5. Compilation of Test Data for Submittal:

The results of the test and inspections shall be recorded in the MVN database as directed in Appendix. Samples of the reporting forms and instruction for each form are provided on the MVN SharePoint site; **Test Form Examples** and are described as follows. The latest forms should be referenced on the MVN SharePoint site and described in Appendices. All data is to be submitted electronically **within 24 hours of completion of the tests by the laboratory performing the testing.**

a. **MVNQC01** (Concrete Compression Test Data – ASTM C 39). This form is to be used in reporting the results of laboratory concrete compression testing. Contract specifications shall govern the required concrete compressive strength.

b. **MVNQC02** (Concrete Field Data). This form is to be used in reporting the data collected by the laboratory while monitoring and testing concrete during placement. Contract specifications shall govern the required concrete properties during placement.

c. **LMN FORM 853-R** (Concrete Compression Test Specimen Data). This form is to be filled out and provided to the QA laboratory for each set of cylinders delivered. This form should be filled out with information documented during concrete placement. The information on this form should match the information provided on the associated MVNQC01 and MVNQC02 test forms. The Order number on this form shall match the Batch Ticket number on the associated concrete supplier batch ticket, the MVNQC01 and the MVNQC02 test form for sample tracking purposes. The form also serves as a bill of lading for the delivered concrete samples.

Table 3-2
Test Requirements
AGGREGATE, FINE

Property	Method	Frequency	Remarks
Deleterious Substances	ASTM C 33	1 per week	
Fineness Modulus	CRD-C 104	1 per shift per batch plant when concrete plant is operating	Calculation based on gradation test results
Gradation	ASTM C 117 ASTM C 136	1 per shift per batch plant when concrete plant is operating.	Tests selected randomly.
Moisture Content	ASTM C 566	If moisture meter is working properly, 2 per week to verify	Tests selected randomly for each aggregate size.
		If moisture meter is not working, 4 every 8 hours of mixing plant operation	
		Additional tests if slump is out of control or variability is excessive	
Sampling Method	ASTM D 75	As specified for the individual material property.	

Table 3-3
Test Requirements
AGGREGATE, COURSE

Property	Method	Frequency	Remarks
Deleterious Substances	ASTM C 33	1 per week per batch plant, or as directed by COR	
Gradation	ASTM C 117 ASTM C 136	1 per shift per batch plant when concrete plant is operating	Tests selected randomly.
Moisture Content	ASTM C 566	If moisture meter is working properly, 2 per week to verify	Tests selected randomly for each aggregate size.
		If moisture meter is not working, 4 every 8 hours of mixing plant operation	
		Additional tests if slump is out of control or variability is excessive	
Sampling Method	ASTM D 75	As specified for the individual material property.	

Table 3-4
Test Requirements
FRESH CONCRETE

Property	Form	Method	Frequency	Remarks
Compression Cylinders (Quality Assurance)	MVNQC01 MVN 835	ASTM C 31 ASTM C 39	To be molded by the Contractor Quality Control Laboratory and tested by the Quality Assurance Laboratory. Mold one set of cylinders per 8 hour shift or for every 150 cubic yards placed.	Quality Assurance Cylinders shall be molded from the same sample of concrete that the Quality Control cylinders are molded.
Compression Cylinders (Quality Control)	MVNQC01 MVNQC02	ASTM C 31 ASTM C 39	To be molded and tested by the Contractor Quality Control Laboratory. Mold one set of cylinders per 8 hour shift or for every 150 cubic yards placed. As a minimum; A set of test specimens for concrete with a 28-day specified strength shall consist of two cylinders to be tested at 7 days and two 6-inch by 12-inch cylinders or three 4-inch by 8-inch cylinders at 28 days. A set of test specimens for concrete with a 56-day or 90-day specified strength shall consist of two cylinders to be tested at 7 days, two 6-inch by 12-inch cylinders or three 4-inch by 8-inch cylinders at 28 days and two 6-inch by 12-inch cylinders or three 4-inch by 8-inch cylinders at 90 days. Additional sets when mix proportions change or low strengths are detected.	On randomly selected batches for each separate concrete mix produced. Cylinders used shall conform to paragraph 6.1 of ASTM C 31. Initial Cure in accordance with paragraph 10.1.2 of ASTM C 31.
Compression Cylinders (QC- for putting concrete into service or other purposes indicated in paragraph 4.3 of ASTM C 31)	MVNQC01 MVNQC02	ASTM C 31 ASTM C 39	1 set of multiple pairs of QC cylinders per item to be evaluated.	Cylinders used shall conform to paragraph 6.1 of ASTM C 31. Initial Cure in accordance with paragraph 10.1.2 of ASTM C 31. Cylinders to be field cured shall conform to 10.2 of ASTM C 31.
Air Content Slump Temperature	MVNQC01 MVNQC02	ASTM C 231 ASTM C 143 ASTM C 1064	1 every time concrete cylinders are molded Plus 2 additional during each 8 hours of concrete production Additional tests if workability variation is excessive.	On randomly selected batches for each separate concrete mix produced

Chapter 4 Welding Inspection

1. Scope:

This chapter specifies methods and procedures for the Contractor Quality Control (QC) weld inspection for Group 1 and Group 2 carbon steels as defined by AWS D1.1, Table 3.1 and their ASTM A709 counterparts. Welding of sheet metal, reinforcement bars, castings, stainless steel, aluminum and other non ferrous metals are not included in this document and should reference the appropriate AWS or ASME Code. An approved schedule of welding procedures (WPS) is required before fabrication commences (Section 05 50 03.00 12). The Government will also perform checks, and assurance testing of control testing required by the Contractor.

2. Definitions:

a. **Fracture Critical Welds**. Fracture critical members or member component welds as defined by ER 1110-2-8157 are tension members or tension components of bending members (including those subject to reversal of stress), the failure of which would be expected to result in collapse of the hydraulic steel structure. The designation "FCM" shall mean fracture critical member or member component. Members and components that are not subject to tensile stress under any condition of live load shall not be defined as fracture critical. FCMs, in general, are dewatering components (needle girders, bulkheads, needles), lifting eyes, or other tension members. This includes any members welded to these members as cracks could propagate to these members and cause failures also. These welds should either be shown on the drawings or called out in the specifications. Tubular welds are not applicable to AWS D1.5. AWS D1.5, Section 12 is the applicable code for these welds.

b. **Other Welds**. These welds are the remaining welds that are not considered Fracture Critical Welds. AWS D1.1 is the applicable code for these welds.

3. Testing Personnel:

a. **Visual Inspection**. Visual inspection shall be performed by Certified Welding Inspectors (CWI) that are qualified and certified in accordance with the provisions of AWS QC1. Verification of documentation may be obtained from the AWS web site. Note: Certification number is required for this verification.

b. **Nondestructive Testing Technicians**. All ASNT Level III personnel shall be qualified in accordance with ASNT CP-189. Only individuals qualified for NDT Level II or individuals qualified for Level I and working under the direct supervision of a Level II shall perform nondestructive testing. Level I and Level II personnel shall be qualified in accordance with either ASNT CP-189 or ASNT SNT-TC-1A. Level III NDT Inspectors shall posses a currently valid ASNT Level III certificate in each of the processes they are qualifying inspectors to. Copies of the certifications, including the Level III NDT Technician that certified the Level I and Level II Technicians shall be included in the submittals. Verification of Level III documentation may be obtained from the ASNT web site. Note: Either Certification number or name is required for this verification.

4. Visual Inspection Requirements:

Visual inspection of welds shall conform to the requirements of AWS D1.1, Section 6, or AWS D1.5, Section 12, as applicable.

5. Nondestructive Testing Requirements:

a. **Ultrasonic Testing**. Ultrasonic testing of welds shall conform to the requirements of AWS D1.1, Section 6, Part F or AWS D1.5, Subsection 12.16, as applicable.

b. **Radiographic Testing**. Radiographic testing of welds shall conform to the requirements of AWS D1.1, Section 6, Part E or AWS D1.5, Subsection 12.16, as applicable. Only film types designated as "fine grain" or "extra fine" shall be employed.

c. **Magnetic Particle, Liquid Penetrant Testing**. Magnetic particle and liquid penetrant testing of welds shall conform to the applicable provisions of ASTM E 709 or AWS D1.5 Subsection 12.16, as applicable and in addition all magnetic particle testing of welds shall be made using the Wet Contrasting Black on White Method.

6. Acceptance Criteria:

a. **Visual, Magnetic Particle and Liquid Penetrant Testing**. Welds shall be unacceptable if shown to have defects prohibited by AWS D 1.1/D 1.1M, Section 6, Part C. Visual, magnetic particle and liquid penetrant testing acceptance criteria shall be for the applicable criteria for either "Cyclically Loaded Nontubular Connections" or "Tubular Connections" per AWS D 1.1/D 1.1M, Table 6.1. Fracture critical welds shall be unacceptable if shown to have defects prohibited by AWS D 1.5/D 1.5M, Section 12. All welds shall be assumed in tension for the acceptance criteria for visual and the appropriate nondestructive testing method.

b. **Ultrasonic Testing**. Ultrasonic acceptance criteria shall be the applicable criteria for either "Cyclically Loaded Nontubular Connections" or "Tubular Connections, Class R". Fracture critical welds shall be unacceptable if shown to have defects prohibited by AWS D 1.5/D 1.5M, Section 12. All welds shall be assumed in tension for the acceptance criteria for visual and the appropriate nondestructive testing method.

c. **Radiographic Testing**. Radiographic acceptance criteria shall be the applicable criteria for either "Cyclically Loaded Nontubular Connections (Tensile Stress)" or "Tubular Connections". Fracture critical welds shall be unacceptable if shown to have defects prohibited by AWS D 1.5/D 1.5M, Section 12. All welds shall be assumed in tension for the acceptance criteria for visual and the appropriate nondestructive testing method.

7. Frequency of Testing:

The frequency specified is the minimum required. The design engineer shall determine the required frequency and include this information in the specifications and/or drawings. The design engineer shall also specify the locations of radiographic testing.

a. **Visual Inspection**. All welds shall be visually inspected by a CWI to insure compliance with the requirements of the applicable AWS Welding Code. Prior to any welding, a CWI shall visually inspect the preparation of material for welding to assure compliance with the applicable AWS Code (D1.1 or D1.5) and approved WPS. The CWI shall also perform VT inspection throughout the welding process to assure compliance with the applicable AWS Code (D1.1 or D1.5) and approved WPS. All completed welds shall be cleaned free of oxide, flux, scale, or other foreign matter before inspection.

b. **Full Penetration Welds**. Full penetration welds shall be examined by the Contractor using ultrasonic testing (UT) procedures described above. In additional to the full penetration welds specified for testing, a randomly chosen twenty-five percent (25%) of the remaining full penetration welds shall be ultrasonically tested to ensure the quality of the procedure and process. The random testing shall include a representative sample of welds from all welders and each of the processes each welder used. The random testing shall be spread throughout the project.

c. **Full Penetration Butt Splice Welds**. All full penetration butt splices shall be examined using ultrasonic testing (UT) and radiographic testing (RT) procedures described above. These welds shall be defined in the specification or noted on the drawings.

d. **Fillet Welds and Partial Penetration Groove Welds**. Fillet welds and partial penetration groove welds shall be examined by the Contractor using magnetic particle testing (MT) procedures described above. In additional to the fillet and partial penetration welds specified for testing, a randomly chosen twenty-five percent (25%) of the remaining fillet and partial penetration welds shall be magnetic particle tested to ensure the quality of the procedure and process. The random testing shall include a representative sample of welds from all welders and each of the processes each welder used. The random testing shall be spread throughout the project.

8. Compilation of Test Data for Submittal:

The results of the test and inspections shall be recorded in the MVN database as directed in Appendix. Samples of the reporting forms and instruction for each form are provided on the MVN SharePoint site; **Test Form Examples** and are described as follows. The latest forms should be referenced on the MVN SharePoint site and described in Appendices. All data is to be submitted electronically **within 24 hours of completion of the tests by the laboratory performing the testing.**

a. **MVNQW06** (Combined Weld Examinations). This form is to be used in reporting the inspection and testing of welded steel connections. Contract specifications shall govern the required compaction effort. The results shall be submitted electronically within 24 hours of the test.

Appendix A – Test Form Management

1. Report Numbering:

Each soil sample (location) is identified with a unique Test ID created by concatenating the Report No and Test No.

All soil sample locations will be reported on test forms with the same Report No and Test No throughout entire range of tests performed on that sample location. This is particularly important when reporting tests that contain 1 test per test form such as MVNQS03 (Sand Cone tests) and MVNQS02 (Compaction-Moisture Density Relationship).

It is also necessary to give the same Report No and Test No to each sample location for test form MVNQS06 (Unified Soil Classification System), MVNQS07 (Organic Content), and MVNQS10 (Field Density-Nuclear) which allow for entry of up to 5 soil samples. The soil tests included in a suite of tests allows for entry of 5 samples.

Examples of all forms are available on the SharePoint site for review.

2. Naming the Test Form Files:

Each file shall be named using the following convention:

[Test Form Name][USACE Contract No][Report No][Test No (if necessary)]

Each part of the filename should be separated by a single space only, not a dash or other delimiter. Details of each portion of the filename convention are given below.

- **[Test Form Name]** is the name of the template MVNQ(C, S or W)##, for example MVNQS02. The variable letter are related to the type of test; C is for concrete, S is for soil and W is for Welds.

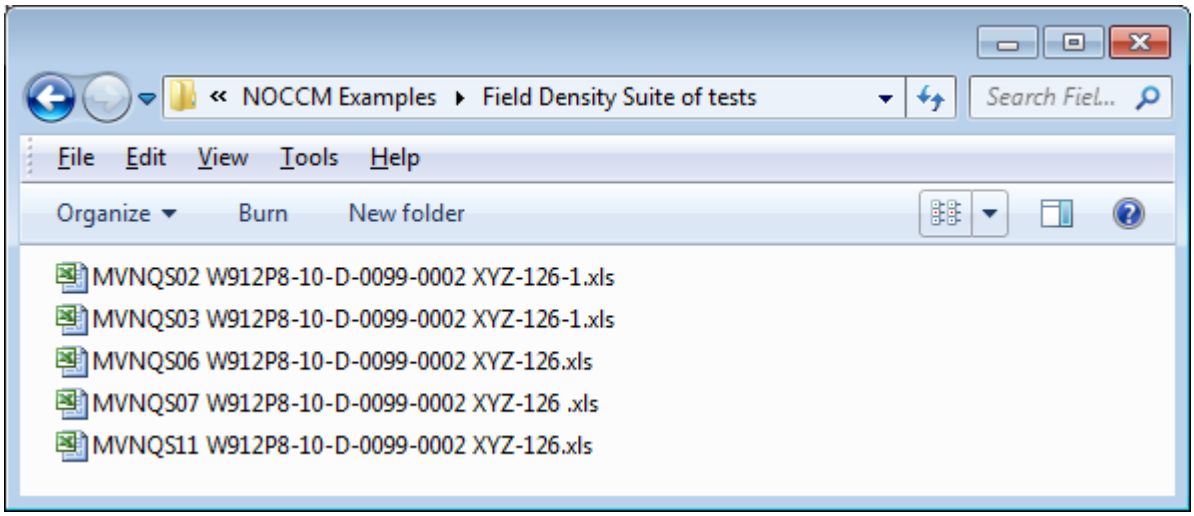
- **[USACE Contract No]** is the construction contract number. This must be the complete contract number including the task order if applicable. The contract numbers that contain a C or Z do not have task order numbers, whereas all contracts that contain a D have a task order number.

- **[Report number]** will be dependant on the labs report number system.

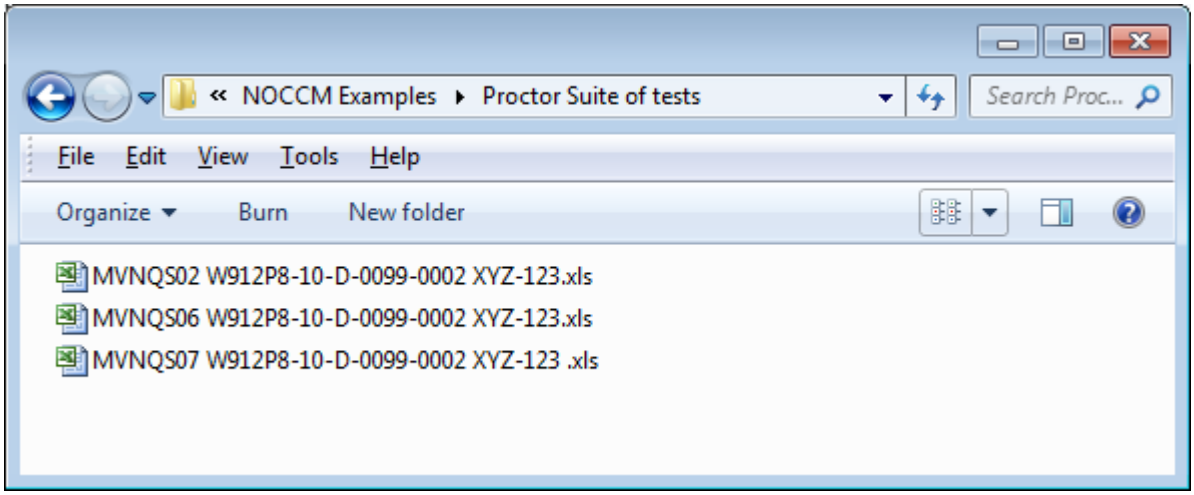
- **[Test No]** is only included in filename when necessary. This is applicable for tests reported 1 per form, as in the case of the exception listed below.

The exception to naming convention is dealing with forms that contain 1 test per test form such as MVNQS03 (Sand Cone tests), MVNQS02 (Compaction-Moisture Density Relationship) and MVNQS01 (Sieve Analysis). For these 3 Test Form types the file name will end with the Test No. The Test No is determined by the lab but should be unique to each soil sample and field location per Report No. See the Examples below for illustration of this.

Below is an example of file names for a suite of soil tests including 5 samples locations reported on a MVNQS11 (Field Density Nuclear) form, a MVNQS07 (Organic Content) form, a MVNQS06 (Unified Soil Classification System) form and a MVNQS03 (Field Density Sand Cone) form. These files are also the files included as example test forms on the SharePoint site. In this example The Report No is XYZ-126.



Below is another example for proctor data containing a MVNQS02 (Compaction-Moisture Density Relationship) test form, a MVNQS06 (Unified Soil Classification System) form and a MVNQS07 (Organic Content) form.



3. Submitting Test Forms:

All forms are to be submitted electronically **within 24 hours of completion of the tests by the laboratory performing the testing.** This is necessary since contract specifications require laboratory results to confirm compliance or failure before Contractor construction work can continue. Delays in submitting test results may result in construction delays that are to be avoided. Supporting documentation for tests should be submitted in PDF format with the same file naming convention. This completes the documentation record of data transfer to all parties.

4. How to Access USACE QACC SharePoint Site

In order to access the MVN Quality Assurance Control Center (QACC) SharePoint site each user must have an account. If a user does not have an account contact the MVN-CD Branch to receive a **USACE External Network Access Request** form. Once your account has been established you will have access to the QACC SharePoint site that contains MVNQ Test Form Templates, a QA Wiki, a QA Discussion area, a Shared Documents library, a Discrepancy Report library, and a library where completed test forms are to be uploaded; **Test Form**. The following is contact information for MVN-CD.

MVN-CD Phone;	(504) 862-2235
MVN-CD Email;	CEMVN-CD@Usace.Army.Mil
MVN-CD Public Webpage;	http://www.mvn.usace.army.mil/About/Offices/Construction.aspx
MVN QACC SharePoint;	https://partners.usace.army.mil/sites/MVN/QACC/default.aspx

5. Uploading test forms.

The exact procedure for uploading test forms to the MVN Quality Assurance Control Center (QACC) SharePoint is dependent on the computer system the user is using. Once an account has been established MVN-CD can assist each user individually by introducing the QACC system and going through the processes needed to upload test files and supporting documents. If at any point a user has questions please contact the MVN-CD-Q Branch for assistance.

Important notes before beginning the upload process; The QACC SharePoint site does have restrictions on characters (delimiters) that can be used for a file name. The following characters are not accepted by the QACC SharePoint site; \ / : * ? " < > | # { } % ~ &. If these characters are used, the QACC SharePoint site may lock up or give an error that indicates ‘a nonexistent file’. If this occurs remove the delimiters used in the file name, upload the files again and verify that all files upload because this will stop the upload process for all the files. If it is determined that certain files did not upload repeat the upload process.

The second note is that the QACC SharePoint site will time out and requires logging back in after an extended time of inactivity. The QACC SharePoint site will not indicate it timed out until attempting to perform a function on the site. The site will return to the Log in screen. If this happens, the function previously being performed may not have been performed completely.

6. Revisions and Special Naming Considerations:

When resubmitting files with revisions, the same filename is to be used if possible. If a file is to be submitted to the QACC SharePoint site it is not necessary to include a revision indication in the file name, such as R1 or R2 in the filename. The test form revision should be judicated in the appropriate revision field on the form. The QACC SharePoint site does allow files to be uploaded to the **Test Form** library when the same file name exists. In general, the idea is to keep the filename as simple as possible and the same throughout the submittal and revision process. Do not add unnecessary details to the filename.

If more information is needed, see the Wiki or Discussion board on the MVN Quality Assurance Control Center (QACC) SharePoint. The QA managers are also available if there are other questions.

Appendix B - Material Testing Laboratory Requirements

1. Purpose:

All construction material testing laboratories used in support of the Contractor's Quality Control (QC) testing and the Government's Quality Assurance (QA) testing must receive validation by the Material Testing Center (MTC), Engineering and Research Development Center (ERDC), in Vicksburg Mississippi. This includes all Contractor and government on-site laboratories or commercial laboratories used either for QC or QA testing.

2. Applicability:

This procedure applies to all projects being managed by the New Orleans District for which testing of construction materials is conducted

3. References:

ASTM E 329-06a, Agencies Engaged in the Construction Inspection and/or Testing

ER 1110-1-261 (28 April 99), Quality Assurance of Laboratory Testing Procedures

ER 1110-1-8100 (31 Dec 97), Laboratory Investigations and Testing

Corps of Engineers Validated Laboratories;

Engineering Research and Development Center - Material Testing Center
http://www.erdc.usace.army.mil/Media/FactSheets/FactSheetArticleView/tabid/9254/Article/476661/materials-testing-center.aspx

New Orleans Construction Division Operating Manual (CDOM), 1 March 2002

4. Responsibilities:

The Administrative Contracting Officer (ACO) / Contracting Officer's Representative (COR) is responsible for ensuring that all testing laboratories used for QC or QA testing are on the electronic validated list for the tests to be performed and for requesting that New Orleans District coordinate as necessary to pursue validation of a desired laboratory.

5. Procedures:

After award, the Contractor submits a QC Plan which delineates the scope of the testing program and identifies the testing laboratory (s) proposed specific tests. Contract specific Quality Assurance Plans will include requirements for QA verification testing by a Corps validated laboratory.

The Administrative Contracting Officer (ACO) / Contracting Officer's Representative (COR) will ensure that the QC laboratory is independent of the QA laboratory and will work with the Contractor if necessary to select another laboratory for QC or QA testing. The QC plan will

reflect the selected laboratories. If the laboratory proposed by the Contractor is not a currently validated lab, then the Administrative Contracting Officer (ACO) / Contracting Officer's Representative (COR) will notify the Contractor and request an inspection of the selected laboratory coordinated by MVN-CD-Q in accordance with the procedures described in Construction Division's Operating Manual (CDOM). For planning purposes, the validation process may require a period of six months to complete.

Briefly, the MTC validation process is described as follows:

Validation of a laboratory may consist of either (1) an inspection of the laboratory and their processes or (2) an audit of inspection reports and other documentation furnished by other validating agencies or organizations.

MTC will perform inspections in accordance with ASTM E 329 and applicable tests in ER 1110-2-1906 or tests required by project specifications.

The MTC may validate a laboratory if it has been accredited by the Concrete and Cement Reference Laboratory (CCRL) or AASHTO Materials Reference Laboratory (AMRL) within the past two years using ASTM E 329. Inspection by the MTC may be required after auditing if one or more of the critical testing procedures required in the project specifications were not included in the CCRL or AMRL inspection report or if there is any question that the laboratory may not be able to provide the required services for the specified tests.

More information about the validation process is available at the following:
Phone; (601) 634-3123
Email; MTC-info@usace.army.mil
Public Website;
http://www.erdc.usace.army.mil/Media/FactSheets/FactSheetArticleView/tabid/9254/Article/476661/materials-testing-center.aspx

6. Records:

Records demonstrating laboratory validation will be maintained by MTC web site for the most current laboratory listing.

Appendix C - Filling Out Test Form Templates

1. Test Form Templates:

The latest Construction Material Testing report forms are located at the following locations:

Navigate to the **MVNQ Test Form Template** library to download the most up to date forms.

https://partners.usace.army.mil/sites/MVN/QACC/TFT/Forms/AllItems.aspx

For access to the Extranet SharePoint site, follow procedures in Appendix A or contact the MVN Construction Division Quality Branch. Once access is granted, reference the Extranet SharePoint site to download the latest test form templates in the MVNQ Test Form Template library, as they are periodically updated and/or revised. Failure to submit the latest version of the test form template will prevent data from being loaded into the QACC database. The rejected form will be required to be resubmitted on the proper test form template.

The Test Form Examples library on the SharePoint site provides guidelines for completing several of the test form templates. Further information, definition and updates can be found in the MVNQTERMS documents and the QACC Wiki located on the Extranet SharePoint site.

On all forms, the Sample Date is defined as the date the test was performed in the field and not the date the sample was tested in the lab. Please use the Remarks section on each form for any comments that pertain to the tests performed. Comments may include items such as: meet specs, meet specs of xx% (for different types of material, say embankment is 90% compaction and trench is only 85%), in-situ material, failing tests reported to John Smith, etc. There is no such thing as too much detail or information.

This reporting and submittal system is to be used for all Corps of Engineers work in the MVN division.

2. MVNQ Terms Document:

The MVNQ Terms document located on the Extranet SharePoint site provides a list of terms that are referenced directly from the MVNQ Test Forms. This document will define the terms used on the MVNQ Test Forms, and in some cases, provide examples of the information needed in associated cells. If there is a term that is not provided, an error or a term that is not defined clearly please contact a QA Manager.

C-1 List of Forms

Form Name	Procedure(s)	Form ID .
Soil Testing Forms		
#200 Wash and Sieve Analysis	ASTM C 117- C136	MVNQS01
Lab Compaction of Soil Standard Effort	ASTM D 698	MVNQS02
Density by Sand Cone	ASTM D 1556	MVNQS03
Unconfined Compression Strength	ASTM D 2166	MVNQS05
Classification of Soils – USCS	ASTM D 2487	MVNQS06
Moisture, Ash and Organic Matter of Soils	ASTM D 2974	MVNQS07
Moisture Content Determination	ASTM D 2216-4643	MVNQS09
In-place Density and Moisture of Soils	ASTM D 6938	MVNQS11
Field Density (Relative Density) - Nuclear Method	ASTM D 6938	MVNQS12
Concrete Forms		
Concrete Compression Test	CCT	MVNQC01
Concrete Field Test	CFD	MVNQC02
Welding Forms		
Welds – LIQUID		MVNQW06
Welds - MAGNETIC		MVNQW06
Welds - RADIO		MVNQW06
Welds - UT		MVNQW06
Welds - VISUAL		MVNQW06

Contractor Quality Control attachments

....follow this page....

CONTRACTOR QUALITY CONTROL PLAN

Contract No. W912P8-__-__-___
Project Name: _____

Contractor: _____

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- 4.2 CQC System Manager Alternate
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8.0 Quality Control Program

9.0 Forms

1.0 COMPANY POLICY

_____ Construction, Corp. considers quality control to be an inherent safeguard to ensure quality work and to guarantee that all work is done according to the contract documents in a professional manner. Noncompliance with plans and specifications must be detected promptly, and proper action taken to assure that this policy is a viable tool in monitoring the work.

2.0 PLAN PURPOSE

It is the intent of this Quality Control Plan (QCP) to establish and explain how this construction corporation plans to organize, control, and review all activities according to the plans and specifications provided by the U. S. Army Corps of Engineers with regard to quality for the above reference project. The plans primary purposes are to provide for the level of construction quality required by strict accordance with the plans and specifications.

3.0 QUALITY CONTROL ORGANIZATION

3.1 CQC System Manager

The CQC System Manager (CQCM) has front line responsibility for quality control. He will become thoroughly familiar with all aspects of the project and ultimately inspect all work to ensure quality is being maintained by all craftsmen, vendors and subcontractors. The CQCM is ultimately responsible for inspecting, documenting, and reporting to the contracting officer all aspects of the work described and detailed in the plans and specifications. He is responsible for implementing and enforcing the Quality Control Plan. His duties include, but are not limited to:

a. Implementation of the 3-phase control system for all definable features of work.

b. Day-to-day inspection of the work.

c. Daily on site documentation

d. Ensure that all in-place work meets or exceeds all minimum standards set forth in the plans and specifications.

e. Detect discrepancies or problems on site and immediately bring the same to

the attention of the Contracting Officer's Representative, as should be necessary.

f. Preparation and review of submittals and certification of submittals prior to submission.

g. Maintain document control.

h. Maintain As-built conditions.

i. Interface with the owner and outside agencies as required.

The CQCM proposed for this project is _____. See section 4.0 for a copy of his resume'.

3.2 CQC System Manager Alternate

The CQC system manager alternate will assume responsibilities for all aspects of quality control as required by our Quality Control Plan and the Contract Documents should the CQCM not be able to perform his duties. The CQC system manager alternate for this project is _____.

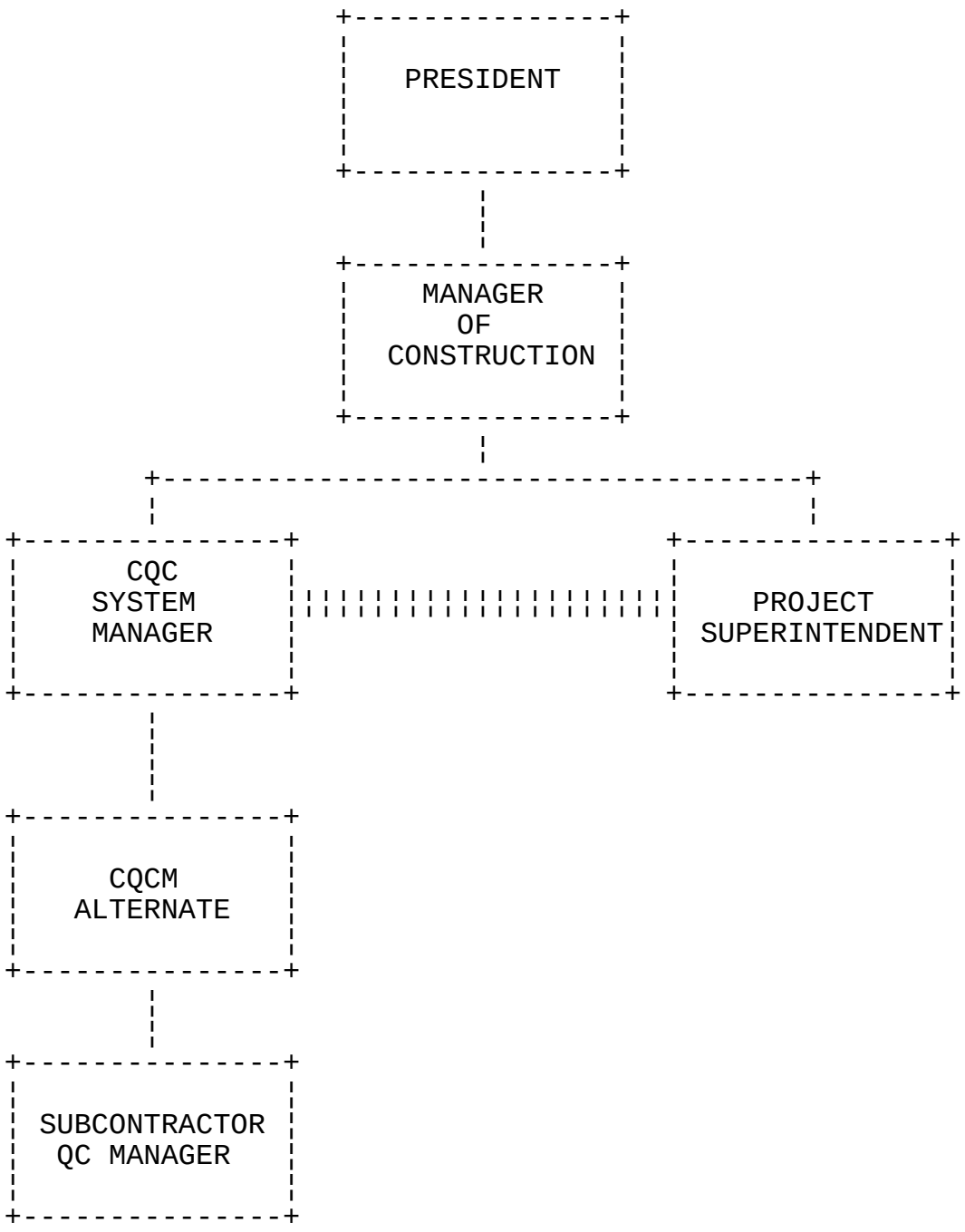
3.3 Manager of Construction

The Manager of Construction for this corporation is based in the home office in _____ and has a major responsibility for quality control through a supervisory role of the CQCM. The Manager of Construction will at all times keep the field forces focused on the company's commitment to quality in all phases of the work. The Manager of Construction will make routine visits to the site of work. The Manager of Construction for this company is _____.

4.0 RESUME OF PERSONNEL

Attached are resumes of all personnel in the above described organization. The Contracting Officer's approval will be requested before any staff changes occur, if they should become necessary.

QUALITY CONTROL
ORGANIZATIONAL CHART
CONTRACT NO. W912P8-__-__-____



4.1 Resume' of _____, CQC System Manager

Personal Data and Education

Date of Birth:
Residence:
Graduate of:
Completed courses in:

Professional Experience

4.2 Resume' of _____, CQCM Alternate

Personal Data and Education

Date of Birth:
Residence:
Graduate of:
Completed courses in:

Professional Experience

4.3 Resume' of _____, Manager of Construction

Personal Data and Education

Date of Birth:
Residence:
Graduate of:
Completed courses in:

Professional Experience

5.0 DESIGNATION OF CQC SYSTEMS MANAGER

(Contractor)

Date

Mr. _____

(Mailing Address)

SUBJECT: Contract No. W912P8-__-__-____
(Project Name)

Mr. _____:

This letter is to designate you as the Contract Quality Control Systems Manager for the subject project. In this capacity, you will be responsible for all aspects of quality control as required by our Quality Control Plan and the Contract Documents. You have complete authority to implement these programs including authorization to stop work which fails to comply with the requirements of the Contract Documents.

Sincerely,

_____, President

6.0 DESIGNATION OF CQC SYSTEM MANAGER ATERNATE

(Contractor)

Date

Mr. _____

(Mailing Address)

SUBJECT: Contract No. W912P8-__-__-____
(Project Name)

Mr. _____

This letter is to designate you as the Quality Control System Manager Alternate for the subject project. Should for any reason Mr. _____ not be able to perform his duties as CQCM, you will assume responsibility for all aspects of quality control as required by our Quality Control Plan and Contract Documents. To enable you to fulfill this responsibility, you have complete authority to implement these programs including authorization to stop work which fails to comply with the requirements of the Contract Documents.

Sincerely,

_____, President

7.0 PROCEDURES

7.1 Scheduling and Managing Submittals.

The CQCM will be the submittal manager. The CQCM has full authority to act for the firm in all submittal matters. His responsibilities include scheduling, review, updating and any submittals required from subcontractors.

Within 7 days of the Notice to Proceed, the CQCM will complete the submittal register contained in Section 01300 and submit to the Contracting Officer 4 copies for approval. Contractor schedule dates will be coordinated with the progress schedule and shall reflect 30-day minimum period for review and approval.

The CQCM will review the submittal register a minimum of every 10 days. The submittal register will be utilized to plan and monitor submittal progress so as to ensure timely approval of methods/materials prior to their scheduled need times. The submittal register will be available for inspection by the Contracting Officer at all times. An updated submittal register will be forwarded to the CO at 60-day intervals or as requested.

The CQCM will review the submittal register during preparatory phase of quality control to ensure that all submittals for the ensuing feature of work are approved and will take action to correct any deficiencies in submittal requirements.

All submittals required by the specifications or as needed for approval of deviation will be submitted by the CQCM in original and 4 copies utilizing ENG form 4025 in accordance with submittal register schedule dates or sooner. Prior to submittal, all shop drawings, data, samples, certifications, and test reports will be reviewed by the CQCM to ensure compliance with the contract requirements. Corrections and revisions will be requested where necessary.

7.2 Control Testing

7.2.1 Test List - A listing of all tests indicated in the contract specifications and additional tests as needed to establish quality control will be incorporated in the Contractor Quality Control Program found in section 8.0 of this plan. This listing will include the name of the test, specification para. number, feature of work tested, responsible person, and frequency.

7.2.2 Testing Facilities - The proposed testing lab for use on this project is:

_____ Testing Laboratories
PO Box _____
_____, LA _____

If required, a resume' of _____ facilities and personnel qualifications will be furnished to the Contracting Officer.

7.2.3 Test Records - All testing activities will be recorded on the CQC report, indicating the name of the test performed, specification paragraph reference, and

location performed. Results of the tests will be recorded on the daily CQC report or attachments. Actual test reports will be furnished promptly to the Contracting Officer as directed by the specifications.

7.3 Inspection

7.3.1 Materials - The CQCM will inspect all material/equipment deliveries for: (1) compliance with approved submittals, (2) damage, (3) correct dimensions and quantities, and (4) required labeling and documentation. The Contracting Officer will be notified of any materials/equipment failing to meet requirements. A record of inspection will be noted in the CQC report and any necessary corrective action will be initiated. Proper storage will be checked.

7.3.2 Off-Site Inspection - The CQCM will inspect manufacturing facilities and material sources as specifically directed by the specifications. Additional inspections will be conducted as necessary to ensure compliance with the specifications. The CQCM will record off-site surveillance activities in the CQC report. Where instances of noncompliance are observed, corrective action will be initiated.

7.3.3 On-Site Inspection - Each craftsman will be charged with the responsibility of performing his or her work in a workman like manner and continually striving for the highest degree of quality. Only craftsman who exhibit an ability to perform and desire to achieve quality will be employed.

The CQCM will routinely and continually inspect the work for compliance with contract documents. His duties, as outlined in 3.1 above, are for the purpose of maintaining and documenting the work as required to achieve a high degree of quality.

The Contract Quality Control Program outlined in paragraph 8.0 of this plan will provide an outline for the CQCM with regard to all definable features of the work. The CQCM's inspection of these work features will be accomplished through implementation of the 3-phase control procedure outline in para 7.4.

7.3.4 Completion Inspection - After completion of all work, the CQCM will conduct a completion inspection of all work features. A punchlist will be developed to identify all items which are not in compliance with the specifications and drawings. The CQCM will establish a date by which each deficiency will be corrected and note such date on the punchlist. A follow-up inspection will be conducted to verify completion of all punchlist items. The completion inspection and any resulting corrective action will be accomplished within the contract performance period. The Contracting Officer will be notified upon completion of the punchlist and corrective work. The punchlist will be made part of the Quality Control documentation by attachment to the CQC report.

7.4 Control Procedures

A 3-phase control system shall be implemented by the Quality Control staff to ensure that construction, including subcontractors and suppliers, complies with the requirements of the contract documents. This system of management will address each definable feature of work beginning with early planning stage requirements and ending with the finished work. Each phase will allow the opportunity to prevent problems and deficiencies and ensure that the accident prevention program is implemented. The 3 control phases are outlined in para 7.4.1 thru 7.4.3.

7.4.1 Preparatory Phase - This phase will be performed prior to beginning work on each definable feature of work. This phase will be conducted at a meeting involving the CQCM/Project Superintendent, QA personnel, and the foreman involved in the particular work feature. The Contracting Officer will be notified 48 hours in advance of the preparatory phase. This phase will include:

a. A review of the applicable section of the specifications and contract drawings. (review specs)

b. A review of the submittal register to ensure that all required submittals are submitted and approved. Take corrective action when necessary. Submittal data will be discussed to acquaint all team members with technical aspects and points particular to the work feature. (review submittals)

c. A check to ensure that materials and equipment are in compliance with approved submittals and specifications. Verify that required materials/equipment are on hand and properly stored. (check material)

d. Verify that preliminary work is completed.

e. Review control testing requirements and verify that testing facilities are approved. Verify that necessary provisions are made for testing. (review testing)

f. A consensus will be reached on planned construction procedures and the required level of quality expected from the CQCM in order to meet contract specifications. (set standards)

g. Review appropriate Activity Hazard Analysis to assure safety requirements are met. The CQCM will inspect all equipment to ensure that minimum requirements for safety provisions in accordance with EM 385-1-1 and applicable regulations are met. (safety check)

h. The above described activities will be documented on the COE form

"Preparatory Phase Checklist". This form will be attached to the CQC report and furnished to the Contracting Officer. Problems and deficiencies apparent during the preparatory phase and corrective action initiated will be noted in this report.

7.4.2 Initial Phase - This phase is performed once a representative portion of work has taken place for each definable feature of work and will be conducted at a meeting involving the CQCM/Project Superintendent and foreman involved in the particular work feature. The Contracting Officer will be notified 48 hours in advance of this phase. Initial phase will include:

a. A check to ensure that preliminary work is completed.

b. Verify that materials/equipment and construction procedures are in compliance with the contract documents.

c. Review control testing requirements.

d. Set standards of quality required to meet contract specifications.

e. Review the Activity Hazard Analysis to ensure safety requirements are met. Check equipment for safety provisions.

f. The above described activities will be documented on the COE form "Initial Phase Checklist". This form will be attached to the CQC report and furnished to the Contracting Officer. Problems and deficiencies apparent during the initial phase and corrective actions initiated will be noted in this report. The initial phase will be repeated any time the CQCM feels that quality standards and safety requirements must be reinforced.

7.4.3 Follow-Up Phase - This phase is accomplished through the daily inspections by the CQCM, also through performance of the required control testing. Follow-up phase efforts will ensure a continuation of quality and safety standards established during preparatory and initial phases until completion of the work feature. The CQCM's follow-up phase activities, including deficiencies noted, corrective action taken, and control testing results will be recorded in the daily CQC report.

7.5 Reporting and Documentation

The CQCM will maintain records of all quality control activities including documentation of control testing and inspection, and maintain integrity of the contract documents through use of the following described forms and procedures. Additional reports will be formulated or added as needed.

7.5.1 Daily Record - The CQCM will utilize the COE furnished forms titled "*Contractor Quality Control CQC Form"* to record daily control activities and resources used, work performed, and other data indicated on this form. The original and two copies will be furnished to the Contracting Officer within 12 hours of the reporting date. The CQCM will maintain copies for his files. Test reports will be included in the CQC report.

7.5.2 Control Phase Checklists - The CQCM will utilize the COE furnished forms entitled "*Preparatory Phase Checklist"* and *"Initial Phase Checklist"* to document these control phase activities. Original and two copies will be attached to the CQC report for the date on which the control phase is completed. A log will be posted at the jobsite office in chart form to record the dates on which preparatory and initial phases were completed for each definable feature of work so as to allow easy verification of control activities.

7.5.3 Tracking Construction Deficiencies - The form for tracking construction deficiencies is the Deficiency Report (DR). A DR can be issued by the CQCM/Project Superintendent or Manager of Construction. All DR's shall be kept and updated by the CQCM. The DR log will be available for inspection by the Contracting Officer. See attached forms for the example of a DR.

The DR tracking log will be in chart form and bound in a log book maintained on site. See attached example of the deficiency report tracking log. The DR log book is available for inspection by the Contracting Officer at all times.

A construction deficiency for the purposes of this plan is defined as:

1. An occurrence in which defective work or work lacking some essential part has been covered or is otherwise left as complete.

2. Products are furnished to the site or incorporated into the work which do not meet the conditions of the contract documents.

3. Inspection points or contract requirements affecting quality of the work that have not been met. Minor defects in work on which construction is underway is not to be considered a Construction Deficiency.

7.5.4 Contract Document Control - The CQCM will maintain a record in log form of the most up-to-date documents issued for construction and adjustments. No contract documents will be replaced or revised without receipt of a modification or direction from the Contracting Officer. The CQCM will maintain As-Built contract drawings.

7.6 Changes to the CQC Plan - Periodically, and at least once weekly, the CQCM

will review the CQC plan with the possible need for changes in mind. During the course of work on this contract, it is reasonable to expect the need for some changes to arise. When they do, the QC Manager will incorporate these changes in the form of written amendments and copies will be furnished to the Contracting Officer.

8.0 QUALITY CONTROL PROGRAM

(Sample only, this is done for each definable feature of wo rk)

Q. C. ACTIVITIES & TESTING REQUIREMENTS FOR DEFINABLE FEATURES OF WORK

CONTRACT W912P8-__-__-_____

Definable Feature: **Cast In-Place Structural Concrete**
Section 03301

Definable Feature		Submittal	Quality Control Activities		
D scription	Spec. Para.	Req'd	Description of Observation Procedure or Test Required	Freq.	Remarks
Concrete - Grout, Water	03301-15.1.4.1 03301-15.5.1.6	Submittal Register	Grout certificate, equipment & method used, & source of mixing & curing water	Once prior to placement	
Concrete - Finishing Formed Surfaces	03301-12.2	QC Report	Visually inspect all finishing is started within 24 hours of form removal, tie rod holes & defective concrete voids and honeycombs are filled properly, smooth surface	After each placement	
Concrete - Fine Aggregate	03301-15.2.1.1	QC Report	Sieve analysis and fineness modulus determination	At least once each delivery	Testing by _____ Laboratory
Concrete - Coarse Aggregate	03301-15.2.2	QC Report	Sieve Analysis	At least once each delivery	Testing by _____ Laboratory
Concrete - Moisture Test	03301-15.2.2.2	QC Report	Test for moisture content for each size coarse aggregate	At least once each delivery	Testing by _____ Laboratory
Concrete - Mixer Uniformity	C03301-15.2.12	QC Report	Uniformity of concrete determined in accordance with ASTM C 94.	Prior to concrete placement & 1/ 6 mo	

Q. C. ACTIVITIES & TESTING REQUIREMENTS FOR DEFINABLE FEATURES OF WORK

CONTRACT W912P8-__-__-_____

Definable Feature: Cast In-Place Structural Concrete
Section 03301

Definable Feature		Submittal	Quality Control Activities		
Description	Spec. Para.	Req'd	Description of Observation Procedure or Test Required	Freq.	Remarks
Concrete	03301-5.3	Submittal Register	Submit batch plant details, mixer details, conveying methods and equipment, placing, joint clean-up, curing, and weather requirements	once 14 days prior to placement	
Concrete	03301-3.1.1	Submittal Register	Submit 500 lb sample of aggregate to Waterway Experiment Station for testing if an approved supplier is not used	Once prior to concrete placement	
Concrete	03301-5.1.1	Submittal Register	Submit concrete mixture proportion	Once	
Concrete - Materials	03301-5.1.2 03301-5.1.5 03301-5.2.3 03301-5.2.5	Submittal Register	Submit cement cert. of compliance Submit sieve analysis for aggregates Submit air-entraining agent cert. of compliance Submit curing compound cert. of compliance	Once	Testing by supplier or _____ Lab

Q. C. ACTIVITIES & TESTING REQUIREMENTS FOR DEFINABLE FEATURES OF WORK CONTRACT W912P8-__-__-_____

Definable Feature: **Cast In-Place Structural Concrete**
Section 03301

Definable Feature		Submittal	Quality Control Activities		
Description	Spec. Para.	Req'd	Description of Observation Procedure or Test Required	Freq.	Remarks
Concrete - Placement Preparations	03301-15.2.7	QC Report & LMV Form 1246	Visually & Measure as needed, prior to placement, foundations, const. joints, forms, embedded items, etc., to verify that concrete placement OK	Prior to placement	
Concrete - Air Content	03301-15.2.6.1	QC Report	Test Concrete for air content	Twice per day	Use _____ Laboratory
Concrete - Slump	03301-15.2.5.2	QC Report	Test Concrete slump	Twice per day	Use _____ Laboratory
Concrete - Placement	03301-15.2.8	QC Report	Visually inspect placement operations to verify proper equipment, methods, time interval, temp., yardage placed, & placement method	Each Placement	
Concrete - Curing	03301-13.2,4	QC Report	Inspect all surfaces subject to moist curing & impervious sheet curing	At least once/day	Including weekend/hol.
Concrete - Curing	03301-13.3	QC Report	Assure that curing compound is mixed properly, & meets minimum pressure and coverage requirements	After removal of forms	Measure & visual
Concrete - Vibration	03301-15.2.9	QC Report	Test frequency and amplitude of vibrator	Prior to 1st use & 1/month	

9.0 FORMS

CONTRACTOR QUALITY CONTROL (CQC) FORM

Contractor's Name

_____
_____
_____

Daily Report No: _____ Date: _____
Contract No: W912P8-__-__-____

Project Title and Location: _____

Weather: _____ Rain: ____in. Temp: ____Min. ___ Max.

1. Contractor/Subcontractors and Area of Responsibility:

NUMBER	TRADE	HOURS	EMPLOYER	LOCATION/DESCRIPTION

2. Operating Plant of Equipment. (Not hand tools)

PLANT/ EQUIPMENT	DATE OF ARRIVAL/ DEPARTURE	LEASED/ OWNED L OR O	DATE OF SAFETY CHECK	HOURS USED	HOURS IDLE	HOURS REPAIR

CQC Report Form (Cont'd)

3. Work performed today: (Indicate location and description of work performed by prime and/or subcontractor by letter in table above.)

4. Results of control activities: (Indicate whether P - preparatory, I - Initial, or F - Follow-up Phase. When a P or I meeting is conducted, complete appropriate forms, attached.)

5. Test performed as required by plans and/or specifications:

6. Materials received:

CQC REPORT FORM (CONT'D)

7. Submittals Reviewed:

(a)Submittal No.	(b) Spec/Plan Reference	(c) By Whom	(d) Action

8. Off-site surveillance activities, including action taken:

_____
_____
_____
_____
_____
_____
_____

9. Job Safety: (Report violations; Corrective instructions given, taken.)

_____
_____
_____
_____
_____

10. Environmental Protection: (Report violations; Corrective instructions given, taken.)

_____
_____
_____
_____
_____

11. Remarks: (Instructions received or given. Conflicts in Plans and/or Specifications.)

_____
_____
_____
_____
_____

Contractor's Verification: On behalf of the contractor, I certify this report is complete and correct, and all materials and equipment used and work performed during this reporting period are in compliance with the plans and specifications, to the best of my knowledge, except as noted above.

_____ _____
Authorized CQC System Manager Date

PREPARATORY PHASE CHECKLIST FORM

Contract No.: W912P8-__-____ Date: _____

Definable Feature:

_____

Government Representative Notified 48 Hours in Advance Yes____ No ____

I. Personnel Present:

Name	Position	Company/Government

(List Additional Personnel on reverse side)

II. Submittals

1. Review Submittals and/or submittal log 4288. Have all submittals been approved? Yes___ No___

If No, what items have not been submitted?

a.

_____

b.

_____

c.

_____

2. Are all materials on hand? Yes___ No___ If No, what items are missing?

a.

_____

b.

_____

c.

_____

PREPARATORY PHASE CHECKLIST FORM (CONT'D)

3. Check approved submittals against delivered material. (This should be done as material arrives.) Comments:

_____
_____
_____
_____

III. Material storage

Are materials stored properly? Yes___ No___
If No, what action will be taken?

_____
_____
_____
_____

IV. Specifications:

1. Review each paragraph of specifications.

_____
_____
_____
_____

2. Discuss procedure for accomplishing the work. (Include labor and equipment to be used)

_____
_____
_____
_____

3. Clarify any differences from specifications.

_____
_____
_____

V. Preliminary Work - Ensure preliminary work is correct.

If not, what action will be taken?

_____
_____
_____
_____

PREPARATORY PHASE CHECKLIST FORM (CONT'D)

VI. Testing

1. Identify test to be performed, frequency and by whom.

_____
_____
_____

2. When required?

_____
_____
_____

3. Where required?

_____
_____
_____

4. Review Testing Plan.

_____
_____
_____

VII. Safety

1. Review applicable portion of COE EM 385-1-1.

_____
_____
_____

2. Activity Hazard Analysis Approved? Yes___ No___

3. All equipment checked and checklists recorded? Yes___ No___

If not, what action will be taken?

_____

VIII. Corps of Engineers comments during meeting.

_____
CQC Representative

INITIAL PHASE CHECKLIST FORM

Contract No.: W912P8-__-__-____ Date: _____

Definable Feature:

_____

Government Representative Notified 48 Hours in advance Yes___ No___

I. Personnel Present:

Name	Position	Company/Government

(List Additional Personnel on Reverse Side)

II. Is work in full compliance with plans, specifications and submittals. Are procedures and quality control measures being used acceptable.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

INITIAL PHASE CHECKLIST FORM (CONT'D)

III. Preliminary work. Ensure preliminary work is complete and correct. If not, what action will be taken?

_____
_____
_____
_____

IV. Establish Level of Workmanship.

1. Where is work located?

_____

2. Quantity of work performed?

_____

3. Is a sample panel required? Yes___ No___
4. Will the initial work be considered as a sample? Yes___ No___

V. Are standards of acceptance mutually agreed upon? Resolve any differences.

_____
_____
_____
_____
_____

VI. Check Safety.

Review job condition using COE EM 385-1-1 and job hazard analysis. Comments:

_____
_____
_____
_____
_____

_____
CQC Representative

DEFICIENCY REPORT

Contract No.: W912P8-__-__-____ DCR NO.: _____

Project
Name:_____

Contractor:
_____

Description of Deficiency:
_____
_____
_____
_____
_____
_____
_____
_____
_____

Sketch Attached: Yes___ No___

Issued By: _____ Date: _____

Approved and Logged By: _____ Date: _____
CQCM

~~~~~~

Planned Corrective Action:
_____
_____
_____
_____
_____
_____
_____
_____

CO or Representative: _____ Date: _____

CQCM: _____ Date: _____

Corrective Action Implemented: _____ Date: _____
Project Super.

Corrective Action Inspected: _____ Date: _____
CQCM
~~~~~~

DEFICIENCY REPORT TRACKING LOG

Contract No. W912P8-__-__-____

DR NUMBER	DATE ISSUED	ISSUED BY (Initial)	WORK FEATURE (See DR Report for details)	DATE CORRECTED	DATE INSPECTED	INSPECTOR (INITIAL)

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SECTION 01 57 20.00 12

ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all labor, materials and equipment, and performing all work required for the prevention of environmental pollution and the handling, removal, transportation and disposal of any hazardous and/or regulated solid waste generated during and as the result of construction operations under this contract except for those measures set forth in other provisions of these specifications. For the purpose of this specification, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to man; or degrade the utility of the environment for esthetic and recreational purposes. The control of environmental pollution requires consideration of air, water, and land, and involves noise, solid waste-management, management of radiant energy and radioactive materials, as well as other pollutants including hazardous wastes, materials, substances and chemicals.

1.2 APPLICABLE REGULATIONS

In order to prevent, and to provide for abatement and control of any environmental pollution arising from construction activities in the performance of this contract, the Contractor and his subcontractors shall comply with the Louisiana Pollution Discharge Elimination System (LPDES) General Permit requirements as specified in Section 01 57 23.00 12 STORM WATER POLLUTION PREVENTION PLAN, all applicable Federal, State, and Local laws, and regulations as well as USACE regulations concerning environmental pollution control and abatement and any regulations referred to in the following paragraphs. For hazardous wastes, materials, substances and chemicals applicable regulations shall include, but are not limited to, 29 CFR 1910.106, 29 CFR 1910.120, 40 CFR 260, 40 CFR 279, 40 CFR 355, 40 CFR 372-SUBPART D, 49 CFR 171 - 178 and EM 385-1-1, LAC 33:V, and LAC 33:VII.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

LOUISIANA ADMINISTRATIVE CODE (LAC)

LAC 33:V	Environmental Quality: Hazardous Waste and Hazardous Materials
LAC 33:VII	Environmental Quality: Solid Waste

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.106	Flammable and Combustible Liquids
29 CFR 1910.120	Hazardous Waste Operations and Emergency Response
33 CFR 153.203	Procedure for the Notice of Discharge
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 268	Land Disposal Restrictions
40 CFR 279	Standards for the Management of Used Oil
40 CFR 355	Emergency Planning and Notification
40 CFR 372-SUBPART D	Specific Toxic Chemical Listings
49 CFR 171	General Information, Regulations, and Definitions
49 CFR 171 - 178	Hazardous Materials Regulations

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2024) Safety and Occupational Health (SOH) Requirements

1.4 MEASUREMENT AND PAYMENT

1.4.1 Environment Protection

No separate measurement or payment will be made for environment protection, including protection of fish and wildlife. Payment for the work covered under this section shall be distributed throughout the existing Pricing Schedule items.

1.4.2 Non-Regulated Waste

No separate measurement or payment will be made for the work associated with and the disposal of non-regulated debris not specifically covered elsewhere. Payment for the work associated with the disposal of non-regulated debris not specifically covered elsewhere shall be distributed throughout the existing Pricing Schedule items.

1.4.3 Hazardous/Regulated Waste

(a) If the Contractor generates hazardous and/or regulated solid wastes through his/her actions, no separate measurement or payment will be made for handling, removal, transportation and disposal of hazardous and/or regulated solid wastes. Payment for the work associated with and the disposal of hazardous/regulated solid waste generated by the

Contractor shall be distributed throughout the existing Pricing Schedule items.

(b) If the Contractor uncovers an existing hazardous/regulated waste not Contractor generated, not shown on the drawings, and not specified herein, the Contractor shall notify the Contracting Officer's Representative immediately. Payment for handling, removal, transportation and disposal of hazardous and/or regulated solid wastes not Contractor generated, not shown on the drawings, and not specified herein will be made as an equitable adjustment in contract price under the Contract Clause in Section 00700 entitled CHANGES (FAR 52.243-4).

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Protective Material; G, PDSN

1.6 QUALITY CONTROL

1.6.1 General

The Contractor shall establish and maintain quality control for environment protection to assure compliance with contract specifications and maintain records of his/her quality control for all construction operations including but not limited to the following:

(1) Submit plan of Environmental Pollution Control Plan/Environmental Protection Plan/Protective Material. For Contractor work activities (such as painting, metal finishing, etc.) that will involve bringing hazardous chemicals, hazardous substances or hazardous materials onto the project site, include in the plan a Hazard Communication Program and Safe Storage Plan. For Contractor activities that anticipate generation of hazardous wastes at the project site, include in the plan a waste identification / determination and waste disposal plan. For Contractor on-site activities that pose a risk of an oil or hazardous substance spill, include in the plan a Spill Reporting and Response Plan.

(2) Procure applicable Federal, State, and Local regulations on pollution control.

(3) Air Pollution - Checks made on dust, smoke, and noise.

(4) Water Pollution - Checks made on disposal of water, oil, etc.

(5) Land Pollution - Checks made on disposal of debris, restoration of temporary construction sites, etc.

(6) Training Course for Employees.

1.6.2 Reporting

The original and two copies of these records, as well as the records of

corrective action taken, shall be furnished the Government daily. Format of report shall be as prescribed in Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL.

1.7 NOTIFICATION

The Contracting Officer will notify the Contractor in writing of any non-compliance with the foregoing provisions and the action to be taken. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his/her authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall make no part of the time lost due to any such stop orders the subject of a claim for extension of time or for excess cost of damages.

1.8 SUBCONTRACTORS

Compliance with the provisions of this section by subcontractors will be the responsibility of the Contractor.

1.9 IMPLEMENTATION

Within 10 days after receipt of Notice of Award, or otherwise directed below, the Contractor shall:

(1) Submit in writing his/her proposals for implementing environmental pollution control at the project site, disposal of debris, non-hazardous wastes and hazardous wastes generated at the project site as well as storage and management of regulated materials, substances and chemicals brought onto and used at the project site.

(2) Meet with representatives of the Contracting Officer to develop mutual understanding relative to compliance with this provision and administration of the environmental pollution control program.

(3) If applicable, submit a plan for the identification, handling, removal, transportation and disposal of hazardous and/or regulated solid wastes generated because of the Contractor's operation.

1.9.1 Environmental Assessment of Contract Deviations

If the Contractor proposes a deviation from the drawings or specifications (e.g., proposed borrow, disposal areas, staging areas, alternate access routes etc) for his convenience, the Contractor shall notify the Contracting Officer or its representative in writing. The Contractor is cautioned that any deviation from the drawings or specifications is subject to all applicable Federal and state environmental laws and regulations. Compliance with these environmental laws and regulations may require additional National Environmental Policy Act (NEPA) documents, cultural resources surveys, coordination with the Louisiana State Historical Preservation Officer, water quality certification, modification of the Federal Consistency determination, etc. The Government is ultimately responsible for environmental compliance; therefore, the Government will determine the additional environmental coordination and documentation necessary for proposed deviation to the Government furnished disposal areas. For any environmental investigations the Government is to perform on area outside of Government furnished rights of way, the Contractor shall

provide sufficient rights of entry. The Contracting Officer will advise the Contractor of the additional environmental coordination and documentation that must be completed prior to the use of the contractor furnished right of way. The Government shall be responsible for any additional environmental compliance; however, the Contractor may conduct specific tasks identified by the Government. The Government will offer advice and assistance to the Contractor in conducting these tasks. Depending on the environmental impact of the proposed deviation, obtaining the coordination and documentation, may not be approved or could take as much as 180 days for approval by the Government. The Government must review, approve and ensure distribution of all environmental compliance documentation and ensure all comments on the same have been resolved before any utilization of any areas outside of the Government furnished right of way. The Contractor shall reimburse the Government for actual expenses incurred for assistance in completing or attempting to complete additional environmental coordination and documentation which expenses will not exceed one hundred thousand ($100,000) dollars. There is no guarantee that environmental compliance will be obtained; therefore, the Contractor shall assume all risks and liabilities associated with pursuing a deviation. Any delays resulting from the deviation and/or the environmental coordination and documentation shall not be made the basis of any Contractor claim for increase in the contract cost and/or increase in contract time. Deviations will be at the Contractor's sole risk and liability, including, but not limited to, such liabilities associated with items such as hazardous substances regulated under the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C 9601 et. Seq.), and at no cost to the Government. Government assistance in obtaining additional environmental clearances does not relieve the Contractor of responsibility for complying with other Federal, state or local licenses and permits.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 PROTECTION OF LAND RESOURCES

3.1.1 General

The land resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural and not detract from the appearance of the project. The Contractor shall confine his/her construction activities to areas defined by the plans or specifications, including borrow areas to be cleared. The following additional requirements are intended to supplement and clarify the requirements of Section 00700, Contract Clauses entitled CLEANING UP (FAR 52.236-12); PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS (FAR 52.236-9); and OPERATIONS AND STORAGE AREAS (FAR 52.236-10).

3.1.2 Prevention of Landscape Defacement

Except in areas to be cleared and as provided in paragraph "Temporary Excavation and Embankments", the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without the approval of the Contracting Officer. Felling of trees shall be performed in such a manner as to avoid damage to trees to be left standing. Where trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's

operations or equipment; adequate protection measures shall be implemented. A tree protection zone shall be constructed around all trees that may be affected by construction activities. The tree protection zone shall be established by placing metal posts and temporary construction safety fencing around trees below the trees' canopy drip edge. The Contactor shall not store any material, equipment, backfill, drive any machinery, or cause any changes to the existing grade around trees and their respective canopy drip edges. All monuments and markers shall be protected before beginning operations near them, or properly removed and stored by the Contractor during construction, and repositioned after construction. Landscape features damaged by the Contractor's equipment or operations shall be replaced or restored to their original condition; the Contractor shall coordinate with the New Orleans' District Landscape Architect and secure the services of a licensed arborist to assess any damage to trees that occur as a result of construction activities. The Contractor shall submit to the Contracting Officer, for review and approval, a written report from the licensed arborist on the inflicted damage, as well as a proposed remediation plan of action, or if required the replacement of affected trees. The plan of action shall identify measures such as proper pruning and bark tracing to restore the damaged trees, or tree replacement options. No separate measurement and payment will be made for any work required implementing tree protection zone measures around trees within the construction limits that are to remain. The Contractor shall include any and all costs for tree protection zone measures in the contract prices for items to which the work is incidental thereto. Should the services of a licensed arborist be required as a result of damages due to the actions of the Contractor, all services, material, labor and equipment to implement the remediation plan and restore and or replace the affected trees shall be accomplished by the Contractor at no additional cost to the Government.

3.1.3 Temporary Excavation and Embankments

If the Contractor proposes to construct temporary roads or embankments and excavation for plant and/or work areas, he shall obtain approval of the Contracting Officer prior to start of such temporary work.

3.1.4 Post-Construction Cleanup or Obliteration

The Contractor shall obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, and stockpiles of excess or waste materials upon completion of construction. The Contractor will be required to restore the construction area to near natural conditions that will permit the growth of vegetation.

3.1.5 Recording and Preserving Historical and Archeological Finds

When any item having apparent historical or archeological interest is discovered in the course of any construction activities, then no work will proceed in the area containing these cultural resources until a USACE archaeologist has been notified and final coordination with the State Historic Preservation Officer has been completed. The Contractor will leave the archeological find undisturbed and shall immediately report the find to the Contracting Officer so that the proper authorities may be notified.

3.2 PROTECTION OF WATER RESOURCES

3.2.1 Contamination of Water

The Contractor shall not pollute lakes, ditches, rivers, bayous, canals, groundwater, waterways, or reservoirs with fuels, oils, bitumens, calcium chloride, insecticides, herbicides, or other similar materials harmful to fish, shellfish, or wildlife, or materials which may be a detriment to outdoor recreation.

3.2.2 Disposal of Materials

The methods and locations of disposal of materials, wastes, effluents, trash, garbage, oil, grease, chemicals, etc., within the right-of-way limits shall be such that harmful debris will not enter lakes, ditches, rivers, bayous, canals, groundwater, waterways, or reservoirs by erosion, and thus prevent the use of the area for recreation or present a hazard to wildlife.

3.2.3 Erosion Control

Surface drainage from cuts and fills within the construction limits, whether or not completed, and from borrow and waste disposal areas, shall, if turbidity producing materials are present, be held in suitable sedimentation ponds or shall be graded to control erosion within acceptable limits. Temporary erosion and sediment control measures as specified in Section 01 57 23.00 12 STORM WATER POLLUTION PREVENTION PLAN shall be provided and maintained until permanent drainage and erosion control facilities are completed and operative. The area of bare soil exposed at any one time by construction operations shall not exceed that necessary to perform the work. Stream crossings by fording with equipment shall be limited to control turbidity and in areas of frequent crossings temporary culverts or bridges shall be installed. Any temporary culverts or bridges shall be removed upon completion of the project. Fills and waste area shall be constructed by selective placement to eliminate silts or clays on the surface that will erode and contaminate adjacent streams.

3.3 PROTECTION OF FISH AND WILDLIFE

The Contractor shall at all times perform all work and take such steps required to prevent any interference of disturbance to fish and wildlife. The Contractor will not be permitted to alter water flows or otherwise disturb native habitat adjacent to the project area that are critical to fish or wildlife. Colonial nesting wading birds (including but not limited to heron, egrets and ibis) and bald eagles may be found at the project site and should be avoided to reduce the risk of injuring birds. The nesting activity period general extends from February 15 through September 15 for wading bird and September to May for bald eagles. Presence of nesting wading birds or nesting bald eagles must be immediately reported to Tammy Gilmore at (504)862-1002. If nests of these birds are present at the work area; a no work distance restriction of 1000 feet for colonial nesting wading birds and a distance restriction of 660 feet from a nesting bald eagle must be implemented. Coordination by New Orleans District personnel with the U.S Fish and Wildlife Service may result in a reduction of no-work distance restriction depending on the species of birds found nesting at the work site. The Contractor should note that no federally listed birds are known to occur in the project area. It should also be noted that all of these birds prefer to avoid human presence/ disturbances reducing the potential of stoppages of work.

3.4 JANITOR SERVICES

The Contractor shall furnish daily janitorial services for all the offices, shops, laboratories, or other buildings being used by the Contractor or Government employees, whether existing or Contractor furnished, and perform any required maintenance of the facilities and grounds during the life of the contract. Toilet facilities shall be kept clean and sanitary at all times. Services shall be performed at such a time and in such a manner to least interfere with the operations but will be accomplished only when the buildings are in daily use. Services shall be accomplished to the satisfaction of the Contracting Officer. The Contractor shall also provide daily trash collection and cleanup of the buildings and adjacent outside areas, snow removal as required, and shall dispose of all discarded debris, aggregate samples and concrete test samples in a manner approved by the Contracting Officer.

3.5 DISPOSAL OF NON-REGULATED DEBRIS

The Contractor shall remove all of the debris from the site of the work. Such disposal shall comply with all applicable Federal, State, and Local laws. The Contractor shall, at his/her option, either retain for his/her own use or dispose of by sale or otherwise, such materials of value. The Government is not responsible for the protection and safekeeping of any materials retained by the Contractor. Such materials shall be removed from the site of the work before the date of completion of the work. If debris from clearing operations is placed on adjacent property, the Contractor shall obtain, without cost to the Government, additional right-of-way for such purposes. Such material shall be so placed as not to interfere with roads, drainage or other improvements and in such a manner as to eliminate the possibility of its entering into channels, ditches, or streams. The Contractor shall submit written evidence to the Contracting Officer that he/she has obtained from the property owner permission for disposal of material on the owner's property. The written evidence shall consist of an authenticated copy of the conveyance under which the Contractor acquired the property rights and access thereto, prepared and executed in accordance with the laws of the State of Louisiana. If temporary rights are obtained by the Contractor, then the period of time shall coincide with the requirements in the Contract Clause in Section 00700 entitled COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (FAR 52.211-10), plus any extension authorized under the Contract Clause entitled DEFAULT (FIXED-PRICE CONSTRUCTION) (FAR 52.249-10), subparagraph (b) (1). However, delay resulting from acquisition of additional rights-of- way for alternate disposal areas will not qualify as excusable delays if suitable Government-furnished disposal areas are available.

3.6 DISPOSAL OF HAZARDOUS AND/OR REGULATED SOLID WASTES

If any hazardous or regulated solid wastes will be generated as a result of the Contractor's operations, the Contractor shall submit a plan that details the proper handling, removal, transportation and disposal of such wastes. The plan shall identify what types of hazardous and/or regulated solid wastes will be generated and shall list the hazards involved with each waste. All waste generated on-site by the Contractor must be properly identified within 30 days of generation. No regulated wastes shall be allowed to accumulate on-site for more than 90 days. Regulated solid wastes are those listed in the LAC 33:VII. The plan shall include Safety Data Sheets (SDS), if applicable, for all wastes expected to be generated. The plan shall include, but not be limited to the following:

(a) Hazardous waste shall be place in closed containers and shall be shielded adequately to prevent dispersion of the waste by wind or water. Any evidence of improper storage shall be cause for immediate shutdown of the project until corrective action is taken.

(b) Nonhazardous waste shall be stored in containers separate from hazardous waste storage areas.

(c) All hazardous waste shall be transported by a licensed transporter in accordance with LAC 33:V and 49 CFR 171, Subchapter C.

(d) All nonhazardous waste shall be transported in accordance with local regulations regarding waste transportation.

(e) In addition to the number of manifest copies required by LAC 33:V, one copy of each manifest will be supplied to the Contracting Officer prior to transportation.

(f) The plan shall identify what types of hazardous and/or regulated solid wastes will be generated and shall list the hazards involved with each waste.

3.6.1 Hazardous Wastes

For the handling, removal, transportation and disposal of any generated hazardous wastes, the plan shall conform to the requirements of 40 CFR 260, 49 CFR 171 - 178 as well as other applicable Federal, State and Local regulations. All employees of the Contractor of his/her Subcontractors that will be directly involved in the handling and/or removal of hazardous wastes shall be trained in accordance with 29 CFR 1910.120. In addition, the employees shall have undergone a medical evaluation in accordance with 29 CFR 1910.120. The Contractor shall include copies of employees' certifications and medical examinations as part of the plan specified herein. The plan shall also address the proper Personnel Protective Equipment (PPE) that the employees will be required to wear during the handling and removal of hazardous wastes. The Contractor shall obtain an EPA ID# and Hazardous Waste Disposal Manifests and shall sign the manifests as the generator. Wastes shall be transported via state and Federal approved hazardous waste transporter and disposed of at a state and Federal approved temporary, storage and disposal (TSD) facility. Copies of licenses and certifications of the transporter and TSD shall be included in the plan. The plan shall list the name and address of each transporter and TSD to be utilized. The Contractor shall be responsible for any sampling and analysis required by the TSD for characterization purposes. The Contractor shall submit to the Contracting Officer completed copies of all Hazardous Waste Disposal Manifests within five (5) days after ultimate disposal at the TSD. Other regulations applicable to the handling, removal, transportation and disposal of hazardous wastes are: 40 CFR 261; 40 CFR 262; 40 CFR 268; and LAC 33:V.

3.6.2 Regulated Solid Wastes

For the handling, removal, transportation and disposal of any generated regulated solid wastes, the plan shall conform to the requirements of LAC 33:VII. Solid wastes shall be transported to a Federal and state approved TSD, oil recycling program or Industrial Type I Landfill. The Contractor shall identify in the plan how he/she intends to dispose of each solid waste. The plan shall include the name, address, licenses and

certifications of each disposal facility that will be used. If disposal manifests are required, the Contractor shall sign them as the generator. The Contractor shall be responsible for any sampling and analyses that may be required by the disposal facility(ies) for characterization purposes. Licenses and certifications of the transporter and disposal facilities shall be included in the plan. The Contractor shall submit to the Contracting Officer a completed copy of any waste disposal manifests within five (5) days after ultimate disposal.

3.6.3 Laboratory Accreditation

All laboratory testing for waste determinations shall be performed by a laboratory which has received accreditation from the Louisiana Department of Environmental Quality (LDEQ) laboratory certification program. The name and address of the laboratory shall be included in the "Waste Classification, Handling, and Disposal Plan."

3.7 MAINTENANCE OF POLLUTION CONTROL FACILITIES

During the life of this contract the Contractor shall maintain all facilities constructed for pollution control under this contract as long as the operations creating the particular pollutant are being carried out or until the material concerned has become stabilized to the extent that pollution is no longer being created. Early in the construction period the Contractor shall conduct a training course that will emphasize all phases of environmental protection.

3.8 REPORTING OF POLLUTION SPILLS

In the event that an oil spill or chemical release occurs during the performance of this contract, the Contractor is required to contact the National Response Center, telephone number 1-800-424-8802 as soon as possible, or if telephone communication is not possible, the nearest U.S. Coast Guard office may be contacted by radio to report the spill, (33 CFR 153.203). The Contractor shall comply with any instructions from the responding agency concerning containment and/or cleanup of the spill.

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SECTION 01 57 23.00 12

STORM WATER POLLUTION PREVENTION PLAN

PART 1 GENERAL

1.1 SCOPE

The work specified in this section consists of the Contractor implementing, and diligently pursuing all measures required in the Storm Water Pollution Prevention Plan (SWPPP). The SWPPP consists of this Section, 01 57 23.00 12, and any and all references and attachments including existing and future signed certification statements. The purpose of the SWPPP is to control soil erosion and the resulting sediment to the extent necessary to prevent sediment from leaving the contract rights-of-way and prevent pollution of any water body caused by the runoff from the areas of construction activities under this contract, under the terms of PERMIT NO. LAR200000 (copy attached at the end of this section), and as specified herein. The requirements of these specifications are supplemental to and shall become part of the overall Environmental Protection Plan required by Section 01 57 20.00 12 ENVIRONMENTAL PROTECTION. The Contractor shall review the SWPPP to determine requirements for compliance. In addition, the Contractor shall ascertain that his subcontractors have reviewed the plan, and that they comply with its provisions. The Contractor shall ensure that all subcontractors sign, "Certification Statements #2 and #3" (blank forms attached at the end of this section).

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY (LDEQ)

PERMIT NO. LAR200000	(2018) Storm Water General Permit for Small Construction Activities

1.3 MEASUREMENT AND PAYMENT

1.3.1 SWPPP

No separate measurement or payment will be made for the implementation of the Storm Water Pollution Prevention Plan. Price and payment shall be distributed amongst the existing Pricing Schedule items.

1.3.2 Truck Wash Down Racks

Measurement and payment for truck wash down racks will be as specified in Section 01 57 23.01 12 TRUCK WASH DOWN RACKS.

1.4 DEFINITIONS

a. Construction Owner - The construction owner is the party that has operational control over plans and specifications including the ability

to make changes to those items. The New Orleans District (Government) is the construction owner.

b. Construction Operators - The construction operators are the party having control over the plans and specifications and the party having day-to-day operational control over those activities at a project site which are necessary to ensure compliance with the SWPPP or other permit conditions. Both the Government and the Contractor are the construction operators.

c. Completion Report - A document that is completed and submitted to the Louisiana Department of Environmental Quality to terminate permission to discharge under PERMIT NO. LAR200000. The Completion Report must be submitted to the Permits Division of the LDEQ by January 28 of the year following the calendar year in which the project was completed.(Copy provided at the end of this section.)

1.5 GENERAL

The Contractor shall implement the Storm Water Pollution Prevention Plan (SWPPP) specified in a manner which will meet the requirements of Section 01 57 20.00 12 ENVIRONMENTAL PROTECTION, and the requirements of the Louisiana Pollution Discharge Elimination System (LPDES) permit, PERMIT NO. LAR200000, effective March 20, 2018.

1.5.1 Environmental Assessment of Contract Deviations

The Contractor is advised that deviations from the SWPPP could result in the requirement for the Government to reanalyze the project from an environmental standpoint. Deviations from the SWPPP erosion control requirements as specified herein and as shown on the drawings which may have an environmental impact will require an extended review, processing, and approval time by the Government.

1.6 RECORD RETENTION REQUIREMENTS

1.6.1 Documents

The Contractor shall retain copies of the SWPPP and all reports required by the general permit, and all records of data used to complete the NOI, for a period of at least three years from the date that the construction site is finally stabilized. Records of the NOI as well as any data used to complete it, the SWPPP, and any reports required by PERMIT NO. LAR200000 shall be retained by the permittee for at least three years from the date that the site is finally stabilized.

1.6.2 Plan Accessibility

A copy of the SWPPP and a copies of all permits received, shall be retained at the construction site (or other local location accessible to the State Administration Authority and the public) from the date of construction initiation to the date of final stabilization. The Contractor shall have a copy of the plan available at a central location on-site for the use of all operators and those identified as having responsibilities under the plan whenever they are on the construction site. A notice shall be posted near the main entrance to the construction site with the following information: (1) the LPDES permit number for the project or a copy of the NOI if a permit has not yet been assigned; (2) the name and telephone number of a local contact person; (3) a brief description of the project; and (4) the

location of the SWPPP if the site is inactive or does not have an on-site location to store the plan.

1.6.3 Activity Records

The dates of the following activities shall be recorded:

(1) Major grading activities occurred.

(2) Construction activities temporarily or permanently ceased.

(3) Stabilization measures were initiated.

1.7 EROSION AND SEDIMENT CONTROLS

The controls and measures required for controlling sediment during construction are described below.

1.7.1 Stabilization Controls

The stabilization practices to be implemented shall include fertilizing and seeding as specified in Section 32 92 19.04 12 TURF ESTABLISHMENT AND MAINTENANCE or any other temporary measure to restrict erosion from the construction site. On the daily CQC Report, the Contractor shall record the dates when the major grading activities occur, (e.g., clearing and grubbing, excavation, and grading); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Except as provided in paragraphs "Unsuitable Conditions" and "No Activity for Less Than 21 Days," stabilization practices shall be initiated as soon as practicable, but no more than 14 days, in any portion of the site where construction activities have temporarily or permanently ceased.

1.7.1.1 Unsuitable Conditions

Where the initiation of stabilization measures by the fourteenth day after construction activity temporarily or permanently ceases is precluded by unsuitable conditions caused by the weather, stabilization practices shall be initiated as soon as practicable after conditions become suitable.

1.7.1.2 No Activity for Less Than 21 Days

Where construction activity will resume on a portion of the site within 21 days from when activities ceased (e.g., the total time period that construction activity is temporarily ceased is less than 21 days), then stabilization practices do not have to be initiated on that portion of the site by the fourteenth day after construction activity temporarily ceased. Stabilization practices shall be initiated on that portion of the site by the fourteenth day in the case where construction activities will not resume within 21 days after construction activities have ceased.

1.7.2 Structural Controls

Structural practices shall be implemented to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Structural practices shall be implemented in a timely manner during the construction process to minimize erosion and sediment runoff. The Contractor' structural practices shall include the following device.

1.7.2.1 Truck Wash Down Racks

See Section 01 57 23.01 12 TRUCK WASH DOWN RACKS.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 INSTALLATION OF TRUCK WASH DOWN RACKS

Operation of truck wash down racks shall not include use of detergents. Sediments resulting from operation of truck wash down racks shall not be permitted to pollute any receiving waters. Sediments shall be utilized in the job or disposed of as construction debris. Sediment retention measures shall be utilized as described in Section 01 57 23.01 12 TRUCK WASH DOWN RACKS.

3.2 MAINTENANCE

The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. The following procedures shall be followed to maintain the protective measures.

3.3 INSPECTIONS

3.3.1 General

The Contractor shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every fourteen (14) calendar days, before anticipated storm events (or series of storm events such as intermittent showers over one or more days) expected to cause a significant amount of runoff, and within 24 hours of the end of any storm that produces 0.5 inches or more rainfall at the site. Where sites have been finally stabilized, such inspection shall be conducted at least once every two weeks.

3.3.2 Inspections Details

Disturbed areas and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles exit the site shall be inspected for evidence of offsite sediment tracking.

3.3.3 Inspection Reports

For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major

observations relating to the implementation of the SWPPP, maintenance performed, and actions taken. The report shall be furnished to the Contracting Officer within 24 hours of the inspection as a part of the Contractor's daily CQC REPORT. A copy of the inspection report shall be maintained on the job site. Sample inspection reports (Exhibit D-2, Exhibit D-3, Exhibit D-4, and Table D-5) are included at the end of this section.

3.4 COMPLETION REPORT

Upon stabilization and elimination of all storm water discharges authorized by PERMIT NO. LAR200000, or where the operator of all storm water discharges at a facility changes, a Completion Report shall be certified and submitted by the Contractor to the Permits Division at the LDEQ. A copy of the Completion Report form is provided at the end of this section. Certified mail is recommended for proof of the Completion Report submittal. The Completion Report shall be submitted within 30 days of final stabilization of the construction site or when the Contractor is no longer the construction operator.

CERTIFICATION STATEMENT #1

Any person, including the construction owner/operator, signing documents (the SWPPP, modifications to the SWPPP, or other reports) under Part VI.G. of PERMIT NO. LAR200000 shall make the following certification.

(Contract Title)

(Permit Number)

(Document being Certified, such as SWPPP)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I also certify that a storm water pollution prevention plan, including both construction and post construction controls, has been prepared for the site in accordance with the permit and that such plan complies with approved State, Tribal and/or local sediment and erosion plans or permits and/or storm water management plans or permits. I am aware that signature and submittal of the Notice of Intent is deemed to constitute my determination of eligibility under one or more of the requirements of Permit Part I.A.3.e(1), related to the Endangered Species Act requirements. To the best of my knowledge, I further certify that such discharges and discharge related activities will not have an effect on properties listed or eligible for listing on the National Register of Historic Places under the National Historic Preservation Act, or are otherwise eligible for coverage under Part I.A.3.f of the permit. I am also aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature _____

Printed Name _____

Title _____

Company _____

Date _____

Telephone _____

CERTIFICATION STATEMENT #2

Any Contractor or subcontractor implementing any part of this plan must prepare and sign a copy of the following certification.

(Contract Title)

(Permit Number)

I certify, under penalty of law, that I understand the terms and conditions of the Louisiana Pollutant Discharge Elimination System (LPDES) general permit that authorizes storm water discharges associated with construction activity from the construction site identified as part of this certification.

Firm Name: _____

Address: _____

_____ Telephone No: _____

Signature: _____ Title: _____

Date: _____

CERTIFICATION STATEMENT #3

Any Contractor or subcontractor that does not meet the definition of "operator" that will conduct activities that may impact the effectiveness of the SWPPP control measures must prepare and sign the following certification.

(Contract Title)

(Permit Number)

I certify, under penalty of law, that I will coordinate, through the C ontractor, owner, or directly, with the Contractor (s) identified in the pollution prevention plan having responsibility for implementing storm water control measures to minimize any impact my actions may have on the effectiveness of these storm water control measures.

Firm Name: _____

Address: _____

_____ Telephone No: _____

Signature: _____ Title: _____

Date: _____

-- End of Section --

DEQ
LOUISIANA

OFFICE OF ENVIRONMENTAL SERVICES
Water Discharge Permit

FINAL

STORM WATER GENERAL PERMIT FOR SMALL CONSTRUCTION ACTIVITIES

MASTER GENERAL PERMIT NUMBER LAR200000

AUTHORIZATION TO DISCHARGE UNDER THE LOUISIANA POLLUTANT DISCHARGE ELIMINATION SYSTEM

Pursuant to the Clean Water Act, as amended (33 U.S.C. 1251 et seq.), and the Louisiana Environmental Quality Act, as amended (La. R. S. 30:2001 et seq.), rules and regulations effective or promulgated under the authority of said Acts, this Louisiana Pollutant Discharge Elimination System (LPDES) General Permit is issued. This permit authorizes the discharge of storm water from small construction activities (equal to or greater than one acre but less than five acres) to Waters of the State, in accordance with the conditions and requirements set forth herein.

This permit shall become effective on August 25, 2023

This permit and the authorization to discharge shall expire five (5) years from the effective date of the permit.

Issued on August 25, 2023

Bliss M. Higgins
Assistant Secretary

GALVEZ BUILDING □ 602 N. FIFTH STREET □ P.O. BOX 4313 □ BATON ROUGE, LA 70821-4313 □ PHONE (225) 219-3181

LPDES GENERAL PERMIT
FOR STORM WATER DISCHARGES FROM SMALL CONSTRUCTION ACTIVITIES

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Part I. COVERAGE UNDER THIS PERMIT

A. Applicability

This storm water general permit for small construction activities authorizes storm water discharges from construction activities that disturb equal to or greater than one acre and less than five acres of total land area, including disturbance of less than 1 acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one and less than 5 acres), as defined in LAC 33:IX.2511.B.15 and 40 CFR 122.26(b)(15) and those construction site discharges designated by the State Administrative Authority (LDEQ) as needing a storm water permit under LAC 33:IX.2511.A.1.e and A.9.a, except for discharges identified under Part II of the permit. Permit coverage is required from the "commencement of construction activities" until "final stabilization" as defined in Permit Part VII.

B. Authorized Discharges

1. Construction activities regulated under this permit include clearing, grading, and excavation operations. Road and pipeline building, construction of residential houses, office buildings, industrial buildings, and runways are examples of construction activities.

Repaving of roads and reworking of utility lines or pipelines are not regulated under this permit unless one or more acres of underlying and/or surrounding soil are cleared, graded, or excavated as part of the operation. **A small construction activity does not include routine maintenance that is performed to preserve the original line and grade, hydraulic capacity, or original purpose of the site/facility.** If a construction activity involves less than five acres of land disturbance and that activity is performed only to maintain the original purpose of the facility/structure, then its construction storm water discharge does not require coverage under this Louisiana Pollutant Discharge Elimination System (LPDES) general permit. Such activities include replacing structures that are due for and require maintenance. In order to qualify as a routine maintenance activity, the land disturbance shall not go beyond the footprint of the previous structure. Examples of routine maintenance activities include the following:

- Berm Repair or Topsoil Replacement Along Shoulders - placing berm material or topsoil on shoulders adjacent to pavement to eliminate drop-offs;
- Bridge Abutment Repairs, Deck Overlays, and Deck Replacement;
- Bridge Replacement without widening;
- Chip Sealing – placing asphalt or polymer binder and stone on existing roads;
- Culvert Replacement/Repair/Lining – replacing/repairing/relining a culvert with the same line, grade, and hydraulic capacity and within US Army Corps of Engineers Nationwide Permit (NWP) #3 parameters;
- Curb Repairs – repairing existing curbing along a roadway;
- Ditch Cleanout – maintaining or restoring original flow line and cross-section only;
- Fence Repair/Replacement;
- Lighting Maintenance;

- Linear Grading – reshaping of graded shoulders to establish proper drainage away from pavement;
- Loop Detector Repairs – repairing loop detectors in existing pavement;
- Noise Wall Repair;
- Partial Depth Pavement Repairs – isolated repairs of surface courses of pavement;
- Pothole Filling; Resurfacing – replacing several inches of asphalt wearing course by milling existing surface and replacing with new material;
- Road Re-paving with new asphalt, provided the activity does not expose soil to storm water;
- Sign Repair/Maintenance – installing or repairing traffic signs and poles/posts;
- Signal Installation/Maintenance – installing or repairing traffic signals and poles/posts; and Tree/Brush Removal – when it is considered a road maintenance activity.

The following examples of activities that commonly disturb less than one acre, and if disturbing less than one acre and are not part of a common plan of development, do not require a permit:

- Full Depth Pavement Repairs – isolated repairs of pavement build-up down to sub-grade;
- Guardrail Installation/Replacement – installing or repairing with minor grading work to create proper grade for end assemblies;
- Road Replacement without adding any lanes.

2. This permit also authorizes discharges from support activities related to a construction site (e.g., equipment staging yards, material storage areas, excavated material disposal areas, borrow areas, etc.) from which there otherwise is a storm water discharge from a construction activity provided:

a. the support activity is directly related to a construction site that is required to have LPDES permit coverage for discharges of storm water associated with construction activity;

b. the support activity is not a commercial operation serving multiple unrelated construction projects by different operators and does not operate beyond the completion of the construction activity at the last construction project it supports.

c. appropriate controls and measures are identified within the Storm Water Pollution Prevention (SWPPP) to minimize discharges from the support activity areas.

d. effective pollution prevention measures must be designed, installed, implemented, and maintained to minimize:

(1) Discharges of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;

(2) Exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to storm water and to precipitation. Minimization

of exposure is not required in cases where the exposure to precipitation and to storm water will not result in a discharge of pollutants, or where exposure of a specific material or product poses little risk of storm water contamination (such as final products and materials intended for outdoor use);

(3) Discharges of pollutants from spills and leaks, and implement chemical spill and leak prevention and response procedures; and

(4) Pollutant discharges from the support activity areas located on and off the construction site to the maximum extent practicable and comply with all permit conditions.

3. Allowable Non-Storm Water Discharges

The following non-storm water discharges are authorized by this permit provided the non-storm water component of the discharge is in compliance with the permit terms and conditions:

a. discharges from fire-fighting activities;
b. fire hydrant flushings;
c. water used to wash vehicles where detergents, soaps, or solvents are not used;
d. water used to control dust in accordance with Part III.D.2.c.(ii) – minimizing dust from vehicles;
e. potable water sources, including uncontaminated water line flushings;
f. routine external building wash down which does not use detergents, soaps, or solvents (the use of non-biodegradable or emulsifying soaps and detergents, tire cleaners containing potentially hazardous chemicals, and solvents is prohibited);
g. landscape irrigation;
h. pavement wash water where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where soaps, solvents, and detergents are not used; directing pavement wash waters directly into any surface water, storm drain inlet, or storm water conveyance, unless the conveyance is connected to a sediment basin, sediment trap, or other effective control is prohibited;
i. uncontaminated air conditioning or compressor condensate;
j. uncontaminated and/or non-turbid ground water infiltration [as defined at 40 CFR 35.2005(b)(20)];
k. uncontaminated and/or non-turbid pumped ground water or spring water;
l. foundation or footing drains where flows are not contaminated with process materials such as solvents or contaminated groundwater; and
m. uncontaminated excavation dewatering if the discharge is managed by an appropriate control.

C. Prohibited Discharges

1. Except as provided in Part I.B.2 and 3, all discharges covered by this permit shall be composed entirely of storm water associated with construction activity.

2. Prohibited Discharges

a. wastewater from washout of concrete, **unless managed by an appropriate control**.
b. wastewater from washout and clean-out of stucco, paint, form release oils, curing compounds and other construction materials.
c. discharges related to concrete or asphalt batch plant operations located at construction site. The presence of any such discharges require coverage by an alternative LPDES permit.
d. discharges from dewatering activities, including discharges from dewatering of trenches and excavations, **unless managed by an appropriate control**.
e. fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and;
f. soaps or solvents used in vehicle and equipment washing.
g. storm water discharges that originate from the site after construction activities have been completed and the site, including any temporary support activity, has undergone final stabilization. Once the site has undergone final stabilization, any post-construction storm water discharges may need to be covered by a separate LPDES permit..
h. discharges mixed with sources of non-storm water other than the discharges identified in and are in compliance with Part I.B.3. Any discharge authorized by a different LPDES permit may be commingled with discharges authorized by this permit.

D. Discharges/Activities Exempted From Coverage

1. The **clearing of land solely for agricultural purposes is NOT a regulated activity**, so it is exempted from LPDES permitting requirements (LAC 33:IX.2315.A). Projects on cultivated croplands are not regulated since they are already "disturbed" areas.

2. Construction activities related to oil and gas exploration, production, processing, or treatment, or transmission activities are exempt from regulation. The exemption from obtaining LPDES permit coverage for storm water discharges from construction activities at oil and gas sites is codified in the Environmental Regulatory Code at LAC 33:IX.2511.A.2. Consequently, construction activities related to these oil and gas exploration, production, processing, or treatment operations or transmissions facilities, which are necessary to prepare a site for drilling and the movement and placement of drilling equipment, constructing access roads, drilling waste management pits, in field treatment plants and the transportation infrastructure (e.g., crude oil and natural gas pipelines, natural gas treatment plants and both natural gas transmission pipeline compressor and oil pumping stations) necessary for the operation of most producing oil and gas fields, are exempt from regulation, regardless of the amount of disturbed acreage.

Section 323 of the Energy Policy Act of 2005 modified paragraph (24) of Section 502 of the CWA to define the term "oil and gas exploration, production, processing, or treatment operations or transmissions facilities." This term is used in the CWA Section 402(l)(2) to identify oil and gas activities for which the EPA shall not require NPDES permit coverage for certain storm water discharges. The effect of this statutory change is to make construction activities at oil and gas sites eligible for the exemption established by the CWA Section 402(l)(2). The types of oil and gas facilities/activities that are subject to the waiver/exemption for NPDES storm water permitting are further explained on the EPA website at https://www.epa.gov/npdes/oil-and-gas-stormwater-permitting. This website also addresses the 9th Circuit Court's vacatur (*Natural Resources Defense Council v. United States Environmental Protection Agency*, 526 F.3d 591) of federal regulatory text at 40 CFR 122.26(a)(2)(ii) stating that discharges of sediment from these same construction activities are not subject to the provisions of 40 CFR 122.26(c)(1)(iii), which would require permit coverage if such discharges contribute to a violation of a water quality standard. This means that an NPDES permit would be required if a discharge of sediment from the oil and gas activities described above contributes to a water quality standard violation." Additionally, LDEQ notes that federal regulations require NPDES permit coverage for discharges from these construction activities if there is a discharge of storm water resulting in a reportable quantity discharge pursuant to 40 CFR 122.26(c)(1)(iii)(A) and (B).

E. Requirements for Notification

The discharge of hazardous substances or oil in the storm water discharge(s) from a site shall be prevented or minimized in accordance with the applicable SWPPP for the facility. This permit does not relieve the permittee of the reporting requirements of LAC 33:I.3915 and LAC 33:I.3917.

1. Emergency Notification

The permittee shall report any unauthorized discharges which may endanger human health or the environment. Please note that discharges in direct noncompliance with the LPDES permit conditions must also comply with the reporting requirements in LAC 33:IX.2701.L, which requires written notification within 5 days. The report shall contain the information as required in Part V, Section D.6 of this permit, and compliance with the procedures in this part are required.

2. The LDEQ may waive the written report, on a case-by-case basis, if the oral report has been received within 24 hours of the incident.

3. The SWPPP that is required in Permit Part III must be modified within 14 calendar days of the permittees' knowledge of the release to provide the date and description of and the circumstances leading to the release. The plan must be reviewed to identify measures to respond to and to prevent the recurrence of such releases, modifying the plan where appropriate.

F. Spills

This permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill. Spills resulting in an emergency condition or noncompliance under this general permit must be reported in accordance with LAC 33:I.3923 or LAC 33:IX.2701.L.6.

G. Automatic Coverage

1. Unless otherwise notified by the LDEQ, operators who meet the applicability requirements in Part I.A and the conditions of Parts I.B and I.C, including completion of the SWPPP requirements as defined in Part III, will have automatic permit coverage and are authorized to discharge storm water from construction activities under the terms and conditions of this general permit. The operator's effective date of permit coverage begins upon completion of the SWPPP and at the commencement of earth-disturbing activities. The SWPPP must be completed prior to initiating construction, and must be signed, dated, and certified as outlined in Part V.D.10 – Signatory Requirements to have automatic permit coverage. No fee is required by the LDEQ for coverage by this permit. A printed hard copy of this permit (LAR200000) must be downloaded from the following link: http://deq.louisiana.gov/page/lpdes or obtained by contacting the LDEQ Water Permits Division at (225) 219-9371. Coverage under this permit is not transferrable. If warranted, the LDEQ may deny coverage under this general permit and require submittal of an application for an individual LPDES permit.

2. Notification Requirements:

Written notification of intent to be covered under this general permit is not required. The SWPPP defined in Part III must be signed, dated, and certified as required under Part V, Sections V.D.10.a and d, and must be implemented upon commencement of construction activities.

Coverage is required for and is granted to:

a. a party having operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; and/or

b. a party having day-to-day operational control over those activities at a project site which are necessary to ensure compliance with the SWPPP for the site or other permit conditions; or

c. each party having separate control over the responsibilities described above in a and b.

3. For construction sites where the operator changes or a new operator is added, the new operator(s), upon assuming operational control over site specifications or commencing work on-site, must comply with the terms and conditions imposed in this general permit.

H. Small Construction Activity Completion Report

When a construction project is complete and final stabilization, including construction support activities located on and off-site, has occurred in accordance with Part III.D.2.a.(iii)(2), the permittee shall submit a completed, signed, and dated Small Construction Activity Completion Report (SCACR) form (see Addendum B of this permit) to the following address within 60 days after completion of the covered activities:

Louisiana Department of Environmental Quality
Office of Environmental Services
Water Permits Division
P.O. Box 4313
Baton Rouge, LA 70821-4313

Should electronic SCACRs become available during the permit term, submission of a paper SCACRs may no longer be required.

Part II. DISCHARGE LIMITATIONS

The permit conditions which were determined applicable to these discharges are narrative effluent limitations and conditions on storm water discharges and requirements for developing and implementing SWPPPs to comply with those limits and conditions. These narrative effluent limit guidelines are intended to minimize and control pollutants in storm water discharges associated with small construction activities. These requirements were developed by the EPA under authority of 40 CFR 122.44(k)(2), which allows for BMPs in lieu of numeric effluent limitations in NPDES permits when the EPA finds numeric effluent limitations to be infeasible. The SWPPP requirements (see Part III) describe the construction and development point source category effluent limit guidelines found in 40 CFR 450, Subpart B, which are considered narrative discharge limitations.

A. Technology-Based Effluent Limitations

The following conditions are included as requirements for the SWPPPs and are hereby adopted as enforceable Technology-based Effluent Limitations of the permit:

1. 40 CFR 450.21(a) *Erosion and sediment controls*: see Part III.D.2.a.(i), (ii), and (iv) and Part III.D.3;
2. 40 CFR 450.21(b) *Soil stabilization*: see Part III.D.2.a.(iii), Part III.D.2.b, and Part VII."Final Stabilization";
3. 40 CFR 450.21(c) *Dewatering*: see Part I.B.3.m, Part I.C.2.d, and Part III.D.1.g;
4. 40 CFR 450.21(d) *Pollution prevention measures*: see Part I.B.2.d.(1) – (3) and Part III.D.2.c;
5. 40 CFR 450.21(e) *Prohibited discharges*: see Part I.C, Part II.C, and Part III.F; and
6. 40 CFR 450.21(f) *Surface outlets*: see Part III.D.2.a.(ii)(8).

B. Water Quality Based Effluent Limitations

1. Discharges Threatening Water Quality and Water Quality Standards/TMDL Requirements: see Part II.C.4, Part II.F, and Part III.D.1 and 4.b;
2. Buffer Zone Requirements: see Part III.D.2.a.(ii)(6); and
3. Approved State or Local Plans: see Part III.D.2.d.

C. Limitations on Coverage

Discharges of non-storm water, other than those specifically listed in Part I.B, are not authorized by this permit and must either be eliminated or covered under another LPDES permit. The following storm water discharges from construction sites are not authorized by this permit:

1. Storm Water Discharges Associated with Post Construction Activity

Storm water discharges that originate from the site after construction activities have been completed and the site, including any temporary support activity, has undergone final stabilization. (See Part VII). Industrial post construction storm water discharges may need to be covered by a separate LPDES permit.

2. Discharges Mixed with Non-storm Water

Discharges that are mixed with sources of non-storm water other than the discharges identified in and are in compliance with Part I.B.3 are not covered by this permit. Any discharge authorized by a different LPDES permit may be commingled with discharges authorized by this permit.

3. Discharges Covered by Another Permit

Storm water discharges associated with construction activity that have been issued an individual permit or are required to obtain coverage under an alternative general permit. Any permittee covered by an individual permit may request that it be terminated if the permitted source or activity is also eligible for coverage under this general permit. Upon written approval of that request by this Office, the individual permit will be terminated, and the permittee will be covered by this general permit.

4. Discharges Threatening Water Quality

Storm water discharges from construction sites that the LDEQ determines will cause or have the reasonable potential to cause or contribute to violations of water quality standards. Where such determinations have been made, the discharger will be notified by the LDEQ that an individual permit application is necessary. However, the LDEQ may authorize coverage under this permit after the appropriate controls and implementation procedures designed to bring the discharges into compliance with water quality standards have been included in the SWPPP.

D. Discharges that are not Protective of Endangered and Threatened Species

Coverage under this permit is available only if the storm water discharges, allowable non-storm water discharges, and storm water discharge-related activities will not adversely affect any species that are federally-listed as endangered or threatened ("listed") under the Endangered Species Act (ESA) and will not result in the adverse modification or destruction of habitat that is federally-designated as "critical habitat" under the ESA. All operators must follow the procedures in Addendum A and meet at least one of the eligibility criteria (Criteria A - E) described in the addendum when determining eligibility for coverage under the permit. Failure to continue to meet

one or more of these criteria during the entire term of the permit will result in the storm water discharges associated with construction activity being ineligible for coverage under this permit.

E. Historic Properties Preservation

Eligibility for coverage under this permit is contingent upon compliance with the National Historic Properties Preservation Act (NHPA). Discharges are authorized under this permit only if the facility's storm water discharges, allowable non-storm water discharges, and storm water discharge-related activities meet one of the eligibility criteria found in the procedures in Addendum C of this permit.

Compliance with any applicable terms, conditions, or other requirements developed in the process of meeting the eligibility criteria in this section is required to maintain eligibility under this permit.

F. Water Quality Standards/TMDL Requirements

Covered dischargers shall not cause or have the reasonable potential to cause or contribute to a violation of a state water quality standard. New or proposed dischargers must evaluate eligibility by determining compliance with this provision prior to assuming authorization by the permit.

The discharge of any pollutant into any water for which a Total Maximum Daily Load (TMDL) has been either established or approved by the LDEQ is not authorized unless the discharge is consistent with the requirements of that TMDL. During determination of eligibility for coverage under the permit, **new dischargers** (see LAC 33:IX.2313) to a 303(d) water body must determine that their proposed discharges will be in compliance with LAC 33:IX.2317.A.9. In essence, a new discharger is one initiated after August 13, 1979, and not previously permitted. Any discharger (**both existing and new**) to a water body for which there is an impairment and/or an approved or established TMDL must confirm that the impairment and/or TMDL allocated a portion of the load for storm water point source discharges if the proposed discharges will contain the pollutant(s) for which the water body is impaired or the TMDL is developed. Such discharges are expected to be rare for the wastewater types covered by the reissued permit because the required control/prevention measures are designed to prevent the release of these pollutants in storm water. Dischargers located within a regulated Municipal Separate Storm Sewer System (MS4) that has been assigned a waste load allocation (WLA) may be required to implement additional BMPs in accordance with local ordinances and/or the MS4's Storm Water Management Plan (SWMP).

In a situation where an LDEQ-approved or established TMDL has specified a general WLA applicable to construction storm water discharges but no specific requirements for construction sites have been identified in the TMDL, the operator shall consult with the LDEQ to confirm that adherence to a SWPPP that meets the requirements of this permit will be consistent with the approved TMDL. The SWPPP must clearly state which BMPs were selected for the site, including

on and off-site construction support activities, and describe how the design and implementation of the selected BMPs are expected to ensure that storm water discharges from the construction site are in compliance with the established TMDL. If the LDEQ-approved or established TMDL specifically precludes such discharges, the operator is not eligible for coverage under this permit.

Where an LDEQ-approved or established TMDL has not specified a WLA applicable to construction storm water discharges but has not specifically excluded these discharges, adherence to a SWPPP that meets the requirements of this permit will be assumed to be consistent with the approved TMDL. Current TMDL Reports may be found at http://deq.louisiana.gov/page/tmld-reports-and-models and https://mywaterway.epa.gov/.

Broadly stated, new or existing discharges of a particular pollutant are prohibited where there is a TMDL unless the discharge meets the requirements established in the TMDL. If a discharge is not/will not meet these requirements, the operator must seek coverage under an alternative permit. Where a discharger is already operating under the permit and is later discovered to cause or have the reasonable potential to cause or contribute to the violation of an applicable state water quality standard, the permitting authority will notify the operator of such violation(s), and the permittee shall take all necessary actions to ensure that future discharges do not cause or contribute to the violation of a water quality standard and document these actions in the pollution prevention plan. If violations remain or recur, then coverage under the permit is automatically terminated and alternate coverage must be obtained. Compliance with this requirement does not preclude any enforcement activity as provided by the Louisiana Environmental Quality Act (LEQA) (La. R.S. 30:2001, et seq.) for the underlying violation.

In order to verify the impaired status of the water body and determine if any TMDLs have been established, the permittee shall consult the most recent Integrated Report (also referred to as the 305(b) Report) at https://www.deq.louisiana.gov/page/2022-water-quality-inventory-integrated-report-305b303d or obtain a copy of the report from the Office of Environmental Services, Water Permits Division.

Part III. STORM WATER POLLUTION PREVENTION PLANS

At least one SWPPP shall be developed for each construction project or site covered by this permit. For more effective coordination of BMPs and opportunities for cost-sharing, the different operators at a site are encouraged to make a cooperative effort to prepare and participate in a comprehensive SWPPP. Individual operators at a site may, but are not required to, develop separate SWPPPs that cover only their portion of the project, provided that reference is made to the other operators at the site. In instances where there is more than one SWPPP for a site, there must be coordination between the permittees to ensure that the storm water discharge controls and other measures are consistent with one another (e.g., provisions to protect listed species and critical habitat).

SWPPPs shall be prepared in accordance with good engineering practices; shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges from the construction site; and shall describe and ensure the implementation of practices which will be used to minimize the pollutants in storm water discharges associated with construction activity at the construction site to assure compliance with the terms and conditions of this permit. When developing SWPPPs, operators must follow the procedures in Addendum A of this permit to determine whether listed endangered and/or threatened species or critical habitat would be affected by the operator's storm water discharges or storm water discharge-related activities. Any information regarding whether listed species or critical habitats are found in proximity to the construction site must be included in the SWPPP. Any terms or conditions imposed in the permit requirements of Part II.B and Addendum A to protect listed species or critical habitat from storm water discharges or storm water discharge-related activity must be incorporated into the SWPPP. The SWPPP must be implemented upon commencement of construction activities. Permittees must implement the applicable provisions of the SWPPP required in Part III as a condition of this permit. SWPPP templates may be found at http://deq.louisiana.gov/page/storm-water-protection.

A. Deadlines for Plan Preparation and Compliance

The SWPPP shall:

1. be completed prior to initiating construction activities and updated as appropriate; and

2. provide for compliance with the terms and schedule specified in Permit Part III, beginning with the initiation of construction activities.

B. Signature, Plan Review and Making Plans Available

1. The SWPPP shall be signed in accordance with Permit Part V, Section D.10 (Signatory Requirements) and retained on-site at the site (or other local site accessible to the LDEQ and the public) which generates the storm water discharge in accordance with Permit Part IV (Retention of Records).

2. The permittee shall post a notice near the main entrance of the construction site with the following information:

a. LPDES permit number (LAR200000) and effective date of permit coverage (the date of commencement of construction activities);

b. name and telephone number of a local contact person;

c. brief description of the project; and

d. SWPPP's location if the site is inactive or lacks an on-site location to store the plan.

If posting this information near a main entrance is infeasible due to safety concerns, the notice shall be posted in a local public building. For a linear construction project (e.g., pipeline, highway, etc.), the notice must be placed in a publicly-accessible location in close proximity to where the construction is actively underway, and it must be moved as necessary. This permit does not require permittees to allow the public's access to a construction site for any reason, including inspection of a site, nor does it provide the public with any right to trespass on a construction site.

3. The permittee shall make SWPPPs available upon request to: the LDEQ; the local agency approving sediment and erosion plans, grading plans, or SWMPs; local government officials; or the operator of a MS4 receiving discharges from the site. The copy of the SWPPP that is required to be kept on-site (or locally available) must be made available to the LDEQ (or authorized representative) for review at the time of an on-site inspection. Also, in the interest of public involvement, the LDEQ encourages permittees to make their SWPPPs available to the public for viewing during normal business hours.

4. The LDEQ may notify the permittee (co-permittees) at any time that the SWPPP does not meet one or more of the minimum requirements in Part III. Such notification shall identify those provisions of the permit that are not being met by the SWPPP and those provisions of the SWPPP requiring modifications necessary to meet the minimum requirements. Within 7 calendar days of receipt of the notification from the LDEQ (or authorized representative), the permittee shall make the required changes to the SWPPP and shall submit to the LDEQ a written certification that the changes have been made. The LDEQ may take appropriate enforcement action for the period of time the permittee was operating under a SWPPP that did not meet the minimum requirements of the permit.

C. Keeping Plans Current

The permittee must amend the SWPPP whenever:

1. there is a change in design, construction, operation, or maintenance which has or may have a significant effect on the discharge of pollutants to the Waters of the State and which has not otherwise been addressed in the SWPPP;

2. inspections or investigations by site operators or local, state, or federal officials indicate the SWPPP's proven ineffectiveness in the elimination or significant minimization of pollutants from the sources identified in Part III .D.1 or the SWPPP is not otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity; and

3. identifying any new contractor and/or subcontractor that will implement a measure of the SWPPP (See Part III.E.) and addressing any measures necessary to protect endangered and threatened species and their critical habitat or historic properties. Amendments to the plan may be reviewed by the LDEQ in the same manner as referenced in Part III.B.

D. Contents of Plan

The SWPPP shall include the following items:

1. Site Description

Each SWPPP shall provide a description of potential pollutant sources and other information as indicated below:

a. a description of the nature of the construction activity and function of the project (i.e., highway, mall, etc.);

b. a description of the intended sequence and timing of major activities (i.e. initial land clearing, installing sewer lines, roads, major buildings) which disturb soils for major portions (i.e. defined phases of a project) of the site (e.g., grubbing, excavation, grading, utilities and infrastructure installation, etc);

c. estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other activities, including off-site borrow and fill areas;

d. an estimate of the runoff coefficient of the site for both the pre- and post-construction conditions and data describing the soil or the quality of any discharge from the site;

e. a general location map (e.g., portion of a city or county map or other map with enough detail to identify the location of the construction site and Waters of the State within one mile of the site);

f. a site map indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, an outline of areas which will not be disturbed, the location of major structural and nonstructural controls identified in the SWPPP, locations of off-site material, waste, borrow or equipment storage areas, and surface waters (including wetlands), locations where storm water is discharged to a surface water; and the location of areas where stabilization practices are expected to occur;

g. the location and description of any allowable non-storm water discharges covered by the permit;

h. the name of the receiving water(s), and aerial extent and description of wetland or other special aquatic sites at or near the site which will be disturbed or will receive discharges from disturbed areas of the site;

i. a copy of the permit requirements (attaching a copy of this permit is acceptable);

j. information regarding whether listed endangered or threatened species and/or critical habitat are found in proximity to the construction activity and whether such species and its critical habitat may be affected by the operator's storm water discharges or storm water discharge-related activities;

k. documentation supporting the permittee's determination of permit eligibility and compliance related to the historic places criteria found in Addendum C.

l. documentation supporting the permittee's determination of permit eligibility and compliance with Part II.F with regard to waters that are impaired and/or have an LDEQ-established or -approved TMDL, including:

(i) identification of the permittee's discharge, either specifically or generally, in an LDEQ-established or -approved TMDL and any associated allocations, requirements, and assumptions identified for the permittee's discharge;

(ii) summaries of consultation with the LDEQ authorities regarding consistency of SWPPP conditions with water quality standards and any approved or established TMDL; and

(iii) measures taken to ensure that the discharge of pollutants for the site is consistent with water quality standards and the assumptions and requirements of the LDEQ-established or -approved TMDL, including any specific WLA that has been established that would apply to the permittee's discharge.

2. Controls

Each SWPPP shall include a description of all control measures (i.e., structural and non-structural BMPs) that will be installed and implemented as part of the construction activities and construction support activities to control pollutants in storm water discharges. The SWPPP must clearly describe for each major activity identified in Part III.D.1.b: a) appropriate control measures and the general timing (or sequence) during the construction process that the measures will be implemented, b) which permittee is responsible for implementation (e.g., perimeter controls for one

portion of the site will be installed by Contractor A after the clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. Perimeter controls will be actively maintained by Contractor B until final stabilization of those portions of the site upward of the perimeter control. Temporary perimeter controls will be removed by Owner after final stabilization.)

In a situation where an LDEQ-approved or established TMDL has specified a general WLA applicable to construction storm water discharges, but no specific requirements for construction sites have been identified in the TMDL, the SWPPP must specifically state which BMPs were selected for the site and describe how the design and implementation of the selected BMPs are expected to ensure that storm water discharges from the construction site are in compliance with the established TMDL.

The description and implementation of control measures shall address the following minimum components:

a. Erosion and Sediment Controls

(i) Short and Long Term Goals and Criteria:

(1) The construction-phase erosion and sediment controls shall be designed to retain sediment on-site to the maximum extent practicable.

(2) All control measures must be properly selected, installed, and maintained in accordance with the manufacturers' specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the permittee must replace or modify the control for site situations in accordance with Parts III.D.3 and III.D.4.

(3) If sediments escape the construction site off-site accumulations of sediment must be removed at a frequency sufficient to minimize off-site impacts (e.g., fugitive sediment on the street could be washed into storm sewers by the next rain and/or pose a safety hazard to users of public streets).

(4) Sediment must be removed from sediment traps or sedimentation ponds when design capacity has been reduced by 50%.

(5) Trapped sediment must be removed from a silt fence before the deposit reaches 50 percent of the above-ground fence height (or before it reaches a lower height based on manufacturer's specifications.).

(6) On-site and off-site material storage areas (also including overburden and stockpiles of dirt, borrow areas, etc.) used solely by the permitted project are considered a part of the project and shall be addressed in the SWPPP.

(ii) Effluent limitations reflecting the best practicable technology currently available (BPT) [40 CFR 450.21 (a)]. Design, install, and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed, and maintained to:

(1) Control storm water volume and velocity to minimize soil erosion in order to minimize pollutant discharges.

(2) Control storm water discharges, including both peak flow rates and total storm water volume, to minimize channel and stream bank erosion and scour in the immediate vicinity of discharge points.

(3) Minimize amount of soil exposed during construction activity.

(4) Minimize the disturbance of steep slopes.

(5) Minimize sediment discharge from the site: design, install and maintain erosion and sediment controls to address factors such as the amount, frequency, intensity and duration of precipitation, the nature of the resulting storm water runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site.

(6) Provide and maintain natural buffers around Waters of the State, direct storm water to the vegetated areas and maximize storm water infiltration to reduce pollutant discharges, unless infeasible;

(a) A buffer zone of sufficient width to reduce pollutant discharges and minimize erosion shall be maintained between disturbed areas and all Waters of the State;

(b) For discharges to waters designated as Outstanding Natural Resource Waters, permittees are required to maintain at a minimum a 100-foot natural, vegetated riparian buffer zone between any disturbance and all edges of the receiving water as means of providing adequate protection to receiving waters, unless infeasible. Additional buffer zone/riparian requirements may be imposed through a Louisiana Department of Wildlife and Fisheries Scenic River permit.

(c) For discharges to waters that are listed as impaired (Category 5 or 4a) on the most recent Integrated Report for sedimentation/siltation or turbidity AND where the suspected source is site clearance (land development or redevelopment), permittees are required to maintain at a minimum a 50-foot natural buffer zone between any disturbance and all edges of the receiving water as means of providing adequate protection to receiving waters, unless infeasible. This requirement does not supersede any additional requirements of a WLA. The most recent Integrated Report can be found at: https://www.deq.louisiana.gov/page/2022-water-quality-inventory-integrated-report-305b303d.

(d) If the buffer zone between any disturbance and the edge of the receiving water on all edges of the water body cannot be maintained due to site

constraints, an adequately protective alternate practice may be employed, or a combination of alternative practices with a narrower buffer zone. The SWPPP shall explain any alternate practices and how these practices are adequately protective. Such cases include but are not limited to redevelopment in an urban setting or construction of water features, such as docks, bridges, levees, dams, etc. and dredge and fill areas.

(7) Unless infeasible preserve topsoil. Preserving topsoil is not required where the intended function of a specific area of the site dictates that the topsoil be disturbed or removed.

(8) Minimize soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted.

(9) When discharging storm water from settling basins or impoundments, where feasible, utilize outlet structures that withdraw water from the surface of the basin or impoundment.

(iii) Stabilization Practices

The SWPPP must include a description of interim and permanent stabilization practices for the site, including a site-specific scheduling of the implementation of the practices. Site plans should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Final stabilization practices may include, but are not limited to: establishment of permanent self-sustaining perennial vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Use of impervious surfaces for stabilization should be avoided.

The following records shall be maintained and attached to the SWPPP: the dates when major grading activities occur, construction activities temporarily or permanently cease on a portion of the site, and stabilization measures are initiated.

(1) <u>Deadline to Initiate Stabilization Measures</u>

Stabilization measures shall be initiated immediately in portions of the site where clearing, grading, excavating, or other earth-disturbing activities have permanently ceased on any portion of the site or temporarily ceased and will not resume for a period exceeding 14 calendar days.

For the purposes of this permit, “immediately” is interpreted to mean no later than the next work day. Where construction activity on a portion of the site has temporarily ceased and earth-disturbing activities will be resumed within 14 days, stabilization measures do not have to be initiated on that portion of site.

For the purposes of this permit, the types of activities that constitute the initiation of stabilization include, but are not limited to, the following:

(a) prepping the soil for vegetative or non-vegetative stabilization;
(b) applying mulch or other non-vegetative product to the exposed area;
(c) seeding or planting the exposed area;
(d) starting any of the three activities described in Part II.D.2 (a)(iii)(1)(a - c) on a portion of the area to be stabilized, but not on the entire area; and
(e) finalizing arrangements to have stabilization product fully installed in compliance with the applicable deadline for completing stabilization.

(2) Deadline to Complete Installation of Stabilization Measures

As soon as practicable, but, no later than 14 calendar days after the initiation of soil stabilization measures, permittees are required to have completed:

(a) For vegetative stabilization, all activities necessary to initially seed or plant the area to be stabilized; and/or
(b) For non-vegetative stabilization, the installation or application of all such non-vegetative measures.

In extenuating circumstances and per 40 CFR 450.21(b), stabilization must be completed within the time period as follows: In areas experiencing droughts where the completion of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be completed as soon as practicable. These extenuating circumstances must be documented in the SWPPP.

Permittees should be aware that generally, final stabilization, as defined/described in Part VII of the permit, often takes time (weeks or even months), especially during times of low rainfall or during the colder months of the year. Permittees must continue routine inspections until the final stabilization requirements of the permit have been met.

(3) Deadlines for Projects Affected by Circumstances Beyond the Permittee's Control that Delay the Initiation and/or Completion of Vegetative Stabilization

If permittees are unable to meet the stabilization deadlines in (1) or (2) above due to circumstances beyond their control and they are using vegetative cover for temporary or permanent stabilization, they may comply with the following stabilization deadlines instead:

(a) Immediately initiate, and within 14 calendar days complete, the installation of temporary **non-vegetative** stabilization measures to prevent erosion;

(b) Complete all soil conditioning, seeding, watering or irrigation installation, mulching, and other required activities related to the planting and initial

establishment of vegetation as soon as conditions or circumstances allow it on the site; and

(c) Document the circumstances that prevent the previous stabilization deadlines required in (1) or (2) from being met and the schedule for initiating and completing stabilization that will be followed.

(iv) Structural Practices

The SWPPP must include a description of structural practices to divert flows from exposed soils, retain flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable. Such practices may include but are not limited to: silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil- retaining systems, gabions, and temporary or permanent sediment basins. Placement of structural practices in floodplains should be avoided to the degree attainable. The installation of these devices may be subject to Section 404 of the CWA.

b. Storm Water Management

A description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed must be included in the SWPPP. Structural measures should be placed on upland soils to the degree attainable. The installation of these devices may also require a separate permit under Section 404 of the CWA. Permittees are only responsible for the installation and maintenance of storm water management measures until final stabilization is achieved and the completion report required under Part I.H has been submitted, not maintenance after storm water discharges associated with construction activity have been eliminated from the site. However, post-construction storm water BMPs that discharge pollutants from point sources once construction is completed may need authorization under a separate LPDES permit.

(i) Such practices may include but are not limited to: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff on-site; and sequential systems (which combine several practices). The SWPPP shall include an explanation of the technical basis used to select the practices to control pollution where flows exceed pre-development levels.

(ii) Velocity dissipation devices may be needed at discharge locations and along the length of any outfall channel for the purpose of providing a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., no significant changes in the hydrological regime of the receiving water).

c. Other Controls

(i) No solid materials, including building materials, shall be discharged to Waters of the State, except as authorized by a permit issued under Section 404 of the CWA. "Solid materials" refers to such items as boards, wrapping materials, bricks and concrete debris, and land-clearing debris, such as, leaves and tree limbs, but does not include total suspended solids.

(ii) Off-site vehicle-tracking of sediments and the generation of dust shall be minimized.

(iii) The SWPPP shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer, or septic system regulations to the extent these are located within the permitted area.

(iv) The SWPPP shall include a narrative description of construction and waste materials expected to be stored on-site, with updates as appropriate. The SWPPP shall also include a description of controls developed to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to storm water runoff and precipitation and spill prevention and response.

(v) The SWPPP shall include a description of pollutant sources from areas other than construction and a description of controls and measures that will be implemented at those sites to minimize pollutant discharges.

(vi) The SWPPP shall include a description of measures necessary to protect listed endangered and/or threatened species and their critical habitat and historic sites listed and/or proposed to be listed on national and state registries that are imposed under the eligibility requirements of Part II.B and detailed in Addendum A and of Part II.C and detailed in Addendum C of this permit. Failure to describe and implement such measures will result in the storm water discharges from the construction activities being ineligible for coverage under this permit.

(vii) The SWPPP shall identify appropriate controls and measures to minimize discharges from the support activity areas.

(viii) Effective pollution prevention measures must be designed, installed, implemented, and maintained to minimize:

(1) Discharges of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Prior to discharge wash waters must be treated in a sediment basin or an alternative control that provides equivalent or better treatment;

(2) Exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to storm water and to precipitation. Minimization of exposure is not required in cases where the exposure to

precipitation and to storm water will not result in a discharge of pollutants, or where exposure of a specific material or product poses little risk of storm water contamination (such as final products and materials intended for outdoor use);

(3) Discharges of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures; and

(4) Pollutant discharges from the support activity areas located on and off the construction site to the maximum extent practicable and comply with all permit conditions.

d. Approved State or Local Plans

(i) Permittees which discharge storm water associated with construction activities must include in their SWPPP the procedures and requirements which are specified in applicable sediment and erosion site plans or site permits or the storm water management site plans or site permits approved by State or local officials.

(ii) Permittees which discharge storm water associated with construction activities must include in their SWPPP any measures that result from agreements from the LSHPO or tribal historic preservation offices.

(iii) SWPPPs must be updated as necessary to reflect any changes which are applicable to protecting surface water resources in the sediment and erosion site plans or site permits or the storm water management site plans or site permits approved by State or local officials for which the permittee receives written notice.

3. Maintenance

A description of procedures to ensure the timely maintenance of vegetation, erosion, and sediment control measures, and other protective measures identified in the site plan that are in good and effective operating condition must be provided. Maintenance needs that are identified in inspections or by other means shall be accomplished before the next anticipated storm event or as necessary to maintain the continued effectiveness of storm water controls. If maintenance is impracticable prior to the next anticipated storm event, then it must be scheduled and accomplished as soon as practicable.

4. Inspections

a. Except for linear or remote projects discussed below, qualified personnel (provided by the permittee or cooperatively by multiple permittees) shall inspect the construction site in accordance with one of the two schedules listed below. Areas to be inspected include disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation and to storm water runoff, structural and non-structural control measures, and locations where vehicles enter or exit the site. It

must be specified in the SWPPP which schedule will be followed and must be adhered to throughout the term of the permit:

- At least once every 7 calendar days, or
- At least once every 14 calendar days, before anticipated storm events (or series of storm events such as intermittent showers over one or more days) and within 24 hours of the end of a storm event of 0.5 inches or greater.

Employees and subcontractors shall be made aware of the applicable control measures implemented at the site as necessary so that they follow applicable procedures.

Because linear or remote, unmanned projects often cannot be inspected from stabilized locations without damage to BMPs or re-vegetation efforts, their operators have the option of either 1) conducting regular visual inspections every 14 days, or 2) performing visual inspections within 24 hours following a storm event of 0.5 inches or greater. The option selected by the operator must be identified in the SWPPP and must be adhered to throughout the term of permit coverage.

b. Disturbed areas and areas used for storage of materials that are exposed to precipitation and storm water runoff shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment, storm water management, and other control measures identified in the SWPPP shall be observed to ensure that they are operating correctly. Accessible discharge locations or points shall be inspected to ascertain whether erosion control measures are effective in meeting water quality standards and preventing significant impacts to the receiving waters. Where discharge locations or points are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment-tracking.

c. Based on the results of the inspection, the site description identified in the plan in accordance with Part III.D.1 of this permit and the pollution prevention measures identified in the plan in accordance with Part III.D.2 of this permit shall be revised as appropriate, but in no case later than seven calendar days following the inspection. Such modifications shall provide for timely implementation of any changes to the plan within seven calendar days following the inspection.

d. For each inspection required above an inspection report must be completed, which, at a minimum, must include the following:

(1) The inspection date;
(2) Names, titles, and qualifications of personnel making the inspection;
(3) Weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether any discharges occurred;
(4) Weather information and a description of any discharges occurring at the time of the inspection;

(5) Location(s) of discharges of sediment or other pollutants from the site;
(6) Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
(7) Location(s) of BMPs that need to be maintained;
(8) Location(s) where additional BMPs are needed that did not exist at the time of inspection; and
(9) Corrective action required including implementation dates.

The inspection report, which includes all of the actions taken and the information listed in accordance with Part III.D.4.c and d above, shall be made within 7 calendar days and retained as part of the SWPPP for at least three years from the date that the site is finally stabilized. Such reports shall identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance it shall contain a certification that the facility is in compliance with the SWPPP and this permit. The report shall be signed in accordance with Part V, Section D.10 of this permit.

5. Documentation of Allowable Non-storm Water Discharges

Except for flows from fire-fighting activities, sources of allowable non-storm water listed in Part I.B.2 and 3 of this permit that are combined with storm water discharges associated with construction activity must be identified in the plan. The SWPPP shall identify and ensure the implementation of appropriate pollution prevention measures to reduce and /or eliminate the non-storm water component(s) of the discharge.

E. Responsibilities of Contractors and Subcontractors

Permittees must either implement their portions of a common SWPPP or develop and implement their own SWPPP. In instances where there is more than one SWPPP for a site, cooperation between permittees is encouraged to ensure the storm water discharge control measures are consistent with one another (e.g., provisions to protect endangered and/or threatened species and their critical habitat, and historic sites listed and/or proposed to be listed on national and state registries). Permittees must ensure either directly or through coordination with other permittees that their activities do not render another party's pollution controls ineffective.

1. Contractors and Subcontractors Implementing Storm Water Control Measures.

The SWPPP must clearly identify for each control measure included in the plan, the party that will implement the measure. The permittee(s) shall ensure that all contractors and subcontractors are identified in the plan as being responsible for implementing storm water control measures.

2. Contractors and Subcontractors Impacting Storm Water Control Measures.

The permittee shall ensure that contractor(s) and subcontractor(s) who will conduct activities that might impact the effectiveness of control measures but who do not meet the definition of "operator" (Part VII), are identified in the plan and which control measures might be impacted.

3. Utility Companies.

The SWPPP must clearly identify, for each control measure identified in the plan relating to the installation of utility service, the party that will implement the measure.

F. Wash Water from Concrete Trucks

1. Concrete wash water from rinsing the chute. Wash water generated during the rinsing of the chute of a concrete truck at a construction site may be rinsed if managed by an appropriate control structure, such as into a trap on the ground at the construction site. This activity usually generates a *de minimis* quantity of wash water that can be easily managed at the construction site. The rinsing activity must be done in such a manner that there is no runoff of rinse water from the construction site (unless managed by an appropriate control), especially into surface drainage, storm sewers, or surface waters.

Contractors may follow EPA guidance (https://www.epa.gov/sites/default/files/2015-11/documents/concretewashout_0.pdf) for rinsing out the chute of a concrete mixer and hoppers of concrete pumps at a construction site, provided they understand that the wash out structure is temporary and must be cleaned out and removed from the site when the construction project is completed. If the permittee and/or a contractor under the direct supervision of the permittee follows the EPA guidance for rinsing out the chute of a concrete mixed and hoppers of concrete pumps at a construction site, the LDEQ Solid Waste Permits Section must be notified to determine if additional environmental protection regulations govern the containment and storage of the wash out material at the construction site.

2. Concrete wash out from the drum. The permit does not authorize the discharge of drum washout water at a construction site. More wash water is generated during the wash out of the drum of a concrete truck than is generated during the rinsing of the chute. The drum of a concrete truck shall be washed out at a ready mix concrete plant that is permitted to discharge the wash water.

Part IV. RETENTION OF RECORDS

A. Documents

The permittee shall retain copies of SWPPPs and all records and reports required by this permit for a period of at least three years from the date that the site is finally stabilized. This period may be extended by request of the LDEQ at any time.

B. Accessibility

The permittee shall retain a copy of the SWPPP required by this permit (including a copy of the permit language) at the construction site (or other local site accessible to the LDEQ and the public) from the date of project initiation to the date of final stabilization. The permittees with day-to-day operational control over pollution prevention plan implementation shall have a copy of the plan available at a central location on-site for use by all operators and those who are identified as having responsibilities under the plan whenever they are on the construction site. A copy of the plan must be readily available to inspectors during normal business hours.

C. Addresses

All written correspondence concerning discharges in Louisiana from any project covered under this permit shall be identified by the project's agency interest number and permit number LAR200000 and sent to the following address:

Louisiana Department of Environmental Quality
Office of Environmental Services
P. O. Box 4313
Baton Rouge, LA 70821-4313
Attn: Water Permits Division

Part V. STANDARD PERMIT CONDITIONS

SECTION A. GENERAL CONDITIONS

1. Introduction

   In accordance with the provisions of LAC 33:IX.2701, et seq., this permit incorporates either expressly or by reference ALL conditions and requirements applicable to the Louisiana Pollutant Discharge Elimination System Permits (LPDES) set forth in the Louisiana Environmental Quality Act (LEQA), as amended, as well as ALL applicable regulations.

2. Duty to Comply

   The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the Louisiana Environmental Quality Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

3. Penalties for Violation of Permit Conditions

   a. R.S. 30:2025 provides for civil penalties for violations of these regulations and the Louisiana Environmental Quality Act. R.S. 30:2076.2 provides for criminal penalties for violation of any provisions of the LPDES or any order or any permit condition or limitation issued under or implementing any provisions of the LPDES program. (See Section E. Penalties for Violation of Permit Conditions for additional details.)

   b. Any person may be assessed an administrative penalty by the state administrative authority under R.S. 30:2025 for violating a permit condition or limitation implementing any of the requirements of the LPDES program in a permit issued under the regulations or the Louisiana Environmental Quality Act.

4. Toxic Pollutants

   a. Other effluent limitations and standards under Sections 301, 302, 303, 307, 318, and 405 of the Clean Water Act. If any applicable toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the Clean Water Act for a toxic pollutant, and that standard or prohibition is more stringent than any limitation on the pollutant in this permit, the state administrative authority shall institute proceedings under these regulations to modify or revoke and reissue the permit to conform to the toxic effluent standard or prohibition.

   b. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act within the time provided in the regulations that establish these standards or prohibitions, or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

5. Duty to Reapply

   a. Individual Permits. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The new application shall be submitted at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the state administrative authority. (The state administrative authority shall not grant permission for applications to be submitted later than the expiration date of the existing permit.) Continuation of expiring permits shall be governed by regulations promulgated at LAC 33:IX.2321 and any subsequent amendments.

   b. General Permits. General permits expire five years after the effective date. The 180-day reapplication period as defined above is not applicable to general permit authorizations. Reissued general permits may provide automatic coverage for permittees authorized under the previous version of the permit, and no new application is required. Requirements for obtaining authorization under the reissued general permit will be outlined in Part I of the new permit. Permittees authorized to discharge under an expiring general permit should follow the requirements for obtaining coverage under the new general permit to maintain discharge authorization.

6. Permit Action

   This permit may be modified, revoked and reissued, or terminated for cause in accordance with LAC 33:IX.2903, 2905, 2907, 3105, and 6509. The causes may include, but are not limited to, the following:

   a. Noncompliance by the permittee with any condition of the permit;

   b. The permittee's failure in the application or during the permit issuance process to disclose fully all relevant facts, or the permittee's misrepresentation of any relevant facts at any time; or

   c. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination;

   d. A change in any condition that requires either a temporary or a permanent reduction or elimination of any discharge;

   e. Failure to pay applicable fees under the provisions of LAC 33:IX.Chapter 13; or

   f. Change of ownership or operational control.

   The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

7. Property Rights

   This permit does not convey any property rights of any sort, or any exclusive privilege, nor does

it authorize any injury to private or public property, nor any infringement of federal, state, or local laws or regulations.

8. Duty to Provide Information

The permittee shall furnish to the state administrative authority, within a reasonable time, any information which the state administrative authority may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the state administrative authority, upon request, copies of records required to be kept by this permit.

9. Criminal and Civil Liability

Except as provided in permit conditions on "Bypassing" and "Upsets," nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Any false or materially misleading representation or concealment of information required to be reported by the provisions of the permit, the Act, or applicable regulations, which avoids or effectively defeats the regulatory purpose of the Permit may subject the permittee to criminal enforcement pursuant to R.S. 30:2025.

10. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act.

11. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Clean Water Act.

12. Severability

If any provision of these rules and regulations, or the application thereof, is held to be invalid, the remaining provisions of these rules and regulations shall not be affected, so long as they can be given effect without the invalid provision. To this end, the provisions of these rules and regulations are declared to be severable.

13. Dilution

A permittee shall not achieve any effluent concentration by dilution unless specifically authorized in the permit. A permittee shall not increase the use of process water or cooling water or otherwise attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve permit limitations or water quality.

14. Facilities Requiring Approval from Other State Agencies

In accordance with R.S. 40:4(A)(6) the plans and specifications of all sewerage works, both public and private, must be approved by the Louisiana Department of Health state health officer or his designee. It is unlawful for any person, firm, or corporation, both municipal and private, to operate a sanitary sewage treatment facility without proper authorization from the state health officer.

In accordance with R.S. 40:1281.9, it is unlawful for any person, firm or corporation, both municipal and private, operating a sewerage system to operate that system unless the competency of the operator is duly certified by the Louisiana Department of Health state health officer. Furthermore, it is unlawful for any person to perform the duties of an operator without being duly certified.

In accordance with R.S. 48.385, it is unlawful for any industrial wastes, sewage, septic tanks effluent, or any noxious or harmful matter, solid, liquid, or gaseous to be discharged into the side or cross ditches or placed upon the rights-of-ways of state highways without the prior written consent of the Department of Transportation and Development chief engineer or his duly authorized representative and of the secretary of the Louisiana Department of Health.

15. The standards provided in Chapter 11 – Surface Water Quality Standards are official regulations of the state, and any person who discharges pollutants to the waters of the state in such quantities as to cause these standards to be violated shall be subject to the enforcement procedures of the state as specified in R.S. 30:2025.

16. Preproduction Plastics

In accordance with the House Concurrent Resolution No. 37 from the 2021 Regular Session, there shall be zero discharge or release of preproduction plastic into waters of the state from facilities which manufacture or manage such material. Additionally, facilities which manufacture or manage preproduction plastic must maintain a spill prevention plan onsite or at the nearest manned facility (made available to LDEQ upon request) addressing procedures to prevent and abate any release or discharge of preproduction plastic into the waters of the state.

SECTION B. PROPER OPERATION AND MAINTENANCE

1. Need to Halt or Reduce not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

2. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. The permittee shall also take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with the permit,

including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

3. Proper Operation and Maintenance

   a. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

   b. The permittee shall provide an adequate operating staff which is duly qualified to carry out operation, maintenance, and other functions necessary to ensure compliance with the conditions of this permit.

4. Bypass of Treatment Facilities

   a. Bypass. The intentional diversion of waste streams from any portion of a treatment facility.

   b. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Section B.4.c. and 4.d of these standard conditions.

   c. Notice

      (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Office of Environmental Services, Water Permits Division, if possible at least 10 days before the date of the bypass.

      (2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in LAC 33:IX.2701.L.6 (24-hour notice) and Section D.6.e of these standard conditions.

   d. Prohibition of bypass

      (1) Bypass is prohibited, and the state administrative authority may take enforcement action against a permittee for bypass, unless:

         (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

         (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(c) The permittee submitted notices as required by Section B.4.c of these standard conditions.

(2) The state administrative authority may approve an anticipated bypass after considering its adverse effects, if the state administrative authority determines that it will meet the three conditions listed in Section B.4.d(1) of these standard conditions.

5. Upset Conditions

a. Upset. An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Section B.5.c are met. No determination made during administrative review of claims that noncompliance was caused by an upset, and before an action for noncompliance, constitutes final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;

(2) The permitted facility was at the time being properly operated;

(3) The permittee submitted notice of the upset as required by LAC 33:IX.2701.L.6.b.ii and Section D.6.e(2) of these standard conditions; and

(4) The permittee complied with any remedial measures required by Section B.2 of these standard conditions.

d. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

6. Removed Substances

Solids, sewage sludges, filter backwash, or other pollutants removed in the course of treatment or wastewater control shall be properly disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the state and in accordance with environmental regulations.

7. Percent Removal

For Publicly Owned Treatment Works, the 30-day average percent removal for Biochemical Oxygen Demand and Total Suspended Solids shall not be less than 85 percent in accordance with LAC 33:IX.5905.A.3 and B.3. Publicly owned treatment works utilizing waste stabilization

ponds/oxidation ponds are not subject to the 85 percent removal rate for Total Suspended Solids.

SECTION C. MONITORING AND RECORDS

1. Inspection and Entry

The permittee shall allow the state administrative authority or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon the presentation of credentials and other documents as may be required by the law to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit.

Enter upon the permittee's premises where a discharge source is or might be located or in which monitoring equipment or records required by a permit are kept for inspection or sampling purposes. Most inspections will be unannounced and should be allowed to begin immediately, but in no case shall begin more than 30 minutes after the time the inspector presents his/her credentials and announces the purpose(s) of the inspection. Delay in excess of 30 minutes shall constitute a violation of this permit. However, additional time can be granted if the inspector or the administrative authority determines that the circumstances warrant such action;

b. Have access to and copy, at reasonable times, any records that the department or its authorized representative determines are necessary for the enforcement of this permit. For records maintained in either a central or private office that is open only during normal office hours and is closed at the time of inspection, the records shall be made available as soon as the office is open, but in no case later than the close of business the next working day;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act or the Louisiana Environmental Quality Act, any substances or parameters at any location.

e. Sample Collection

(1) When the inspector announces that samples will be collected, the permittee may be given an additional 30 minutes to prepare containers in order to collect duplicates. If the permittee cannot obtain and prepare sample containers within this time, he is considered to have waived his right to collect duplicate samples and the sampling will proceed immediately. Further delay on the part of the permittee in allowing initiation of the sampling will constitute a violation of this permit.

(2) At the discretion of the administrative authority, sample collection shall proceed immediately (without the additional 30 minutes described in Section C.1.a above), and the inspector shall supply the permittee with a duplicate sample.

f. It shall be the responsibility of the permittee to ensure that a facility representative familiar with provisions of its wastewater discharge permit, including any other conditions or limitations, be available either by phone or in person at the facility during all hours of operation. The absence of such personnel on-site who are familiar with the permit shall not be grounds for delaying the initiation of an inspection except in situations as described in Section C.1.b of these standard conditions. The permittee shall be responsible for providing witnesses/escorts during inspections. Inspectors shall abide by all company safety rules and shall be equipped with standard safety equipment (hard hat, safety shoes, safety glasses) normally required by industrial facilities.

g. Upon written request, copies of field notes, drawings, etc., taken by department personnel during an inspection shall be provided to the permittee after the final inspection report has been completed.

2. Representative Sampling

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. All samples shall be taken at the outfall location(s) indicated in the permit. The state administrative authority shall be notified prior to any changes in the outfall location(s). Any changes in the outfall location(s) may be subject to modification, revocation, and reissuance in accordance with LAC 33:IX.2903.

3. Retention of Records

Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer, as required by 40 CFR 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the state administrative authority at any time.

4. Record Contents

Records of monitoring information shall include:

a. The date, exact place, and time of sampling or measurements;
b. The individual(s) who performed the sampling or measurements;
c. The date(s) analyses were performed;
d. The time(s) analyses were begun;
e. The individual(s) who performed the analyses;
f. The analytical techniques or methods used;
g. The results of such analyses; and
h. The results of all quality control procedures.

5. Monitoring Procedures

a. Measurements and analyses must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in this permit.

b. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instruments at intervals frequent enough to ensure accuracy of measurements and shall maintain appropriate records of such activities.

c. The permittee or designated laboratory shall have an adequate analytical quality assurance/quality control program to produce defensible data of known precision and accuracy. All quality control measures shall be assessed and evaluated on an ongoing basis, and quality control acceptance criteria shall be used to determine the validity of the data. All method-specific quality controls as prescribed in the method shall be followed. If quality control requirements are not included in the method, the permittee or designated laboratory shall follow the quality control requirements as prescribed in the Approved Edition (40 CFR Part 136) *Standard Methods for the Examination of Water and Wastewater*, Sections 1020A and 1020B. General sampling protocol shall follow guidelines established in the *Handbook for Sampling and Sample Preservation of Water and Wastewater*, 1982 U.S. Environmental Protection Agency. This publication is available from the National Service Center for Environmental Publications https://nepis.epa.gov/Exe/ZyNET.exe/30000QSA.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1981+Thru+1985&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C81thru85%5CTxt%5C00000001%5C30000QSA.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

6. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to ensure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than 10 percent from true discharge rates throughout the range of expected discharge volumes and shall be calibrated by a qualified source at least once a year to ensure their accuracy. A qualified source is a person that has received formal training and/or has practical field experience in the calibration of the flow measurement device used at the facility. Guidance in selection, installation, calibration, and operation of acceptable flow measurement devices can be obtained from the following references:

a. *A Guide to Methods and Standards for the Measurement of Water Flow*, 1975, U.S. Department of Commerce, National Bureau of Standards. This publication is available from

the National Technical Information Service (NTIS), Springfield, VA 22161, telephone number (800) 553-6847. Order by NTIS publication number COM-75-10683.

https://www.govinfo.gov/content/pkg/GOVPUB-C13-a301a5f6bf6ec378b4fabc9c626c03e2/pdf/GOVPUB-C13-a301a5f6bf6ec378b4fabc9c626c03e2.pdf

b. *Flow Measurement in Open Channels and Closed Conduits*, Volumes 1 and 2 U.S. Department of Commerce, National Bureau of Standards. This publication is available from the National Technical Service (NTIS), Springfield, VA, 22161, telephone number (800) 553-6847. Order by NTIS publication number PB-273 535.

Volume 1:
https://www.govinfo.gov/content/pkg/GOVPUB-C13-c0f8a094b9fcc5c32be685edbd48f942/pdf/GOVPUB-C13-c0f8a094b9fcc5c32be685edbd48f942.pdf.

Volume 2:
https://www.govinfo.gov/content/pkg/GOVPUB-C13-b3daf36f1cc0f770bc04d66da5cdc937/pdf/GOVPUB-C13-b3daf36f1cc0f770bc04d66da5cdc937.pdf

c. *NPDES Compliance Flow Measurement Manual*, U.S. Environmental Protection Agency, Office of Water Enforcement. This publication is available from the National Technical Information Service (NTIS), Springfield, VA 22161, telephone number (800) 553-6847. Order by NTIS publication number PB-82-131178.
https://nepis.epa.gov/Exe/ZyNET.exe/9101TZLK.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1981+Thru+1985&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C81thru85%5CTxt%5C00000026%5C9101TZLK.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

7. Prohibition for Tampering: Penalties

a. R.S. 30:2025 provides for punishment of any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit.

b. R.S. 30:2076.2 provides for penalties for any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance.

8. Additional Monitoring by the Permittee

If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 (see LAC 33:IX.4901), or in the case of sludge use and disposal, approved under 40 CFR Part 136 (see LAC 33:IX.4901) unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of this monitoring shall be included

in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the state administrative authority.

9. Averaging of Measurements

Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the state administrative authority in the permit.

10. Laboratory Accreditation

a. LAC 33:I.Subpart 3, Chapters 45–59 provide requirements for an accreditation program specifically applicable to commercial laboratories, wherever located, that provide chemical analyses, analytical results, or other test data to the department, by contract or by agreement, and the data is:

(1) Submitted on behalf of any facility, as defined in R.S. 30:2004;
(2) Required as part of any permit application;
(3) Required by order of the department;
(4) Required to be included on any monitoring reports submitted to the department;
(5) Required to be submitted by contractor; and/or
(6) Otherwise required by department regulations.

b. The department laboratory accreditation program, Louisiana Environmental Laboratory Accreditation Program (LELAP) is designed to ensure the accuracy, precision, and reliability of the data generated, as well as the use of department-approved methodologies in generation of that data. Laboratory data generated by commercial environmental laboratories that are not LELAP-accredited will not be accepted by the department. Retesting of analysis by an accredited commercial laboratory will be required.

Where retesting of effluent is not possible (for example, data reported on DMRs for prior month's sampling), the data generated will be considered invalid and in violation of the LPDES permit.

c. Regulations on the Louisiana Environmental Laboratory Accreditation Program and a list of labs that have applied for accreditation are available on the department website located under LDEQ → About LDEQ→ Public Participation and Permit Support →LA Lab Accreditation at the following link: http://deq.louisiana.gov/page/la-lab-accreditation.

Questions concerning the program may be directed to (225) 219-3247.

SECTION D. REPORTING REQUIREMENTS

1. Facility Changes

The permittee shall give notice to the state administrative authority as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or

b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit nor to notification requirements under LAC 33:IX.2703.A.1.

c. For Municipal Permits. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to Section 301 or 306 of the CWA if it were directly discharging those pollutants, and any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit. In no case are any new connections, increased flows, or significant changes in influent quality permitted that will cause violation of the effluent limitations specified herein.

2. Anticipated Noncompliance

The permittee shall give advance notice to the state administrative authority of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. Transfers

This permit is not transferable to any person except after notice to the state administrative authority. The state administrative authority may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Clean Water Act or the Louisiana Environmental Quality Act. (See LAC 33:IX.2901; in some cases, modification or revocation and reissuance is mandatory.)

A permit may be transferred by the permittee to a new owner or operator only if: (1) the permit has been modified or revoked and reissued (under LAC 33:IX.2903.A.2.b) by the permittee and new owner submitting a Name/Ownership/Operator Change Form (NOC-1 Form) and approved by LDEQ (LAC 33:I.Chapter 19); or (2) a minor modification made (under LAC 33:IX.2905) to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act and the Louisiana Environmental Quality Act.

The NOC-1 form can be found using the pathway LDEQ → Water→ LPDES Application Forms at the following link: http://deq.louisiana.gov/page/lpdes-water-permits

4. Monitoring Reports

Monitoring results shall be reported at the intervals specified elsewhere in this permit and shall be submitted through a department-approved electronic document receiving system (NetDMR) in accordance with LAC 33:I.Chapter 21 unless the state administrative authority gives written authorization to the permittee to submit monitoring results in an alternative format such as paper DMRs.

Information about NetDMR and gaining access can be viewed using the pathway LDEQ → Water→ Enforcement → NETDMR on the department's website at: http://deq.louisiana.gov/page/netdmr.

The permittee shall submit properly completed Discharge Monitoring Reports (DMRs) using the format specified in the permit.

If authorized to report using an alternative format such as paper DMRs, then preprinted DMRs will be provided to majors and other designated facilities. Please contact the Permit Compliance Unit concerning preprints. Self-generated DMRs must be pre-approved by the Permit Compliance Unit prior to submittal. Self-generated DMRs are approved on an individual basis. Requests for approval of self-generated DMRs should be submitted to the following address:

Supervisor, Permit Compliance Unit
Office of Environmental Compliance
Post Office Box 4312
Baton Rouge, LA 70821-4312

5. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

6. Requirements for Notification

a. Emergency Notification

As required by LAC 33.I.3915, in the event of an unauthorized discharge that causes an emergency condition, the discharger shall notify the hotline (Department of Public Safety (DPS) 24-hour Louisiana Emergency Hazardous Materials Hotline) by telephone at (225) 925-6595 (collect calls accepted 24 hours a day) immediately (a reasonable period of time after taking prompt measures to determine the nature, quantity, and potential off-site impact of a release, considering the exigency of the circumstances), but in no case later than one hour after learning of the discharge. (An emergency condition is any condition which could reasonably be expected to endanger the health and safety of the public, cause significant adverse impact to the land, water, or air environment, or cause severe damage to property.) Notification required by this section will be made regardless of the amount of discharge. Prompt Notification Procedures are listed in Section D.6.c of these standard conditions.

A written report shall be provided within seven calendar days after the notification. The report shall contain the information listed in Section D.6.d of these standard conditions and any additional information in LAC 33:I.3925.B.

b. Prompt Notification

As required by LAC 33:I.3917, in the event of an unauthorized discharge that exceeds a reportable quantity specified in LAC 33:I.Chapter 39.Subchapter E, but does not cause an emergency condition, the discharger shall promptly notify DPS by telephone at (225) 925-6595 (collect calls accepted 24 hours a day) within 24 hours after learning of the discharge.

In the event of an unauthorized discharge that requires notification, the DPS 24-hour

Louisiana Emergency Hazardous Materials Hotline will notify the Department of Environmental Quality.

In accordance with LAC 33:I.3923, notifications not required by LAC 33:I.3915 or 3917 shall be provided to the department within a time frame not to exceed 24 hours, or as specified by the specific regulation or permit provision requiring the notification, and shall be given to Single Point of Contact (SPOC), as follows:

(1) by the Online Incident Reporting screens found at http://deq.louisiana.gov/page/file-a-complaint-report-an-incident; or

(2) by email utilizing the Incident Report Form and instructions found at https://www.deq.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=single-point-of-contact; or

(3) by telephone at (225) 219-3640 during office hours, or (225) 342-1234 after hours and on weekends and holidays.

c. Content of Prompt Notifications

The following guidelines will be utilized as appropriate, based on the conditions and circumstances surrounding any unauthorized discharge, to provide relevant information regarding the nature of the discharge:

(1) the name of the person making the notification and the telephone number where any return calls from response agencies can be placed;

(2) the name and location of the facility or site where the unauthorized discharge is imminent or has occurred, using common landmarks. In the event of an incident involving transport, include the name and address of the transporter and generator;

(3) the date and time the incident began and ended, or the estimated time of continuation if the discharge is continuing;

(4) the extent of any injuries and identification of any known personnel hazards that response agencies may face;

(5) the common or scientific chemical name, the U.S. Department of Transportation hazard classification, and the best estimate of amounts of any and all discharged pollutants; and

(6) a brief description of the incident sufficient to allow response agencies to formulate their level and extent of response activity.

d. Written Notification Procedures

Written reports for any unauthorized discharge that requires notification under Section D.6.a or b, shall be submitted by the discharger to the Office of Environmental Compliance, Emergency and Radiological Services Division - SPOC in accordance with LAC 33:I.3925 within seven calendar days after the notification required by D.6.a or 6.b, unless otherwise provided for in a valid permit or other department regulation. Written notification reports

shall include, but not be limited to, the following information:

(1) the name, address, telephone number, Agency Interest (AI) number (number assigned by the department) if applicable, and any other applicable identification numbers of the person, company, or other party who is filing the written report, and specific identification that the report is the written follow-up report required by this section;

(2) the time and date of prompt notification, the state official contacted when reporting, the name of person making that notification, identification of the site or facility, vessel, transport vehicle, or storage area from which the unauthorized discharge occurred, and the location where the incident occurred;

(3) date(s), time(s), and duration of the unauthorized discharge and, if not corrected, the anticipated time it is expected to continue;

(4) details of the circumstances (unauthorized discharge description and root cause) and events leading to any unauthorized discharge, including incidents of loss of sources of radiation, and if the release point is subject to a permit:

  (a) the current permitted limit for the pollutant(s) released; and

  (b) the permitted release point/outfall ID

(5) the common or scientific chemical name of each specific pollutant that was released as the result of an unauthorized discharge, including the CAS number and U.S. Department of Transportation hazard classification, and the best estimate of amounts of any and all released pollutants (total amount of each compound expressed in pounds, including calculations);

(6) a statement of the actual or probable fate or disposition of the pollutant or source of radiation and what off-site impact resulted; and

(7) remedial actions taken, or to be taken, to stop unauthorized discharges or to recover pollutants or sources of radiation.

Written notification reports shall be submitted to the Office of Environmental Compliance, SPOC by mail or e-mail. The transmittal envelope and report or e-mail subject line and report should be clearly marked "**UNAUTHORIZED DISCHARGE NOTIFICATION REPORT**."

Written reports (LAC 33:I.3925) should be mailed to:

Louisiana Department of Environmental Quality
Post Office Box 4312
Baton Rouge, LA 70821-4312
ATTENTION: OFFICE OF ENVIRONMENTAL COMPLIANCE – SPOC
"UNAUTHORIZED DISCHARGE NOTIFICATION REPORT"

The Written Notification Report may be emailed to the Louisiana Department of Environmental Quality, Office of Environmental Compliance, Single Point of Contact at: writtennotificationLDEQ@la.gov.

Please see LAC 33:I.3925.B for additional written notification procedures.

e. Twenty-four Hour Reporting

The permittee shall report any noncompliance which may endanger human health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The following shall be included as information which must be reported within 24 hours:

(1) Any unanticipated bypass which exceeds any effluent limitation in the permit (see LAC 33:IX.2701.M.3.b);

(2) Any upset which exceeds any effluent limitation in the permit; and/or

(3) Violation of a maximum daily discharge limitation for any of the pollutants listed by the state administrative authority in Part II of the permit to be reported within 24 hours (LAC 33:IX.2707.G).

7. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under Section D.4, 5, and 6, at the time monitoring reports are submitted. The reports shall contain the information listed in Section D.6.e.

8. Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the state administrative authority, it shall promptly submit such facts or information.

9. Discharges of Toxic Substances

In addition to the reporting requirements under Section D.1–8, all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Office of Environmental Services, Water Permits Division as soon as they know or have reason to believe:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant:

(1) listed at LAC 33:IX.7107, Tables II and III (excluding Total Phenols) which is not limited in the permit, if that discharge will exceed the highest of the following notification levels:

(a) One hundred micrograms per liter (100 μg/L);

(b) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;

(c) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with LAC 33:IX.2501.G.7; or

(d) The level established by the state administrative authority in accordance with LAC 33:IX.2707.F; or

(2) which exceeds the reportable quantity levels for pollutants at LAC 33:I.Chapter 39.Subchapter E.

b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant:

(1) listed at LAC 33:IX.7107, Tables II and III (excluding Total Phenols) which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(a) Five hundred micrograms per liter (500 µg/L);

(b) One milligram per liter (1 mg/L) for antimony;

(c) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with LAC 33:IX.2501.G.7; or

(d) The level established by the state administrative authority in accordance with LAC 33:IX.2707.F; or

(2) which exceeds the reportable quantity levels for pollutants at LAC 33:I.Chapter 39.Subchapter E.

10. Signatory Requirements

All applications, reports, or information submitted to the state administrative authority shall be signed and certified.

a. All permit applications shall be signed as follows:

(1) For a corporation—by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(a) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation; or,

(b) The manager of one or more manufacturing, production, or operating facilities, provided: the manager is authorized to make management decisions that govern the operation of the regulated facility, including having the explicit or implicit duty of making major capital investment recommendations and initiating and directing

other comprehensive measures to ensure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and the authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

NOTE: The department does not require specific assignments or delegations of authority to responsible corporate officers identified in Section D.10.a(1)(a). The agency will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the state administrative authority to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under Section D.10.a(1)(b) rather than to specific individuals.

(2) For a partnership or sole proprietorship—by a general partner or the proprietor, respectively; or

(3) For a municipality, state, federal, or other public agency—by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a federal agency includes:

(a) The chief executive officer of the agency, or

(b) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (for example, Regional Administrators of EPA).

b. All reports required by permits and other information requested by the state administrative authority shall be signed by a person described in Section D.10.a, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in Section D.10.a of these standard conditions;

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company, (a duly authorized representative may thus be either a named individual or an individual occupying a named position); and,

(3) The written authorization is submitted to the state administrative authority.

c. Changes to authorization. If an authorization under Section D.10.b is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Section D.10.b must be submitted to the state administrative authority prior to or together with any reports, information, or applications to be signed by an authorized representative.

d. Certification. Any person signing a document under Section D.10.a or b above, shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

11. Availability of Reports

All recorded information (completed permit application forms, fact sheets, draft permits, or any public document) not classified as confidential information under R.S. 30:2030(A) and 30:2074(D) and designated as such in accordance with these regulations (LAC 33:IX.2323 and LAC 33:IX.6503) shall be made available to the public for inspection and copying during normal working hours in accordance with the Public Records Act, R.S. 44:1 et seq.

Claims of confidentiality for the following will be denied:

a. The name and address of any permit applicant or permittee; or

b. Permit applications, permits, and effluent data.

Information required by LPDES application forms provided by the state administrative authority under LAC 33:IX.2501 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

SECTION E. PENALTIES FOR VIOLATIONS OF PERMIT CONDITIONS

1. Criminal

a. Negligent Violations

R.S. 30:2076.2 provides that any person who negligently violates any provision of the LPDES, or any order issued by the secretary under the LPDES, or any permit condition or limitation implementing any such provision in a permit issued under the LPDES by the secretary, or any requirement imposed in a pretreatment program approved under the LPDES is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than one year, or both. If a conviction of a person is for a violation committed after a first conviction of such person, he shall be subject to a fine of not more than $50,000 per day of violation, or imprisonment of not more than two years, or both.

b. Knowing Violations

R.S. 30:2076.2 provides that any person who knowingly violates any provision of the LPDES, or any permit condition or limitation implementing any such provisions in a permit issued under the LPDES, or any requirement imposed in a pretreatment program approved

under the LPDES is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or imprisonment for not more than three years, or both. If a conviction of a person is for a violation committed after a first conviction of such person, he shall be subject to a fine of not more than $100,000 per day of violation, or imprisonment of not more than six years, or both.

c. Knowing Endangerment

R.S. 30:2076.2 provides that any person who knowingly violates any provision of the LPDES, or any order issued by the secretary under the LPDES, or any permit condition or limitation implementing any of such provisions in a permit issued under the LPDES by the secretary, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000, or by imprisonment for not more than 15 years, or both. A person which is an organization shall, upon conviction of violating this Paragraph, be subject to a fine of not more than one million dollars. If a conviction of a person is for a violation committed after a first conviction of such person under this Paragraph, the maximum punishment shall be doubled with respect to both fine and imprisonment.

d. False Statements

R.S. 30:2076.2 provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the LPDES or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained under the LPDES, shall, upon conviction, be subject to a fine of not more than $10,000, or imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this Subsection, he shall be subject to a fine of not more than $20,000 per day of violation, or imprisonment of not more than four years, or both.

2. Civil Penalties

R.S. 30:2025 provides that any person found to be in violation of any requirement of this Subtitle may be liable for a civil penalty, to be assessed by the secretary, an assistant secretary, or the court, of not more than the cost to the state of any response action made necessary by such violation which is not voluntarily paid by the violator, and a penalty of not more than $32,500 for each day of violation. However, when any such violation is done intentionally, willfully, or knowingly, or results in a discharge or disposal which causes irreparable or severe damage to the environment or if the substance discharged is one which endangers human life or health, such person may be liable for an additional penalty of not more than one million dollars.

(**PLEASE NOTE**: These penalties are listed in their entirety in Subtitle II of Title 30 of the Louisiana Revised Statutes.)

SECTION F. DEFINITIONS

All definitions contained in Section 502 of the Clean Water Act shall apply to this permit and are incorporated herein by reference. Additional definitions of words or phrases used in this permit are

as follows:

1. Clean Water Act (CWA) means the Public Law 92-500 as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483 and Pub. L. 97-117, 33 U.S.C. 1251 et seq. The CWA was formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972.

2. Accreditation means the formal recognition by the department of a laboratory's competence wherein specific tests or types of tests can be accurately and successfully performed in compliance with all minimum requirements set forth in the regulations regarding laboratory accreditation.

3. Administrator means the Administrator of the U.S. Environmental Protection Agency, or an authorized representative.

4. Applicable Standards and Limitations means all state, interstate and federal standards and limitations to which a discharge is subject under the Clean Water Act, including effluent limitations, water quality standards of performance, toxic effluent standards or prohibitions, best management practices, and pretreatment standards under Sections 301, 302, 303, 304, 306, 307, 308, and 403.

5. Applicable water quality standards means all water quality standards to which a discharge is subject under the Clean Water Act.

6. Commercial Laboratory means any laboratory, wherever located, that performs analyses or tests for third parties for a fee or other compensation and provides chemical analyses, analytical results, or other test data to the department. The term commercial laboratory does not include laboratories accredited by the Louisiana Department of Health in accordance with R.S. 49:1001 et seq.

7. Daily Discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in terms of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the sampling day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the sampling day. Daily discharge determination of concentration made using a composite sample shall be the concentration of the composite sample.

8. Daily Maximum discharge limitation means the highest allowable "daily discharge."

9. Director means the U.S. Environmental Protection Agency Regional Administrator, or the state administrative authority, or an authorized representative.

10. Domestic septage means either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from grease trap at a restaurant.

11. Domestic sewage means waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

12. Environmental Protection Agency (or EPA) means the U.S. Environmental Protection Agency.

13. Grab sample means an individual sample collected over a period of time not exceeding 15 minutes, unless more time is needed to collect an adequate sample, and is representative of the discharge.

14. Industrial user means a nondomestic discharger, as identified in 40 CFR 403, introducing pollutants to a publicly owned treatment works.

15. LEQA means the Louisiana Environmental Quality Act.

16. Loading is presented in the permit and reported in the DMR as the total amount of a pollutant entering the facility or discharged in the effluent. It is calculated by knowing the amount of flow, the concentration, and the density of water. Results should be rounded off and expressed with the same number of significant figures as the permit limit. If the permit does not explicitly state how many significant figures are associated with the permit limit, the permittee shall use two.

    Loading (lbs/day) = Flow (in MGD) x Concentration (mg/L) x 8.34*

    *8.34 is the unit conversion for the weight of water

17. Louisiana Pollutant Discharge Elimination System (LPDES) means those portions of the Louisiana Environmental Quality Act and the Louisiana Water Control Law and all regulations promulgated under their authority which are deemed equivalent to the National Pollutant Discharge Elimination System (NPDES) under the Clean Water Act in accordance with Section 402 of the Clean Water Act and all applicable federal regulations.

18. Monthly Average discharge limitations (other than for bacteria indicators, such as fecal coliform and enterococci) are calculated as the sum of all "daily discharge(s)" measured during a calendar month divided by the number of "daily discharge(s)" measured during that month. When the permit establishes monthly average concentration effluent limitations or conditions, and flow is measured as continuous record or with a totalizer, the monthly average concentration means the arithmetic average (weighted by flow) of all "daily discharge(s)" of concentration determined during the calendar month where C = daily discharge concentration, F = daily flow and n = number of daily samples; monthly average discharge =

$$\frac{C_1F_1 + C_2F_2 + ... + C_nF_n}{F_1 + F_2 + ... + F_n}$$

    When the permit establishes monthly average concentration effluent limitations or conditions, and the flow is not measured as a continuous record, then the monthly average concentration means the arithmetic average of all "daily discharge(s)" of concentration determined during the calendar month.

    The monthly average for bacteria indicators is the geometric mean of the values for all effluent samples collected during a calendar month.

19. National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the Clean Water Act.

20. POTW means Publicly Owned Treatment Works.

21. Sanitary Wastewater Term(s):

    a. 3-hour composite sample consists of three effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) over the 3-hour period and composited according to flow, or a sample continuously collected in proportion to flow over the 3-hour period.

    b. 6-hour composite sample consists of six effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) over the 6-hour period and composited according to flow, or a sample continuously collected in proportion to flow over the 6-hour period.

    c. 12-hour composite sample consists of 12 effluent portions collected no closer together than one hour over the 12-hour period and composited according to flow, or a sample continuously collected in proportion to flow over the 12-hour period. The daily sampling intervals shall include the highest flow periods.

    d. 24-hour composite sample consists of a minimum of 12 effluent portions collected at equal time intervals over the 24-hour period and combined proportional to flow or a sample continuously collected in proportion to flow over the 24-hour period.

22. Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

23. Sewage sludge means any solid, semisolid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. *Sewage sludge* includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, domestic septage, portable toilet pumpings, Type III marine sanitation device pumpings (33 CFR Part 159), and sewage sludge products. *Sewage sludge* does not include grit or screenings, or ash generated during the incineration of sewage sludge.

24. Stormwater Runoff means aqueous surface runoff including any soluble or suspended material mobilized by naturally occurring precipitation events.

25. Surface Water means all lakes, bays, rivers, streams, springs, ponds, impounding reservoirs, wetlands, swamps, marshes, water sources, drainage systems and other surface water, natural or artificial, public or private within the state or under its jurisdiction that are not part of a treatment system allowed by state law, regulation, or permit.

26. Treatment works means any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage and industrial wastes of a liquid nature to implement Section 201 of the Clean Water Act, or necessary to recycle or reuse water at the most economical cost over the estimated life of the works, including intercepting sewers, sewage collection systems, pumping, power and other equipment, and their appurtenances, extension, improvement, remodeling, additions, and alterations thereof. (See Part 212 of the Clean Water Act.)

27. For fecal coliform bacteria, a sample consists of one effluent grab portion collected during a 24-hour period at peak loads.

28. The term MGD shall mean million gallons per day.

29. The term GPD shall mean gallons per day.

30. The term mg/L shall mean milligrams per liter or parts per million (ppm).

31. The term SPC shall mean Spill Prevention and Control. Plan covering the release of pollutants as defined by the Louisiana Administrative Code (LAC 33:IX.Chapter 9).

32. The term SPCC shall mean Spill Prevention Control and Countermeasures Plan. Plan covering the release of pollutants as defined in 40 CFR Part 112.

33. The term µg/L shall mean micrograms per liter or parts per billion (ppb).

34. The term ng/L shall mean nanograms per liter or parts per trillion (ppt).

35. Visible Sheen means a silvery or metallic sheen, gloss, or increased reflectivity; visual color; or iridescence on the water surface.

36. Wastewater means liquid waste resulting from commercial, municipal, private, or industrial processes. Wastewater includes, but is not limited to, cooling and condensing waters, sanitary sewage, industrial waste, and contaminated rainwater runoff.

37. Waters of the State means for the purposes of the Louisiana Pollutant Discharge Elimination system, all surface waters within the state of Louisiana and, on the coastline of Louisiana and the Gulf of Mexico, all surface waters extending therefrom three miles into the Gulf of Mexico. For purposes of the Louisiana Pollutant Discharge Elimination System, this includes all surface waters which are subject to the ebb and flow of the tide, lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, impoundments of waters within the state of Louisiana otherwise defined as "waters of the United States" in 40 CFR 122.2, and tributaries of all such waters. "Waters of the state" does not include waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act, 33 U.S.C. 1251 et seq.

38. Weekly average, other than for fecal coliform bacteria, is the highest allowable arithmetic mean of the daily discharges over a calendar week, calculated as the sum of all "daily discharge(s)" measured during a calendar week divided by the number of "daily discharge(s)" measured during that week. When the permit establishes weekly average concentration effluent limitations or conditions, and flow is measured as continuous record or with a totalizer, the weekly average

concentration means the arithmetic average (weighted by flow) of all "daily discharge(s)" of concentration determined during the calendar week where C = daily discharge concentration, F = daily flow and n = number of daily samples; weekly average discharge

$$= \frac{C_1F_1 + C_2F_2 + ... + C_nF_n}{F_1 + F_2 + ... + F_n}$$

When the permit establishes weekly average concentration effluent limitations or conditions, and the flow is not measured as a continuous record, then the weekly average concentration means the arithmetic average of all "daily discharge(s)" of concentration determined during the calendar week.

The weekly average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar week.

Part VI. REOPENER CLAUSE

If there is evidence indicating that the discharges authorized by this permit cause or have the reasonable potential to cause or contribute to a violation of a water quality standard, the discharger may be required to obtain an individual permit or an alternative general permit, or the permit may be modified to include different requirements and/or limitations.

Part VII. ADDITIONAL DEFINITIONS

Alternative permit - either an individual permit or a different general permit.

Arid Areas – areas with an average annual rainfall of 0 to 10 inches.

Best Management Practices (BMPs) - schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to Waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control construction site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. (https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater)

Control Measure - as used in this permit, refers to any BMP or other method used to prevent or reduce the discharge of pollutants to Waters of the State.

Commencement of Construction Activities - the initial disturbance of soils associated with clearing, grading, or excavating activities, as well as, support activities related to a construction site.

Common Plan of Development - a contiguous (sharing a boundary or edge; adjacent; touching) area where multiple separate and distinct construction activities may occur at different times at different schedules under one plan. Such a plan might consist of small projects (e.g., a common plan of development for a commercial development may include lots that the developer plans to build or sell to others for development.). All these areas would remain part of the common plan of development or sale. The following examples can be used as guidance for deciding what might or might not be considered a "Common Plan of Development or Sale:"

> Coverage under this permit is required if a project is part of a common plan of development or sale that collectively will disturb one acre but less than five acres (e.g., construction of a fast food restaurant on a ¾ acre pad that is part of a 3 acre retail center requires permit coverage).
>
> If a small portion of the original common plan of development remains undeveloped and there has been a period of time in which there has been no occurrence of on-going construction activities (i.e., all areas are either undisturbed or have been finally stabilized), then the remaining acreage of the original common plan of development may be re-evaluated. If one acre but less than five acres of the original common plan of development remains for construction, the project would require coverage under this permit. No permit would be required for the project if less than one acre of the original common plan remained.
>
> A public entity (a municipality, state or federal agency) need not consider all construction projects within its entire jurisdiction part of an overall common plan of development. Only the interconnected parts of a project would be considered a common plan of development.

Discharge of Storm Water Associated with Construction Activity – as used in this permit, refers to storm water "point source" discharges from areas where soil-disturbing activities (e.g., clearing,

grading, or excavation, stockpiling of fill material, and demolition), construction materials or equipment storage, maintenance (e.g., fill piles, fueling, borrow area, etc.), or defined dedicated construction support activities are located.

Drought-stricken Area – for the purposes of this permit, an area in which the National Oceanic and Atmospheric Administration's U.S. Seasonal Drought Outlook indicates for the period during which the construction will occur that any of the following conditions are likely: (1) "Drought to persist or intensify", (2) "Drought on-going, some improvement", (3) "Drought likely to improve, impacts ease", or (4) "Drought development likely".
See http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.gif.

"**Facility**" means a pollution source, or any public or private property or site and all contiguous land and structures, other appurtenances and improvements, where any activity is conducted which discharges or may result in the discharge of pollutants into waters of the state.

Final Stabilization means that:

(i) all soil-disturbing activities at the site have been completed, and that a **uniform** (e.g., evenly distributed, without large bare areas) **perennial vegetative cover** with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geo-textiles) have been employed. Establishing at least 70% of the natural cover of self-sustaining native vegetation meets the vegetative cover criteria for final stabilization. For example, if the native vegetation covers 50% of the ground prior to commencement of construction activities, 70% of 50% would require 35% total cover for final stabilization.

A site does not meet the final stabilization permit requirement until self-sustaining native vegetation is established uniformly over each disturbed area on the site. Stabilizing seven of ten slopes or leaving an area equivalent to 30 percent of the disturbed area completely unstabilized will not satisfy the **uniform vegetative cover** standard.

(ii) In arid and semi-arid areas only all soil-disturbing activities at the site have been completed and both of the following criteria have been met:

a. Temporary erosion control measures (e.g., degradable rolled erosion control product) are selected, designed, and installed along with an appropriate seed base to provide erosion control for at least three years without active maintenance by the operator.

b. The temporary erosion control measures are selected, designed, and installed to achieve 70 percent vegetative coverage within three years.

(iii) For individual lots in residential construction, final stabilization means that either:

a. The homebuilder has completed final stabilization as specified above, or

b. The homebuilder has established temporary stabilization including perimeter controls for an individual lot prior to occupation of the home by the homeowner and informing the homeowner of the need for, and benefits of, final stabilization.

(iv) For construction activities on land used for agricultural purposes (e.g. pipelines across crop or range land, staging areas for highway construction, etc.), final stabilization may be accomplished by returning the disturbed land to its pre-construction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer stripes immediately adjacent to "Waters of the State" and areas which are not being returned to their pre-construction agricultural use must meet the final stabilization criteria (i) or (ii) or (iii) above.

Infeasible - not technologically possible, or not economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer System (MS4) - refers to a publicly-owned conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that discharges to waters of the U.S. and is designed or used for collecting or conveying storm water, is not a combined sewer, and is not part of a publicly-owned treatment works (POTW). See LAC 33:IX.2511.B.4, B.7, and B.16 or 40 CFR 122.26(b)(4), (b)(7), and (b)(16).

Natural Buffer - as used in this permit, an area of undisturbed natural cover surrounding surface waters. Natural cover includes vegetation, exposed rock, or barren ground that exists prior to commencement of construction activities at the site.

New Source - any building, structure, facility, or installation from which there is or may be discharge of pollutants, the construction of which commenced:

a. after promulgation of standards of performance under Section 306 of the CWA which are applicable to such source; or

b. after proposal of standards of performance in accordance with Section 306 of the CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of ther proposal.

Non-turbid - for the purposes of this permit, means that the discharge does not cause or contribute to an exceedance of turbidity-related water quality standards.

Operator - any party associated with the construction project that meets either of the following two criteria: (1) the party has operational control over project plans and specifications (including the ability to make modifications in those specifications), or (2) the party has day-to-day operational control of those activities at a project site which are necessary to ensure compliance with the SWPPP or other permit conditions (e.g., they are authorized to direct workers at the site to carry out activities identified in the SWPPP or comply with other permit conditions).

Permittee - an operator with permit authorization to discharge storm water associated with construction activity in Louisiana under the terms and conditions of this permit.

Person - an individual, association, partnership, corporation, municipality, state or federal agency, or any agency thereof, or an agent or employee thereof.

Point Source - any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft from which pollutants are, or may be, discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Process Wastewater - any water that, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product. Process wastewater may include interior or exterior washing of plant trucks or product receptacles.

Qualified Personnel - a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activity.

Runoff Coefficient - the fraction of total rainfall that will leave the site as runoff.

Semi-Arid Areas – areas with an average annual rainfall of 10 to 20 inches.

Site - the land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity and/or off-site construction support activities.

State Administrative Authority - the Secretary of the Department of Environmental Quality or his designee, or the appropriate assistant secretary or his designee.

Storm Water Associated with Industrial Activity - defined at LAC 33:IX.2511.B.14 and incorporated here by reference.

Storm Water Discharge Associated with Small Construction Activity - defined at LAC 33:IX.2511.B.15. This includes discharges of storm water from construction activities including clearing, grading, excavating, and support activities related to a construction site that result in land disturbance of equal to or greater than one acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan will ultimately disturb equal to or greater than one or less than five acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

Support Activities Related to Construction Sites - includes, but is not limited to, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas, material stockpiles, and placement of raw material. Support activities related to the operation of concrete or asphalt batch plants located at a construction site are not authorized by this permit.

Total Suspended Solids (TSS) - the amount of solid material suspended in water commonly expressed as a concentration in terms of mg/L.

Uncontaminated - for the purposes of this permit, means that the discharge does not cause or contribute to an exceedance of applicable water quality standards.

ADDENDUM A

ENDANGERED SPECIES GUIDANCE

ENDANGERED SPECIES GUIDANCE

SMALL CONSTRUCTION GENERAL PERMIT

I. INSTRUCTIONS

A list of endangered and threatened species that the US Fish and Wildlife Service (FWS) has determined may be affected by the activities covered by the Construction General Permit is available in the Fish and Wildlife Service Memorandum of Understanding (MOU) letter at http://deq.louisiana.gov/page/lpdes.

The species listing by parish is found using the link labeled https://www.fws.gov/sites/default/files/documents/louisiana-ecological-services-field-office-t-and-e-species_0.pdf. In order to be eligible for coverage under this permit, operators must:

- Determine whether any species listed in this Guidance or critical habitat are in proximity to the facility, and

- Pursuant to Permit Part II.D, follow the procedures found in this Guidance to protect listed endangered and threatened species and designated critical habitat and determine that the storm water discharges and BMPs to control storm water runoff covered under this permit meet one or more of the eligibility criteria requirements of Part II.D. Signature and submittal of the Small Construction Activity Completion Report (SCACR) is deemed to constitute the operator's compliance with eligibility requirements for permit coverage.

To determine permit eligibility and to avoid unauthorized impacts upon listed threatened or endangered species or on the critical habitat for those species, the operator must follow this Guidance's Steps 1 through 4 (and 5 if applicable) when developing the SWPPP.

NOTE: At any step in the determination, operators may contact the FWS for guidance. That request should be in writing and should include a description of the facility and a topographic map depicting the locations of the facility, the proposed construction activities, and the associated storm water discharges.

U.S. Fish and Wildlife Service
Louisiana Ecological Services
200 Dulles Drive
Lafayette, LA 70506
(337) 291-3100
lafayette@fws.gov

STEP 1: DETERMINE IF THE CONSTRUCTION SITE OR ASSOCIATED STORM WATER DISCHARGES ARE WITHIN THE VICINITY OF FEDERALLY-LISTED THREATENED OR ENDANGERED SPECIES, OR THEIR DESIGNATED CRITICAL HABITAT.

If either the proposed site or the path of storm water from the site to the receiving stream is in a parish included on the Endangered Species List, the operator should proceed to **Step 2** below. If, however, neither is located in a listed parish, then the operator should proceed directly to **Step 5.**

If no species are listed in the site's parish or if a facility's parish is not found on the list, the applicant is eligible for permit coverage. Where a project is located in more than one parish, the lists for all parishes shall be reviewed.

STEP 2: DETERMINE IF ANY SPECIES MAY BE FOUND "IN PROXIMITY" TO THE CONSTRUCTION ACTIVITY'S STORM WATER DISCHARGES:

A species is in proximity to a construction activity's storm water discharge when the species is:

- Located in the path or immediate area through which or over which contaminated point source storm water flows from construction activities to the point of discharge into the receiving water; or

- Located in the immediate vicinity of, or nearby, the point of discharge into receiving waters; or

- Located in the area of a site where storm water BMPs are planned or are to be constructed.

The area in proximity to be searched/surveyed for listed species will vary with the size and structure of the construction activity, the nature and quantity of the storm water discharges, and the type of receiving waters. Given the number of construction activities potentially covered by the permit, no specific method to determine whether species are in proximity is required for permit coverage. Instead, operators should use the method or methods which best allow them to determine to the best of their knowledge whether species are in proximity to their particular construction activities. These methods may include:

- Conducting visual inspections: This method may be particularly suitable for construction sites that are smaller in size or located in non-natural settings such as highly urbanized areas or industrial parks where there is little or no natural habitat, or for construction activities that discharge directly into municipal storm water collection systems.

- Contacting the nearest State or Tribal Wildlife Agency or U.S. Fish and Wildlife Service (FWS) offices. Many endangered and threatened species are found in well-defined areas or habitats. That information is frequently known to State, Tribal, or Federal wildlife agencies.

- Contacting local/regional conservation groups. These groups inventory species and their locations and maintain lists of sightings and habitats.

- Conducting a formal biological survey. Larger construction sites with extensive storm water discharges may choose to conduct biological surveys as the most effective way to assess whether species are located in proximity and whether there are likely adverse effects.

- Conducting an Environmental Assessment Under the National Environmental Policy Act (NEPA). Some construction activities may require environmental assessments under the NEPA. Such assessments may indicate if listed species are in proximity. (Construction General Permit coverage does not trigger the NEPA because it does not regulate any dischargers subject to New Source Performance Standards under Section 306 of the Clean Water Act. See CWA 511(c). However, some construction activities might require review under the NEPA because of federal funding or other federal nexus.)

- Using the ESA and MBTA project review application at the FWS Louisiana Ecological Services website (https://www.fws.gov/office/louisiana-ecological-services).

If no species are in proximity and there is no likelihood of any BMPs to control storm water causing adverse effects on species identified in in this addendum, an operator is eligible for Construction General Permit coverage based upon this **Criterion A**.

If adverse effects are determined to be unlikely, then the operator is eligible for permit coverage

If listed species are found in proximity to a facility, operators must indicate the location and nature of this presence in the storm water pollution prevention plan (SWPPP) and follow Step 3.

STEP 3: DETERMINE IF SPECIES OR CRITICAL HABITAT COULD BE ADVERSELY AFFECTED BY THE CONSTRUCTION ACTIVITY'S STORM WATER DISCHARGES OR BY BMPs TO CONTROL THOSE DISCHARGES.

Scope of Adverse Effects: Potential adverse effects from storm water include:

- Hydrological. Storm water may cause siltation, sedimentation or induce other changes in the receiving waters such as temperature, salinity or pH. These effects will vary with the amount of storm water discharged and the volume and condition of the receiving water. Where a storm water discharge constitutes a minute portion of the total volume of the receiving water, adverse hydrological effects are less likely.

- Habitat. Storm water may drain or inundate listed species habitat.

- Toxicity. In some cases, pollutants in storm water may have toxic effects on listed species.

The scope of effects to consider will vary with each site. Operators must also consider the likelihood of adverse effects on species from any BMPs to control storm water. Most adverse impacts from BMPs are likely to occur from the construction activities. However, it is possible that the operation of some BMPs (for example, larger storm water retention ponds) may affect endangered and threatened species.

If adverse effects are determined to be unlikely, then the operator is eligible for permit coverage

If adverse effects are likely, operators should follow Step 4 below.

STEP 4: DETERMINE IF MEASURES CAN BE IMPLEMENTED TO AVOID ANY ADVERSE EFFECTS:

If it is determined that adverse effects cannot be excluded or are likely, the operator can receive coverage if appropriate measures are undertaken to avoid or eliminate any actual or potential adverse effects prior to applying for permit coverage. These measures may involve relatively simple changes to construction activities such as re-routing a storm water discharge to bypass an area where species are located, relocating BMPs, or limiting the size of construction activity that will be subject to storm water discharge controls.

At this stage, operators must contact the FWS [or the National Marine Fisheries Service (NMFS) if referred to that Service by the FWS] to see what appropriate measures might be suitable to avoid or eliminate adverse impacts to listed species and/or critical habitat. This can entail the initiation of informal coordination with the FWS (and/or the NMFS, if appropriate) which is described in more detail in Step 5.

If operators adopt measures to avoid or eliminate adverse effects, they must continue to abide by them during the course of permit coverage. These measures must be described in the SWPPP and may be enforceable as permit conditions.

If appropriate measures to avoid the likelihood of adverse effects are not available, then the operator must follow Step 5.

STEP 5: CONSULTATION WITH FWS TO DETERMINE IF THE ELIGIBILITY REQUIREMENTS CAN BE MET.

Where adverse effects are likely, the operator must contact the FWS. The operator may still be eligible for permit coverage if any likelihood of adverse effects is addressed by meeting at least one of the following criteria, as required by Permit Part II.1, if:

- **Criterion B**. The operator's activity has received previous authorization through an earlier Section 7 consultation or issuance of a ESA Section 10 permit (incidental taking permit) and that authorization addressed storm water discharges and/or BMPs to control storm water

runoff (e.g., developer included impact of entire project in consultation over a wetlands dredge and fill permit under Section 7 of the ESA).

OR

- **Criterion C.** The operator's activity was previously considered part of a larger, more comprehensive assessment of impacts on endangered and threatened species and/or critical habitat, under Section 7 or Section 10 of the ESA, which accounts for storm water discharges and BMPs to control storm water runoff (e.g., where an area-wide habitat conservation plan and the ESA's Section 10 permit is issued which addresses impacts from construction activities, including those from storm water, or a NEPA review is conducted which incorporates the ESA Section 7 procedures).

OR

Criterion D. Consultation with the USFWS (or NMFS, if appropriate) for the operator's storm water discharges and BMPs to control storm water runoff results in either: 1) FWS/NMFS written concurrence with a finding of no likelihood of adverse effects (see 50 CFR 402.13) or 2) issuance of a biological opinion in which USFWS (or NMFS) finds that the action is not likely to jeopardize the continued existence of listed endangered or threatened species or result in the adverse modification or destruction of critical habitat [see 50 CFR 403.14(h)].

Any terms and conditions developed through consultations to protect listed species and critical habitat must be incorporated into the SWPPP. As noted above, operators must initiate consultation during Step 4 (upon becoming aware that endangered and threatened species are in proximity to the facility).

OR

Criterion E. The operator's activity was considered part of a larger, more comprehensive site-specific assessment of impacts on endangered and threatened species by the owner or other operator of the site when it developed a SWPPP and that permittee met the eligibility requirements stated in Criterion A, B, C, or D [e.g., owner was able to determine there would be no adverse impacts for the project as a whole under Criterion A, so contractor meets the eligibility requirements stated Criterion D]. Utility companies applying for area-wide permit coverage meet the eligibility requirements stated in Criterion D since authorization to discharge is contingent on a principal operator of a construction project having been granted coverage under this or an alternative LPDES permit for the areas of the site where utilities installation activities will occur.

The determination of eligibility of Criteria B - D shall be documented in the facility's SWPPP, and copies of all applicable documents, such as the FWS approval letters, shall be retained with the SWPPP. The operator must comply with any terms and conditions imposed under the all eligibility criteria requirements to ensure that storm water discharges or BMPs used to control storm water runoff are protective of listed endangered and threatened species and/or critical habitat. Such terms and conditions must be incorporated in the operator's SWPPP.

If the eligibility requirements of Criteria A - D cannot be met, then the operator may not receive coverage under this permit and should consider applying to the LDEQ for an individual permit.

This permit does not authorize any "taking" (as defined under Section 9 of the ESA) of endangered or threatened species unless such takes are authorized under Section 7 or 10 the ESA. Operators who believe their construction activities may result in takes of listed endangered and threatened species should be sure to get the necessary coverage for such takes through an individual consultation or Section 10 permit of the ESA.

This permit does not authorize any storm water discharges or BMPs to control storm water runoff that are likely to jeopardize the continued existence of any species that are listed as endangered or threatened under the ESA or result in the adverse modification or destruction of designated critical habitat.

II. ENDANGERED SPECIES PARISH LIST

See: https://www.fws.gov/project/louisiana-ecological-services-endangered-species. Click on "Download a List of Threatened and Endangered Species by Parish in Louisiana", then click on the PDF of "louisiana-ecological-services-field-office-t-and-e-species_0.pdf ". Additionally for a list of migratory bird species protected by the Migratory Bird Treaty Act (MBTA), See: https://www.fws.gov/media/list-birds-protected-migratory-bird-treaty-act-2020.

ADDENDUM B

COMPLETION REPORT

STATE OF LOUISIANA
DEPARTMENT OF ENVIRONMENTAL QUALITY
Office of Environmental Services, Permits Division
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313
PHONE#: (225) 219-3590

SMALL CONSTRUCTION ACTIVITY COMPLETION REPORT (SCACR) LAR200000

(To be submitted within SIXTY (60) DAYS after COMPLETION of covered activities.)

I. OPERATOR INFORMATION

Name: _____
Mail Address: _____
City: _____
State: _____ Zip Code: _____
Phone: _____ DEQ AI# (if known): _____

II. FACILITY/SITE INFORMATION

Name of Project: _____
Location of Project: _____
City: _____ State: _____ Zip Code: _____
Parish: _____
Name of Receiving Water: _____
Total Area of Land Disturbance (in acres): _____
Construction Start Date: _____
Construction Completion/Site Stabilization Date: _____
List existing or prior water discharge permits for the location: _____

III. CERTIFICATION

I certify under penalty of law that project activities were completed in accordance with the requirements of the Clean Water Act and the Louisiana Environmental Quality Act, and specifically in accordance with the LPDES Small Construction General Permit, LAR200000, under which the storm water discharges related to the construction were authorized. I understand that submittal of this Report does not release an Operator from liability for any violation of the permit or the Act. I further certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete and that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name: _____ Date: _____

Signature: _____

Email Address: _____

ADDENDUM C

HISTORIC PRESERVATION

HISTORIC PROPERTIES GUIDANCE

Operators must determine whether their facility's storm water discharge or the construction of best management practices (BMPs) to control such discharge, have potential to affect a property that is either listed or eligible for listing on the National Register of Historic Places.

For existing dischargers who do not need to construct BMPs for permit coverage, a simple visual inspection may be sufficient to determine whether historic properties are affected. However, for facilities that are new storm water dischargers and for existing facilities that are planning to construct BMPs for permit eligibility, operators should conduct further inquiry to determine whether historic properties may be affected by the storm water discharge or BMPs to control the discharge. In such instances, operators should first determine whether there are any historic properties or places in the vicinity that are listed on the National Register or if any are eligible for listing on the register (e.g., they are "eligible for listing").

Due to the large number of entities seeking coverage under this permit and the limited number of personnel available to the State Historic Preservation Officer (SHPO) to respond to inquiries concerning the location of historic properties, it is suggested that operators first access the "National Register of Historic Places" information listed on the National Park Service's web page at the address listed in this Guidance. The address of the Louisiana State Historic Preservation Officer (LSHPO) is also listed in this Guidance. Operators may also contact city, parish, or other local historical societies for assistance, especially when determining if a place or property is eligible for listing on the register.

As referenced in Part II.C of the permit, operators must meet one the following criteria to be eligible for coverage under this permit:

(1) If historic properties are **not identified** in the path of a facility's industrial storm water discharge or where construction activities are planned to install BMPs to control such discharges (e.g., diversion channels or retention ponds), or

if historic properties **are identified** but it is determined that they will **not be affected** by the discharge or construction of BMPs to control the discharge,

then the operator has met the permit eligibility criteria.

(2) If historic properties **are identified** in the path of a facility's storm water discharge or where construction activities are planned for the installation of BMPs to control such discharges and it is determined that **there is the potential** to adversely affect the property, the operator can still meet the permit eligibility criteria if he/she obtains and complies with a written agreement with the SHPO, which outlines measures that the operator will follow to mitigate or prevent those adverse effects. The contents of such a written agreement must be included in the facility's storm water pollution prevention plan (SWPPP).

In situations where an agreement cannot be reached between an operator and the SHPO, the operator should contact the Advisory Council on Historic Preservation (ACHP) listed below in this addendum for assistance.

The term “adverse effects" includes, but is not limited to, damage, deterioration, alteration, or destruction of the historic property or place. The LDEQ encourages operators to contact the appropriate State or Tribal Historic Preservation Officer as soon as possible in the event of a potential adverse effect to a historic property.

Operators are reminded that they must comply with all applicable State, Tribal, and local laws concerning the protection of historic properties and places.

I. Internet Information on the National Register of Historic Places

An electronic listing of the “National Register of Historic Places," as maintained by the National Park Service on its National Register of Historic Places Program (NRHP), can be accessed on the Internet at https://www.nps.gov/subjects/nationalregister/index.htm.

II. Louisiana State Historic Preservation Officer (LSHPO)

Louisiana, SHPO, Office of Cultural Development, P.O. Box 44247, Baton Rouge, LA 70804-4247. For questions, contact the Section 106 Review Coordinator, Telephone: (225) 342-8170.

III. Advisory Council on Historic Preservation

Advisory Council on Historic Preservation, 401 F Street NW, Suite 308, Washington, DC 20001-2637, Telephone: (202) 517-0200, Email: achp@achp.gov; Web site: https://www.achp.gov/.

ADDENDUM D

LIST OF ADDRESSES FOR LDEQ OFFICES

CURRENT ADDRESSES

Enforcement Division
Office of Environmental Compliance
Department of Environmental Quality
P. O. Box 4312
Baton Rouge, Louisiana 70821-4312
Telephone: (225) 219-3715

Mailing Addresses For Regional Offices	Jurisdictional Parishes For Each Regional Office
Acadiana Regional Office Surveillance Division Office of Environmental Compliance 111 New Center Drive Lafayette, Louisiana 70508 (337) 262-5584	Acadia, Avoyelles, Catahoula, Concordia, Evangeline, Grant, Iberia, Lafayette, LaSalle, Rapides, St. Landry, St. Mary, Vermilion
Capital Regional Office Surveillance Division Office of Environmental Compliance P.O. Box 4312 Baton Rouge, Louisiana 70821-4312 (225) 219-3600	Ascension, Assumption, East Baton Rouge, East Feliciana, Iberville, Livingston, Pointe Coupee, St. Helena, St. James, St. Martin, Tangipahoa, West Baton Rouge, West Feliciana
Northeast Regional Office Surveillance Division Office of Environmental Compliance 508 Downing Pines Road West Monroe, Louisiana 71292 (318) 362-5439	Caldwell, East Carroll, Franklin, Jackson, Lincoln, Madison, Morehouse, Ouachita, Richland, Tensas, Union, West Carroll, Winn
Northwest Regional Office Surveillance Division Office of Environmental Compliance 1525 Fairfield Avenue, Room 520 Shreveport, Louisiana 71130 (318) 676-7476	Bienville, Bossier, Caddo, Claiborne, DeSoto, Natchitoches, Red River, Sabine, Webster
Southeast Regional Office Surveillance Division Office of Environmental Compliance 201 Evans Road, Bldg. 4, Suite 420 New Orleans, LA 70123-5230 (504) 736-7701	Jefferson, Lafourche, Orleans, Plaquemines, St. Bernard, St. Charles, St. John the Baptist, St. Tammany, Terrebonne, Washington
Southwest Regional Office Surveillance Division Office of Environmental Compliance 1301 Gadwall Street Lake Charles, Louisiana 70615-5176 (337) 491-2667	Allen, Beauregard, Calcasieu, Cameron, Jefferson Davis, Vernon

ADDENDUM E

DESIGNATED OUTSTANDING NATURAL RESOURCE WATERS AND SCENIC STREAMS

DESIGNATED AS OUTSTANDING NATURAL RESOURCE WATERS AND SCENIC STREAMS

ATCHAFALAYA RIVER BASIN: None

BARATARIA BASIN:
Bayou Des Allemands – from Lac Des Allemands to old US Highway 90
Bayou Des Allemands – from Highway 90 to Lake Salvador

CALCASIEU RIVER BASIN:
Calcasieu River – from LA Highway 8 to the Rapides/Allen Parish line
Calcasieu River – from Rapides-Allen Parish line to Marsh Bayou
Calcasieu River – from Marsh Bayou to saltwater barrier
Whiskey Chitto Creek – from the southern boundary of Fort Polk Military Reservation to the Calcasieu River
Six Mile Creek – East and West Forks from the southern boundary of Fort Polk Military Reservation to Whiskey Chitto Creek
Ten Mile Creek – from headwaters to Whiskey Chitto Creek

LAKE PONTCHARTRAIN BASIN:
Comite River – from Wilson-Clinton Highway to entrance of White Bayou
Amite River – from Mississippi State Line to LA Highway 37
Blind River – from the Amite River Diversion Canal to the mouth at Lake Maurepas
Blind River – from headwaters to Amite River Diversion Canal
Tickfaw River – from the Mississippi State Line to LA Highway 42
Tangipahoa River – from the Mississippi State Line to I-12
Chappepeela Creek – from Louisiana Highway 1062 to Tangipahoa River
Tchefuncte River – From headwaters to US Highway 190; includes tributaries
Tchefuncte River – From US Highway 190 to Bogue Falaya River; includes tributaries
Tchefuncte River – From Bogue Falaya River to La. Highway 22
Bogue Falaya River – from headwaters to Tchefuncte River
Bayou Lacombe – from headwaters to Interstate Highway 12
Bayou Lacombe – from CDM Ecoregion boundary to Lake Pontchartrain
Bayou Lacombe – from Interstate Highway 12 to US Highway 190
Bayou Lacombe – from US Highway 190 to CDM Ecoregion boundary
Bayou Cane – from the headwaters to U.S. Highway 190
Bayou Cane – from CDM Ecoregion boundary to Lake Pontchartrain
Bayou Labranche – from headwaters to Lake Pontchartrain
Bayou Trepagnier – from Norco to Bayou Labranche
Bayou St. John
Bayou Chaperon
Bashman Bayou – from headwaters to Bayou Dupre

Bayou Dupre – from Lake Borgne Canal to Terre Beau Bayou
Lake Borgne Canal – from the Mississippi River siphon at Violet to Bayou Dupre; also called Violet Canal
Pirogue Bayou – from Bayou Dupre to New Canal
Terre Beau Bayou – from Bayou Dupre to New Canal
Bayou Bienvenue – from Bayou Villere to Lake Borgne

MERMENTAU RIVER BASIN: None

VERMILION-TECHE RIVER BASIN:
Spring Creek – from headwaters to Cocodrie Lake
Bayou Cocodrie – from U.S. Highway 167 to the Bayou Boeuf-Cocodrie Diversion Canal

MISSISSIPPI RIVER BASIN: None

OUACHITA RIVER BASIN:
Bayou Bartholomew – from Arkansas State Line to Ouachita River; also known as Bayou Desiard and Lake Bartholomew
Bayou de L'Outre – from the Arkansas State Line to the Ouachita River
Bayou D'Arbonne – from Bayou D'Arbonne Lake to the Ouachita River
Corney Bayou – from the Arkansas State Line to Corney Lake
Corney Bayou – from Corney Lake to Bayou D'Arbonne Lake
Middle Fork of Bayou D'Arbonne – from headwaters to Bayou D'Arbonne Lake
Little River – From Castor Creek-Dugdemona River confluence to Bear Creek
Little River – from Bear Creek to Catahoula Lake
Fish Creek – from headwaters to Little River
Trout Creek – from headwaters to Little River
Big Creek – from the headwaters to Little River
Georgetown Reservoir

PEARL RIVER BASIN:
Holmes Bayou – from Pearl River to West Pearl River
West Pearl River – from headwaters to Holmes Bayou
West Pearl River – from Holmes Bayou to The Rigolets (includes the east and west mouths)
Morgan River – from Porters River to West Pearl River
Wilson Slough and Bradley Slough – from Pearl River to West Pearl River
Pushepatapa Creek – from headwaters and tributaries at Mississippi State Line to Pearl River flood plain
Bogue Chitto River – from Mississippi State Line to Pearl River Navigation Canal

RED RIVER BASIN:
Bayou Dorcheat – from Arkansas State Line to Lake Bistineau
Black Lake Bayou – from one mile north of Leatherman Creek to Black Lake

Saline Bayou – from headwaters near Arcadia to Saline Lake
Kisatchie Bayou – from its Kisatchie National Forest to Old River
Saline Bayou – from Larto Lake to Saline Lake
Bayou Cocodrie – from Little Cross Bayou to Wild Cow Bayou

SABINE RIVER BASIN:
Pearl Creek – from headwaters to Sabine River

TERREBONNE BASIN:
Bayou Penchant – from Bayou Chene to Lake Penchant

Exhibit D-2

ARMY CORPS OF ENGINEERS

Storm Water Pollution Prevention Plan

Construction General Permit
Inspection and Maintenance Report Form

To be completed every 14 days and within 24 hours of a rainfall event of 13 mm (0.5 inch) or more

Project:_____

Inspected By: _____ Date:_____

Inspectors Qualifications:_____

_____

_____

_____

Days Since Last Rainfall:_____ Amount of Last Rainfall_____mm (Inches)

Structural Controls

AREA	DATE SINCE LAST DISTURBED	DATE OF NEXT DISTURBANCE	STABILIZED (yes/no)	STABILIZED WITH	CONDITION

STABILIZATION REQUIRED:

_____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE:_____

Exhibit D-3

ARMY CORPS OF ENGINEERS

Storm Water Pollution Prevention Plan

Construction General Permit
Inspection and Maintenance Report Form

To be completed every 14 days and within 24 hours of a rainfall event of 13 mm (0.5 inch) or more

Project:_____

Inspected By: _____ Date:_____

Inspectors Qualifications:_____

_____

_____

_____

Days Since Last Rainfall:_____ Amount of Last Rainfall_____mm (Inches)

Vegetative Controls

AREA	DATE SINCE LAST DISTURBED	DATE OF NEXT DISTURBANCE	STABILIZED (yes/no)	STABILIZED WITH	CONDITION

STABILIZATION REQUIRED:

_____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE:_____

Exhibit D-4

ARMY CORPS OF ENGINEERS

Storm Water Pollution Prevention Plan

Construction General Permit
Inspection and Maintenance Report Form

To be completed every 14 days and within 24 hours of a rainfall event of 13 mm (0.5 inch) or more

Project:_____

Inspected By:_____ Date:_____

Inspectors Qualifications:_____

_____

_____

_____

Days Since Last Rainfall:_____ Amount of Last Rainfall_____mm (Inches)

Management Controls

AREA	ACTIVITY DESCRIPTION	MAINTENACE REQUIRED	STABILIZED (yes/no)	STABILIZED WITH	CONDITION

STABILIZATION REQUIRED:

_____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE:_____

Table D-5

EQUIPMENT MAINTENANCE AND INSPECTION

Inspection/Maintenance Conducted and Comments/Observations	Location/Equipment	Conducted By	Date

STATE OF LOUISIANA
DEPARTMENT OF ENVIRONMENTAL QUALITY
Office of Environmental Services, Permits Division
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313
PHONE#: (225) 219-9371

SMALL CONSTRUCTION ACTIVITY COMPLETION REPORT (SCACR) LAR200000

(To be submitted within SIXTY (60) DAYS after COMPLETION of covered activities.)

I. OPERATOR INFORMATION

Name: _____
Mail Address: _____
City: _____
State: _____ Zip Code: _____
Phone: _____ DEQ AI# (if known): _____

II. FACILITY/SITE INFORMATION

Name of Project: _____
Location of Project: _____
City: _____ State: _____ Zip Code: _____
Parish: _____
Name of Receiving Water: _____
Total Area of Land Disturbance (in acres): _____
Construction Start Date: _____
Construction Completion/Site Stabilization Date: _____
List existing or prior water discharge permits for the location: _____

III. CERTIFICATION

I certify under penalty of law that project activities were completed in accordance with the requirements of the Clean Water Act and the Louisiana Environmental Quality Act, and specifically in accordance with the LPDES Small Construction General Permit, LAR200000, under which the storm water discharges related to the construction were authorized. I understand that submittal of this Report does not release an Operator from liability for any violation of the permit or the Act. I further certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete and that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name: _____ Date: _____

Signature: _____

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 57 23.01 12

TRUCK WASH-DOWN RACKS

PART 1 GENERAL

1.1 SCOPE
1.2 MEASUREMENT AND PAYMENT

PART 2 PRODUCTS

PART 3 EXECUTION

3.1 Truck Wash-Down Rack

-- End of Section Table of Contents --

SECTION 01 57 23.01 12

TRUCK WASH-DOWN RACKS

PART 1 GENERAL

1.1 SCOPE

The work specified in this section consists of the Contractor designing, implementing and maintaining approved truck wash-down rack(s) at the construction site.

1.2 MEASUREMENT AND PAYMENT

No measurement will be made for the temporary truck wash-down rack designed, constructed and maintained by the Contractor. Payment for the temporary truck wash-down rack, including its maintenance and removal, will be made at the contract job price for "Truck Wash-Down Rack". Price and payment shall constitute full compensation for furnishing the design, and all plant, labor, equipment, and material to complete the work as specified herein and as shown on drawings.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 Truck Wash-Down Rack

The Contractor shall design, submit to the Contracting Officer for approval, and provide a hard-surfaced truck wash-down rack to be located at a point of egress from the construction site onto Freshwater City Road during construction operations to eliminate mud and debris transported onto public roads. All trucks utilized for hauling shall be pressure washed on the wash-down rack prior to departing the construction site. The truck wash-down rack shall be sized and located within the rights-of-way for the access road per the Contractor's proposed equipment and construction site layout.

1. The hard surfaced truck wash-down rack shall consist of a Contractor designed steel grated structure, wooden timber crane mats, or an equivalent method.

2. All truck wash-down rack waste water and sediment shall be intercepted before draining offsite. The water shall be returned to and distributed alongthe northwestern perimter fence and the sediment removed and disposed of in the area beneath the ramp.

3. Upon completion of the construction operation, the Contractor shall remove the truck wash-down rack and all appurtenances from the construction site.

4. The area where the truck wash-down rack was located shall be restored to the condition or better than prior to construction

activities. All aggregate placed between the wash-down rack and the roadway shall be removed.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

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PART 2 PRODUCTS

PART 3 EXECUTION

-- End of Section Table of Contents --

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.1 1.1 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for construction waste management and disposal requirements as specified herein. Payment for the work covered under this section shall be distributed throughout the existing Pricing Schedule items.

1.2 DEFINITIONS

1.2.1 Co-mingle

The practice of placing unrelated materials together in a single container, usually for benefits of convenience and speed.

1.2.2 Construction Waste

Waste generated by construction activities, such as scrap materials, damaged or spoiled materials, temporary and expendable construction materials, and other waste generated by the workforce during construction activities.

1.2.3 Disposal

Depositing waste in a solid waste disposal facility, usually a managed landfill or incinerator, regulated in the US under the Resource Conservation and Recovery Act (RCRA).

1.2.4 Diversion

The practice of diverting waste from disposal in a landfill or incinerator, by means of eliminating or minimizing waste, or reuse of materials.

1.2.5 Final Construction Waste Diversion Report

A written assertion by a material recovery facility operator identifying constituent materials diverted from disposal, usually including summary tabulations of materials, weight in short-ton.

1.2.6 Recycling

The series of activities, including collection, separation, and processing, by which products or other materials are diverted from the solid waste stream for use in the form of raw materials in the manufacture of new products sold or distributed in commerce, or the reuse of such materials as substitutes for goods made of virgin materials, other than fuel.

1.2.7 Reuse

The use of a product or materials again for the same purpose, in its

original form or with little enhancement or change.

1.2.8 Salvage

Usable, salable items derived from buildings undergoing demolition or deconstruction, parts from vehicles, machinery, other equipment, or other components.

1.2.9 Source Separation

The practice of administering and implementing a management strategy to identify and segregate unrelated waste at the first opportunity.

1.3 CONSTRUCTION WASTE

Divert a minimum of 60 percent by weight of the project construction waste from the landfill or incinerator. Follow applicable industry standards in the management of waste. Apply sound environmental principles in the management of waste. (1) Practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction waste from landfills and incinerators and to facilitate the recycling or reuse of excess construction materials.

1.4 CONSTRUCTION WASTE MANAGEMENT

Implement a Construction Waste Management Program for the project. Take a pro-active, responsible role in the management of construction construction waste, recycling process, and require all subcontractors, vendors, and suppliers to participate in the Construction Waste Management Program. Establish a process for clear tracking, and documentation of construction waste.

1.4.1 Implementation of Construction Waste Management Program

Develop and document how the Construction Waste Management Program will be implemented in a Construction Waste Management Plan. Submit a Construction Waste Management Plan to the Contracting Officer for approval. Construction waste materials include un-used construction materials not incorporated in the final work. In the management of waste, consider the availability of viable markets, the condition of materials, the ability to provide material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates.

1.4.2 Special Programs

Implement special programs involving rebates or similar incentives related to recycling of construction waste. Retain revenue or savings from salvaged or recycling, unless otherwise directed. Ensure firms and facilities used for recycling, reuse, and disposal are permitted for the intended use to the extent required by federal, state, and local regulations.

1.4.3 Special Instructions

Provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the projects. Designation of single source separating or commingling will be clearly marked on the containers.

1.4.4 Waste Streams

Delineate waste streams and characterization, including estimated material types and quantities of waste, in the Construction Waste Management Plan. Manage all waste streams associated with the project. Typical waste streams are listed below. Include additional waste steams not listed:

a. Land Clearing Debris

b. Asphalt

c. Masonry and CMU

d. Concrete

e. Metals (Includes, but is not limited to, banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, bronze.)

f. Wood (nails and staples allowed)

g. Glass

h. Paper

i. Plastics (PET, HDPE,PVC,LDPE,PP,PS, Other)

j. Gypsum

k. Non-hazardous paint and paint cans

l. Carpet

m. Ceiling Tiles

n. Insulation

o. Beverage Containers

1.5 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction Waste Management Plan; G

SD-11 Closeout Submittals

Final Construction Waste Diversion Report; G

1.6 MEETINGS

Conduct Construction Waste Management meetings. After award of the Contract and prior to commencement of work, schedule and conduct a meeting with the Contracting Officer to discuss the proposed Construction Waste

Management Plan and to develop a mutual understanding relative to the management of the Construction Waste Management Program and how waste diversion requirements will be met. The requirements of this meeting may be fulfilled during the coordination and mutual understanding meeting outlined in Section 01 45 04.00 10 - CONTRACTOR QUALITY CONTROL. At a minimum, discuss and document waste management goals at following meetings:

a. Preconstruction meeting.

b. Regular site meetings.

c. Work safety meeting (if applicable).

1.7 CONSTRUCTION WASTE MANAGEMENT PLAN

Submit Construction Waste Management Plan within 15 calendar days after Notice to Proceed. Revise and resubmit Construction Waste Management Plan as necessary, in order for construction to begin.

An approved Construction Waste Management Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations or meeting project cumulative waste diversion requirement. Ensure all subcontractors receive a copy of the approved Construction Waste Management Plan. The plan demonstrates how to meet the project waste diversion requirement. Also, include the following in the plan:

a. Identify the names of individuals responsible for waste management and waste management tracking, along with roles and responsibilities on the project..

b. Actions that will be taken to reduce solid waste generation, including coordination with subcontractors to ensure awareness and participation.

c. Description of the regular meetings to be held to address waste management.

d. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas on site and equipment to be used for processing, sorting, and temporary storage of materials.

e. Name of landfill and incinerator to be used.

f. Identification of local and regional re-use programs, including non-profit organizations such as schools, local housing agencies, and organization that accept used materials such as material exchange networks and resale stores. Include the name, location, phone number for each re-use facility identified, and provide a copy of the permit or license for each facility.

g. List of specific materials, by type and quantity, that will be salvaged for resale, salvaged and reused on the current project, salvaged and stored for reuse on a future project, or recycled. Identify the recycling facilities by name, address, and phone number.

h. Identification of materials that cannot be recycled or reused with an explanation or justification, to be approved by the Contracting Officer.

i. Description of the means by which materials identified in item (g)

above will be protected from contamination.

j. Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site).

k. Copy of training plan for subcontractors and other services to prevent contamination by co-mingling materials identified for diversion and waste materials.

Distribute copies of the Waste Management Plan to each subcontractor, , and the Contracting Officer.

1.8 RECORDS (DOCUMENTATION)

1.8.1 General

Maintain records to document the types and quantities of waste generated and diverted though re-use, recycling and sale to third parties; through disposal to a landfill or incinerator facility. Provide explanations for materials not recycled, reused or sold. Collect and retain manifests, weight tickets, sales receipts, and invoices specifically identifying diverted project waste materials or disposed materials.

1.8.2 Accumulated

Maintain a running record of materials generated and diverted from landfill disposal, including accumulated diversion rates for the project. Make records available to the Contracting Officer during construction or incidental demolition activities. Provide a copy of the diversion records to the Contracting Officer upon completion of the construction, incidental demolitions or minor deconstruction activities.

1.9 FINAL CONSTRUCTION WASTE DIVERSION REPORT

A Final Construction Waste Diversion Report is required at the end of the project. Provide Final Construction Waste Diversion Report 60 days prior to the Beneficial Occupancy Date (BOD). The final Construction Waste Diversion Report must be included in the Sustainability eNotebook in accordance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING.

1.10 COLLECTION

Collect, store, protect, and handle reusable and recyclable materials at the site in a manner which prevents contamination, and provides protection from the elements to preserve their usefulness and monetary value. Provide receptacles and storage areas designated specifically for recyclable and reusable materials and label them clearly and appropriately to prevent contamination from other waste materials. Keep receptacles or storage areas neat and clean.

Train subcontractors and other service providers to either separate waste streams or use the co-mingling method as described in the Construction Waste Management Plan. Separate materials by one of the following methods described herein:

1.10.1 Source Separation Method

Separate waste products and materials that are recyclable from trash and sort as described below into appropriately marked separate containers and then transport to the respective recycling facility for further processing. Deliver materials in accordance with recycling or reuse facility requirements (e.g., free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process). Separate materials into the category types as defined in the Construction Waste Management Plan.

1.10.2 Other Methods

Other methods proposed by the Contractor may be used when approved by the Contracting Officer.

1.11 DISPOSAL

Control accumulation of waste materials and trash. Recycle or dispose of collected materials off-site at intervals approved by the Contracting Officer and in compliance with waste management procedures as described in the waste management plan. Except as otherwise specified in other sections of the specifications, dispose of in accordance with the following:

1.11.1 Reuse

Give first consideration to reusing construction and demolition materials as a disposition strategy. Recover for reuse materials, products, and components as described in the approved Construction Waste Management Plan. Coordinate with the Contracting Officer to identify onsite reuse opportunities or material sales or donation available through Government resale or donation programs. Sale of recovered materials is not allowed on the Installation. Consider the use of surplus industrial supply broker services, who match entities with reusable or repurpose industrial materials with entities with need of such materials.

1.11.2 Recycle

Recycle non-hazardous construction and demolition/debris materials that are not suitable for reuse. Track rejection of contaminated recyclable materials by the recycling facility. Rejected recyclables materials will not be counted as a percentage of diversion calculation. Recycle all fluorescent lamps, HID lamps, mercury (Hg) -containing thermostats and ampoules, and PCBs-containing ballasts and electrical components as directed by the Contracting Officer. Do not crush lamps on site as this creates a hazardous waste stream with additional handling requirements.

1.11.3 Waste

Dispose by landfill or incineration only those waste materials with no practical use, economic benefit, or recycling opportunity.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used. -- End of Section --

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SECTION 01 78 02.00 10

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

No separate measurement and payment will be made for providing Closeout Recycled Material Content Submittals, including "As-Built" drawings required under this section. All costs associated therewith shall be included in the applicable contract unit or job prices contained in the Pricing Schedule.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

"As-Built" Drawings; G, DO

The Contractor shall submit full-scale drawings showing final "As-Built" conditions of the project. The final (red-lined) "As-Built" drawings shall consist of 3 sets (an original and two color copies) and 3 electronic (.PDF) copies on CD-R of the approved working as-builts.

SD-11 Closeout Submittals

Recycled Material Content; S

Estimate the percentage of the total recovered material content for EPA-designated item(s) delivered and/or used in contract performance, including, if applicable, the percentage of post-consumer material content

1.3 PROJECT RECORD DOCUMENTS

1.3.1 "As-Built" Drawings

This paragraph covers "As-Built" drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working "As-Built" drawings" and "final as-built drawings" refer to contract drawings which are revised to be used for final "As-Built" drawings.

1.3.1.1 Working "As-Built" and Final "As-Built" Drawings

The Contractor shall revise 4 full size 22"x34" sets of paper drawings by

red-line process to show the "As-Built" conditions during the prosecution of the project. These working "As-Built" marked drawings shall be kept current on a weekly basis and at least one set shall be available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. The working "As-Built" marked prints and final "As-Built" drawings will be jointly reviewed for accuracy and completeness by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the working and final "As-Built" drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the "As-Built" drawings. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and the Contractor regarding the accuracy and completeness of updated drawings. The working and final "As-Built" drawings shall show, but shall not be limited to, the following information:

a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, the "As-Built" drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes and similar appurtenances shall be located by dimensioning along the utility run from a reference point. The average depth below the surface of each run shall also be recorded.

b. The location and dimensions of any changes within the building structure.

c. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

d. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

e. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

f. Changes or modifications which result from the final inspection.

g. Where contract drawings or specifications present options, only the option selected for construction shall be shown on the final "As-Built" prints.

h. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, the Contractor shall furnish a contour map of the final borrow pit/spoil area elevations.

i. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.

j. Modifications will be shown in accordance with the following procedures.

(1) Directions in the modification for posting descriptive changes shall be followed.

(2) A Modification Triangle shall be placed at the location of each deletion.

(3) For new details or sections which are added to a drawing, a Modification Triangle shall be placed by the detail or section title.

(4) For minor changes, a Modification Triangle shall be placed by the area changed on the drawing (each location).

(5) For major changes to a drawing, a Modification Triangle shall be placed by the title of the affected plan, section, or detail at each location.

(6) For changes to schedules or drawings, a Modification Triangle shall be placed either by the schedule heading or by the change in the schedule.

(7) The Modification Triangle size shall be 1/2 inch on a side unless the area where the circle is to be placed is crowded. Smaller size circle shall be used for crowded areas.

1.3.1.2 Drawing Preparation

The "As-Built" drawings shall be modified as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working "As-Built" prints, and adding such additional drawings as may be necessary. These working "As-Built" marked prints shall be neat, legible and accurate. These drawings are part of the permanent records of this project and shall be returned to the Contracting Officer after approval by the Government. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at no expense to the Government.

1.3.1.3 Final "As-Built" Drawings

When final revisions have been completed, the cover sheet drawing shall show the wording in red print "RECORD DRAWING AS-BUILT" followed by the name of the Contractor and the contract number in letters at least 1/2 inch high. All other contract drawings shall be marked in red print either "AS-Built" drawing denoting no revisions on the sheet or "Revised As-Built" denoting one or more revisions. Original contract drawings shall be dated in the revision block. Within 20 days after Government approval of all of the working as-built drawings, the Contractor shall prepare the final "As-Built" drawings for that phase of work and submit to the Government for review and approval. The Government will promptly return one set of prints annotated with any necessary corrections. Within 10 days the Contractor shall revise the "As-Built" drawings accordingly at no additional cost and submit one set of final "As-Built" prints, two color copies, and three PDF files on CD-R for the completed phase of work to the Government. Within 10 day of substantial completion of all phases of work, the Contractor shall submit the final "As-Built" drawing package for the entire project. The submittal shall consist of three sets of the approved working "As-Built" drawings (one original and two color copies) and three electronic (.PDF) copies on CD-R. Paper prints and storage media submitted

will become the property of the Government upon final approval. Failure to submit final "As-Built" drawing files and marked prints as specified shall be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final "As-Built" drawings shall be accomplished before final payment is made to the Contractor.

1.4 OPERATION AND MAINTENANCE MANUALS

Operation manuals and maintenance manuals shall be submitted as specified. Operation manuals and maintenance manuals provided in a common volume shall be clearly differentiated and shall be separately indexed.

1.5 FINAL CLEANING

The premises shall be left clean. Stains, foreign substances, and temporary labels shall be removed from surfaces. Equipment and fixtures shall be cleaned to a sanitary condition. Filters of operating equipment shall be replaced. Debris shall be removed from roofs, drainage systems, gutters, and downspouts. Paved areas shall be swept clean. The site shall have waste, surplus materials, and rubbish removed. The project area shall have temporary structures, barricades, project signs, and construction facilities removed.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

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-- End of Section Table of Contents --

SECTION 03 21 00.00 12

REINFORCING STEEL

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, labor, materials and equipment to place steel bars and accessories for concrete reinforcement; as specified herein and as shown on the drawings.

1.2 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for reinforcing steel, including appurtanant items. All costs in connection therewith shall be included in the contract unit or job price for the item to which the work is incidental.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 318/318R	(2014; Errata 1-2 2014; Errata 3-5 2015; Errata 6 2016; Errata 7-9 2017) Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary (ACI 318R-14)
ACI SP-66	(2004) ACI Detailing Manual

ASTM INTERNATIONAL (ASTM)

ASTM A615/A615M	(2024) Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A706/A706M	(2024) Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM E 8-04	(2004) Tension Testing of Metallic Materials

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Fabrication and Placement; G

The Contractor shall prepare and submit complete shop drawings to the Government for approval in accordance with specified requirements. Shop drawings shall include the details of bar supports including types, sizes, spacing and sequence.

SD-03 Product Data

Mechanical Butt-Splices; G

The Contractor shall submit the proposed procedure for mechanically butt-splicing steel bars for No. 11 or larger or as allowed for on the drawings, prior to making the test butt-splices for qualification of the procedure. Properties and analyses of steel bars and splicing materials shall be included in the submitted procedure. Physical properties of splicing sleeves shall include length, inside and outside diameters, and inside surface details. All mechanical splices shall test to a minimum of 125% capacity before being spliced.

Materials

A system of identification which shows the disposition of specific lots of approved materials in the work shall be established and submitted before completion of the contract.

SD-06 Test Reports

Material

Tests, Inspections, and Verifications

Certified test reports of reinforcement steel showing that the steel complies with the applicable specifications shall be furnished for each steel shipment and identified with specific lots prior to placement.

1.5 QUALITY CONTROL

1.5.1 Material Tests

The Contractor shall have required material tests performed by an approved laboratory to demonstrate that the materials are in conformance with the specifications. Tension tests shall be performed on full cross section specimens in accordance with ASTM E 8-04, using a gage length that spans the extremities of specimens with welds or sleeves included. Tests shall be at the Subcontractors's expense.

1.5.2 General

The Contractor shall establish and maintain quality control for proper installation of all work covered in this section to assure compliance with contract specifications and maintain records of his/her quality control for all construction operations including but not limited to the following:

(1) Minimum concrete cover of reinforcement steel.

(2) Number, size, and location of placement.

(3) Maintain adequate splicing lengths where required.

(4) Tests, Inspections, and Verifications

1.5.3 Reporting

The original and two copies of these records and tests, as well as the records of corrective action taken, shall be furnished to the governement daily. Format of the report shall be as prescribed in Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Reinforcing Steel

Billet steel bars shall conform to ASTM A615/A615M, Grade 60 unless noted otherwise on the contract drawings, including the following requirements:

(1) Tension test specimens shall be bars of full cross section as rolled for all sizes.

(2) The bend test requirements shall be based upon 180-degree bends of full size bars for all grades of steel. The bend diameters for bend tests shall be as indicated in the following table and shall be measured on the inside of bars:

Bar Size	Maximum Diameter
#3, #4 and #5	3 1/2 bar diameters
#6, #7 and #8	5 bar diameters
#9, #10 and #11	7 bar diameters
#14	9 bar diameters

(3) Rebar welded to embedment plates or as otherwise shown welded on the contract drawings shall conform to ASTM A706/A706M, Grade 60.

2.1.2 Accessories

2.1.2.1 Bar Supports

Bar supports shall conform to ACI SP-66. Supports for bars in concrete with formed surfaces exposed to view or to be painted shall be plastic-coated wire, stainless steel or precast concrete supports. Precast concrete supports shall be wedged-shaped, not larger than 3-1/2 by 3-1/2 inches, of thickness equal to that indicated for concrete cover and have an embedded hooked tie-wire for anchorage. Bar supports used in precast concrete with formed surfaces exposed to view shall be the same quality, texture and color as the finish surfaces.

2.1.2.2 Wire Ties

Wire ties shall be 16 gage or heavier black annealed wire.

PART 3 EXECUTION

3.1 PLACEMENT

Reinforcement steel and accessories shall be placed as specified herein, shown on the drawings and on approved shop drawings. Fabrication and placement details of steel and accessories not specified or shown shall be in accordance with ACI SP-66 and ACI 318/318R. Steel reinforcement shall be fabricated to shapes and dimensions shown, placed where indicated within specified tolerances and adequately supported during concrete placement. At the time of concrete placement all steel shall be free from loose, flaky rust, scale (except tight mill scale), mud, oil, grease or any other coating that might reduce the bond with the concrete.

3.1.1 Hooks and Bends

Reinforcement bars shall be mill or field-bent. All steel shall be bent cold unless authorized. No steel bars shall be bent after being partially embedded in concrete unless indicated or authorized. No steel bars partially embedded in concrete shall be field bent unless indicated on the drawings or otherwise authorized. All hooks or bends shall be in accordance with ACI 318/318R.

3.1.2 Placing Tolerances

3.1.2.1 Spacing of Bars

Bars shall be spaced as indicated on the drawings or as otherwise directed. The spacing between adjacent bars and the distance between layers of bars may not vary from the indicated position by more than one bar diameter nor more than 1 inch, whichever is less.

3.1.2.2 Concrete Cover

The minimum and maximum concrete cover of main reinforcement steel shall be as indicated on the drawings. The concrete tolerances shall be as follows:

MINIMUM COVER	VARIATION
6 inch	plus 1/2 inch
4 inch	plus 3/8 inch
3 inch	plus 3/8 inch
2 inch	plus 1/4 inch
1-1/2 inch	plus 1/4 inch
1 inch	plus 1/8 inch
3/4 inch	plus 1/8 inch

3.1.3 Splicing

Mechanical butt-splices in reinforcement steel shall be as specified, shown on the drawings or as directed by the Government. Bars may be spliced at alternate or additional locations at no additional cost to the Government, subject to the approval of the Government. Except as provided herein, all splicing shall be in accordance with approved splicing procedures and the requirements of ACI 318/318R. Bars larger than No. 11 shall be spliced with mechanical connectors or butt-welded in accordance with ACI 318/318R. The splice shall be submitted to the Government for approval.

3.1.3.1 Lap Splices

Bar laps may be placed in contact and securely tied or spaced transversely apart to permit the embedment of the entire surface of each bar in concrete, but shall not be spaced farther apart than one fifth the required length of lap nor 6 inches. Lengths of laps for bars shall conform to the requirements of ACI 318/318R, except when otherwise shown on the drawings.

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CONCRETE FOR MINOR STRUCTURES

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, labor, materials, equipment, and performing all operations necessary for batching, transporting, placing and finishing concrete for the stair foundations, scour protection slabs, and the transition paving at the end of ramps; as specified herein and as shown on the drawings.

1.2 MEASUREMENT AND PAYMENT

No measurement will be made for the concrete work covered in this section. Payment will be made at the contract job price for "Cast-In-Place Concrete". Price and payment shall constitute full compensation for furnishing all plant, labor, materials, and equipment required to complete the concrete work as specified; including transition slab paving; batching, transporting, placing and finishing concrete; as specified herein and as shown on the drawings .

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 308R	(2001) Guide to Curing Concrete
ACI 318/318R	(2014; Errata 1-2 2014; Errata 3-5 2015; Errata 6 2016; Errata 7-9 2017) Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary (ACI 318R-14)
ACI 347	(2004) Guide t o Formwork for Concrete

ASTM INTERNATIONAL (ASTM)

ASTM C31/C31M	(2019a) Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM A185/A185M	(2007) Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
ASTM C39/C39M	(2020) Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

ASTM C33/C33M	(2018) Standard Specification for Concrete Aggregates
ASTM C94/C94M	(2020) Standard Specification for Ready-Mixed Concrete
ASTM C143/C143M	(2010) Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	(2020) Standard Specification for Portland Cement
ASTM C172	(2010) Standard Practice for Sampling Freshly Mixed Concrete
ASTM C231/C231M	(2017a) Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C595/C595M	(2021) Standard Specification for Blended Hydraulic Cements
ASTM C618	(2019) Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C685/C685M	(2017) Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C1107/C1107M	(2020) Standard Specification for Packaged Dry, Hydraulic-Cement Gkrout (Nonshrink)
ASTM C989/C989M	(2018a) Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1107/C1107M	(2020) Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
ASTM C1567	(2021) Standard Test Method for Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)
ASTM D75/D75M	(2019) Standard Practice for Sampling Aggregates
ASTM D1752	(2018) Standard Specification for Preformed Sponge Rubber, Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D1752	(2018) Standard Specification for Preformed Sponge Rubber, Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE CRD-C 400	(1963) Requirements for Water for Use in

Mixing or Curing Concrete

LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES (2006 Edition), LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT (LADOTD)

LSSRB 1003.02 Aggregates for Portland Cement Concrete and Mortar

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Water-Reducing or Retarding Admixture
Other Admixtures
Reinforcing Steel
Nonshrink Grout

Manufacturer's literature which demonstrates compliance with these specifications shall be submitted for the above materials.

Batching and Mixing Equipment

Batching and mixing equipment will be accepted on the basis of manufacturer's data, which demonstrates compliance with the applicable specifications. The name and location of the batch plant shall be furnished..

Conveying and Placing Concrete

The methods and equipment for transporting, handling, depositing, and consolidating the concrete shall be submitted to the Contracting Officer prior to the first concrete placement.

SD-06 Test Reports

Aggregates

Aggregates will be accepted on the basis of certificates of compliance and test reports that show the material(s) meets the quality and grading requirements of the specifications under which it is furnished.

Concrete Mixture Proportions; G

At least 30 days prior to placement of concrete, the Contractor shall submit to the Contracting Officer the mixture proportions that will produce concrete of the quality required. Mixture proportions shall include the dry weights of each cementitious material; the nominal maximum size of the coarse aggregate; the specific gravities, absorptions, and saturated surface-dry weights of fine and coarse aggregates; the quantities, types, and names of admixtures; and quantity of water per cubic yard of concrete. All

materials included in the mixture proportions shall be of the same type and from the same source as will be used on the project. Documentation complying with paragraph 5.3.3 of ACI 318/318R shall be submitted to verify that the concrete mixture proportions selected will produce concrete of the quality specified.

SD-07 Certificates

Cementitious Materials

Certificates of compliance attesting that the concrete materials meet the requirements of the specifications shall be submitted in accordance with Section 01100 - GENERAL PROVISIONS, paragraph CERTIFICATES OF COMPLIANCE. Cementitious material will be accepted on the basis of a manufacturer's certificate of compliance, accompanied by current mill test reports stating that the material meets the requirements of the specification under which it is furnished. If a blended product meeting ASTM C595/C595M is to be used, the manufacturer shall also certify in writing that the amount of pozzolan or ground granulated blast-furnace (GGBF) slag in the finished cement will not vary more than plus or minus 5.0 mass percent of the finished cement from lot to lot or within a lot.

Aggregates

Aggregates will be accepted on the basis of certificates of compliance and tests reports that show the material(s) meet the quality and grading requirements of the specifications under which it is furnished. The gradation test for the fine aggregate shall include the No. 8 and No. 30 sieve sizes. The name and location of the pit shall also be furnished.

1.5 QUALITY CONTROL

1.5.1 General

The Contractor shall establish and maintain quality control for concrete operations to assure compliance with contract requirements and maintain records of his/her quality control for all construction operations including but not limited to the following:

(1) Equipment. Type, size, and suitability for construction of the prescribed work.

(2) Formwork. Verify dimensions and finish elevations for compliance with drawings.

(3) Embedded Items. Verify all embedded items are in place before concrete placement.

(4) Utilities. Verify utility stub-outs are in placed and secured before concrete placement.

(5) Concrete. Verify concrete mix is correct for intended use.

(6) Protection and Curing. Verify concrete is protected and cured properly.

(7) Control Testing.

(a) Aggregate Tests.

(b) Air Content Tests.

(c) Slump Tests.

1.5.2 Reporting

The original and two copies of these records of inspections and tests, as well as the records of corrective action taken, shall be furnished the Government daily. Format of the report shall be as prescribed in Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL.

1.6 DESIGN AND PERFORMANCE REQUIREMENTS

The Government will maintain the option to sample and test aggregates and concrete to determine compliance with the specifications. The Contractor shall provide facilities and labor as may be necessary to assist the Government in procurement of representative test samples. Samples of aggregates shall be obtained at the point of batching in accordance with ASTM D75/D75M. Concrete will be sampled in accordance with ASTM C172. Slump and air content will be determined in accordance with ASTM C143/C143M and ASTM C231/C231M, respectively, when cylinders are molded. Compression test specimens shall be made, cured, and transported in accordance with ASTM C31/C31M. Compression test specimens will be tested in accordance with ASTM C39/C39M. Samples for strength tests shall be taken not less than once each shift in which concrete is produced from each class of concrete required. A minimum of three specimens will be made from each sample; two will be tested at 28 days for acceptance, and one will be tested at 7 days for information.

1.6.1 Strength

Acceptance test results will be the average strengths of two specimens tested at the specified design age. The strength of the concrete will be considered satisfactory so long as the average of three consecutive acceptance test results equal or exceed the specified compressive strength, f'c , and no individual acceptance test result falls below f'c by more than 500 psi.

1.6.2 Construction Tolerances

A Class "C" finish shall apply to all surfaces except those specified to receive a Class "D" finish. A Class "D" finish shall apply to all surfaces which will be permanently concealed after construction. The requirements for the classes of finish shall be as specified in ACI 347.

1.6.3 Concrete Mixture Proportions

Concrete mixture proportions shall be the responsibility of the Contractor. Specified compressive strength for the stair foundations and transition slab shall be 5,000 psi at 28 days. The nominal maximum size coarse aggregate shall be 1-1/2 inches. The slump shall range from 2 to 5 inches. The maximum water to cementitious materials ratio shall be 0.40. If pozzolan is used, it shall range from 15 to 35 percent by weight of the total cementitious materials. Specified compressive strength for the scour protection slab shall be 2,500 psi at 28 days. The maximum water to

cementious materials ratio shall be 0.60. All concrete shall meet the requirements for the following exposure categories: F0, S0, W0, C2.

PART 2 PRODUCTS

2.1 CEMENTITIOUS MATERIALS

Cementitious materials shall be Portland cement, Portland cement in combination with pozzolan or blended hydraulic cement and shall conform to appropriate specifications listed:

2.1.1 Portland Cement

ASTM C150, low alkali, Type II.

2.1.2 Blended Hydraulic Cement

ASTM C595/C595M, Type IS(MS) or IP (20 to 40) MS. Blended hydraulic cement shall meet the mortar expansion limits found in Table 2 of ASTM C595/C595M.Admixture additions shall not be included in the blended cement.

2.1.3 Pozzolan, other than Silica Fume

Pozzolan shall conform to ASTM C618, Class C or F, with the Multiple Factor and the Effectiveness in Controlling Alkali-Silica Reaction requirements of Table 3. Test results showing that the proposed combination of cementitious materials and aggregates will expand less than 0.10% in 16 days when tested in accordance with ASTM C1567 may be substituted for the Effectiveness in Controlling Alkali-Silica Reaction test

2.1.4 Ground Granulated Blast-Furnace Slag

Ground Granulated Blast-Furnace (GGBF) Slag shall conform to ASTM C989/C989M, Grade 100 or 120.

2.2 AGGREGATES

Aggregates shall conform to ASTM C33/C33M, except as specified otherwise herein. Coarse aggregate shall meet the additional requirements for Class 4M or better or LSSRB 1003.02. Aggregates shall conform to the grading requirements of either ASTM C33/C33M or, LSSRB 1003.02. Recycled Portland cement concrete and lightweight coarse aggregate shall not be used.

2.3 ADMIXTURES

Admixtures to be used, when required or approved, shall comply with the appropriate specification listed. Chemical admixtures that have been in storage at the project site for longer than 6 months or that have been subjected to freezing shall be retested at the expense of the Contractor at the request of the Contracting Officer and shall be rejected if test results are not satisfactory.

2.3.1 Water-Reducing or Retarding Admixture

Water-reducing or retarding admixtures shall meet the requirements of ASTM C494/C494M, Type A, B, or D.

2.4 WATER

Water for mixing and curing shall be fresh, clean, drinkable, and free from injurious amounts of oil, acid, salt, sugar or alkali, except that undrinkable water may be used if it meets the requirements of COE CRD-C 400.

2.5 REINFORCING STEEL

Reinforcing steel bar shall conform to the requirements of ASTM A615/A615M, Grade 60. Welded steel wire fabric shall conform to the requirements of ASTM A185/A185M. Details of reinforcement not shown on drawings shall be in accordance with ACI 318/318R, Chapters 7 and 12.

2.6 EXPANSION JOINT FILLER STRIPS

Expansion joint filler strips shall conform to ASTM D1752, Type I or IV.

2.7 FORMWORK

The design of the formwork as well as its construction shall be the responsibility of the Contractor.

2.8 FORM COATINGS

Forms for exposed surfaces shall be coated with nonstaining form oil, which shall be applied shortly before concrete is placed.

2.9 NONSHRINK GROUT

Nonshrink grout shall conform to ASTM C1107/C1107M and shall be a commercial formulation suitable for the application proposed.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 General

Construction joints shall be prepared to expose coarse aggregate, and the surface shall be clean, damp, and free of laitance. Ramps and walkways, as necessary, shall be constructed to allow safe and expeditious access for concrete and workmen. Snow, ice, standing or flowing water, loose particles, debris, and foreign matter shall have been removed. Earth foundations shall be satisfactorily compacted. All equipment needed to place, consolidate, protect, and cure the concrete shall be at the placement site and in good operating condition. Spare vibrators shall be available. The entire preparation shall be accepted by the Government prior to placing.

3.1.2 Embedded Items

Reinforcement shall be secured in place; joints, anchors, and other embedded items shall have been positioned. Internal ties shall be arranged so that when the forms are removed all metal will be not less than 2 inches from concrete surfaces permanently exposed to view or exposed to water on the finished structures. Embedded items shall be free of oil and other foreign matter such as loose coatings or rust, paint, and scale. The embedding of wood in concrete will be permitted only when specifically authorized or directed.

3.1.3 Formwork Installation

Forms shall be properly aligned, adequately supported, and mortar-tight. The form surfaces shall be smooth and free from irregularities, dents, sags, or holes when used for permanently exposed faces. All exposed joints and edges shall be chamfered, unless otherwise indicated.

3.1.4 Production of Concrete

3.1.4.1 Ready-Mixed Concrete

Ready-mixed concrete shall conform to ASTM C94/C94M, except as otherwise specified.

3.1.4.2 Concrete Made by Volumetric Batching and Continuous Mixing

Concrete made by volumetric batching and continuous mixing shall conform to ASTM C685/C685M.

3.1.4.3 Batching and Mixing Equipment

The Contractor shall have the option of using an on-site batching and mixing facility. The facility shall provide sufficient batching and mixing equipment capacity to prevent cold joints. On-site plant shall conform to the requirements of either ASTM C94/C94M or ASTM C685/C685M.

3.2 CONVEYING AND PLACING CONCRETE

3.2.1 General

Concrete placement shall not be permitted when, in the opinion of the Contracting Officer, weather conditions prevent proper placement, consolidation, and curing. When concrete is mixed and/or transported by a truck mixer, the concrete shall be delivered to the site of the work and discharge shall be completed within 1-1/2 hours or 45 minutes when the placing temperature is 85 degrees F or greater unless a retarding admixture is used. Concrete shall be conveyed from the mixer to the forms as rapidly as practicable by methods, which prevent segregation or loss of ingredients. Concrete shall be in place and consolidated within 15 minutes after discharge from agitating equipment. Concrete shall be deposited as close as possible to its final position in the forms and be so regulated that it may be effectively consolidated in horizontal layers 18 inches or less in thickness with a minimum of lateral movement. The placement shall be carried on at such a rate that the formation of cold joints will be prevented.

3.2.2 Consolidation

Each layer of concrete shall be consolidated by rodding, spading, orinternal vibrating equipment. External vibrating equipment may be used when authorized by the Contracting Officer. Internal vibration shall be systematically accomplished by inserting the vibrator through the fresh concrete in the layer below at a uniform spacing over the entire area of placement. The distance between insertions shall be approximately 1.5 times the radius of action of the vibrator and overlay the adjacent, just vibrated area by a few inches. The vibrator shall penetrate rapidly to the bottom of the layer and at least 6 inches into the layer below, if such a layer exists. It shall be held stationary until there is a general

cessation in escape of large bubbles of entrapped air in the surface of the concrete (generally 5 to 15 seconds) and then withdrawn slowly at the rate of about 3 inches per second.

3.2.3 Cold-Weather Requirements

No concrete placement shall be made when the ambient temperature is below 35 degrees F or if the ambient temperature is below 40 degrees F and falling. Suitable covering and other means, as approved by the Contracting Officer, shall be provided for maintaining the concrete at a temperature of at least 50 degrees F for not less than 72 hours after placing and at a temperature above freezing for the remainder of the curing period. Salt, chemicals, or other foreign materials shall not be mixed with the concrete to prevent freezing. Any concrete damaged by freezing shall be removed and replaced at the expense of the Contractor.

3.2.4 Hot-Weather Requirements

When the rate of evaporation of surface moisture, as determined by use of Figure 4.1 of ACI 308R, is expected to exceed 0.2 pounds per square foot per hour, provisions for windbreaks, shading, fog spraying, or covering with a light-colored material shall be made in advance of placement, and such protective measures shall be taken as quickly as finishing operations will allow.

3.3 FORM REMOVAL

Forms shall not be removed before the expiration of 24 hours after concrete placement except where otherwise specifically authorized. Supporting forms and shoring shall not be removed until the concrete has cured for at least 5 days. When conditions on the work are such as to justify the requirement, forms will be required to remain in place for longer periods.

3.4 FINISHING

3.4.1 General

No finishing or repair shall be done when either the concrete or the ambient temperature is below 50 degrees F.

3.4.2 Finishing Formed Surfaces

All fins and loose materials shall be removed, and surface defects including tie holes shall be filled. All honeycomb areas and other defects shall be repaired. All unsound concrete shall be removed from areas to be repaired. Surface defects greater than 1/2 inch in diameter and holes left by removal of tie rods in all surfaces not to receive additional concrete shall be reamed or chipped and filled with dry-pack mortar. The prepared area shall be brush-coated with an approved latex bonding compound or with a neat cement grout after dampening and filled with mortar or concrete. The cement used in mortar or concrete for repairs to all surfaces permanently exposed to view shall be a blend of portland cement and white cement so that the final color when cured will be the same as adjacent concrete.

3.4.3 Finishing Unformed Surfaces

All unformed surfaces that are not to be covered by additional concrete or backfill shall be float finished to elevations shown on the drawings,

unless otherwise specified. Surfaces to receive additional concrete or backfill shall be brought to the elevations shown on the drawings and left as a true and regular surface. Exterior surfaces shall be sloped for drainage unless otherwise shown on the drawings. Joints shall be carefully made with a jointing tool. Unformed surfaces shall be finished to a tolerance of 3/8 inch for a float finish and 5/16 inch for a trowel finish as determined by a 10 foot straightedge placed on surfaces shown on the plans to be level or having a constant slope. Finishing shall not be performed while there is excess moisture or bleeding water on the surface. No water or cement shall be added to the surface during finishing.

3.4.3.1 Float Finish

Surfaces to be float finished shall be screeded and darbied or bullfloated to eliminate the ridges and to fill in the voids left by the screed. In addition, the darbying or bullfloating shall fill all surface voids and only slightly embed the coarse aggregate below the surface of the fresh concrete. When the water sheen disappears and the concrete will support a person's weight without more than about 1/4-inch indentation, floating should be completed. Floating should embed large aggregates just beneath the surface, remove slight imperfections, humps, and voids to produce a plane surface, compact the concrete, and consolidate mortar at the surface.

3.5 CURING AND PROTECTION

Beginning immediately after placement and continuing for at least 7 days, all concrete shall be cured and protected from premature drying, extremes in temperature, rapid temperature change, freezing, mechanical damage, and exposure to rain or flowing water. All materials and equipment needed for adequate curing and protection shall be available and at the site of the placement prior to the start of concrete placement. Preservation of moisture for concrete surfaces not in contact with forms shall be accomplished by any of the following methods:

(1) Continuous sprinkling or ponding.

(2) Application of absorptive mats or fabrics kept continuously wet (horizontal surfaces only).

(3) Application of sand kept continuously wet.

(4) Application of impervious sheet material.

(5) Application of membrane-forming curing compound in accordance with the manufacturer's written instructions.

The preservation of moisture for concrete surfaces placed against wooden forms shall be accomplished by keeping the forms continuously wet for the required curing period. If forms are removed prior to end of the required curing period, other curing methods shall be used for the balance of the curing period. During the period of protection removal, the temperature of the air in contact with the concrete shall not be allowed to drop more than 25 degrees F within a 24-hour period.

3.6 GROUTING

3.6.1 General

After being plumbed and properly positioned, the base plate shall be

grouted. Concrete surfaces shall be rough, clean, and free of oil, grease, and laitance, and they shall be damp. Curing compound shall have been mechanically removed from the concrete where grout is to be applied.

3.6.2 Nonshrink Grout

Unless recommended otherwise by the grout manufacturer, the mixture shall include by weight 1-1/2 parts of sound, clean, uncrushed gravel conforming to the size no. 8, Table 2, ASTM C33/C33M in combination with fine aggregate conforming to ASTM C33/C33M, to 1 part portland cement. Water content shall be the minimum that will provide a flowable mixture and completely fill the space to be grouted without segregation, bleeding, or reduction of strength.

3.6.2.1 Mixing and Placing

Mixing and Placing shall be in conformance with the material manufacturer's instructions and as specified therein. Ingredients shall be thoroughly dry mixed before adding water. After adding water, the batch shall be mixed for at least 3 minutes. Batches shall be of a size to allow continuous placement of freshly mixed grout. Grout not used within 30 minutes after mixing shall be discarded. The space between the pipe and retaining wall shall be filled solid with the grout. Forms shall be of wood or other equally suitable material for retaining the grout and shall be removed after the grout has set. The placed grout shall be worked to eliminate voids; however, overworking and breakdown of the initial set shall be avoided. Grout shall not be retempered or subjected to vibration from any source. Temperature of the grout, and of surfaces receiving the grout, shall be maintained at 65 to 85 degrees F until after setting.

3.6.2.2 Treatment of Exposed Surfaces

Those types containing metallic aggregate shall have, after the grout has set, the exposed surfaces cut back 1 inch and immediately covered with a parge coat of mortar proportioned by weight of one part portland cement, two parts sand, and sufficient water to make the mixture placeable. The parge coat shall have a smooth, dense finish. The exposed surface of other types of nonshrink grout shall have a smooth, dense finish.

3.6.2.3 Curing

Grout and parge coats shall be cured in conformance with paragraph CURING AND PROTECTION.

3.7 CONTRACTOR'S TESTS AND INSPECTIONS

3.7.1 General

The individuals who sample and test concrete as required in this specification shall have demonstrated a knowledge and ability to perform the necessary test procedures equivalent to the ACI minimum guidelines for certification as a Concrete Field Testing Technician, Grade I.

3.7.2 Inspection Details and Frequency of Testing

3.7.2.1 Preparations for Placing

Foundation or construction joints, forms, and embedded items shall be inspected in sufficient time prior to each concrete placement by the

Contractor to certify to the Contracting Officer that it is ready to receive concrete.

3.7.2.2 Air Content

Air content shall be checked at least once during each shift that concrete is placed for each class of concrete required. Samples shall be obtained in accordance with ASTM C172 and tested in accordance with ASTM C231/C231M.

3.7.2.3 Slump

Slump shall be checked at least once during each shift that concrete is produced. Samples shall be obtained in accordance with ASTM C172 and tested in accordance with ASTM C143/C143M.

3.7.2.4 Consolidation and Protection

The Contractor shall ensure that the concrete is properly consolidated, finished, protected, and cured.

3.7.3 Action Required

3.7.3.1 Placing

The placing foreman shall not permit placing to begin until he/she has verified that an adequate number of acceptable vibrators, which are in working order and have competent operators, are available. Placing shall not be continued if any pile of concrete is inadequately consolidated.

3.7.3.2 Air Content

Whenever a test result is outside the specification limits, the concrete shall not be delivered to the forms and an adjustment shall be made to the dosage of the air entrainment admixture.

3.7.3.3 Slump

Whenever a test result is outside the specification limits, the concrete shall not be delivered to the forms and an adjustment should be made in the batch weights of water and fine aggregate. The adjustments are to be made so that the water-cementitious materials ratio does not exceed that contained in the approved concrete mixture proportions.

3.7.4 Reports

The results of all tests and inspections conducted at the project site shall be reported informally at the end of each shift and in writing weekly and shall be delivered to the Contracting Officer within 3 days after the end of each weekly reporting period. See Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL. The Government has the right to examine all Contractor quality control records.

-- End of Section --

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SECTION 03 45 33

PRECAST STRUCTURAL CONCRETE

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, equipment, labor, and materials as well as performing all operations in connection with the design, fabrication, transportation, and installation of the precast concrete framing.

1.2 MEASUREMENT AND PAYMENT

No measurement will be made for precast concrete and associated items. Payment will be made at the contract job price for "Precast Concrete Framing". Price and payment shall constitute full compensation for furnishing all plant, labor, materials, design, and installation of the precast concrete framing and floor; including reinforcement, embeds, anchors, tie-downs, grout, and all associated items of work; as specified herein and as shown on the drawings.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO T 259	(2002; R 2017) Standard Method of Test for Resistance of Concrete to Chloride Ion Penetration

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 318	(2014; Errata 1-2 2014; Errata 3-5 2015; Errata 6 2016; Errata 7-9 2017) Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary (ACI 318R-14)

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M	(2020; Errata 1 2021) Structural Welding Code - Steel
AWS D1.4/D1.4M	(2011) Structural Welding Code - Reinforcing Steel

ASTM INTERNATIONAL (ASTM)

ASTM A27/A27M	(2020) Standard Specification for Steel Castings, Carbon, for General Application

ASTM A36/A36M	(2019) Standard Specification for Carbon Structural Steel
ASTM A47/A47M	(1999; R 2018; E 2018) Standard Specification for Ferritic Malleable Iron Castings
ASTM A123/A123M	(2017) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A153/A153M	(2016a) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A307	(2021) Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
ASTM A325	(2014) Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A563	(2015) Standard Specification for Carbon and Alloy Steel Nuts
ASTM A615/A615M	(2020) Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A780/A780M	(2020) Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
ASTM A1064/A1064M	(2017) Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C33/C33M	(2018) Standard Specification for Concrete Aggregates
ASTM C94/C94M	(20220) Standard Specification for Ready-Mixed Concrete
ASTM C150/C150M	(2021) Standard Specification for Portland Cement
ASTM C295/C295M	(2019) Standard Guide for Petrographic Examination of Aggregates for Concrete
ASTM C311/C311M	(2022) Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete
ASTM C494/C494M	(2019) Standard Specification for Chemical Admixtures for Concrete

ASTM C595/C595M	(2021) Standard Specification for Blended Hydraulic Cements
ASTM C618	(2019) Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C989/C989M	(2018a) Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1107/C1107M	(2020) Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
ASTM C1202	(2019) Standard Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration
ASTM C1218/C1218M	(2020c) Standard Test Method for Water-Soluble Chloride in Mortar and Concrete
ASTM C1260	(2021) Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1567	(2021) Standard Test Method for Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)
ASTM C1602/C1602M	(2018) Standard Specification for Mixing Water Used in Production of Hydraulic Cement Concrete
ASTM D5759	(2012; R 2020) Characterization of Coal Fly Ash and Clean Coal Combustion Fly Ash for Potential Uses
ASTM F436	(2011) Hardened Steel Washers
ASTM F844	(2019) Standard Specification for Washers, Steel, Plain (Flat), Unhardened for General Use

PRECAST/PRESTRESSED CONCRETE INSTITUTE (PCI)

PCI MNL-116	(1999) Manual for Quality Control for Plants and Production of Structural Precast Concrete Products
PCI MNL-120	(2021) PCI Design Handbook - Precast and Prestressed Concrete, 8th Edition
PCI MNL-135	(2000) Tolerance Manual for Precast and Prestressed Concrete Construction

1.4 MODIFICATION TO REFERENCE

In the ACI publications, reference to the "Building Official", the

"Structural Engineer" and the "Architect/Engineer" must be interpreted to mean the Contracting Officer.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submittals not having a "G" classification are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Drawings of Precast Members; G

SD-03 Product Data

Anchorage and Lifting Inserts and devices

SD-05 Design Data

Precast Concrete Members Design Calculations; G

Concrete Mix Design; G

SD-06 Test Reports

Concrete Mix Design; G

Fly Ash

Pozzolan

Ground Granulated Blast-Furnace Slag

Aggregates

Water

SD-07 Certificates

Quality Control Procedures

SD-11 Closeout Submittals

Concrete Batch Ticket Information

Manufacturer's Warranty; G

Contractor's Warranty For Installation; G

1.6 QUALITY ASSURANCE

1.6.1 Qualifications

1.6.1.1 Manufacturer Qualifications

PCI MNL-116. Plants must be certified by the PCI Plant Certification Program for Category C1 work. At the Contracting Officer's option, PCI Plant quality control program records must be available for review.

1.6.1.2 Erector Certification

Erector with erecting organization and all erecting crews certified and designated by PCI's Certificate of Compliance to erect Category S2 (Complex Structural Systems).

1.6.1.3 Welding Qualifications

Provide AWS D1.1/D1.1M qualified welders who are currently certified at contract award date and have maintained their certificates over the past year.

1.6.2 Regulatory Requirements

Provide precast members in conformance with ACI 318 and PCI MNL-120.

1.6.3 Concrete Mix Design

ACI 318. The minimum compressive strength of concrete at 28 days must be 6000 psi, unless otherwise indicated. For marine exposure, ensure a dense concrete free of shrinkage cracks, with a minimum degree of permeability. The maximum water cement ratio must be 0.40. Sixty days minimum prior to concrete placement, submit a mix design for each strength and type of concrete. Submit a complete list of materials including type; brand; source and amount of cement, complementary cementitious materials, and admixtures; and applicable reference specifications. Submit mill test and all other test for cement, complementary cementitious materials, aggregates, and admixtures. Provide documentation of maximum nominal aggregate size, gradation analysis, percentage retained and passing sieve, and a graph of percentage retained verses sieve size. Provide mix proportion data using at least three different water-cementitious material ratios for each type of mixture, which produce a range of strength encompassing those required for each type of concrete required. If source material changes, resubmit mix proportion data using revised source material. Provide only materials that have been proven by trial mix studies to meet the requirements of this specification, unless otherwise approved in writing by the Contracting Officer. Indicate clearly in the submittal where each mix design is used when more than one mix design is submitted. Resubmit data on concrete components if the qualities or source of components changes. For previously approved concrete mix designs used within the past twelve months, the previous mix design may be re-submitted without further trial batch testing if accompanied by material test data conducted within the last six months. Obtain mix design approval from the Contracting Officer prior to concrete placement.

1.6.4 Certificates: Record Requirement

ASTM C94/C94M. Submit mandatory batch ticket information for each load of ready-mixed concrete.

1.7 DELIVERY, STORAGE, AND HANDLING

1.7.1 Transportation

1.7.1.1 Transporting Members

Transport members in a manner to avoid excessive stresses that could cause cracking or other damage.

1.7.1.2 Lateral Deflection or Vibration

Any noticeable indication of lateral deflection or vibration during transportation must be corrected by rigid bracing between members or by means of lateral trussing.

1.7.2 Storage

1.7.2.1 Storage Areas

Storage areas for precast members must be stabilized, and suitable foundations must be provided, so differential settlement or twisting of members will not occur.

1.7.2.2 Stacked Members

Stack members with adequate dunnage and bracing to control cracking, distortion, warping or other physical damage. Stack members such that lifting devices will be accessible and undamaged.

1.7.3 Handling of Members

The location of pickup points for handling of the members and details of the pickup devices must be shown in shop drawings. Members must be handled only by means of approved devices at designated locations. Members must be maintained in an upright position at all times and picked up and supported as shown in approved shop drawings.

1.8 WARRANTY

Furnish manufacturer's no-dollar-limit warranty for the precast concrete system. The warranty period shall be no less than 5 years from the date of acceptance of the work and be issued directly to the Government. The warranty must provide that if within the warranty period, the precast concrete systems show evidence of deterioration resulting from defective materials or workmanship, correcting of any defects is the responsibility of the precast manufacturer. Repairs that become necessary because of defective materials and workmanship while the precast concrete elements are under warranty shall be performed within 48 hours after notification, unless additional time is approved by the Contracting Officer. Failure to perform repairs within 48 hours of notification will constitute grounds for having emergency repairs performed by others and will not void the warranty.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

The work includes the provision of precast non-prestressed concrete herein referred to as precast members. Precast members must be the product of a manufacturer specializing in the production of precast concrete members.

2.1.1 Design Requirements

Design precast members in accordance with ACI 318 and the PCI MNL-120. Design precast members (including connections) for the design load conditions and spans indicated, and handling and erection stresses, and for additional loads imposed by openings and supports of the work of other trades. Design precast members for handling without cracking in accordance

with the PCI MNL-120.

2.1.1.1 Loads

Loadings for members and connections must include all dead load, live load, applicable lateral loads such as wind and earthquake, applicable construction loads such as handling, erection loads, and other applicable loads.

2.1.1.2 Drawing and Design Calculation Information

Submit drawings and design calculations indicating complete information for the fabrication, handling, and erection of the precast member. Drawings must not be reproductions of the contract drawings. Design calculations, drawings of precast members (including connections) must be made by a registered professional engineer with a minimum of 5 years experience in the design of precast concrete members, and submitted for approval prior to fabrication. The drawings must indicate, as a minimum, the following information:

a. Plans, elevations and other drawing views showing the following:

(1) Member piece marks locating and defining products furnished by the manufacturer.

(2) Headers for openings.

(3) Location and size of openings.

(4) Relationships to adjacent material.

(5) Joints and openings between members and between members and other construction.

(6) Location of field installed anchors.

(7) Erection sequences and handling requirements

(8) Lifting and erection inserts

b. Elevations, sections and other details for each member showing the following:

(1) Connections between members and connections between members and other construction.

(2) Connections for work of other trades and cast-in items and their relation to other trades.

(3) Dimensioned size and shape for each member with quantities, position and other details of reinforcing steel, anchors, inserts and other embedded items.

(4) Lifting, erection and other handling devices and inserts.

(5) Surface finishes of each member.

(6) Estimated cambers

c. Strength properties for concrete, steel and other materials.

d. Methods for storage and transportation.

e. Description of loose, cast-in and field hardware.

f. All dead, live, handling, erection and other applicable loads used in the design.

g. Signature and seal of the registered design professional who prepared the design.

2.2 MATERIALS

2.2.1 Cementitious Materials

For exposed concrete, use one manufacturer and one source for each type of cement, ground slag, fly ash, and pozzolan.

2.2.1.1 Fly Ash

(1) ASTM C618, Class F, except that the maximum allowable loss on ignition must not exceed 6 percent.

(2) Add with cement. Fly ash content must be a minimum of 35 percent by weight of cementitious material, provided the fly ash does not reduce the amount of cement in the concrete mix below the minimum requirements of local building codes. Where the use of fly ash cannot meet the minimum level, provide the maximum amount of fly ash permittable that meets the code requirements for cement content. Report the chemical analysis of the fly ash in accordance with ASTM C311/C311M. Evaluate and classify fly ash in accordance with ASTM D5759.

2.2.1.2 Raw or Calcined Natural Pozzolan

Natural pozzolan must be raw or calcined and conform to ASTM C618, Class N, including the optional requirement for uniformity.

2.2.1.3 Ultra Fine Fly Ash and Ultra Fine Pozzolan

Ultra Fine Fly Ash (UFFA) and Ultra Fine Pozzolan (UFP) must conform to ASTM C618, Class F or N, and the following additional requirements:

a. The strength activity index at 28 days of age must be at least 95 percent of the control specimens.

b. The average particle size must not exceed 6 microns.

c. The sum of SiO_2 + Al_2O_3 + Fe_2O_3 must be greater than 77 percent.

2.2.1.4 Ground Granulated Blast-Furnace Slag

ASTM C989/C989M, Grade 100. Slag content must be a minimum of 50 percent by weight of cementitious material.

2.2.1.5 Portland Cement

Provide cement that conforms to ASTM C150/C150M, Type II, with tri-calcium aluminates (C_3A) content less than 10 percent and a maximum cement-alkali

content of 0.80 percent Na2Oe (sodium oxide) equivalent. Use one brand and type of cement for formed concrete having exposed-to-view finished surfaces.

2.2.1.6 Blended Cements

a. Blended cements must conform to ASTM C595/C595M Type IP (MS) or IS (MS).

b. Slag cement added to the Type IS blend must meet ASTM C989/C989M.

c. The pozzolan added to the Type IP blend must be ASTM C618 Class F or Class C and must be interground with the cement clinker. The manufacturer must state in writing that the amount of pozzolan in the finished cement will not vary more than plus or minus 5 mass percent of the finished cement from lot-to-lot or within a lot. The percentage and type of pozzolan used in the blend must not change from that submitted for the aggregate evaluation and mixture proportioning.

2.2.2 Water

Water must comply with the requirements of ASTM C1602/C1602M. Minimize the amount of water in the mix. Improve workability by adjusting the grading rather than by adding water. Water must be potable; free from injurious amounts of oils, acids, alkalis, salts, organic materials, or other substances deleterious to concrete. Submit test report showing water complies with ASTM C1602/C1602M.

2.2.3 Aggregates

ASTM C33/C33M, except as modified herein. Furnish aggregates for exposed concrete surfaces from one source. Provide aggregates that do not contain any substance which may be deleteriously reactive with the alkalies in the cement. Submit test report showing compliance with ASTM C33/C33M. Fine and coarse aggregates must show expansions less than 0.08 percent at 28 days after casting when testing in accordance with ASTM C1260. Should the test data indicate an expansion of 0.08 percent or greater, reject the aggregate(s) or perform additional testing using ASTM C1567 using the Contractor's proposed mix design. In this case, include the mix design low alkali portland cement and one of the following supplementary cementitious materials:

a. GGBF slag at a minimum of 40 percent of total cementitious

b. Fly ash or natural pozzolan at a minimum of total cementitious of

(1) 30 percent if (SiO2 plus Al2O3 plus Fe2O3) is 65 percent or more,

(2) 25 percent if (SiO2 plus Al2O3 plus Fe2O3) is 70 percent or more,

(3) 20 percent if (SiO2 plus Al2O3 plus Fe2O3) is 80 percent or more,

(4) 15 percent if (SiO2 plus Al2O3 plus Fe2O3) is 90 percent or more.

If a combination of these materials is chosen, the minimum amount must be a linear combination of the minimum amounts above. Include these materials in sufficient proportion to show less than 0.08 percent expansion at 28 days after casting when tested in accordance with ASTM C1567. Aggregates must not possess properties or constituents that are known to have specific unfavorable effects in concrete when tested in accordance with ASTM C295/C295M.

2.2.4 Grout

2.2.4.1 Nonshrink Grout

ASTM C1107/C1107M.

2.2.4.2 Cementitious Grout

Must be a mixture of portland cement, sand, and water. Proportion one part cement to approximately 2.5 parts sand, with the amount of water based on placement method.

2.2.5 Admixtures

2.2.5.1 Accelerating

ASTM C494/C494M, Type C or E.

2.2.5.2 Water Reducing

ASTM C494/C494M, Type A, E, or F.

2.2.6 Reinforcement

2.2.6.1 Reinforcing Bars

ASTM A615/A615M, Grade 60

2.2.6.2 Wire

ASTM A1064/A1064M.

2.2.6.3 Welded Wire Reinforcement

ASTM A1064/A1064M.

2.2.6.4 Supports for Concrete Reinforcement

Include bolsters, chairs, spacers, and other devices necessary for proper spacing, supporting, and fastening reinforcement bars and wire in place. Ensure legs of supports in contact with formwork for sections that will be exposed to weather are hot-dip galvanized after fabrication, plastic coated, or corrosion-resistant steel bar supports.

2.2.7 Metal Accessories

Provide ASTM A123/A123M or ASTM A153/A153M galvanized.

2.2.7.1 Inserts

ASTM A47/A47M, Grade 32510, or ASTM A27/A27M Grade 60-30. Submit product data.

2.2.7.2 Structural Steel

ASTM A36/A36M.

2.2.7.3 Bolts

ASTM A307; ASTM A325.

2.2.7.4 Nuts

ASTM A563.

2.2.7.5 Washers

ASTM F844 washers for ASTM A307 bolts, and ASTM F436 washers for ASTM A325 bolts.

2.3 PRODUCTION QUALITY CONTROL PROCEDURES

PCI MNL-116 unless specified otherwise. Submit quality control procedures established in accordance with PCI MNL-116 by the precast manufacturer.

2.3.1 Forms

Brace forms to prevent deformation. Forms must produce a smooth, dense surface. Use forms and form-facing materials that are nonreactive with concrete such as wood, metal, plastic, or other approved materials. Conform to the shapes, lines, and dimensions indicated and are within the limits of the specified fabrication tolerances. Chamfer exposed edges of columns and beams 3/4 inch, unless otherwise indicated. Provide threaded or snap-off type form ties.

2.3.2 Tolerances

Fabricate structural precast concrete members of shapes, lines and dimensions indicated, so each finished member complies with PCI MNL-135 product tolerances as well as position tolerances for cast-in items.

2.3.3 Reinforcement Placement

ACI 318 and PCI MNL-116 for placement and splicing. Place and secure steel bars, welded-wire reinforcement, and other reinforcement by means of metal bar supports and spacers. Reinforcement may be preassembled before placement in forms. Provide exposed connecting bars, or other approved connection methods, between precast and cast-in-place construction. Remove any excess mortar that adheres to the exposed connections.

2.3.4 Built-In Anchorage Devices

Position, anchor, and locate anchorage devices where they do not affect the position of the main reinforcement or placing concrete. Bearing plates; set level, aligned properly, and anchored in the exact location indicated.

2.3.5 Lifting Devices

Provide lifting devices designed for 100-percent impact, and of materials sufficiently ductile to ensure visible deformation before fracture.

2.3.6 Blockouts

Provide blockouts as indicated.

2.3.7 Identification Markings

Clearly mark each structural section in a permanent manner to indicate its location and orientation in the building and the pickup points.

Ensure each structural section has the date of casting plainly indented in the unexposed face of the concrete.

2.3.8 Concrete

2.3.8.1 Concrete Mixing

ASTM C94/C94M. Mixing operations must produce batch-to-batch uniformity of strength, consistency, and appearance.

2.3.8.2 Concrete Placing

PCI MNL-116.

2.3.8.3 Concrete Curing

PCI MNL-116.

2.3.9 Surface Finish

Repairs located in a bearing area must be approved by the Contracting Officer prior to repairs. Defects must be repaired or rejected as specified in paragraph "Acceptance/Rejection Of Defects".

2.3.9.1 Formed Surfaces

PCI MNL-116, Appendix C, for grades of surface finishes.

a. Unexposed Surfaces: Provide a standard grade surface finish.

b. Exposed Surfaces: Provide a finish Grade B surface finish.The combined area of acceptable defective areas must not exceed 0.2 percent of the exposed to view surface area, and the patches must be indistinguishable from the surrounding surfaces when dry.

2.3.10 Acceptance/Rejection of Defects

2.3.10.1 Minor Defects

All honeycombed areas, chipped corners, air pockets over 1/4 inch in diameter, and other minor defects involve less than 36 square inches of concrete must be repaired. Form offsets of fins over 1/8 inch must be ground smooth. All unsound concrete must be removed from defective areas prior to repairing. All surfaces permanently exposed to view must be repaired by a blend of portland cement and white cement properly proportioned so that the final color when cured will be the same as adjacent concrete. Precast members containing hairline cracks which are visible and are less than 0.01 inches in width, may be accepted, except that cracks larger than 0.005 inches in width for surfaces exposed to the weather must be repaired.

2.3.10.2 Major Defects

Major defects are those which involve more than 36 square inches of

concrete or expose stressing tendons or reinforcing steel. If one or more major defects appear in a member, it will be rejected. Cracks of a width of more than 0.01 inch will be cause for rejection of the member.

2.4 TESTS, INSPECTIONS, AND VERIFICATIONS

2.4.1 Chloride Ion Concentration Test

Sampling and determination of water soluble chloride ion content in accordance with ASTM C1218/C1218M. Maximum water soluble chloride ion concentrations in hardened concrete at ages from 28 to 42 days contributed from the ingredients including water, aggregates, cementitious materials, and admixtures must not exceed 0.06 percent by weight of cement.

2.4.2 Chloride Ion Penetration Test

To ensure the durability of concrete in marine environment, concrete must be proportioned to have the chloride ion penetration test in accordance with ASTM C1202, and be below 1500 coulombs for concrete specimens tested at 28 days. Alternatively, a ponding test in accordance with AASHTO T 259 may be performed to validate chloride ion penetration in accordance with ASTM C1202.

2.4.3 Factory Inspection

At the option of the Contracting Officer, precast units may be inspected by the Contracting Officer prior to being transported to the job site. The Contractor must give notice 14 days prior to the time the units will be available for plant inspection. Neither the exercise nor waiver of inspection at the plant will affect the Government's right to enforce contractual provisions after units are transported or erected.

PART 3 EXECUTION

3.1 EXAMINATION

Prior to erection, and again after installation, precast members must be checked for damage, such as cracking, spalling, and honeycombing. As directed by the Contracting Officer, precast members that do not meet the surface finish requirements specified in paragraph "Surface Finish" must be repaired, or removed and replaced with new precast members.

3.2 ERECTION

Precast members must be erected after the concrete has attained the specified compressive strength, unless otherwise approved by the precast manufacturer. Erect in accordance with the approved shop drawings. PCI MNL-135 for tolerances. Provide a 1:500 tolerance, if no tolerance is specified. Brace precast members, unless design calculations submitted with the shop drawings indicate bracing is not required. Follow the manufacturer's recommendations for maximum construction loads. Place precast members level, plumb, square, and true within tolerances. Align member ends.

3.3 BEARING SURFACES

Must be flat, free of irregularities, and properly sized. Size bearing surfaces to provide for the indicated clearances between the precast member and adjacent precast members or adjoining field placed surfaces. Correct

bearing surface irregularities with nonshrink grout. Provide bearing pads where indicated or required. Do not use hardboard bearing pads in exterior locations. Place precast members at right angles to the bearing surface, unless indicated otherwise, and draw-up tight without forcing or distortion, with sides plumb.

3.4 ANCHORAGE

Provide anchorage for fastening work in place. Conceal fasteners where practicable. Make threaded connections up tight and nick threads to prevent loosening.

3.5 WELDING

AWS D1.1/D1.1M, AWS D1.4/D1.4M for welding connections and reinforcing splices. Protect the concrete and other reinforcing from heat during welding. Weld continuously along the entire area of contact. Grind smooth visible welds in the finished installation.

3.6 OPENINGS

Holes or cuts requiring reinforcing to be cut, which are not indicated on the approved shop drawing, must only be made with the approval of the Contracting Officer and the precast manufacturer. Drill holes less than 12 inches in diameter with a diamond tipped core drill. Ensure cuts are straight and at 90 degrees to the surfaces without breaking or spalling the edges.

3.7 GALVANIZING REPAIR

Repair damage to galvanized coatings using ASTM A780/A780M zinc rich paint for galvanized surfaces damaged by handling, transporting, cutting, welding, bolting, or acid washing. Do not heat surfaces to which repair paint has been applied.

3.8 GROUTING

Clean and fill keyways between precast members, and other indicated areas, solidly with nonshrink grout or cementitious grout. Provide reinforcing where indicated. Remove excess grout before hardening.

3.9 SEALANTS

Provide as indicated and as specified in Section 07 92 00 JOINT SEALANTS.

3.10 PROTECTION AND CLEANING

Protect exposed-to-view surfaces against staining and other damage until completion of the work. Upon completion of installation, swept clean and leave ready slab surfaces to receive concrete floor topping, roofing, or other covering.

3.11 WARRANTY

3.11.1 Manufacturer's Warranty

Submit all manufacturers' signed warranties to Contracting Officer prior to final commissioning and acceptance.

3.11.2 Contractor's Warranty For Installation

Submit warranty for installation to the Contracting Officer prior to final commissioning and acceptance.

CONTRACTOR'S FIVE YEAR NO PENAL SUM WARRANTY
FOR
PRECAST CONCRETE SYSTEM

FACILITY DESCRIPTION:_____

CORPS OF ENGINEERS CONTRACT NUMBER:_____

CONTRACTOR

CONTRACTOR:_____
ADDRESS:_____

POINT OF CONTACT:_____

TELEPHONE NUMBER:_____

OWNER

OWNER:_____
ADDRESS:_____

POINT OF CONTACT:_____

TELEPHONE NUMBER:_____

CONSTRUCTION AGENT

CONSTRUCTION AGENT:_____
ADDRESS:_____

POINT OF CONTACT:_____

_
TELEPHONE NUMBER:_____

CONTRACTOR'S FIVE YEAR NO PENAL SUM WARRANTY
FOR
PRECAST CONCRETE SYSTEM
(continued)

THE PRECAST CONCRETE SYSTEM INSTALLED ON THE ABOVE NAMED FACILITY IS WARRANTED BY _____ FOR A PERIOD OF FIVE (5) YEARS AGAINST WORKMANSHIP AND MATERIAL DEFICIENCIES, AND STRUCTURAL FAILURE WITHIN PROJECT SPECIFIED DESIGN LOADS. THE PRECAST CONCRETE SYSTEM COVERED UNDER THIS WARRANTY INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

STRUCTURAL PRECAST CONCRETE MEMBERS INSTALLED AND ITEMS SPECIFIED IN OTHER SECTIONS OF THESE SPECIFICATIONS THAT BECOME PART OF THE PRECAST CONCRETE SYSTEM.

ALL MATERIAL AND WORKMANSHIP DEFICIENCIES, SYSTEM DETERIORATION CAUSED BY EXPOSURE TO THE ELEMENTS OR INADEQUATE RESISTANCE TO SPECIFIED SERVICE DESIGN LOADS MUST BE REPAIRED AS APPROVED BY THE CONTRACTING OFFICER.

THIS WARRANTY COVERS THE ENTIRE COST OF REPAIR OR REPLACEMENT, INCLUDING ALL MATERIAL, LABOR, AND RELATED MARKUPS. THE ABOVE REFERENCED WARRANTY COMMENCED ON THE DATE OF FINAL ACCEPTANCE ON _____ AND WILL REMAIN IN EFFECT FOR STATED DURATION FROM THIS DATE.

SIGNED, DATED, AND NOTARIZED (BY COMPANY PRESIDENT)

_____
(Company President) (Date)

CONTRACTOR'S FIVE YEAR NO PENAL SUM WARRANTY
FOR
PRECAST CONCRETE SYSTEM
(continued)

THE CONTRACTOR HEREBY SUPPLEMENTS THIS WARRANTY WITH WRITTEN WARRANTIES FROM THE MANUFACTURER AND/OR INSTALLER OF THE PRECAST COCNRETE SYSTEM, WHICH IS SUBMITTED ALONG WITH THE CONTRACTOR'S WARRANTY. HOWEVER, THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THIS WARRANTY AS OUTLINED IN THE SPECIFICATIONS AND AS INDICATED IN THIS WARRANTY.

EXCLUSIONS FROM COVERAGE

1. NATURAL DISASTERS, ACTS OF GOD (LIGHTNING, FIRE, EXPLOSIONS, SUSTAINED WIND FORCES IN EXCESS OF THE DESIGN CRITERIA, EARTHQUAKES, AND HAIL).

2. ACTS OF NEGLIGENCE OR ABUSE OR MISUSE BY GOVERNMENT OR OTHER PERSONNEL,INCLUDING ACCIDENTS, VANDALISM, CIVIL DISOBEDIENCE, WAR, OR DAMAGE CAUSED BY FALLING OBJECTS.

3. DAMAGE BY STRUCTURAL FAILURE, SETTLEMENT, MOVEMENT, DISTORTION, WARPAGE, OR DISPLACEMENT OF THE STRUCTURE OR ALTERATIONS MADE TO THE SYSTEM.

4. CORROSION CAUSED BY EXPOSURE TO CORROSIVE CHEMICALS, ASH OR FUMES GENERATED OR RELEASED INSIDE OR OUTSIDE THE BUILDING FROM CHEMICAL PLANTS, FOUNDRIES, PLATING WORKS, KILNS, FERTILIZER FACTORIES, PAPER PLANTS, AND THE LIKE.

5. THIS WARRANTY APPLIES TO THE PRECAST CONCRETE SYSTEM. IT DOES NOT INCLUDE ANY CONSEQUENTIAL DAMAGE TO THE BUILDING INTERIOR OR CONTENTS WHICH IS COVERED BY THE WARRANTY OF CONSTRUCTION CLAUSE INCLUDED IN THIS CONTRACT.

6. THIS WARRANTY CANNOT BE TRANSFERRED TO ANOTHER OWNER WITHOUT WRITTEN CONSENT OF THE CONTRACTOR AND THIS WARRANTY AND THE CONTRACT PROVISIONS TAKE PRECEDENCE OVER ANY CONFLICTS WITH STATE STATUTES. REPORTS OF PRECAST CONCRETE SYSTEM DEFICIENCIES MUST BE RESPONDED TO WITHIN 48 HOURS OF RECEIPT OF NOTICE BY TELEPHONE OR IN WRITING FROM EITHER THE OWNER, OR CONTRACTING OFFICER. EMERGENCY REPAIRS MUST BE INITIATED IMMEDIATELY; A WRITTEN PLAN MUST BE SUBMITTED FOR APPROVAL TO REPAIR OR REPLACE THIS SYSTEM WITHIN SEVEN CALENDAR DAYS. ACTUAL WORK FOR PERMANENT REPAIRS OR REPLACEMENT MUST BE STARTED WITHIN 30 DAYS AFTER RECEIPT OF NOTICE, AND COMPLETED WITHIN A REASONABLE TIME FRAME. IF THE CONTRACTOR FAILS TO ADEQUATELY RESPOND TO THE WARRANTY PROVISIONS, AS STATED. -- End of Section --

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DIVISION 05 - METALS

SECTION 05 05 20

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SECTION 05 05 20

POST-INSTALLED CONCRETE ANCHORS

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all equipment, materials, and labor to place post-installed concrete anchors; as apecified herein and as shown on the drawings

1.2 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for post-installed concrete anchors. All costs in connection therewith shall be included in the contract unit or job price for the item to which the work is incidental.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 355.2	(2007) Qualification of Post-Installed Mechanical Anchors in Concrete and Commentary
ACI 355.4	(2011) Qualification of Post-Installed Adhesive Anchors in Concrete (ACI 355.4) and Commentary

ASTM INTERNATIONAL (ASTM)

ASTM A153/A153M	(2016a) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A193/A193M	(2020) Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service and Other Special Purpose Applications
ASTM E488/E488M	(2015) Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements
ASTM F1554	(2020) Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength

INTERNATIONAL CODE COUNCIL (ICC)

ICC IBC	(2018) International Building Code

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2024) Safety and Occupational Health Requirements

1.4 APPLICABILITY

This section specifies the requirements for all anchors that are post-installed into hardened concrete; and does not include the requirements for through bolts, powder or pneumatic actuated nails, or cast in anchors.

1.5 DEFINITIONS

1.5.1 Anchor

"Anchor" includes steel elements post-installed into hardened concrete and used to transmit applied loads.

1.5.2 Periodic Special Inspections

"Periodic Special Inspection" as used herein means that, as a minimum, the Post-Installed Anchor Special Inspector must perform inspections in accordance with this specification.

1.5.3 Continuous Special Inspections

"Continuous Special Inspection" as used herein means that the Post-Installed Anchor Special Inspector observes the drilling and cleaning of holes, the injection of adhesive into the holes, and the insertion of anchors into the holes. When applicable for the type of installation, or as indicated in the project drawings, "Continuous Special Inspection" also includes observation of measures to secure the anchor during the adhesive curing period.

1.6 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submittals not having a "G" are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Installer Qualifications; G

Post-Installed Anchor Special Inspector Qualifications; G

SD-03 Product Data

Adhesive Anchor System in Concrete; G

SD-06 Test Reports

Post-Installed Anchor Special Inspections Report; G

Evaluation Report; G

SD-07 Certificates

Post-Installed Anchor Certification; G

SD-08 Manufacturer's Instructions

Manufacturer's Printed Installation Instructions; G

Manufacturer's Safety Data Sheets

1.7 QUALITY ASSURANCE

Perform all work in accordance with EM 385-1-1 and all manufacturer's instructions and recommendations. To protect personnel from overexposure to toxic materials, conform to the applicable manufacturer's Safety Data Sheets (SDS) or local regulation. Submit the SDS for epoxies and other potentially hazardous materials.

1.7.1 Qualifications

The submittals must identify individuals who will be working on this contract and their relevant experience and training. Do not make changes in approved personnel without prior approval of the Contracting Officer.

1.7.1.1 Installer Qualifications

Each worker engaged in the installation of post-installed anchors must have satisfactorily completed an applicable certification program or equivalent instruction program through the manufacturer or manufacturer's representative for all anchoring products they will install. A manufacturer's representative must train all installers per the installation instructions as listed in the ICC-ES Evaluation Report for the anchor being installed. Training must consist of a review and performance test of the complete installation process, including but not limited to:

(1) Hole drilling procedure

(2) Hole preparation & cleaning technique

(3) Adhesive injection technique & dispenser training / maintenance

(4) Anchor/threaded rod preparation and installation

(5) Rebar dowel preparation and installation

(6) Proof loading/torquing

(7) Installation in horizontal and upward orientations

Submit certification for each worker showing that they have completed the above training within three years prior to onsite work. Certification must include organization or manufacturer's name, instructor's name and qualifications, trainee's name, list of instruction received, date of instruction, and confirmation of successful performance tests.

1.7.1.2 Post-Installed Anchor Special Inspector Qualifications

The Contractor must retain the services of a third party Special Inspector independent of the installing contractor and manufacturer. The individual(s) who perform special inspections for post-installed anchors

must meet all installer qualification requirements and have a minimum of 1 year of experience as a Special Inspector on previous projects involving similar scope of work. Submit resumes, pertinent information, past experience, and training.

1.8 DELIVERY, STORAGE, AND HANDLING

1.8.1 Packing, Shipping, Handling, and Unloading

Deliver products to job site in manufacturer's or distributor's original packaging undamaged, complete with installation instructions. Inspect materials delivered to site for damage. Unload and store with minimal handling.

1.8.2 Storage

Protect, store, and handle materials in accordance with manufacturer's recommendations to prevent damage or deterioration. Do not allow chemical materials to freeze. Remove materials that have not be stored in accordance with the manufacturer's recommendations, including expired materials, from the job site.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Post-Installed Anchors

Provide anchors of the type, effective embedment, and diameter indicated on contract drawings. Minimum spacing and concrete edge distances must be as shown on the contract drawings. Design values listed must be as tested according to ASTM E488/E488M for the substrate type, substrate moisture condition, concrete aggregate type normal weight, and concrete strength. If more than one type of anchor is to be used on this contract, clearly indicate on the submittal where each type of anchor will be used.

2.1.1.1 Post-Installed Anchor Certification

(1) Submit product information with recommended design values and physical characteristics for each type anchor shown on the drawings.

(2) Provide certified test reports showing compliance with specified performance characteristics and physical properties. Anchors must have one of the following certifications:

(a) ICC-ES Evaluation Report indicating conformance with current applicable ICC ES Acceptance Criteria (if not provided by the manufacturer, reports for tested products can be found at https://icc-es.org)

(b) Third party Evaluation Report in conformance with ACI 355.2 or ACI 355.4, as applicable. Third party must be accredited under ISO/IEC 17025 by a recognized accreditation body conforming to the requirements of ISO/IEC 17011 in accordance with ACI 355.4."

2.1.1.2 Manufacturer's Printed Installation Instructions

Submit manufacturer's instructions for each anchor type shown on the drawings.

2.1.1.3 Adhesive Anchor System in Concrete

(1) Use an adhesive to bond steel anchors to concrete. The adhesive must be a moisture insensitive, structural adhesive. Anchors must have been tested and qualified for performance in cracked and uncracked concrete, horizontal and overhead applications, and long term creep in accordance with ACI 355.4.

(1) Threaded rod anchors must meet the requirements of ASTM F1554 Grade 36. Threaded rods must be galvanized in accordance with ASTM A153/A153M or stainless steel in accordance with ASTM A193/A193M unless otherwise indicated.

(1) Adhesive anchors must have the below characteristic bond strengths for uncracked and cracked concrete in 5,000 psi concrete with maximum short term temperatures of 130 degrees F and maximum long term temperatures of 110 degrees F:

ANCHOR	Tau,uncr (characteristic bond strength, uncracked concrete)	Tau,cr (characteristic bond strength, cracked concrete)
	(psi)	(psi)
5/8" diameter threaded rod	1254	2379
3/4" diameter threaded rod	1350	2379

2.2 EQUIPMENT

Assemble at the site of the work, sufficient equipment that is dependable, appropriate and adequate to accomplish the work specified. Maintain the equipment in good working condition.

PART 3 EXECUTION

3.1 ANCHORING AND REINFORCING

Install anchors in accordance with the spacing and edge clearances indicated on the drawings. Anchor capacity is also highly dependent on proper installation. Follow all manufacturer and Evaluation Report installation instructions.

3.1.1 Drilling and Installing Adhesive Anchors

(1) Drill holes for anchors using drilling equipment and bits suitable for the intended purpose, in accordance with manufacturer's printed installation instructions and Evaluation Report installation instructions. Diameter of holes must be as recommended by the anchor manufacturer. Unless otherwise shown on the drawings, all holes must be drilled perpendicular to the concrete surface. Deviations more than 10 degrees from perpendicular are not acceptable. Unless otherwise specified, do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength. Adhesive anchors must not be installed in concrete that is less than 21 days old.

(2) Clean holes, place grout, and install anchors in accordance with anchor manufacturer's recommendations. Remove excess adhesive after the

anchor has been set in place. Remove spills on adjacent surfaces. Protect threads and anchors from damage during anchor installation. Ensure proper embedment and placement in accordance with contract documents and all other work. Do not disturb or load anchors before manufacturer specified cure time has elapsed.

(3) Adhesives must be stored at temperatures prescribed by the manufacturer and must not be used beyond the expiration date.

3.1.2 Unused or Repairs to Drilled Holes

Any holes made for anchors that are not used must be filled with non-shrink, non-metallic grout suitable for the orientation and size of hole and have a minimum compressive strength of 5000 psi. Repair must completely fill hole and be flush with existing concrete. Place in accordance with manufacturer's recommended instructions. Final anchor positions must not be within1 inch of repair patches.

3.2 EMBEDDED ITEMS

(1) Existing reinforcing bars or other embedded items in the structure may conflict with specified anchor locations. Existing reinforcing and embedded items must not be damaged during installation of post-installed anchors.

(2) The Contractor must review the drawings to accurately locate the position of existing reinforcing bars and embedded items at the locations of the anchors in the field.

(3) Create a template at each anchor connection location prior to fabricating holes in connection plates. Template must be made by locating existing reinforcing with an approved reinforcement detection system.

3.3 INSPECTIONS

3.3.1 Adhesive Anchors

(1) For adhesive anchors, periodic special inspection are required as a minimum. Where adhesive anchors are used to resist sustained tension in horizontal or upwardly inclined orientations, or where the findings of the Evaluation Report for the adhesive anchor product require it, continuous special inspection is needed. Inspections must be in accordance with ICC IBC and the Evaluation Report.

(2) Adhesive anchors must be inspected during installation, to verify anchor type, anchor dimensions, base material type, base material age, drill bit, hole dimensions, hole cleaning procedures, anchor spacing, edge distances, base material thickness, effective embedment, tightening torque, adhesive mixing, filling of the hole with adhesive, adherence to the manufacturer's printed installation instructions, and any additional items recommended in the Evaluation Report.

3.3.2 Post-Installed Anchor Special Inspections Report

Report the results of all inspections weekly. Submit report as an electronic PDF file to the Contracting Officer for review. The report must include the following:

(1) Exact locations of the inspected and tested work

(2) Inspector's name

(3) Date of inspection

(4) Summary of work completed during the inspection period

(5) Statement by the Special Inspector confirming that the materials and installation procedures conform with the approved contract documents and the manufacturer's published installation instructions.

3.4 DUST CONTROL

Control dust resulting from demolition to prevent the spread of dust and avoid creation of a nuisance in the surrounding area. Do not use water when it will result in, or create, hazardous or objectionable conditions such as ice, flooding, or pollution.

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SECTION 05 51 00

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SECTION 05 51 00

METAL STAIRS

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, equipment, labor, and materials as well as performing all operations in connection with the fabrication, transportation, and installation of the exterior steel stairs and appurtenances; as specified herein and as shown on the drawings.

1.2 MEASUREMENT AND PAYMENT

No measurement will be made for the steel stairs and associated items. Payment will be made at the contract job price for "Steel Stairs". Price and payment shall constitute full compensation for complete fabrication and installation of the steel stairs and all associated items of work; as specified herein and as shown on the drawings.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M	(2020; Errata 1 2021) Structural Welding Code - Steel

ASTM INTERNATIONAL (ASTM)

ASTM A6/A6M	(2021) Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling
ASTM A29/A29M	(2020) Standard Specification for General Requirements for Steel Bars, Carbon and Alloy, Hot-Wrought
ASTM A53/A53M	(2020) Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A123/A123M	(2017) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)

NAAMM MBG 531	(2017) Metal Bar Grating Manual

1.4 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Metal Stair System; G

SD-07 Certificates

Welding Procedures; G

Welder Qualification; G

1.5 QUALITY CONTROL

1.5.1 Qualifications for Welding Work

(1) Submit welding procedures in accordance with AWS D1.1/D1.1M.

(2) Certify welder qualification by tests in accordance with AWS D1.1/D1.1M, or under an equivalent approved qualification test. In addition, perform tests on test pieces in positions and with clearances equivalent to those actually encountered. If a test weld fails to meet requirements, ensure that two test welds are retested immediately and that each test weld is made and passes. Failure in the immediate retest requires that the welder be retested after further practice or training and a complete set of test welds be made.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

Submit complete and detailed fabrication drawings for all metal stair system used in accordance with the design specifications referenced in this section.

2.2 FABRICATION

Preassemble items in the shop to the greatest extent possible. Disassemble units only to the extent necessary for shipping and handling. Clearly mark units for reassembly and coordinated installation.
For the fabrication of work exposed to view, use only materials that are smooth and free of surface blemishes, including pitting, seam marks, roller marks, rolled trade names, and roughness. Remove blemishes by grinding, or by welding and grinding, before cleaning and treating surfaces and applying surface finishes, including zinc coatings.

2.2.1 General Fabrication

(1) Prepare and submit metal stair system shop drawings with detailed plans and elevations at scales not less than 1 inch to 1 foot and with details of sections and connections at scales not less than 3 inches to 1 foot. Also detail the placement drawings, diagrams, and templates for installation of anchorages, including concrete inserts, anchor bolts, and miscellaneous metal items having integral anchorage devices.

(2) Use materials of size and thicknesses indicated or, if not indicated, of the size and thickness necessary to produce a finished product that is strong enough and durable enough for its intended use. Work the materials to the dimensions indicated on approved detail drawings, using proven methods of fabrication and support. Use the type of materials indicated or specified for the various components of work.

(3) Form exposed work true to line and level, with accurate angles and surfaces and with straight sharp edges. Ease exposed edges to a radius of approximately 1/32 inch, and bend metal corners to the smallest radius possible without causing grain separation or otherwise impairing the work.

(4) Continuously complete joint penetration weld corners and seams in accordance with the recommendations of AWS D1.1/D1.1M. Grind exposed welds smooth and flush to match and blend with adjoining surfaces.

Provide and coordinate anchorage of the type indicated for the supporting structure. Fabricate anchoring devices, and space them as indicated and as necessary to provide adequate support for the intended use of the work.

2.2.2 Floor Grating Treads and Platforms

(1) Provide floor grating treads and platforms conforming to ASTM A6/A6M, ASTM A29/A29M and NAAMM MBG 531. Provide the pattern, spacing, and bar sizes as shown on the drawings. The galvanized finish shall conform to ASTM A123/A123M.

(2) Fabricate grating treads with steel plate nosings on one edge and with steel angle or steel plate carriers at each end for string connections. Secure treads to strings with welds or bolts.

(3) Match the nosings of grating platforms with the nosing of grating treads at landings.

2.2.3 Protective Coating

Hot-dip galvanize steelwork as indicated in accordance with ASTM A123/A123M. Touch up abraded surfaces and cut ends of galvanized members with zinc-dust, zinc-oxide primer, or an approved galvanizing repair compound.

2.3 COMPONENTS

2.3.1 Steel Stairs

Provide steel stairs complete with stringers, grating treads, landings, columns, handrails, and necessary bolts and other fastenings. Hot-dip-galvanize steel stairs and accessories.

2.3.1.1 Design Loads

Design stairs to sustain a live load of not less than 100 pounds per square foot, or a concentrated load of 300 pounds applied where it is most critical.

2.3.1.2 Materials

Provide steel stairs of welded construction except that bolts may be used where welding is not practicable. Do not use screw or screw-type connections.

a. Structural Steel: See Drawing S-001.

b. Gratings for Treads and Landings: Provide gratings with nonslip nosings. See the contract drawings for additional information.

c. Support steel grating on angle cleats welded to stringers or treads with integral cleats, welded or bolted to the stringer. Close exposed ends. For exterior stairs, form all exposed joints to exclude water.

d. Before fabrication, obtain necessary field measurements and verify drawing dimensions.

e. Clean metal surfaces free of mill scale, flake rust, and rust pitting before shop finishing. Weld permanent connections. Finish welds flush and smooth on surfaces that will be exposed after installation.

2.4 MATERIALS

2.4.1 Structural Steel Plates, Shapes and Bars

Structural size shapes and plates, as shown in the drawings.

2.4.2 Steel Pipe

Provide steel pipe conforming to ASTM A53/A53M, type as selected, Grade B; primed finish, unless galvanizing is required; standard weight (Schedule 40).

PART 3 EXECUTION

3.1 PREPARATION

(1) Clean surfaces thoroughly before installation. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions. Examine materials upon arrival at site. Notify the carrier and manufacturer of any damage.

(2) Protect installed products until completion of this contract. Touch up, repair or replace, damaged products before substantial completion

3.2 INSTALLATION

(1) Install in accordance with the manufacturer's instructions and approved submittals. Install in proper relationship with adjacent construction.

(2) Install items at locations indicated, according to the manufacturer's instructions. Verify all measurements and take all field measurements necessary before fabrication. Ensure that exposed fastenings are compatible with generally match the color and finish of, and harmonize with the material to which they are applied. Include materials and parts necessary to complete each item, even though such work is not definitely shown or specified. Poor matching of holes for fasteners is cause for rejection. Conceal fastenings where practicable. Select thickness of metal and details of assembly and supports that adequately strengthen and stiffen the construction. Form joints exposed to the weather to exclude water.

3.2.1 Field Preparation

Provide surfaces, when assembled, free of rust, grease, dirt and other foreign matter.

3.2.2 Field Welding

Comply with AWS D1.1/D1.1M in executing manual shielded-metal arc welding (for appearance and quality of new welds) and in correcting existing welding.

3.2.3 Touchup Painting

Touch up painting shall be performed in accordance with paragraph "Protective Coating".

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SECTION 05 52 00

METAL RAILINGS

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-- End of Section Table of Contents --

SECTION 05 52 00

METAL RAILINGS

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, equipment, labor, and materials as well as performing all operations in connection with the fabrication, transportation, and installation of the aluminum railings and appurtenances; as specified herein and as shown on the drawings.

1.2 MEASUREMENT AND PAYMENT

No measurement will be made for the aluminum railings and associated items. Payment will be made at the contract job price for "Aluminum Railings". Price and payment shall constitute full compensation for complete fabrication and installation of the aluminum railings and all associated items; as specified herein and as shown on the drawings.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M	(2015; Errata 1 2015; Errata 2 2016) Structural Welding Code - Steel

ASTM INTERNATIONAL (ASTM)

ASTM B26/B26M	(2018; E 2018) Standard Specification for Aluminum-Alloy Sand Castings
ASTM B429/B429M	(2010; E 2012) Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube

1.4 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submittals not having a "G"are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Fabrication and Installation Drawings; G

SD-03 Product Data

Aluminum Railings and Handrails; G

Anchorage and Fastening Systems; G

SD-08 Manufacturer's Instructions

Installation Instructions

PART 2 PRODUCTS

2.1 FABRICATION

(1) Preassemble items in the shop to the greatest extent possible. Disassemble units only to the extent necessary for shipping and handling. Clearly mark units for reassembly and coordinated installation.

(2) For the fabrication of work exposed to view, use only materials that are smooth and free of surface blemishes, including pitting, seam marks, roller marks, rolled trade names, and roughness. Remove blemishes by grinding, or by welding and grinding, before cleaning, treating, and applying surface finishes, including zinc coatings.

(3) Provide railing and handrail detail plans and elevations at not less than 1 inch to 1 foot. Provide details of sections and connections at not less than 3 inches to 1 foot. Also detail setting drawings, diagrams, templates for installation of anchorages, including concrete inserts, anchor bolts, and miscellaneous metal items having integral anchors.

(4) Use materials of size and thicknesses indicated or, if not indicated, of the size and thickness necessary to produce adequate strength and durability in the finished product for its intended use. Work the materials to the dimensions indicated on approved detail drawings, using proven details of fabrication and support. Use the type of materials indicated or specified for the various components of work.

(5) Form exposed work true to line and level, with accurate angles and surfaces and straight sharp edges. Ensure that all exposed edges are eased to a radius of approximately 1/32 inch. Bend metal corners to the smallest radius possible without causing grain separation or otherwise impairing the work.

(6) Weld corners and seams continuously and in accordance with the recommendations of AWS D1.1/D1.1M. Grind exposed welds smooth and flush to match and blend with adjoining surfaces.

(7) Form the exposed connections with hairline joints that are flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of the type indicated or, if not indicated, use countersunk Phillips flathead screws or bolts.

(8) Provide anchorage of the type indicated and coordinated with the supporting structure. Fabricate anchoring devices and space as indicated and as required to provide adequate support for the intended use of the work.

(9) Use hot-rolled steel bars for work fabricated from bar stock unless work is indicated or specified to be fabricated from cold-finished or cold-rolled stock.

2.1.1 Aluminum Railings

Fabrication: Provide fabrication jointing by one of the following methods:

a. Use flush-type rail fittings, welded and ground smooth with splice locks secured with 3/8 inch recessed-head set screws.

b. Ensure that mitered and welded joints made by fitting; post to top rail; intermediate rail to post; and corners, are groove welded and ground smooth. Where allowed by the Contracting Officer, provide butt splices reinforced by a tight-fitting dowel or sleeve not less than 6 inches in length. Tack-weld or epoxy-cement the dowel or sleeve to one side of the splice.

c. Assemble railings using slip-on aluminum-magnesium alloy fittings for joints. Fasten fittings to pipe or tube with 1/4 or 3/8 inch stainless-steel recessed-head setscrews. Provide assembled railings with fittings only at vertical supports or at rail terminations attached to walls. Provide expansion joints at the midpoint of panels. Provide a setscrew in only one side of the slip-on sleeve. Provide alloy fittings to conform to ASTM B26/B26M.

2.2 COMPONENTS

2.2.1 Aluminum Railings And Handrails

Provide railings and handrails consisting of 1 1/4 inch nominal schedule 40 pipe ASTM B429/B429M. Provide anodized aluminum railings. Ensure that all fasteners are Series 300 stainless steel.

PART 3 EXECUTION

3.1 PREPARATION

Adjust railings before securing in place in order to ensure proper matching at butting joints and correct alignment throughout their length. Space posts not more than 4 feet on center. Plumb posts in each direction. Secure posts and rail ends to building construction as noted on the drawings.

3.2 INSTALLATION

Submit manufacturer's installation instructions for the following products to be used in the fabrication of railings:

a. Aluminum railings

b. Anchorage and fastening systems

Provide complete, detailed fabrication and installation drawings for all railings used in accordance as specified herein and as shown on the drawings.

3.2.1 Aluminum Handrail

Affix to base structure by flanges anchored to concrete. Provide Series 300 stainless-steel bolts to anchor aluminum alloy flanges, of a size appropriate to the standard product of the manufacturer. Where aluminum or alloy fittings or extrusions are to be in contact with dissimilar metals or

concrete, coat the contact surface with a heavy coating of bituminous paint.

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SECTION 07 92 00

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SECTION 07 92 00

JOINT SEALANTS

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for joint sealants, including appurtanant items. All costs in connection therewith shall be included in the contract unit or job price for the item to which the work is incidental.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C509	(2006; R 2021) Standard Specifiaction for Elastomeric Cellular Preformed Gasket and Sealing Material
ASTM C920	(2018) Standard Specification for Elastomeric Joint Sealants
ASTM C1193	(2013) Standard Guide for Use of Joint Sealants
ASTM C1311	(2014) Standard Specification for Solvent Release Agents
ASTM C1521	(2013) Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints
ASTM D1056	(2020) Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber
ASTM D1667	(2017) Standard Specification for Flexible Cellular Materials - Poly (Vinyl Chloride) Foam (Closed-Cell)
ASTM D2452	(2015; R 2019) Standard Test Method for Extrudability of Oil- and Resin-Base Caulking Compounds
ASTM D2453	(2015; R 2020; E 2020) Standard Test Method for Shrinkage and Tenacity of Oil- and Resin-Base Caulking Compounds

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)

CDPH SECTION 01350	(2010; Version 1.1) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)

SCAQMD Rule 1168	(2017) Adhesive and Sealant Applications

1.3 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Sealants; G

Primers; G

Bond Breakers; G

Backstops; G

1.4 PRODUCT DATA

Include storage requirements, shelf life, curing time, instructions for mixing and application, and accessories. Provide manufacturer's Safety Data Sheets (SDS) for each solvent, primer and sealant material proposed.

1.5 ENVIRONMENTAL CONDITIONS

Apply sealant when the ambient temperature is between 40 and 90 degrees F.

1.6 DELIVERY AND STORAGE

Deliver materials to the jobsite in unopened manufacturers' sealed shipping containers, with brand name, date of manufacture, color, and material designation clearly marked thereon. Label elastomeric sealant containers to identify type, class, grade, and use. Handle and store materials in accordance with manufacturer's printed instructions. Prevent exposure to foreign materials or subjection to sustained temperatures exceeding 90 degrees F or lower than 0 degrees F. Keep materials and containers closed and separated from absorptive materials such as wood and insulation.

1.7 QUALITY ASSURANCE

1.7.1 Compatibility with Substrate

Verify that each sealant is compatible for use with each joint substrate in accordance with sealant manufacturer's printed recommendations for each application.

1.7.2 Joint Tolerance

Provide joint tolerances in accordance with manufacturer's printed

instructions.

1.7.3 Adhesion

Provide in accordance with ASTM C1193 or ASTM C1521.

PART 2 PRODUCTS

2.1 SEALANTS

Provide sealant products that have been tested, found suitable, and documented as such by the manufacturer for the particular substrates to which they will be applied. In areas with ambient temperatures that exceed 110 degrees F, do not use polybutene, bituminous, acrylic-latex, polyvinyl acetate latex sealants, polychloroprene (neoprene), polyvinyl chloride (PVC), and polyurethane foams, and neoprene, PVC, and styrene butadiene rubber extruded seals and closure strips due to these materials having maximum recommended surface temperature ranges from 130 to 180 degrees F.

2.1.1 Interior Sealants

Provide ASTM C920, Type S or M, Grade NS, Class 12.5, Use NT. Provide sealant products used on the interior of the building (defined as inside of the weatherproofing system) meeting either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of SCAQMD Rule 1168.

2.1.2 Exterior Sealants

For joints in vertical surfaces, provide ASTM C920, Type S or M, Grade NS, Class 25, Use NT. For joints in horizontal surfaces, provide ASTM C920, Type S or M, Grade P, Class 25, Use T.

2.1.3 Floor Joint Sealants

ASTM C920, Type S or M, Grade P, Class 25, Use T. Provide sealant products used on the interior of the building (defined as inside of the weatherproofing system) meeting either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of SCAQMD Rule 1168. Provide location(s) and color(s) of sealant as follows. Note, color "as selected" refers to manufacturer's full range of color options:

LOCATION	COLOR
a. Seats of metal thresholds for exterior doors.	Gray
b. Control and expansion joints in floor slabs.	Gray

2.2 PRIMERS

Non-staining, quick drying type and consistency as recommended by the

sealant manufacturer for the particular application. Provide primers for interior applications that meet the indoor air quality requirements of the paragraph SEALANTS.

2.3 BOND BREAKERS

Type and consistency as recommended by the sealant manufacturer to prevent adhesion of the sealant to the backing or to the bottom of the joint. Provide bond breakers for interior applications that meet the indoor air quality requirements of the paragraph SEALANTS.

2.4 BACKSTOPS

Provide glass fiber roving, neoprene, butyl, polyurethane, or polyethylene foams free from oil or other staining elements as recommended by sealant manufacturer. Provide 25 to 33 percent oversized backing for closed cell and 40 to 50 percent oversized backing for open cell material, unless otherwise indicated. Provide backstop material that is compatible with sealant. Do not use oakum or other types of absorptive materials as backstops.

2.4.1 Rubber

Provide in accordance with ASTM D1056, Type 2, closed cell, Class A for cellular rubber sponge backing.

2.4.2 PVC

Provide in accordance with ASTM D1667, Grade VO 12, open-cell foam, for polyvinyl chloride (PVC) backing.

2.4.3 Synthetic Rubber

Provide in accordance with ASTM C509, Option I, Type I preformed rods or tubes for synthetic rubber backing.

2.4.4 Neoprene

Provide in accordance with ASTM D1056, closed cell expanded neoprene cord Type 2, Class C, Grade 2C2open cell neoprene sponge Type 1, Class C, Grade 1C3 for neoprene backing.

2.4.5 Butyl Rubber Based

Provide in accordance with ASTM C1311, from a single component, with solvent release. Color as selected from manufacturer's full range of color choices.

2.4.6 Silicone Rubber Base

Provide in accordance with ASTM C920, from a single component, with solvent release, Non-sag, Class 25. Color as selected from manufacturer's full range of color choices.

2.5 CAULKING

For interior use and only where there is little or no anticipated joint movement. Provide in accordance with ASTM D2452 and ASTM D2453 for oil and resin-based caulking. Provide products used on the interior of the

building (defined as inside of the weatherproofing system) meeting either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of SCAQMD Rule 1168.

2.6 CLEANING SOLVENTS

Provide type(s) recommended by the sealant manufacturer and in accordance with environmental requirements herein. Protect adjacent aluminum and bronze surfaces from solvents. Provide solvents for interior applications that meet the indoor air quality requirements of the paragraph SEALANTS.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

Prepare surfaces according to manufacturer's printed installation instructions. Clean surfaces from dirt, frost, moisture, grease, oil, wax, lacquer, paint, or other foreign matter that would destroy or impair adhesion. Remove oil and grease with solvent; thoroughly remove solvents prior to sealant installation. Wipe surfaces dry with clean cloths. When resealing an existing joint, remove existing caulk or sealant prior to applying new sealant. For surface types not listed below, provide in accordance with sealant manufacturer's printed instructions for each specific surface.

3.1.1 Steel Surfaces

Remove loose mill scale by sandblasting or, if sandblasting is impractical or would damage finished work, scraping and wire brushing. Remove protective coatings by sandblasting or using a residue free solvent. Remove resulting debris and solvent residue prior to sealant installation.

3.1.2 Aluminum or Bronze Surfaces

Remove temporary protective coatings from surfaces that will be in contact with sealant. When masking tape is used as a protective coating, remove tape and any residual adhesive prior to sealant application. For removing protective coatings and final cleaning, use non-staining solvents recommended by the manufacturer of the item(s) containing aluminum or bronze surfaces.

3.1.3 Concrete and Masonry Surfaces

Where surfaces have been treated with curing compounds, oil, or other such materials, remove materials by sandblasting or wire brushing. Remove laitance, efflorescence and loose mortar from the joint cavity. Remove resulting debris prior to sealant installation.

3.2 SEALANT PREPARATION

Do not add liquids, solvents, or powders to sealants. Mix multicomponent elastomeric sealants in accordance with manufacturer's printed instructions.

3.3 APPLICATION

3.3.1 Joint Width-To-Depth Ratios

Acceptable Ratios:

JOINT WIDTH	JOINT DEPTH	
	Minimum	Maximum
For metal, glass, or other nonporous surfaces:		
1/4 inch (minimum)	1/4 inch	1/4 inch
over 1/4 inch	1/2 of width	Equal to width
For wood, concrete, masonry or, stone		
1/4 inch (minimum)	1/4 inch	1/4 inch
over 1/4 inch to 1/2 inch	1/4 inch	Equal to width
over 1/2 inch to 1 inch	1/2 inch	5/8 inch
Over 1 inch	prohibited	

Unacceptable Ratios: Where joints of acceptable width-to-depth ratios have not been provided, clean out joints to acceptable depths and grind or cut to acceptable widths without damage to the adjoining work. Grinding is prohibited at metal surfaces.

3.3.2 Unacceptable Sealant Use

Do not install sealants in lieu of other required building enclosure weatherproofing components such as flashing, drainage components, and joint closure accessories, or to close gaps between walls, floors, roofs, windows, and doors, that exceed acceptable installation tolerances. Remove sealants that have been used in an unacceptable manner and correct building enclosure deficiencies to comply with contract documents requirements.

3.3.3 Masking Tape

Place masking tape on the finished surface on one or both sides of joint cavities to protect adjacent finished surfaces from primer or sealant smears. Remove masking tape within 10 minutes of joint filling and tooling.

3.3.4 Backstops

Provide backstops dry and free of tears or holes. Tightly pack the back or bottom of joint cavities with backstop material to provide joints in specified depths. Provide backstops where indicated and where backstops are not indicated but joint cavities exceed the acceptable maximum depths specified in the table shown in paragraph "Joint Width-To-Depth Ratios".

3.3.5 Primer

Clean out loose particles from joints immediately prior to application of. Apply primer to joints in concrete masonry units, wood, and other porous surfaces in accordance with sealant manufacturer's printed instructions. Do not apply primer to exposed finished surfaces.

3.3.6 Bond Breaker

Provide bond breakers to surfaces not intended to bond in accordance with, sealant manufacturer's printed instructions for each type of surface and sealant combination specified.

3.3.7 Sealants

Provide sealants compatible with the material(s) to which they are applied. Do not use a sealant that has exceeded its shelf life or has jelled and cannot be discharged in a continuous flow from the sealant gun. Apply sealants in accordance with the manufacturer's printed instructions with a gun having a nozzle that fits the joint width. Work sealant into joints so as to fill the joints solidly without air pockets. Tool sealant after application to ensure adhesion. Apply sealant uniformly smooth and free of wrinkles. Upon completion of sealant application, roughen partially filled or unfilled joints, apply additional sealant, and tool smooth as specified. Apply sealer over sealants in accordance with the sealant manufacturer's printed instructions.

3.4 PROTECTION AND CLEANING

3.4.1 Protection

Protect areas adjacent to joints from sealant smears. Masking tape may be used for this purpose if removed 5 to 10 minutes after the joint is filled and no residual tape marks remain.

3.4.2 Final Cleaning

Upon completion of sealant application, remove remaining smears and stains and leave the work in a clean and neat condition.

a. Masonry and Other Porous Surfaces: Immediately remove fresh sealant that has been smeared on adjacent masonry, rub clean with a solvent, and remove solvent residue, in accordance with sealant manufacturer's printed instructions. Allow excess sealant to cure for 24 hour then remove by wire brushing or sanding. Remove resulting debris.

b. Metal and Other Non-Porous Surfaces: Remove excess sealant with a solvent moistened cloth. Remove solvent residue in accordance with solvent manufacturer's printed instructions.

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SECTION 08 11 16

ALUMINUM DOORS AND FRAMES

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for aluminum doors and frames, including appurtanant items. All costs in connection therewith shall be included in the contract unit or job price for the item to which the work is incidental.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)

AAMA 2604	(2017a) Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels

ASTM INTERNATIONAL (ASTM)

ASTM A36/A36M	(2019) Standard Specification for Carbon Structural Steel
ASTM B209	(2014) Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
ASTM B209M	(2014) Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric)
ASTM B221	(2021) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM B221M	(2021) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)
ASTM E283	(2019) Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
ASTM E331	(2000; R 2016) Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference

ASTM E1886	(2019) Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials
ASTM E1996	(2017) Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes

NATIONAL FENESTRATION RATING COUNCIL (NFRC)

NFRC 100	(2020) Procedure for Determining Fenestration Product U-Factors
NFRC 200	(2020) Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence

1.3 PERFORMANCE REQUIREMENTS

1.3.1 Windborne-Debris-Impact Performance

Provide impact resistant door assemblies meeting the windborne-debris-impact performance requirements of ASTM E1996 andASTM E1886, and the pass missile-impact tests when tested according to ASTM E1886 and meeting performance requirements according to ASTM E1996 for missiles A and D in Table 2.

1.3.2 Air Infiltration

When tested in accordance with ASTM E283, air infiltration per door leaf cannot exceed 0.6 cubic feet per minute per square foot of fixed area at a test pressure of 6.24 pounds per square foot.

1.3.3 Water Penetration

When tested in accordance with ASTM E331, there can be no water penetration at a pressure of 2.86 pounds per square foot of fixed area.

1.3.4 Thermal Transmittance, Solar Heat Gain, Visible Light Transmittance

Provide products bearing NFRC Project Label Certificates for Fenestration verifying compliance with requirements for each assembly indicated. An NFRC Bid Report, or approved equal, for field assembled exterior doors may be submitted in lieu of Project Label Certificates for Fenestration if such reports are created in accordance with NFRC CAMP procedures and are provided by the manufacturer. Such alternate reports may be submitted with shop drawings, however, NFRC validated Project Label Certificates for Fenestration are required as a Closeout Submittal. Contact NFRC for information on NFRC 100 and NFRC 200 Compliance and Monitoring Program (CAMP) rating requirements: http://www.nfrc.org/industry/certification/compliance-and-monitoring-program-camp/

1.4 SUBMITTALS

Government approval is required for submittals with a "G" classification.

Submittals not having a "G" are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

For Each Type of Door and Frame Assembly; G

SD-03 Product Data

For Each Type of Door and Frame Assembly; G

SD-04 Samples

Finish Samples; G

SD-06 Test Reports

Windborne-Debris-Impact Performance; G

Air Infiltration; G

Water Penetration; G

SD-07 Certificates

NFRC Project Label Certificates for Fenestration

SD-08 Manufacturer's Instructions

Installation of Each Type of Door and Frame Assembly; G

SD-10 Operation and Maintenance Data

Adjustments, Cleaning, and Maintenance; G

SD-11 Closeout Submittals

NFRC Project Label Certificates for Fenestration; G

1.5 DELIVERY, STORAGE, AND HANDLING

Inspect materials delivered to the site for damage. Unload and store with minimum handling. Provide storage space in dry location with adequate ventilation, free from dust or water, and easily accessible for inspection and handling. Stack materials on non-absorptive strips or wood platforms. Do not cover doors and frames with tarps, polyethylene film, or similar coverings. Protect finished surfaces during shipping and handling using manufacturer's standard method. Do not apply coatings or lacquers to surfaces to which caulking and glazing compounds must adhere.

1.6 QUALITY CONTROL

1.6.1 Shop Drawing

Indicate elevations and sections for each type of door and frame assembly. Show sizes and details of each assembly, frame construction,subframe attachment, thickness and gages of metal, details of door and frame construction, proposed method(s) of anchorage, provisions for an location of hardware, method and materials for flashing and weatherstripping,

miscellaneous trim, installation details, and other related items necessary for a complete representation of all components.

1.6.2 Finish Samples

Submit two color charts and two finish sample chips from manufacturer's standard color and finish options for each type of finish indicated.

1.6.3 Operation and Maintenance Data

Submit detailed instructions for installation, adjustments, cleaning, and maintenance of each type of assembly indicated.

PART 2 PRODUCTS

2.1 DOORS AND FRAMES

Provide swing-type aluminum doors and frames of size, design, and location indicated. Provide doors complete with frames, framing members, subframes, trim, and accessories.

2.2 MATERIALS

2.2.1 Anchors

Stainless steel.

2.2.2 Weatherstripping

Continuous wool pile, silicone treated, or type recommended by door manufacturer.

2.2.3 Aluminum Alloy for Doors and Frames

ASTM B221M, ASTM B221, Alloy 6063-T5 for extrusions. ASTM B209M, ASTM B209, alloy and temper best suited for aluminum sheets and strips.

2.2.4 Fasteners

Hard aluminum or stainless steel.

2.2.5 Structural Steel

ASTM A36/A36M.

2.2.6 Aluminum Paint

Aluminum door manufacturer's standard aluminum paint.

2.3 FABRICATION

2.3.1 Aluminum Frames

Extruded aluminum shapes with contours approximately as indicated. Use countersunk stainless steel Phillips screws for exposed fastenings, and space not more than 12 inches on center. Mill joints in frame members to a hairline fit, reinforce, and secure mechanically.

2.3.2 Aluminum Doors

Of type, size, and design indicated and minimum 1-3/4 inch thick. minimum wall thickness, 0.125 inch, except beads and trim, 0.050 inch. Door sizes shown are nominal; include standard clearances as follows: 0.093 inch at hinge and lock stiles, 0.125 inch between meeting stiles, 0.125 inch at top rails, 0.187 inch between bottom and threshold, and 0.687 inch between bottom and floor. Provide bevel single-acting doors 0.063 or 0.125 inch at lock, hinge, and meeting stile edges.

2.3.2.1 Flush Doors

Use facing sheets with a plain smooth surface. Form from extruded aluminum members at top and bottom, both sides, and at perimeters of louver and glass openings. Provide wall sections of extruded aluminum members minimum 0.09 inch thick and reinforce for application of hardware. Cover framing members on both sides with aluminum facing sheets minimum 0.064 inch thick. Fill door panels with poured-in-place polyurethane foam.

2.3.3 Welding and Fastening

Where possible, locate welds on unexposed surfaces. Dress welds on exposed surfaces smoothly. Select welding rods, filler wire, and flux to produce a uniform texture and color in finished work. Remove flux and spatter from surfaces immediately after welding. Exposed screws or bolts will be permitted only in inconspicuous locations, and must have countersunk heads. Weld concealed reinforcements for hardware in place.

2.3.4 Weatherstripping

Provide on stiles and rails of exterior doors. Fit into slots which are integral with doors or frames. Weatherstripping must be replaceable without special tools, and adjustable at meeting rails of pairs of doors. During installation, verify doors swing freely and close positively. Refer to paragraph "Air Infiltration" for air leakage requirements and testing.

2.3.5 Anchors

On the backs of subframes, provide anchors of the sizes and shapes indicated for securing subframes to adjacent construction. Anchor transom bars at ends and mullions at head and sill.

2.3.6 Provisions for Hardware

Coordinate with Section 08 71 00 DOOR HARDWARE. Deliver hardware templates and hardware (except field-applied hardware) to the door manufacturer for use in fabrication of aluminum doors and frames. Cut, reinforce, drill, and tap doors and frames at the factory to receive template hardware. Provide doors to receive surface-applied hardware, except push plates, kick plates, and mop plates, with reinforcing only; drill and tap in the field. Provide hardware reinforcements of stainless steel or steel with hot-dipped galvanized finish, and secure with stainless steel screws. Provide reinforcement in core of flush doors as required to receive locks, door closers, and other hardware.

2.3.7 Finishes

Provide exposed aluminum surfaces with factory finish of organic coating.

2.3.7.1 Organic Coating

Clean and prime exposed aluminum surfaces. Provide a high-performance finish in accordance with AAMA 2604 with total dry film thickness of minimum 1.2 mils. Finish color to be as selected from manufacturer's complete range of color options.

PART 3 EXECUTION

3.1 INSTALLATION

Plumb, square, level, and align frames and framing members to receive doors. Anchor frames to adjacent construction as indicated and in accordance with manufacturer's printed instructions and the approved shop drawings. Install anchorage that complies with applicable structural requirements. Anchor bottom of each frame to rough floor construction with 3/32 inch thick minimum stainless steel angle clips secured to back of each jamb and to floor construction; use stainless steel bolts and expansion rivets for fastening clip anchors. Hang doors to produce clearances specified in paragraph "Aluminum Doors". After erection and glazing, adjust doors and hardware to operate properly.

3.2 PROTECTION FROM DISSIMILAR MATERIALS

3.2.1 Dissimilar Metals

Where aluminum surfaces come in contact with metals other than stainless steel, zinc, or small areas of white bronze, protect from direct contact to dissimilar metals.

3.2.1.1 Protection

Provide one of the following systems to protect surfaces in contact with dissimilar metals:

a. Paint the dissimilar metal with one coat of heavy-bodied bituminous paint.

b. Apply elastomeric sealant between aluminum and dissimilar metals in accordance with Section 07 92 00 JOINT SEALANTS.

c. Paint dissimilar metals with one coat of primer and one coat of aluminum paint.

d. Use a non-absorptive tape or gasket in permanently dry locations.

3.2.2 Drainage from Dissimilar Metals

In locations where drainage from dissimilar metals has direct contact with aluminum, provide protective paint to prevent aluminum discoloration.

3.2.3 Masonry and Concrete

Provide aluminum surfaces in contact with mortar, concrete, or other masonry materials with one coat of heavy-bodied bituminous paint.

3.2.4 Wood or Other Absorptive Materials

Provide aluminum surfaces in contact with absorptive materials subject to

frequent moisture, and aluminum surfaces in contact with treated wood, with two coats of aluminum paint or one coat of heavy-bodied bituminous paint. In lieu of painting aluminum, paint the wood or other absorptive surface with two coats of aluminum paint and seal joints with elastomeric sealant.

3.3 SEALING AROUND ASSEMBLIES

Seal all penetrations of the air barrier by sealing around door openings as necessary to achieve compliance with air leakage requirements. Flash all doors with corrosion resistant flashing to prevent water intrusion.

3.4 CLEANING

Upon completion of installation, clean door and frame surfaces in accordance with door manufacturer's written recommended procedure. Do not use abrasive, caustic, or acid cleaning agents.

3.5 PROTECTION

Protect doors and frames from damage and from contamination by other materials such as cement mortar. Prior to completion and acceptance of the work, restore damaged doors and frames to original condition, or replace with new ones.

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SECTION 08 33 23

OVERHEAD COILING DOORS

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for overhead coiling doors; including appurtanant items. All costs in connection therewith shall be included in the contract unit or job price for the item to which the work is incidental.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE 7-16	(2017; Errata 2018; Supp 1 2018) Minimum Design Loads and Associated Criteria for Buildings and Other Structures

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE FUN IP	(2021) Fundamentals Handbook, I-P Edition

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B29.400	(2001; (R 2008) (R 2013) (R 2018)) Combination, "H" Type Mill Chains, and Sprockets

ASTM INTERNATIONAL (ASTM)

ASTM A36/A36M	(2019) Standard Specification for Carbon Structural Steel
ASTM A47/A47M	(1999; R 2018; E 2018) Standard Specification for Ferritic Malleable Iron Castings
ASTM A53/A53M	(2020) Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A153/A153M	(2016a) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A307	(2021) Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength

ASTM A653/A653M	(2020) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A780/A780M	(2020) Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
ASTM A924/A924M	(2020) Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process
ASTM B209	(2014) Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
ASTM B221	(2021) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM E84	(2020) Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM F568M	(2007) Standard Specification for Carbon and Alloy Steel Externally Threaded Metric Fasteners

DOOR AND ACCESS SYSTEM MANUFACTURERS ASSOCIATION (DASMA)

ANSI/DASMA 108	(2017) Standard Method for Testing Sectional Garage Doors, Rolling Doors and Flexible Doors: Determination of Structural Performance Under Uniform Static Air Pressure Difference

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA ICS 1	(2000; R 2015) Standard for Industrial Control and Systems: General Requirements
NEMA ICS 2	(2000; R 2020) Industrial Control and Systems Controllers, Contactors, and Overload Relays Rated 600 V
NEMA ICS 6	(1993; R 2016) Industrial Control and Systems: Enclosures
NEMA MG 1	(2016) Motors and Generators - Revision 1: 2018; Includes 2021 Updates to Parts 0, 1, 7, 12, 30, and 31
NEMA ST 1	(1988; R 1994; R 1997) Specialty Transformers (Except General Purpose Type)

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2020; ERTA 20-1 2020; ERTA 20-2 2020; TIA

20-1; TIA 20-2; TIA 20-3; TIA 20-4) National Electrical Code

UNDERWRITERS LABORATORIES (UL)

UL 325	(2017; Reprint Feb 2020) UL Standard for Safety Door, Drapery, Gate, Louver, and Window Operators and Systems
UL 674	(2011; Reprint Dec 2020) UL Standard for Safety Electric Motors and Generators for Use in Hazardous (Classified) Locations

1.3 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Overhead Coiling Doors; G

Counterbalancing Mechanism; G

Electric Door Operators; G

Bottom Bars; G

Guides; G

Mounting Brackets; G

Hood; G

Installation Drawings; G

SD-03 Product Data

Overhead Coiling Doors; G

Hardware; G

Counterbalancing Mechanism; G

Electric Door Operators; G

SD-05 Design Data

Overhead Coiling Doors; G

Hardware; G

Counterbalancing Mechanism;G

Electric Door Operators; G

SD-06 Test Reports

Wind Loading Tests; G

SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals; G

SD-11 Closeout Submittals

Warranty; G

1.4 QUALITY CONTROL

1.4.1 Warranty

Furnish a written guarantee that the helical spring and counterbalance mechanism are free from defects in material and workmanship for not less than two years after completion and acceptance of the project. Warrant that upon notification by the Government, any defects in material, workmanship, and door operation are immediately correct within the same time period covered by the guarantee, at no cost to the Government.

1.4.2 Operation And Maintenance Submittals

(1) Submit 6 copies of the operation and maintenance manuals 30 calendar days prior to testing the overhead coiling door assemblies. Update and resubmit data for final approval no later than 30 calendar days prior to Contract completion.

(2) Submit Operation and Maintenance Manuals for overhead coiling door assemblies, including the following items:

Electric Door Operators

Hood

Counterbalancing Mechanism

Painting

(3) Provide operation and maintenance manuals which are consistent with manufacturer's standard brochures, schematics, printed instructions, operating procedures, and safety precautions.

1.5 DELIVERY, STORAGE, AND HANDLING

Deliver doors to the jobsite wrapped in a protective covering with the brands and names clearly marked thereon. Store doors in an adequately ventilated dry location that is free from dirt and dust, water, or other contaminants. Store in a manner that permits easy access for inspection and handling. Handle doors carefully to prevent damage. Remove damaged items that cannot be restored to like-new condition and provide new items.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

Provide overhead coiling doors with interlocking slats, complete with anchoring and door hardware, guides, hood, and operating mechanisms, and designed for use on openings as indicated. Doors must be spring

counterbalanced, rolling type, and designed for use on exterior openings, as indicated on the drawings. Doors must be operated by electric-power with auxiliary hand chain operation. Doors to be surface-mounted type with guides at jambs set back a sufficient distance to provide a clear opening when door is in open position. Mount exterior doors on interior face of walls.

2.1.1 Design Requirements

2.1.1.1 Door Detail Shop Drawings

Provide installation drawings for door assemblies which show: elevations of each door type, shape and thickness of materials, finishes, details of joints and connections, details of guides and fittings, rough opening dimensions, location and description of hardware, anchorage locations, and counterbalancing mechanism and door operator details. Show locations of replaceable fusible links on wiring diagrams for power, signal and controls. For motor-operated doors include supporting brackets for motors, location, type, and ratings of motors, and safety devices. Include a schedule showing the location of each door with the drawings.

2.1.2 Performance Requirements

2.1.2.1 Wind Loading

Design and fabricate door assembly to withstand the wind loading pressure of at least +60, -60 pounds per square foot in accordace with ANSI/DASMA 108. Submit Wind Loading Tests showing compliance with ANSI/DASMA 108. Sound engineering principles may be used to interpolate or extrapolate test results to door sizes not specifically tested. Ensure that the complete assembly meets or exceeds the requirements of ASCE 7-16.

2.1.2.2 Operational Cycle Life

Design all portions of the door, hardware and operating mechanism that are subject to movement, wear, or stress fatigue to operate through a minimum number of 10 cycles per day. One complete cycle of door operation is defined as when the door is in the closed position, moves to the fully open position, and returns to the closed position.

2.2 COMPONENTS

2.2.1 Overhead Coiling Doors

2.2.1.1 Curtain Materials and Construction

(1) Provide curtain slats fabricated from aluminum sheets conforming to ASTM B209, or ASTM B221 extrusions, alloy and tempering standard from the manufacturer for type of use and finish indicated; with a thickness as required by the size of the door to meet the required windload.

(2) Fabricate doors from interlocking cold-rolled slats, with section profiles as specified, designed to withstand the specified wind loading. Ensure the provided slats are continuous without splices for the width of the door.

(3) Provide slats filled with manufacturer's standard thermal insulation, complying with the maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, according to ASTM E84. Enclose the insulation

completely within the slat faces on the interior surface of the slats.

2.2.1.2 Insulated Curtains

Form curtains from manufacturer's standard shapes of interlocking slats. Supply a slat system with a minimum R-value of 9 when calculated in accordance with ASHRAE FUN IP. Slats to consist of a urethane or polystyrene core not less than 11/16 inch thick, completely enclosed within metal facings. Slat steel thickness as required by the size of the door to meet specified performance requirements. The insulated slat assembly requires a flame spread rating of not more than 25 and a smoke development factor of not more than 50 when tested in accordance with ASTM E84.

2.2.1.3 Curtain Bottom Bar

Install curtain bottom bars as pairs of angles or using extrusions from the manufacturer's standard aluminum extrusions not less than 2.0 by 2.0 inches by 0.188 inch. Aluminum extrusions conforming to ASTM B221. Galvanize fasteners in accordance with ASTM A653/A653M and ASTM A924/A924M. Coat welds and abrasions with paint conforming to ASTM A780/A780M.

2.2.1.4 Endlocks and Windlocks

Provide endlocks of Grade B cast steel conforming to ASTM A47/A47M, galvanized in accordance with ASTM A153/A153M. Secure locks at every other curtain slat. In addition to endlocks, exterior doors must have windlocks of manufacturer's standard design. Windlocks must prevent curtain from leaving guide because of deflection from wind pressure or other forces.

2.2.1.5 Weather Stripping

(1) Provide a hood baffle inside the hood that is a minimum 1/16 inch thick sheet of vinyl, neoprene rubber or equivalent. Provide guide weather stripping that is a minimum 1/16 inch thick sheet of vinyl, neoprene rubber, or equivalent.

(2) Provide bottom bar weather-stripping that is a minimum 1/16 inch thick sheet of vinyl, neoprene rubber, or equivalent.

2.2.1.6 Locking Devices

(1) Ensure that the slide bolt engages through slots in tracks for locking by padlock, located on both left and right jamb sides, operable from coil side.

(2) Provide a locking device assembly which includes cylinder lock, operating handle, cam plate, and adjustable locking bars to engage through slots in tracks.

(3) Provide a chain lock keeper suitable for a standard padlock.

2.2.1.7 Safety Interlock

Equip power-operated doors with a safety interlock switch to disengage power supply when the door is locked, or provide an operator with an internal lock sensing device to prevent the door opening when the door is locked.

2.2.2 Hardware

Ensure that all hardware conforms to ASTM A153/A153M, ASTM A307, and ASTM F568M.

2.2.2.1 Guides

Fabricate with galvanized structural steel angles. Provide windlock bars of same material when windlocks are required to meet specified wind load. Flare the top of inner and outer guide angles outwards to form bellmouth for smooth entry of curtain into guides. Provide removable guide stoppers to prevent over travel of curtain and bottom bar.

2.2.2.2 Hood

(1) Provide a hood with a minimum aluminum 18-gauge B&S sheet metal, flanged at top for attachment to header and flanged at bottom to provide longitudinal stiffness. The hood encloses the curtain coil and counterbalance mechanism.

(2) Hoods for openings more than 12 feet in width must have intermediate support brackets to prevent excessive sag. Provide a weather baffle at the lintel or inside the hood of each exterior door.

2.2.3 Counterbalancing Mechanism

Counterbalance doors by means of manufacturer's standard mechanism with an adjustable-tension, steel helical torsion spring mounted, around a steel shaft and contained in a spring barrel connected to top of curtain with barrel rings. Use grease-sealed or self-lubricating bearings for rotating members.

2.2.3.1 Brackets

(1) Provide the manufacturer's standard mounting brackets with one located at each end of the counterbalance barrel conforming to ASTM A36/A36M. Provide brackets of hot-rolled steel.

(2) Brackets shall be of 3/16 inch minimum thick steel plates, with permanently sealed ball bearings. Designed to enclose ends of coil and provide support of counterbalance pipe at each end.

2.2.3.2 Counterbalance Barrels

(1) Curtain must roll up on a barrel supported at head of opening on brackets and be balanced by a torsion spring system in the barrel. Fabricate spring barrel of manufacturer's standard hot-formed, structural-quality, welded or seamless carbon-steel pipe, conforming to ASTM A53/A53M or equivalent. Ensure the barrel is of sufficient diameter and wall thickness to support rolled-up curtain without distortion of slats. Limit barrel deflection to not more than 0.03 inch per foot of span under full load.

(2) Barrel. Provide steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot of width.

(3) Spring Balance. Provide an oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door. Ensure that effort to operate manually operated units does not exceed 25 lbs. At least

80 percent of the door weight must be counterbalanced at any position. Provide wheel for applying and adjusting spring torque.

2.2.4 Electric Door Operators

(1) Provide electrical wiring and door operating controls conforming to the applicable requirements of NFPA 70 and UL 325. The door manufacturer must furnish automatic control and safety devices, including extra flexible type SO cable and spring-loaded automatic takeup reel or equivalent device, as required for proper operation of the doors. Conduit, wiring, and mounting of controls are specified in Section 26 20 00 INTERIOR DISTRIBUTION SYSTEM.

(2) Electrical materials, equipment, and devices for installation in hazardous locations, as defined by NFPA 70, must be specifically approved by Underwriters Laboratories or an independent testing agency using equivalent standards, for the particular chemical group and the class and division of hazardous location involved.

(3) Electric door-operator assemblies need to be the sizes and capacities recommended and provided by the door manufacturer for specified doors. Furnish complete assemblies with electric motors and factory-prewired motor controls, starter, gear reduction units, solenoid-operated brakes, clutch, remote-control stations, manual or automatic control devices, and accessories as required for proper operation of the doors.

(4) Design the operators so that motors may be removed without disturbing the limit-switch adjustment and affecting the emergency auxiliary operators.

(5) Provide a manual operator of crank-gear or chain-gear mechanisms with a release clutch to permit manual operation of doors in case of power failure. Arrange the emergency manual operator so that it may be put into and out of operation from floor level, and its use does not affect the adjustment of the limit switches. Provide an electrical or mechanical device that automatically disconnects the motor from the operating mechanism when the emergency manual operating mechanism is engaged.

2.2.4.1 Door-Operator Types

Provide an operator mounted to the right or left door head plate with the operator on top of the door-hood assembly and connected to the door drive shaft with drive chain and sprockets. Headroom is required for this type of mounting.

2.2.4.2 Electric Motors

(1) Provide motors which are the high-starting-torque, reversible, constant-duty electrical type with overload protection of sufficient torque and horsepower to move the door in either direction from any position. Ensure they produce a door-travel speed of not less than 8 nor more than 12 inches per second without exceeding the horsepower rating.

(2) Provide motors which conform to NEMA MG 1 designation, temperature rating, service factor, enclosure type, and efficiency to the requirements specified. Motors must be suitable for operation on current of the characteristics indicated. Single-phase motors must not have commutation or more than one starting contact. Motor enclosures must be the drip-proof type or NEMA TEFC and TENV type. Install motors in approved locations.

(3) Certify and label explosion-proof motors to indicate conformance to the following:

UL 674, Class I, Groups C and D

UL 674, Class II, Groups F and G

2.2.4.3 Motor Bearings

(1) Select bearings with bronze-sleeve or heavy-duty ball or roller antifriction type with full provisions for the type of thrust imposed by the specific duty load.

(2) Pre-lubricate and factory seal bearings in motors less than 1/2 horsepower.

(3) Equip motors coupled to worm-gear reduction units with either ball or roller bearings.

(4) Equip bearings in motors 1/2 horsepower or larger with lubrication service fittings. Fit lubrication fittings with color-coded plastic or metal dust caps.

(5) In any motor, bearings that are lubricated at the factory for extended duty periods do not need to be lubricated for a given number of operating hours. Display this information on an appropriate tag or label on the motor with instructions for lubrication cycle maintenance.

2.2.4.4 Motor Starters, Controls, and Enclosures

(1) Provide each door motor with: a factory-wired, unfused, disconnect switch; a reversing, across-the-line magnetic starter with thermal overload protection; 24-volt operating coils with a control transformer limit switch; and a safety interlock assembled in a NEMA ICS 6 type enclosure as specified herein. Ensure control equipment conforms to NEMA ICS 1 and NEMA ICS 2.

(2) Provide adjustable switches, electrically interlocked with the motor controls and set to stop the door automatically at the fully open and fully closed position.

2.2.4.5 Control Enclosures

Provide control enclosures that conform to NEMA ICS 6 for NEMA Type 4.

2.2.4.6 Transformer

Provide starters with 208/120 to 115 volt control transformers with one secondary fuse when required to reduce the voltage on control circuits to 24 volts or less. Provide a transformer conforming to NEMA ST 1.

2.2.4.7 Sensing-Edge Device

Provide each door with a pneumatic or electric sensing device that meets UL 325, extends the full width of the door, and is located within a U-section neoprene or rubber astragal, mounted on the bottom rail of the bottom door section. Device needs to immediately stop and reverse the door upon contact with an obstruction in the door opening or upon failure of the device or any component of the control system and cause the door to return

to its user-defined open position. Any momentary door-closing circuit must be automatically locked out and the door must be operable manually or with constant pressure controls until the failure or damage has been corrected. A sensing device is not a substitute for a limit switch. Connect sensing device to the control circuit through a retracting cord and reel.

2.2.4.8 Remote-Control Stations

Remote control stations must be at least 5 feet above the floor line, and all switches must be located so that the operator will have complete visibility of the door at all times. Provide interior remote control stations that are full-guarded, momentary-contact three-button, heavy-duty, surface-mounted NEMA ICS 6 type enclosures as specified. Mark buttons "OPEN," "CLOSE," and "STOP." The "OPEN" and "STOP" buttons must be of the type requiring only momentary pressure to operate. The "CLOSE" button must be of the type either requiring constant pressure to maintain the closing motion of the door or momentary pressure when installed with a monitored entrapment detection device which, upon failure of the device or any component of the control system, cause the door to return to its full open position. When the door is in motion and the "STOP" button is pressed, ensure the door stops instantly and remains in the stopped position. From the stopped position, the door may then be operated in either direction by the "OPEN" or "CLOSE" buttons. When the door is in motion, and the "CLOSE" button of the constant pressure type is released, the door must stop and remain in the stop position or reverse to the user set up position; from the stop position, the door may then be operated in either direction by the "OPEN" or "CLOSE" buttons. Controls must be adjustable to automatically stop the doors at their fully open and closed positions. Open and closed positions must be readily adjustable.

2.2.4.9 Speed-Reduction Units

(1) Provide speed-reduction units consisting of hardened-steel worm and bronze worm gear assemblies or planetary gear reducers running in oil or grease and inside a sealed casing, coupled to the motor through a flexible coupling. Drive shafts need to rotate on ball- or roller-bearing assemblies that are integral with the unit.

(2) Provide minimum ratings of speed reduction units in accordance with AGMA provisions for class of service.

(3) Ground worm gears to provide accurate thread form; machine teeth for all other types of gearing. Surface harden all gears.

(4) Provide antifriction type bearings equipped with oil seals.

2.2.4.10 Chain Drives

(1) Provide roller chains that are a power-transmission series steel roller type conforming to ASME B29.400, with a minimum safety factor of 10 times the design load.

(2) Heat-treat or otherwise harden roller-chain side bars, rollers, pins, and bushings.

(3) Provide high-carbon steel chain sprockets with machine-cut hardened teeth, finished bore and keyseat, and hollow-head setscrews.

2.2.4.11 Brakes

Provide 360-degree shoe brakes or shoe and drum brakes. Ensure the brakes are solenoid-operated and electrically interlocked to the control circuit to set automatically when power is interrupted.

2.2.4.12 Clutches

Ensure clutches are friction type or adjustable centrifugal type.

2.2.4.13 Weather/Smoke Seal Sensing Edge

(1) Provide automatic stop control by an automatic sensing switch within neoprene astragal extending the full width of door bottom bar.

(2) Provide an electric sensing edge device. Ensure the door immediately stops downward travel when contact occurs before door fully closes. Provide a self-monitoring sensing edge connection to the motor operator.

2.2.5 Surface Finishing

Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Noticeable variations in the same metal component are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved samples and are assembled or installed to minimize contrast.

2.2.5.1 Powder-Coat Finish

Manufacturer's standard powder-coat finish consisting of prime coat and thermosetting topcoat. Comply with the coating manufacturer's written instructions for cleaning, pretreatment, application, and minimum dry film thickness.

PART 3 EXECUTION

3.1 INSTALLATION

(1) Install overhead coiling door assembly, anchors and inserts for guides, brackets, motors, switches, hardware, and other accessories in accordance with approved detail drawings and manufacturer's written instructions. Upon completion of installation, ensure doors are free from all distortion.

(2) Install overhead coiling doors, motors, hoods, and operators at the mounting locations as indicated for each door in the Contract Documents and as required by the manufacturer.

(3) Install overhead coiling doors, switches, and controls along accessible routes in compliance with regulatory requirements for accessibility and as required by the manufacturer.

3.1.1 Field Painted Finish

Ensure field painted steel doors and frames are in accordance with the manufacturer's written instructions. Protect the weather stripping from paint. Ensure that the finishes are free of scratches or other blemishes.

3.2 ADJUSTING AND CLEANING

3.2.1 Acceptance Provisions

(1) After installation, adjust the hardware and moving parts. Lubricate bearings and sliding parts as recommended by manufacturer to provide smooth operating functions for ease movement, free of warping, twisting, or distortion of the door assembly.

(2) Adjust seals to provide a weather-tight fit around entire perimeter.

(3) Engage a factory-authorized service representative to perform startup service and checks according to the manufacturer's written instructions.

(4) Test the door opening and closing operation when activated by controls system. Adjust controls and safeties. Replace damaged and malfunctioning controls and equipment. Reset the door-closing mechanism after a successful test.

(5) Test and make final adjustment of new doors at no additional cost to the Government.

3.2.1.1 Maintenance and Adjustment

Not more than 90 calendar days after completion and acceptance of the project, examine, lubricate, test, and re-adjust doors as required for proper operation.

3.2.1.2 Cleaning

Clean doors in accordance with the manufacturer's approved instructions.

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DIVISION 08 - OPENINGS

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SECTION 08 71 00

DOOR HARDWARE

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for door hardware, including appurtanant items. All costs in connection therewith shall be included in the contract unit or job price for the item to which the work is incidental.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)

ANSI/BHMA A156.1	(2021) Butts and Hinges
ANSI/BHMA A156.3	(2020) Exit Devices
ANSI/BHMA A156.4	(2013) Door Controls - Closers
ANSI/BHMA A156.7	(2016) Template Hinge Dimensions
ANSI/BHMA A156.13	(2017) Mortise Locks & Latches Series 1000
ANSI/BHMA A156.18	(2020) Materials and Finishes
ANSI/BHMA A156.21	(2019) Thresholds

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

36 CFR 1191	Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines

1.3 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submittals not having a "G" classification are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Hardware Items; G

SD-08 Manufacturer's Instructions

Installation

SD-10 Operation and Maintenance Data

Hardware Schedule; G

SD-11 Closeout Submittals

Key Bitting

1.4 PRODUCT DATA

Indicate fire-ratings at applicable components. Provide documentation of ABA/ADA accessibility compliance of applicable components, as required by 36 CFR 1191 Appendix D - Technical.

1.5 HARDWARE SCHEDULE

Provide Hardware Item List and Hardware Schedule containing the following information, and additional information as needed to identify the complete make up of each hardware set and its application to each opening:

1.5.1 Hardware Item List:

a. Hardware Type

b. Item Number

c. Quantity

d. Size(s)

e. Reference Publication / Type Number

f. Manufacturer's Name / Catalog Number

g. Key Control Symbols

h. UL Mark (If fire rated and listed)

i. BHMA Finish(es)

j. Remarks

1.5.2 Hardware Schedule

a. Hardware Set Number

b. Opening Number(s)

c. Opening Description (single/double leaf, hand, size, door/frame material)

d. Fire Rating

e. Sound Rating

f. Hardware Items

g. Quantity

h. Size

i. BHMA Finish

j. Remarks

1.6 KEY BITTING CHART REQUIREMENTS

1.6.1 Requirements

Submit key bitting charts to the Contracting Officer prior to completion of the work. Include:

a. Complete listing of all keys (e.g. AA1 and AA2).

b. Complete listing of all key cuts (AA1-123456, AA2-123458).

c. Tabulation showing which key fits which door.

d. Copy of floor plan showing doors and door numbers.

e. Listing of 20 percent more key cuts than are presently required in each master system.

1.7 QUALITY ASSURANCE

1.7.1 Hardware Manufacturers and Modifications

Provide, as far as feasible, locks, hinges, and closers of one lock, hinge, or closer manufacturer's make. Modify hardware as necessary to provide features indicated or specified.

1.8 DELIVERY, STORAGE, AND HANDLING

Deliver hardware in original individual containers, complete with necessary appurtenances including fasteners and instructions. Mark each individual container with item number as shown on hardware schedule.

PART 2 PRODUCTS

2.1 TEMPLATE HARDWARE

Hardware applied to metal or to prefinished doors must be manufactured using a template. Provide templates to door and frame manufacturers in accordance with ANSI/BHMA A156.7 for template hinges. Coordinate hardware items to prevent interference with other hardware.

2.2 HARDWARE ITEMS

Clearly and permanently mark with the manufacturer's name or trademark, hinges, pivots, locks, latches, exit devices, bolts and closers where the identifying mark is visible after the item is installed. For closers with covers, the name or trademark may be beneath the cover..

2.2.1 Hinges

Provide in accordance with ANSI/BHMA A156.1. Provide hinges that are 4-1/2 by 4-1/2 inch unless otherwise indicated. Construct loose pin hinges for

interior doors and reverse-bevel exterior doors so that pins are non-removable when door is closed. Other anti-friction bearing hinges may be provided in lieu of ball bearing hinges.

2.2.2 Locks and Latches

At exterior locations provide locksets of full stainless steel type 302 or 304 construction including fronts, strike, escutcheons, knobs, bolts and all interior working parts. Marine Grade I, fully non-ferrous.

2.2.3 Exit Devices

Provide in accordance with ANSI/BHMA A156.3, Grade 1. Provide adjustable strikes for rim type and vertical rod devices. Provide open back strikes for pairs of doors with mortise and vertical rod devices. Use stainless steel or bronze base metal with plated finishes. Also include stainless steel fasteners and screws.

2.2.4 Cylinders and Cores

Provide cylinders and cores for new locks, including locks provided under other sections of this specification. Provide cylinders and cores with six pin tumblers. Provide cylinders from the products of one manufacturer, and provide cores from the products of one manufacturer.

2.2.5 Lock Trim

Provide cast, forged, or heavy wrought construction and commercial plain design for lock trim.

2.2.5.1 Lever Handles

Provide lever handles at exterior doors. Provide lever handle locks with a breakaway feature (such as a weakened spindle or a shear key) to prevent irreparable damage to the lock when force in excess of that specified in ANSI/BHMA A156.13 is applied to the lever handle. Provide lever handles return to within 1/2 inch of the door face.

2.2.6 Keys

Provide one file key, one duplicate key, and one working key for each door Stamp each key with appropriate key control symbol and "U.S. property - do not duplicate".

2.2.7 Closers

Provide in accordance with ANSI/BHMA A156.4, Series C02000, Grade 1, with PT 4C. Provide with brackets, arms, mounting devices, fasteners, full size covers, and other features necessary for the particular application. Size closers in accordance with manufacturer's printed recommendations, or provide multi-size closers, Sizes 1 through 6, and list sizes in the HARDWARE SCHEDULE. Provide manufacturer's 10 year warranty. Use stainless steel inside bracketed or door mounted closers on exterior doors.

2.2.7.1 Identification Marking

Engrave each closer with manufacturer's name or trademark, date of manufacture, and manufacturer's size designation in locations that will be visible after installation.

2.2.8 Thresholds

Provide in accordance with ANSI/BHMA A156.21. Use J35100, with vinyl or silicone rubber insert in face of stop, for exterior doors opening out, unless specified otherwise.

2.2.9 Weatherstripping Gasketing

See Section 08 11 16 ALUMINUM DOORS AND FRAMES.

2.3 FASTENERS

Provide fasteners of type, quality, size, and quantity appropriate to the specific application. Fastener finish to match hardware. Provide stainless steel or nonferrous metal fasteners in locations exposed to weather. Verify metals in contact with one another are compatible and will avoid galvanic corrosion when exposed to weather.

2.4 FINISHES

Provide in accordance with ANSI/BHMA A156.18. Provide hardware in BHMA 630 finish (satin stainless steel), unless specified otherwise. Match exposed parts of concealed closers to lock and door trim. Match hardware finish for aluminum doors to the doors.

PART 3 EXECUTION

3.1 INSTALLATION

Provide hardware in accordance with manufacturers' printed installation instructions. Fasten hardware to wood surfaces with full-threaded wood screws or sheet metal screws. Provide machine screws set in expansion shields for fastening hardware to solid concrete and masonry surfaces. Provide toggle bolts where required for fastening to hollow core construction. Provide through bolts where necessary for satisfactory installation.

3.1.1 Weatherstripping Installation

Provide full contact, weathertight seals that allow operation of doors without binding the weatherstripping.

3.1.1.1 Stop Applied Weatherstripping

Fasten in place with color matched sheet metal screws not more than 9 inch on center after doors and frames have been finish painted.

3.1.1.2 Interlocking Type Weatherstripping

Provide interlocking, self adjusting type on heads and jambs and flexible hook type at sills. Nail weatherstripping to door 1 inch on center and to heads and jambs at 4 inch on center.

3.1.1.3 Spring Tension Type Weatherstripping

Provide spring tension type on heads and jambs. Provide bronze nails with bronze. Provide stainless steel nails with stainless steel. Space nails not more than 1-1/2 inch on center.

3.1.2 Threshold Installation

Extend thresholds the full width of the opening and notch end for jamb stops. Set thresholds in a full bed of sealant and anchor to floor with cadmium-plated, countersunk, steel screws. For aluminum thresholds placed on top of concrete surfaces, coat the underside surfaces that are in contact with the concrete with fluid applied waterproofing as a separation measure prior to placement.

3.2 FIELD QUALITY CONTROL

After installation, protect hardware from paint, stains, blemishes, and other damage until acceptance of work. Submit notice of testing 15 days before scheduled, so that testing can be witnessed by the Contracting Officer. Adjust hinges, locks, latches, bolts, holders, closers, and other items to operate properly. Demonstrate that permanent keys operate respective locks, and give keys to the Contracting Officer. Correct, repair, and finish, errors in cutting and fitting and damage to adjoining work.

3.3 HARDWARE SETS

Provide hardware for aluminum doors under this section. Deliver Hardware templates and hardware, except field applied hardware, to the aluminum door and frame manufacturer for use in fabricating doors and frames.

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SECTION 13 34 19

METAL BUILDING SYSTEMS

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, equipment, labor, and materials as well as performing all operations in connection with the design, fabrication, transportation, and installation of a pre-engineered metal building system and appurtenances; as specified herein and as shown on the drawings.

1.2 MEASUREMENT AND PAYMENT

No measurement will be made for the metal building systems and associated items. Payment will be made at the contract job price for "Metal Building System". Price and payment shall constitute full compensation for providing all plant, labor, materials and equipment for the construction of the metal building systems; including design, man doors, coiling doors, door frames, door hardware, gutters, downspouts, ridge vent, fire extinguisher, and all associated items of work; as specified herein and as shown on the drawings.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC 325	(2017) Steel Construction Manual
AISC 341	(2016) Seismic Provisions for Structural Steel Buildings
AISC 360	(2016) Specification for Structural Steel Buildings

AMERICAN IRON AND STEEL INSTITUTE (AISI)

AISC/AISI 121	(2007) Standard Definitions for Use in the Design of Steel Structures
AISI D100	(2017) Cold-Formed Steel Design Manual

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE 7-16	(2017; Errata 2018; Supp 1 2018) Minimum Design Loads and Associated Criteria for Buildings and Other Structures

AMERICAN WELDING SOCIETY (AWS)

AWS A5.1/A5.1M	(2012) Specification for Carbon Steel

	Electrodes for Shielded Metal Arc Welding
AWS D1.1/D1.1M	(2020; Errata 1 2021) Structural Welding Code - Steel
AWS D1.3/D1.3M	(2018) Structural Welding Code - Sheet Steel

ASTM INTERNATIONAL (ASTM)

ASTM A36/A36M	(2019) Standard Specification for Carbon Structural Steel
ASTM A53/A53M	(2020) Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A153/A153M	(2016a) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A463/A463M	(2015; R 2020; E 2020) Standard Specification for Steel Sheet, Aluminum-Coated, by the Hot-Dip Process
ASTM A475	(2003; R 2020) Standard Specification for Zinc-Coated Steel Wire Strand
ASTM A500/A500M	(2021a) Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A501/A501M	(2021) Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
ASTM A529/A529M	(2019) Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality
ASTM A563	(2015) Standard Specification for Carbon and Alloy Steel Nuts
ASTM A572/A572M	(2021; E 2021) Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel
ASTM A606/A606M	(2018) Standard Specification for Steel Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance
ASTM A653/A653M	(2020) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A755/A755M	(2018) Standard Specification for Steel

	Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products
ASTM A780/A780M	(2020) Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
ASTM A792/A792M	(2021a) Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
ASTM A992/A992M	(2020) Standard Specification for Structural Steel Shapes
ASTM A1008/A1008M	(2021a) Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable
ASTM A1011/A1011M	(2018a) Standard Specification for Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
ASTM B117	(2019) Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM B209	(2014) Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
ASTM B221	(2021) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM B221M	(2021) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)
ASTM C273/C273M	(2020) Standard Test Method for Shear Properties of Sandwich Core Materials
ASTM C518	(2021) Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
ASTM C920	(2018) Standard Specification for Elastomeric Joint Sealants
ASTM C1289	(2022) Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
ASTM C1363	(2019) Standard Test Method for Thermal Performance of Building Materials and

	Envelope Assemblies by Means of a Hot Box Apparatus
ASTM D522/D522M	(2017) Mandrel Bend Test of Attached Organic Coatings
ASTM D523	(2014; R 2018) Standard Test Method for Specular Gloss
ASTM D714	(2002; R 2017) Standard Test Method for Evaluating Degree of Blistering of Paints
ASTM D822	(2013; R 2018) Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings
ASTM D968	(2017) Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D1056	(2020) Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber
ASTM D1308	(2002; R 2013) Effect of Household Chemicals on Clear and Pigmented Organic Finishes
ASTM D1621	(2016) Standard Test Method for Compressive Properties of Rigid Cellular Plastics
ASTM D1622/D1622M	(2014) Apparent Density of Rigid Cellular Plastics
ASTM D1667	(2017) Standard Specification for Flexible Cellular Materials - Poly (Vinyl Chloride) Foam (Closed-Cell)
ASTM D2244	(2016) Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates
ASTM D2247	(2015) Testing Water Resistance of Coatings in 100% Relative Humidity
ASTM D2794	(1993; R 2019) Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
ASTM D3363	(2005; E 2011; R 2011; E 2012) Film Hardness by Pencil Test
ASTM D4214	(2007; R 2015) Standard Test Method for Evaluating the Degree of Chalking of Exterior Paint Films
ASTM D6226	(2015) Standard Test Method for Open Cell

	Content of Rigid Cellular Plastics
ASTM DEFONLINE	(2008) ASTM Online Dictionary of Engineering Science and Technology
ASTM E84	(2020) Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM E283	(2019) Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
ASTM E331	(2000; R 2016) Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
ASTM E1592	(2017) Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference
ASTM E1646	(1995; R 2018) Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Air Pressure Difference
ASTM E1680	(2016) Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems
ASTM F436/F436M	(2019) Standard Specification for Hardened Steel Washers Inch and Metric Dimensions
ASTM F1554	(2020) Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength
ASTM F3125/F3125M	(2019) Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength
ASTM G152	(2013; R 2021) Standard Practice for Operating Open Flame Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials
ASTM G153	(2013; R 2021) Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials

METAL BUILDING MANUFACTURERS ASSOCIATION (MBMA)

MBMA MBSM	(2018) Metal Building Systems Manual

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)

NAAMM AMP 500	(2006) Metal Finishes Manual

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 80	(2022) Standard for Fire Doors and Other Opening Protectives
NFPA 252	(2022) Standard Methods of Fire Tests of Door Assemblies

NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)

NRCA RoofMan	(2020) The NRCA Roofing Manual

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)

SMACNA 1793	(2012) Architectural Sheet Metal Manual, 7th Edition

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2024) Safety and Occupational Health (SOH) Requirements

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 3-301-01	(2019, with Change 1, 2022) Structural Engineering

1.4 GENERAL REQUIREMENTS

1.4.1 Design Parameters

Design and construct pre-engineered metal buildings of size, shape, height, fenestration, siting, and configuration indicated. Coordinate site utility services, accessibility requirements, vehicular and pedestrian access, mechanical, electrical, plumbing and fire protection requirements, interior construction and finishes, and such other items as may be necessary for a complete, functional building.

1.4.2 Structural Performance

Provide metal building systems capable of withstanding the effects of gravity loads and the following loads and stresses within the limits and conditions indicated. Calculations and drawings shall be signed and sealed by a registered licensed professional engineer.

1.4.2.1 Engineering

Design metal building systems conforming to procedures described in MBMA MBSM.

1.4.2.1.1 Overhead Door Jambs

Jambs for the overhead doors shall be rectangular Hollow Structural Sections; HSS8x8x1/4 minimum. Submit a complete analysis showing all calculations for the jamb and header members that constitute the overhead door frame and their respective connections. Analysis shall specifically show resistance capability of the jambs to effects of loads imparted thereon by the overhead door guides including major axis flexure and deflection, minor axis flexure and deflection, torsion induced by eccentricities of the applied loads, and combinations of all applied forces. Ensure rotational stiffness of the jambs will be sufficient to prevent release of overhead door slats from the overhead door guides. Final acceptance of metal building systems submittals will not occur until loads from the overhead door system have been accounted for and incorporated in the metal building systems designs.

1.4.2.2 Design Loads

Design and construct to the requirements of UFC 3-301-01.

1.4.2.2.1 Overhead Door Catenary Loads

Refer to Appendix 10 of MBMA MBSM and DASMA Technical Data Sheet #251 for discussion and guidance concerning catenary loads transferred to the metal building system by the overhead doors.

1.4.3 Thermal Performance

Provide insulated metal panel assemblies with the following minimum R-values for opaque elements when tested according to ASTM C1363 or ASTM C518.

1.4.3.1 Metal Roof Panel Assemblies

R-Value: 13

1.4.3.2 Metal Wall Panel Assemblies

R-Value: 13

1.4.4 Air Infiltration for Metal Roof Panels

Air leakage through assembly must not exceed 0.04 cfm/sq.ft. of roof area when lab tested according to ASTM E1680 at negative test-pressure difference of 1.57 lb/sq.ft.

1.4.5 Air Infiltration for Metal Wall Panels

Air leakage through assembly of not more than 0.04 cfm/sq.ft. of wall area when labtested according to ASTM E283 at static-air-pressure difference of 1.57 lbf/sq.ft..

1.4.6 Water Penetration for Metal Roof Panels

No water penetration when tested according to ASTM E1646 at test-pressure difference of 2.86 lbf/sq.ft..

1.4.7 Water Penetration for Metal Wall Panels

No water penetration when tested according to ASTM E331 at a minimum differential pressure of 20 percent of inward-acting, wind-load design pressure of not less than 6.24 lbf/sq.ft. and not more than 12 lbf/sq. ft.

1.4.8 Wind-Uplift Resistance

Design for wind-uplift resistance in accordance with UFC 3-301-01.

1.4.9 Erection Plan

Provide plans and a written erection/lifting procedure with required plans clearly showing the intended sequence and method of erection in accordance with EM 385-1-1. Indicate required crane lifting requirements, temporary support structures, member size and locations of braced or guyed temporary supports, and locations of bracing or guys anchor points. Clearly define the required framing sequence and conditions necessary to ensure the structure is maintained in a properly braced and stable condition throughout the complete erection process.

1.5 DEFINITIONS

a. Bay: Dimension between main frames measured normal to frame (at centerline of frame) for interior bays, and dimension from centerline of first interior main frame measured normal to end wall (outside face of end-wall girt) for end bays.

b. Clear Span: Distance between supports of beams, girders, or trusses (measured from lowest level of connecting area of a column and a rafter frame or knee).

c. Eave Height: Vertical dimension from finished floor to eave (the line along the sidewall formed by intersection of the planes of the roof and wall).

d. Terminology Standard: Refer to MBMA MBSM for definitions of terms for metal building system construction not otherwise defined in this section or in referenced standards.

1.6 SYSTEM DESCRIPTION

General: Provide a complete, integrated set of metal building system manufacturer's standard mutually dependent components and assemblies that form a metal building system capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior. Include primary and secondary framing, insulated metal roof panels, insulated metal wall and accessories complying with requirements indicated. Provide metal building system of size and with spacing, slopes, and spans indicated.

1.6.1 Primary Frame Type

Rigid Clear Span: Solid-member, structural-framing system without interior columns. Minimum web thickness of rigid frames shall be 3/16-inch.

1.6.2 Fixed End-Wall Framing

Provide manufacturer's standard fixed end wall, for buildings not required

to be expandable, consisting of load-bearing end-wall with corner columns, and rafters.

1.6.3 Secondary Frame Type

Provide manufacturer's standard purlins and joists and exterior-framed (bypass) girts.

1.6.4 Eave Height

Eave height must be 18 feet.

1.6.5 Bay Spacing

Bay Spacing must be 20 feet.

1.6.6 Roof Slope

Roof slope must be 3 inches per 12 inches.

1.6.7 Roof System

Provide factory-assembled insulated metal roof panels.

1.6.8 Exterior Wall System

Provide factory-assembled, insulated metal wall panels.

1.7 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submittals not having a "G" classification are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Manufacturer's Qualifications; G

SD-02 Shop Drawings

Detail Drawings; G

Erection Plan; G

SD-03 Product Data

Manufacturer's Catalog Data; G

SD-04 Samples

Coil Stock, 12 inches long by the actual panel width; G

Roof Panels, 12 inches long by actual panel width; G

Wall Panels, 12 inches long by actual panel width; G

Metal Closure Strips 10 inches long of each type; G

Manufacturer's Color Charts and Chips, 4 by 4 inches; G

SD-05 Design Data

Manufacturer's Descriptive and Technical Literature; G

Manufacturer's Building Design Analysis; G

Lateral Force Calculations; G

SD-07 Certificates

System Components; G

Coil Stock Certificates; G

Qualification of Manufacturer; G

Qualification of Erector; G

SD-08 Manufacturer's Instructions

Installation of Roof and Wall panels

SD-11 Closeout Submittals

Manufacturer's Warranty; G

Contractor's Warranty for Installation; G

1.8 QUALITY ASSURANCE

1.8.1 Pre-Erection Conference

After submittals are received and approved but before metal building system work, including associated work, is performed, the Contracting Officer will hold a pre-erection conference to review the following:

a. The detail drawings, specifications, and manufacturer's descriptive and technical literature.

b. Finalize construction schedule and verify availability of materials, erector's personnel, equipment, and facilities needed to make progress and avoid delays.

c. Methods and procedures related to metal building system erection, including, but not limited to: qualification of manufacturer, qualification of erector, manufacturer's catalog data, manufacturer's building design analysis,lateral force calculations, and written instructions. Lateral force calculations must include all analysis and confirmation of system components required to transfer lateral forces to the foundation.

d. Support conditions for compliance with requirements, including alignment between and erection of structural members.

e. Flashing, special roofing and siding details, roof and wall penetrations, openings, and condition of other construction that will affect the metal building system, including coatings and base metals,

factory color finish performance requirements, system components, and coil stock certificates.

f. Governing regulations and requirements for certificates, insurance, tests and inspections if applicable.

g. Temporary protection requirements for metal panel assembly during and after installation.

h. Samples of roof panels and wall panels.

1.8.1.1 Pre-Roofing and Siding Installation Conference

After structural framing system erection and approval but before roofing and siding work, including associated work, is performed; the Contracting Officer will hold a pre-roofing and siding conference to review the following:

a. Examine purlins, sub-girts and formed shapes conditions for compliance with requirements, including flatness and attachment to structural members.

b. Review structural limitations of purlins, sub-girts and formed shapes during construction and after roofing and siding.

c. Review flashings, special roof and wall details, roof drainage, roof and wall penetrations, roof equipment curbs, and condition of other construction that will affect the metal building system.

d. Review temporary protection requirements for metal roof and wall panels' assembly during and after installation.

e. Review roof and wall observation and repair procedures after metal building system erection.

1.8.2 Manufacturer's Technical Representative

The representative must have authorization from manufacturer to approve field changes and be thoroughly familiar with the products, erection of structural framing and installation of roof and wall panels in the geographical area where construction will take place.

1.8.3 Manufacturer's Qualifications

Metal building system manufacturer must have a minimum of five years experience as a qualified manufacturer and a member of MBMA of metal building systems and accessory products. Provide engineering services by an authorized currently licensed engineer in the geographical area where construction will take place, having a minimum of four years experience as an engineer knowledgeable in building design analysis, protocols and procedures for the MBMA MBSM); ASCE 7-16, and ASTM E1592. Provide certified engineering calculations using the products submitted for:

a. Roof and Wall Wind Loads with basic wind speed, exposure category, co-efficient, risk category, designate type of facility, negative pressures for each zone, methods and requirements of attachment.

b. Roof Dead and Live Loads

c. Collateral Loads

d. Foundation Loads

e. Roof Snow Load

f. Seismic Loads

1.8.4 Qualification of Erection Contractor

An experienced erector who has specialized in erecting and installing work similar in material, design, and extent to that indicated for this contract and must be approved and certified by the metal building system manufacturer.

1.8.5 Single Source

Obtain primary and secondary components and structural framing members, each type of metal roof, wall and liner panel assemblies, clips, closures and other accessories from the standard products of the single source from a single manufacturer to operate as a complete system for the intended use.

1.8.6 Welding

Qualify procedures and personnel according to AWS A5.1/A5.1M, AWS D1.1/D1.1M, and AWS D1.3/D1.3M.

1.8.7 Structural Steel

Comply with AISC 325, AISC 341 for seismic impacted designs, AISC 360, for design requirements and allowable stresses.

1.8.8 Cold-Formed Steel

Comply with AISC/AISI 121 and AISI D100 for design requirements and allowable stresses.

1.8.9 Fabrication

(1) Fabricate and finish metal panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes and as necessary to fulfill indicated performance requirements. Comply with indicated profiles with dimensional and structural requirements. Provide metal panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel. Aluminum and aluminum-alloy sheet and plate must conform to ASTM B209. Fabricate metal panel side laps with factory-installed captive gaskets or separator strips that provide a tight seal and prevent metal-to-metal contact, in a manner that will seal weather-tight and minimize noise from movements within panel assembly.

(2) Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA 1793 that apply to the design, dimensions, metal, and other characteristics of item indicated:

a. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

b. End Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

c. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

d. Conceal fasteners and expansion provisions where possible.

e. Fabricate cleats and attachment devices of size and metal thickness recommended by SMACNA or by metal building system manufacturer for application, but not less than thickness of metal being secured.

1.8.10 Finishes

(1) Comply with NAAMM AMP 500 for recommendations for applying and designating finishes.

(2) Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

1.9 SHIPPING, HANDLING AND STORAGE

1.9.1 Delivery

Package and deliver components, sheets, metal panels, and other manufactured items so as not to be damaged or deformed and protected during transportation and handling.

1.9.2 Storage

Stack and store metal panels horizontally on platforms or pallets, covered with suitable weather-tight and ventilated covering to ensure dryness, with positive slope for drainage of water. Store in a manner to prevent bending, warping, twisting, and surface damage. Do not store metal wall panels in contact with other materials that might cause staining, denting, or other surface damage. Retain strippable protective covering on metal panel for entire period up to metal panel installation.

1.9.3 Protection of Materials

(1) Protect foam-plastic insulation as follows:

a. Do not expose to sunlight, except to extent necessary for period of installation and concealment.

b. Protect against ignition at all times. Do not deliver foam-plastic insulation materials to project site before installation time.

(2) Complete installation and concealment of plastic materials as rapidly as possible in each area of construction to minimize ultraviolet exposure.

1.10 PROJECT CONDITIONS

1.10.1 Weather Limitations

Proceed with installation preparation only when existing and forecasted

weather conditions permit. Work to proceed without water entering into existing panel system or building.

1.10.2 Field Measurements

1.10.2.1 Established Dimensions for Foundations

Comply with established dimensions on approved anchor-bolt plans, established foundation dimensions, and proceed with fabricating structural framing. Do not proceed without verifying field measurements. Coordinate anchor-bolt installation to ensure that actual anchorage dimensions correspond to established dimensions.

1.10.2.2 Established Dimensions for Metal Panels

Where field measurements cannot be made without delaying the Work, either establish framing and opening dimensions and proceed with fabricating metal panels without field measurements, or allow for field trimming metal panels. Coordinate construction to ensure that actual building dimensions, locations of structural members, and openings correspond to established dimensions.

1.10.2.3 Verification Record

Verify locations of all framing and opening dimensions by field measurements before metal panel fabrication and indicate measurements on the shop drawings.

1.11 COORDINATION

(1) The Contractor shall coordinate final design and placement of the foundation between the Contracting Officer's representative (structural engineer), and the MBMA representative. Coordinate size and location of concrete foundations and casting of anchor-bolt inserts into precast substructure.

(2) Coordinate installation of HVAC systems and accessories.

(3) Coordinate installation of roof penetrations.

(4) Coordinate metal panel assemblies with rain drainage work, flashing, trim, and construction of supports and other adjoining work to provide a leak-proof, secure, and non-corrosive installation.

1.12 WARRANTY

1.12.1 Building System Warranty

Furnish manufacturer's no-dollar-limit warranty for the metal building system. The warranty period is to be no less than 20 years from the date of acceptance of the work and be issued directly to the Government. The warranty must provide that if within the warranty period, the metal building system shows evidence of deterioration resulting from defective materials or workmanship, correcting of any defects is the responsibility of the metal building system manufacturer. Repairs that become necessary because of defective materials and workmanship while metal building system is under warranty are to be performed within 48 hours after notification, unless additional time is approved by the Contracting Officer. Failure to perform repairs within 48 hours of notification will constitute grounds for

having emergency repairs performed by others and will not void the warranty.

1.12.2 Roof System Weather-Tightness Warranty

(1) Furnish manufacturer's no-dollar-limit warranty for the metal panel system. The warranty period is to be no less than 20 years from the date of acceptance of the work and be issued directly to the Government.

(2) The warranty is to provide that if within the warranty period the roof panel system shows evidence of corrosion, perforation, rupture, lost of weather-tightness or excess weathering due to deterioration of the panel system resulting from defective materials and correction of the defective workmanship is to be the responsibility of the metal building system manufacturer.

(3) Repairs that become necessary because of defective materials and workmanship while roof panel system is under warranty are to be performed within 48 hours after notification, unless additional time is approved by the Contracting Officer. Failure to perform temporary repairs within 48 hours of notification will constitute grounds for having emergency repairs performed by others and not void the warranty. Immediate follow-up and completion of permanent repairs must be performed within 30 days from date of notification.

1.12.3 Roof and Wall Panel Finish Warranty

(1) Furnish manufacturer's no-dollar-limit warranty for the metal panel system. The warranty period is to be no less than 20 years from the date of acceptance of the work and be issued directly to the Government.

(2) The warranty is to provide that if within the warranty period the metal panel system shows evidence of checking, delaminating cracking, peeling, chalk in excess of a numerical rating of eight, as determined by ASTM D4214 test procedures; or change colors in excess of five CIE or Hunter units in accordance with ASTM D2244 or excess weathering due to deterioration of the panel system resulting from defective materials and finish or correction of the defective workmanship is to be the responsibility of the metal building system manufacturer.

(3) Liability under this warranty is exclusively limited to replacing the defective coated materials.

(4) Repairs that become necessary because of defective materials and workmanship while roof and wall panel system is under warranty are to be performed within 48 hours after notification, unless additional time is approved by the Contracting Officer. Failure to perform repairs within 48 hours of notification will constitute grounds for having emergency repairs performed by others and not void the warranty.

PART 2 PRODUCTS

2.1 STRUCTURAL FRAMING MATERIALS

2.1.1 Steel Shapes and Plates

a. Wide flange and WT shapes: ASTM A992/A992M; ASTM A572/A572M or ASTM A529/A529M.

b. Angles, Channels and Plates: ASTM A36/A36M, ASTM A572/A572M or

ASTM A529/A529M.

2.1.2 Steel Pipe

ASTM A36/A36M, ASTM A53/A53M, ASTM A572/A572M or ASTM A529/A529M.

2.1.3 Cold-Formed and Hot Formed Hollow Structural Sections

Cold formed: ASTM A500/A500M or ASTM B221, ASTM B221M. Hot-formed: ASTM A501/A501M.

2.1.4 Structural-Steel Sheet

Hot-rolled, ASTM A1011/A1011M or cold-rolled, ASTM A1008/A1008M.

2.1.5 Metallic-Coated Steel Sheet

ASTM A653/A653M, ASTM A606/A606M.

2.1.6 Metallic-Coated Steel Sheet Pre-painted with Coil Stock Coating

a. Steel sheet metallic coated by the hot-dip process and pre-painted by the coil-coating process to comply with ASTM A755/A755M.

b. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A792/A792M, and ASTM A463/A463M.

2.1.7 High-Strength Bolts, Nuts, and Washers

a. ASTM F3125/F3125M, heavy hex steel structural bolts; ASTM A563 heavy hex carbon-steel nuts; and ASTM F436/F436M hardened carbon-steel washers.

b. Finish: Hot-dip zinc coating, ASTM A153/A153M.

2.1.8 Anchor Rods

ASTM F1554

a. Configuration: Straight.

b. Nuts: ASTM A563 heavy hex carbon steel.

c. Plate Washers: ASTM A36/A36M carbon steel.

d. Washers: ASTM F436/F436M hardened carbon steel.

e. Finish: Hot-dip zinc coating, ASTM A153/A153M.

2.2 FABRICATION

2.2.1 General

Comply with MBMA MBSM: Chapter IV, Section 9, "Fabrication and Erection Tolerances", unless noted otherwise.

2.2.1.1 Lateral Deflection

The pre-engineered frames shall be designed to limit the lateral deflection

to 1-1/4 inches at the eave for the Vasd wind speed of 127 mph.

2.3 STRUCTURAL FRAMING

2.3.1 General

All primary and secondary framing shall be hot-dip galvanized.

2.3.2 Primary Framing

(1) Manufacturer's standard structural primary framing system includes transverse and lean-to frames; rafter, rakes, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing designed to withstand required loads and specified requirements. Provide frames with attachment plates, bearing plates, and splice members. Provide frame span and spacing indicated on the drawings.

(2) Shop fabricate framing components by welding or by using high-strength bolts to the indicated size and section with base-plates, bearing plates, stiffeners, and other items required. Cut, form, punch, drill, and weld framing for bolted field erection.

a. Rigid Clear-Span Frames: I-shaped frame sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Interior columns are not permitted.

b. Frame Configuration: Single gable.

c. Exterior Column Type: Tapered.

d. Rafter Type: Tapered.

2.3.3 Secondary Framing

(1) Manufacturer's standard secondary framing members, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Fabricate framing from cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet pre-painted with coil coating, unless otherwise indicated.

(2) Shop fabricate framing components by roll-forming or break-forming to the indicated size and section with base-plates, bearing plates, stiffeners, and other plates required for erection. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.

a. Purlins: C or Z-shaped sections; fabricated from steel sheet, built-up steel plates, or structural-steel shapes; minimum depth as required to comply with system performance requirements.

b. Girts: C or Z-shaped sections; fabricated from steel sheet, built-up steel plates, or structural-steel shapes. Form ends of Z-sections with stiffening lips angled 40 to 50 degrees to flange minimum depth as required to comply with system performance requirements.

c. Eave Struts: Unequal-flange, C-shaped sections; fabricated from steel sheet, built-up steel plates, or structural-steel shapes; to

provide adequate backup for metal panels.

d. Flange Bracing: Structural-steel angles or cold-formed structural tubing to stiffen primary frame flanges.

e. Sag Bracing: Structural-steel angles.

f. Base or Sill Angles: Zinc-coated (galvanized) steel sheet.

g. Purlin and Girt Clips: Steel sheet. Provide galvanized clips where clips are connected to galvanized framing members.

h. Secondary End-Wall Framing: Manufacturer's standard sections fabricated from zinc-coated (galvanized) steel sheet.

i. Framing for Openings: Channel shapes; fabricated cold-formed, structural-steel sheet or structural-steel shapes. Frame head and jamb of door openings, and head, jamb, and sill of other openings.

j. Miscellaneous Structural Members: Manufacturer's standard sections fabricated from cold-formed, structural-steel sheet; built-up steel plates; or zinc-coated (galvanized) steel sheet; designed to withstand required loads.

2.3.4 Bracing

Provide adjustable wind bracing as follows:

a. Rods: ASTM A36/A36M; ASTM A572/A572M; or ASTM A529/A529M threaded at each end.

b. Cable: ASTM A475, extra-high-strength grade, zinc-coated; with threaded end anchors.

c. Angles: Fabricated from structural-steel shapes to match primary framing, of size required to withstand design loads.

d. Side wall bracing shall be provided in each bay as shown on SHEET IDS-103.

2.4 PANEL MATERIALS

2.4.1 Steel Sheet

Roll-form steel roof and wall panels to manufacturer's standard profile with sufficient gauge thickness for load resistance. Material must be plumb and true, and within the tolerances listed:

a. Aluminum-Zinc Alloy-coated Steel Sheet conforming to ASTM A792/A792M and AISI D100.

b. Individual panels to have continuous length to cover the entire length of any unbroken roof slope or wall area with no joints or seams and formed without warping, waviness, or ripples that are not part of the panel profile and free of damage to the finish coating system.

c. Provide panels with thermal expansion and contraction consistent with the type of system specified;

Insulated Metal Wall and Roof Panels: Standing Seam, Concealed Fastener, Foamed-Insulation-Core Metal Wall and Roof Panels: Structural metal panels consisting of exterior metal sheet with three major tapered ribs and two minor ribs between each major rib, and interior metal sheet, with factory foamed-in-place polyurethane core in thermally-separated profile, with tongue-and-groove panel edges, attached to supports using exposed fasteners.

Panel Width: 36"
Panel Depth: As required
Surface Texture: Smooth

2.4.2 Foam-Insulation Core Wall Panel

Provide factory-formed steel roof and wall panel assembly fabricated from two sheets of metal with modified polyisocyanurate or polyurethane foam insulation core foamed-in-place during fabrication with joints between panels designed to form weather-tight seals. Include accessories required for weather-tight installation.

a. Closed-Cell Content: 90 percent when tested according to ASTM D6226, ASTM C1289.

b. Density: 2.0 to 2.6 lb/cu. ft. when tested according to ASTM D1622/D1622M.

c. Compressive Strength: Minimum 20 psi when tested according to ASTM D1621.

d. Shear Strength: 26 psi when tested according to ASTM C273/C273M.

2.4.3 Finish

All panels are to receive a factory-applied polyvinylidene fluoride of Kynar 500/Hylar 5000 finish consisting of a baked-on top-coat with a manufacturer's recommended prime coat conforming to the following:

a. Metal Preparation: All metal is to have the surfaces carefully prepared for painting on a continuous process coil coating line by alkali cleaning, hot water rinsing, application of chemical conversion coating, cold water rinsing, sealing with acid rinse, and thorough drying.

b. Prime Coating: A base coat of epoxy paint, specifically formulated to interact with the top-coat, is to be applied to the prepared surfaces by roll coating to a dry film thickness of 0.20 plus 0.05 mils. This prime coat must be oven cured prior to application of finish coat.

c. Exterior Finish Coating: Apply the finish coating over the primer by roll coating to dry film thickness of 0.80 plus 0.05 mils for a total dry film thickness of 1.00 plus 0.10 mils. This finish coat must be oven-cured.

d. Interior Finish Coating: Apply a wash-coat on the reverse side over the primer by roll coating to a dry film thickness of 0.30 plus 0.05 mils for a total dry film thickness of 0.50 plus 0.10 mils. The wash-coat must be oven-cured.

e. Color: The exterior finish shall closely match the existing metal panel buildings located on-site. The expected color is metallic beige. The exterior finsh will be chosesn from the manufacturer's premium color charts. The interior finish of the panels shall be igloo white. The exterior finish chosen from the manufacturer's color charts and chips.

f. Physical Properties: Coating must conform to the industry and manufacturer's standard performance criteria as listed by the following certified test reports:

Chalking: ASTM DEFONLINE
Color Change and Conformity: ASTM D2244
Weatherometer: ASTM G152, ASTM G153 and ASTM D822
Humidity: ASTM D2247 and ASTM D714
Salt Spray: ASTM B117
Chemical Pollution: ASTM D1308
Gloss at 60 degrees: ASTM D523
Pencil Hardness: ASTM D3363
Reverse Impact: ASTM D2794
Flexibility: ASTM D522/D522M
Abrasion: ASTM D968
Flame Spread: ASTM E84

2.4.4 Repair Of Finish Protection

Repair paint for enameled metal panel must be compatible paint of the same formula and color as the specified finish furnished by the metal panel manufacturer, conforming to ASTM A780/A780M.

2.5 MISCELLANEOUS METAL FRAMING

2.5.1 General

Cold-formed metallic-coated steel sheet conforming to ASTM A653/A653M.

2.5.2 Fasteners for Miscellaneous Metal Framing

Refer to the following paragraph FASTENERS.

2.6 FASTENERS

2.6.1 General

Type, material, corrosion resistance, size and sufficient length to penetrate the supporting member a minimum of 1 inch with other properties required to fasten miscellaneous metal framing members to substrates in accordance with the metal panel manufacturer's and ASCE 7-16 requirements.

2.6.2 Exposed Fasteners

Fasteners for metal panels to be corrosion resistant coated steel, aluminum, stainless steel, or nylon capped steel compatible with the sheet panel or flashing and of a type and size recommended by the manufacturer to meet the performance requirements and design loads. Fasteners for accessories to be the manufacturer's standard. Provide an integral metal washer matching the color of attached material with compressible sealing EPDM gasket approximately 3/32 inch thick.

2.6.3 Screws

Screws to be corrosion resistant coated steel, aluminum or stainless steel being the type and size recommended by the manufacturer to meet the performance requirements.

2.6.4 Rivets

Rivets to be closed-end type, corrosion resistant coated steel, aluminum or stainless steel where watertight connections are required.

2.6.5 Attachment Clips

Fabricate clips from steel hot-dipped galvanized in accordance with ASTM A653/A653M or Series 300 stainless steel. Size, shape, thickness and capacity as required meeting the insulation thickness and design load criteria specified.

2.7 FRAMES AND MATERIALS FOR OPENINGS

Doors: Fire-Rated and Non-Fire-Rated Door Assemblies conforming with NFPA 80 and based on testing according to NFPA 252.

2.8 ACCESSORIES

2.8.1 General

All accessories to be compatible with the metal panels; sheet metal flashing, trim, metal closure strips, caps and similar metal accessories must not be less than the minimum thickness specified for the metal panels. Exposed metal accessories/finishes to match the panels, except as otherwise indicated. Molded foam rib, ridge and other closure strips to be non-absorbent closed-cell or solid-cell synthetic rubber or pre-molded neoprene to match configuration of the panels.

2.8.2 Rubber Closure Strips

Closed-cell, expanded cellular rubber conforming to ASTM D1056 and ASTM D1667; extruded or molded to the configuration of the specified metal panel and in lengths supplied by the metal panel manufacturer.

2.8.3 Metal Closure Strips

Factory fabricated closure strips to be the same material, thickness, color, finish and profile of the specified roof and wall panel.

2.8.4 2.6.6 Joint Sealants

2.8.4.1 Sealants

(1) Sealants are to be an approved gun type for use in hand or air-pressure caulking guns at temperatures above 40 degrees F(or frost-free application at temperatures above 10 degrees F with minimum solid content of 85 percent of the total volume. Sealant is to dry with a tough, durable surface skin which permits it to remain soft and pliable underneath, providing a weather-tight joint. No migratory staining is permitted on painted or unpainted metal, stone, glass, vinyl, or wood.

(2) Prime all joints to receive sealants with a compatible one-component or two-component primer as recommended by the metal panel manufacturer.

2.8.4.2 Shop-Applied

Sealant for shop-applied caulking must be an approved gun grade, non-sag one component polysulfide or silicone conforming to ASTM C920, Type II, and with a curing time to ensure the sealant's plasticity at the time of field erection.

2.8.4.3 Field-Applied

Sealant for field-applied caulking must be an approved gun grade, non-sag one component polysulfide or two-component polyurethane with an initial maximum Shore A durometer hardness of 25, and conforming to ASTM C920, Type II. Color to match panel colors.

2.8.4.4 Tape Sealant

Pressure sensitive, 100 percent solid with a release paper backing; permanently elastic, non-sagging, non-toxic and non-staining as approved by the metal panel manufacturer.

2.9 SHEET METAL FLASHING AND TRIM

2.9.1 Fabrication

(1) Shop fabricate sheet metal flashing and trim where practicable to comply with recommendations in SMACNA 1793 that apply to design, dimensions, metal, and other characteristics of item indicated. Obtain field measurements for accurate fit before shop fabrication.

(2) Fabricate sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.

2.10 FINISHES

2.10.1 General

Comply with NAAMM AMP 500 for recommendations for applying and designating finishes.

2.10.2 Appearance of Finished Work

Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 EXECUTION

3.1 EXAMINATION

(1) Before erection proceeds, examine with the erector present, the concrete foundation dimensions, concrete and masonry bearing surfaces, anchor bolt size and placement, survey slab elevation, locations of bearing plates, and other embedments to receive structural framing with the metal

building manufacturer's templates and drawings before erecting any steel components for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

(2) Examine primary and secondary framing to verify that rafters, purlins, angles, channels, and other structural and metal panel support members and anchorages have been installed within alignment tolerances required by metal building manufacturer, UL, ASTM, ASCE 7-16 and as required by the building code for the geographical area where construction will take place.

(3) Examine roughing-in for components and systems penetrating metal roof or wall panels to verify actual locations of penetrations relative to seam locations of metal panels before metal roof or wall panel installation.

(4) Submit to the Contracting Officer a written report, endorsed by the erector, listing conditions detrimental to performance of the work.

(5) Proceed with erection only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

(1) Provide temporary shoring, guys, braces, and other supports during erection to keep the structural framing secure, plumb, and in alignment against temporary construction loading or loads equal in intensity of the building design loads. Remove temporary support systems when permanent structural framing, connections, and bracing are in place, unless otherwise indicated.

(2) Clean substrates of substances harmful to insulation, including removing projections capable of interfering with insulation attachment and performance.

(3) Miscellaneous Framing: Install sub-purlins, girts, angles, furring, and other miscellaneous support members or anchorage for the metal roof or wall panels, doors, windows, roof curbs, ventilators and louvers according to metal building manufacturer's written instructions.

3.3 ERECTION OF STRUCTURAL FRAMING

(1) Erect metal building system according to manufacturer's written erection instructions, approved shop drawings and other erection documents in accordance with MBMA MBSM.

(2) Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer and the Contracting Officer.

(3) Set structural framing accurately in locations and to elevations indicated and according to AISC 325. Maintain structural stability of frame during erection.

(4) Clean and roughen concrete and masonry bearing surfaces prior to setting plates. Clean bottom surface of plates.

(5) Align and adjust structural framing before permanent bolt-up and connections. Perform necessary adjustments and alignment to compensate for changes or discrepancies in elevations.

(6) Maintain erection tolerances of structural framing in accordance with AISC 360.

3.4 METAL WALL PANEL INSTALLATION

(1) Provide metal wall panels of full length from sill to eave as indicated, unless otherwise indicated or restricted by shipping limitations. Anchor metal wall panels and other components of the Work securely in place, in accordance with MBMA MBSM.

(2) Erect wall panel system in accordance with the approved erection drawings, the printed instructions and safety precautions of the metal building manufacturer.

(3) Sheets are not to be subjected to overloading, abuse, or undue impact. Do not install bent, chipped, or defective sheets.

(4) Sheets must be erected true and plumb and in exact alignment with the horizontal and vertical edges of the building, securely anchored, and with the indicated eave, and sill.

(5) Work is to allow for thermal movement of the wall panel, movement of the building structure, and to provide permanent freedom from noise due to wind pressure.

(6) Field cutting metal wall panels by torch is not permitted.

3.5 ROOF PANEL INSTALLATION

(1) Provide metal roof panels of full length from eave to ridge or eave to wall as indicated, unless otherwise indicated or restricted by shipping limitations. Anchor metal roof panels and other components of the Work securely in place in accordance with NRCA RoofMan and MBMA MBSM.

(2) Erect roofing system in accordance with the approved erection drawings, the printed instructions and safety precautions of the metal building manufacturer.

(3) Sheets are not to be subjected to overloading, abuse, or undue impact. Do not install bent, chipped, or defective sheets.

(4) Sheets must be erected true and plumb and in exact alignment with the horizontal and vertical edges of the building, securely anchored, and with the indicated rake and eave overhang.

Work must allow for thermal movement of the roofing, movement of the building structure, and provide permanent freedom from noise due to wind pressure.

(5) Field cutting metal roof panels by torch is not permitted.

(6) Roofing sheets must be laid with corrugations in the direction of the roof slope. End laps of exterior roofing must not be less than 8 inches; the side laps of standard exterior corrugated sheets must be not less than 2-1/2 corrugations.

(7) Do not permit storage, walking, wheeling, or trucking directly on applied roofing materials. Provide temporary walkways, runways, and platforms of smooth clean boards or planks as necessary to avoid damage to

the installed roofing materials, and to distribute weight to conform to the indicated live load limits of roof construction.

3.6 METAL PANEL FASTENER INSTALLATION

Anchor metal panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.

3.7 FLASHING, TRIM AND CLOSURE INSTALLATION

a. Comply with performance requirements, manufacturer's written installation instructions, and SMACNA 1793. Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

b. Sheet metalwork is to be accomplished to form weather-tight construction without waves, warps, buckles, fastening stresses or distortion, and allow for expansion and contraction. Cutting, fitting, drilling, and other operations in connection with sheet metal required to accommodate the work of other trades is to be performed by sheet metal mechanics.

3.8 DOOR AND FRAME INSTALLATION

Install doors and frames plumb, rigid, properly aligned, and securely fastened in place according to manufacturer's written instructions. Coordinate installation with metal panel flashings and other components. Caulk and seal perimeter of each door frame with elastomeric sealant compatible with metal panels.

3.9 ACCESSORY INSTALLATION

3.9.1 General

Install accessories with positive anchorage to building and weather-tight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

3.9.2 Dissimilar Metals

Where dissimilar metals contact one another or corrosive substrates are present, protect against galvanic action by painting dissimilar metal surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each surface, or by other permanent separation techniques as recommended by the metal building manufacturer.

3.9.3 Gutters and Downspouts

Comply with performance requirements, manufacturer's written installation instructions, and install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA 1793 recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.

3.9.4 Roof and Wall Accessories and Specialties

Install roof and wall accessories and specialties complete with necessary

hardware, anchors, dampers, weather guards, rain caps, and equipment supports.

3.10 CLEAN-UP AND PROTECTION

3.10.1 Structural Framing

Clean all exposed structural framing at completion of installation. Remove metal shavings, filings, bolts, and wires from work area. Remove grease and oil films, excess sealants, handling marks, contamination from steel wool, fittings and drilling debris and scrub the work clean. Exposed metal surfaces to be free of dents, creases, waves, scratch marks, solder or weld marks, and damage to the finish coating.

3.10.2 Metal Panels

Clean all exposed sheet metal work at completion of installation. Remove metal shavings, filings, nails, bolts, and wires from work area. Remove protective coverings/films, grease and oil films, excess sealants, handling marks, contamination from steel wool, fittings and drilling debris and scrub the work clean. Exposed metal surfaces to be free of dents, creases, waves, scratch marks, solder or weld marks, and damage to the finish coating.

3.10.3 Touch-Up Painting

After erection, promptly clean, prepare, and prime or re-prime field connections, rust spots, and abraded surfaces of prime-painted structural framing and accessories. Clean and touch-up paint with manufacturer's touch-up paint.

3.11 WASTE MANAGEMENT

Dispose of construction waste in accordance with the requirements of Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

3.12 WARRANTY

3.12.1 Manufacturer's Warranty

Submit all manufacturers' signed warranties to Contracting Officer prior to final commissioning and acceptance.

3.12.2 Contractor's Warranty For Installation

Submit warranty for installation to the Contracting Officer prior to final commissioning and acceptance.

3.12.3 Contractor's Twenty Year No Penal Sum Warranty

CONTRACTOR'S TWENTY YEAR NO PENAL SUM WARRANTY
FOR
METAL BUILDING SYSTEM

FACILITY DESCRIPTION:_____

BUILDING NUMBER:_____

CORPS OF ENGINEERS CONTRACT NUMBER:_____

CONTRACTOR

CONTRACTOR:_____
ADDRESS:_____

POINT OF CONTACT:_____

TELEPHONE NUMBER:_____

OWNER

OWNER:_____
ADDRESS:_____

POINT OF CONTACT:_____

TELEPHONE NUMBER:_____

CONSTRUCTION AGENT

CONSTRUCTION AGENT:_____
ADDRESS:_____

POINT OF CONTACT:_____

_
TELEPHONE NUMBER:_____

CONTRACTOR'S TWENTY YEAR NO PENAL SUM WARRANTY
FOR
METAL BUILDING SYSTEM
(continued)

THE METAL BUILDING SYSTEM INSTALLED ON THE ABOVE NAMED BUILDING IS WARRANTED BY _____ FOR A PERIOD OF TWENTY 20 YEARS AGAINST WORKMANSHIP AND MATERIAL DEFICIENCIES, WIND DAMAGE AND STRUCTURAL FAILURE WITHIN PROJECT SPECIFIED DESIGN LOADS, AND LEAKAGE. THE METAL BUILDING SYSTEM COVERED UNDER THIS WARRANTY INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

FRAMING AND STRUCTURAL MEMBERS, ROOFING AND SIDING PANELS AND SEAMS, INTERIOR OR EXTERIOR GUTTERS AND DOWNSPOUTS, ACCESSORIES, TRIM, FLASHINGS AND MISCELLANEOUS BUILDING CLOSURE ITEMS SUCH AS DOORS AND WINDOWS (WHEN FURNISHED BY THE MANUFACTURER), CONNECTORS, COMPONENTS, AND FASTENERS, AND OTHER SYSTEM COMPONENTS AND ASSEMBLIES INSTALLED TO PROVIDE A WEATHERTIGHT SYSTEM; AND ITEMS SPECIFIED IN OTHER SECTIONS OF THESE SPECIFICATIONS THAT BECOME PART OF THE METAL BUILDING SYSTEM.

ALL MATERIAL AND WORKMANSHIP DEFICIENCIES, SYSTEM DETERIORATION CAUSED BY EXPOSURE TO THE ELEMENTS OR INADEQUATE RESISTANCE TO SPECIFIED SERVICE DESIGN LOADS, WATER LEAKS AND WIND UPLIFT DAMAGE MUST BE REPAIRED AS APPROVED BY THE CONTRACTING OFFICER.

ALL MATERIAL DEFICIENCIES, WIND DAMAGE, STRUCTURAL FAILURE AND LEAKAGE ASSOCIATED WITH THE METAL BUILDING SYSTEM COVERED UNDER THIS WARRANTY MUST BE REPAIRED AS APPROVED BY THE CONTRACTING OFFICER.

THIS WARRANTY COVERS THE ENTIRE COST OF REPAIR OR REPLACEMENT, INCLUDING ALL MATERIAL, LABOR, AND RELATED MARKUPS. THE ABOVE REFERENCED WARRANTY COMMENCED ON THE DATE OF FINAL ACCEPTANCE ON _____ AND WILL REMAIN IN EFFECT FOR STATED DURATION FROM THIS DATE.

SIGNED, DATED, AND NOTARIZED (BY COMPANY PRESIDENT)

_____

(Company President) (Date)

CONTRACTOR'S TWENTY YEAR NO PENAL SUM WARRANTY
FOR
METAL BUILDING SYSTEM
(continued)

THE CONTRACTOR HEREBY SUPPLEMENTS THIS WARRANTY WITH WRITTEN WARRANTIES FROM THE MANUFACTURER AND/OR INSTALLER OF THE METAL BUILDING SYSTEM, WHICH IS SUBMITTED ALONG WITH THE CONTRACTOR'S WARRANTY. HOWEVER, THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THIS WARRANTY AS OUTLINED IN THE SPECIFICATIONS AND AS INDICATED IN THIS WARRANTY.

EXCLUSIONS FROM COVERAGE

1. NATURAL DISASTERS, ACTS OF GOD (LIGHTNING, FIRE, EXPLOSIONS, SUSTAINED WIND FORCES IN EXCESS OF THE DESIGN CRITERIA, EARTHQUAKES, AND HAIL).

2. ACTS OF NEGLIGENCE OR ABUSE OR MISUSE BY GOVERNMENT OR OTHER PERSONNEL,INCLUDING ACCIDENTS, VANDALISM, CIVIL DISOBEDIENCE, WAR, OR DAMAGE CAUSED BY FALLING OBJECTS.

3. DAMAGE BY STRUCTURAL FAILURE, SETTLEMENT, MOVEMENT, DISTORTION, WARPAGE, OR DISPLACEMENT OF THE BUILDING STRUCTURE OR ALTERATIONS MADE TO THE BUILDING.

4. CORROSION CAUSED BY EXPOSURE TO CORROSIVE CHEMICALS, ASH OR FUMES GENERATED OR RELEASED INSIDE OR OUTSIDE THE BUILDING FROM CHEMICAL PLANTS, FOUNDRIES, PLATING WORKS, KILNS, FERTILIZER FACTORIES, PAPER PLANTS, AND THE LIKE.

5. FAILURE OF ANY PART OF THE BUILDING SYSTEM DUE TO ACTIONS BY THE OWNER WHICH INHIBIT FREE DRAINAGE FROM THE ROOF, GUTTERS AND DOWNSPOUTS; OR CONDITIONS WHICH CREATE PONDING WATER ON THE ROOF OR AGAINST THE BUILDING SIDING.

6. THIS WARRANTY APPLIES TO THE METAL BUILDING SYSTEM. IT DOES NOT INCLUDE ANY CONSEQUENTIAL DAMAGE TO THE BUILDING INTERIOR OR CONTENTS WHICH IS COVERED BY THE WARRANTY OF CONSTRUCTION CLAUSE INCLUDED IN THIS CONTRACT.

7. THIS WARRANTY CANNOT BE TRANSFERRED TO ANOTHER OWNER WITHOUT WRITTEN CONSENT OF THE CONTRACTOR AND THIS WARRANTY AND THE CONTRACT PROVISIONS TAKE PRECEDENCE OVER ANY CONFLICTS WITH STATE STATUTES. REPORTS OF LEAKS AND BUILDING SYSTEM DEFICIENCIES MUST BE RESPONDED TO WITHIN 48 HOURS OF RECEIPT OF NOTICE BY TELEPHONE OR IN WRITING FROM EITHER THE OWNER, OR CONTRACTING OFFICER. EMERGENCY REPAIRS, TO PREVENT FURTHER ROOF LEAKS, MUST BE INITIATED IMMEDIATELY; A WRITTEN PLAN MUST BE SUBMITTED FOR APPROVAL TO REPAIR OR REPLACE THIS SSSMR SYSTEM WITHIN SEVEN CALENDAR DAYS. ACTUAL WORK FOR PERMANENT REPAIRS OR REPLACEMENT MUST BE STARTED WITHIN 30 DAYS AFTER RECEIPT OF NOTICE, AND COMPLETED WITHIN A REASONABLE TIME FRAME. IF THE CONTRACTOR FAILS TO ADEQUATELY RESPOND TO THE WARRANTY PROVISIONS, AS STATED

CONTRACTOR'S TWENTY YEAR NO PENAL SUM WARRANTY
FOR
METAL BUILDING SYSTEM
(Exclusions from Coverage Continued)

POST A FRAMED COPY OF THIS WARRANTY IN THE MECHANICAL ROOM OR OTHER APPROVED LOCATION DURING THE ENTIRE WARRANTY PERIOD.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

SECTION 23 05 48.19

SEISMIC BRACING FOR MECHANICAL

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SECTION 23 05 48.19

SEISMIC BRACING FOR MECHANICAL

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for equipment support covered under this section and all costs in connection therewith shall be included in the applicable contract unit or job prices for the items to which the work is incidental.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM A153/A153M	(2016a) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A325	(2014) Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A490	(2014a) Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength
ASTM A563	(2015) Standard Specification for Carbon and Alloy Steel Nuts
ASTM F1554	(2020) Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength

1.3 SYSTEM DESCRIPTION

1.3.1 General Requirements

Apply the requirements for seismic protection measures described in this section and on the drawings to the mechanical equipment and mechanical systems both inside and outside of the building along with exterior utilities and systems listed below. Where there is a conflict between the specifications and the drawings, the specifications will take precedence. Accomplish resistance to lateral forces induced by earthquakes without consideration of friction resulting from gravity loads.

1.3.2 Mechanical Equipment

Mechanical equipment to be seismically protected must include the following items to the extent required on the drawings or in other sections of these

specifications:

Equipment/Components with Ip = 1.0

Instrumentation and Control for HVAC	Exhaust, Return and Misc. Fans

1.4 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submittals not having a "G"classification are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Equipment Restraint

SD-03 Product Data

Equipment Restraint; G

Anchor Bolts

PART 2 PRODUCTS

2.1 GENERAL DESIGN REQUIREMENTS

Submit detailed seismic restraint drawings for mechanical equipment, duct systems, piping systems and any other mechanical systems along with calculations, catalog cuts, templates, and erection and installation details, as appropriate, for the items listed below. Indicate thickness, type, grade, class of metal, and dimensions; and show construction details, reinforcement, anchorage, and installation with relation to the building construction. Calculations must be stamped, by a registered structural engineer, and verify the capability of structural members to which bracing is attached for carrying the load from the brace. Include drawings for Mission Critical Equipment indicating the equipment location in the facility sufficient to be used for the installation. Design must be based on actual equipment and system layout. Design must include calculated dead loads, static seismic loads and capacity of materials utilized for the connection of the equipment or system to the structure. Analysis must detail anchoring methods.

2.2 EQUIPMENT RESTRAINT

Equipment must be rigidly or flexibly mounted as indicated in the specifications and/or drawings depending on vibration isolation requirements as follows below.

2.2.1 Rigidly (Base and Suspended) Mounted Equipment

HVAC equipment furnished under this contract must be rigidly mounted. Anchor bolts must conform to ASTM F1554. For any rigid equipment which is rigidly anchored, provide flexible joints for piping, ductwork, electrical conduit, etc., that are capable of accommodating displacements equal to the full width of the joint in both orthogonal directions. Suspended equipment bracing attachments should be located just above the center of gravity to minimize swinging. Use the ratio of the overturning moment from seismic forces to the resisting moment due to gravity loads to determine if

overturning forces need to be considered in the sizing of anchor bolts. Provide calculations to verify the adequacy of the anchor bolts for combined shear and overturning.

Designated Seismic Systems (DSS) assigned to Seismic Design Category (SDC) C, D, E, or F and Risk Category IV components needed for continued operation after an earthquake must have two nuts provided on each anchor bolt.

2.3 BOLTS AND NUTS

Hex head bolts, and heavy hexagon nuts must be ASTM A325 or ASTM A490 bolts and ASTM A563 nuts. Provide bolts and nuts galvanized in accordance with ASTM A153/A153M when used underground or exposed to weather.

PART 3 EXECUTION

3.1 ANCHOR BOLTS

3.1.1 Cast-in-Place Anchor Bolts

Use templates to locate cast-in-place bolts accurately and securely in formwork. Anchor bolts must have an embedded straight length equal to at least 12 times nominal diameter of the bolt. Anchor bolts that exceed the normal depth of equipment foundation piers or pads must either extend into concrete floor or the foundation or be increased in depth to accommodate bolt lengths.

3.1.2 Drilled-In Anchor Bolts

Drill holes with rotary impact hammer drills Drill bits must be of diameters as specified by the anchor manufacturer. Unless otherwise shown on the Drawings, all holes must be drilled perpendicular to the concrete surface. Where anchors are permitted to be installed in cored holes, use core bits with matched tolerances as specified by the manufacturer. Properly clean cored hole per manufacturer's instructions. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Exercise care in coring or drilling to avoid damaging existing reinforcing or embedded items. Notify the COR if reinforcing steel or other embedded items are encountered during drilling. Take precautions as necessary to avoid damaging prestressing tendons, electrical and telecommunications conduit, and gas lines. Unless otherwise specified, do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength. Perform anchor installation in accordance with manufacturer instructions.

3.1.2.1 Wedge Anchors, Heavy-Duty Sleeve Anchors, and Undercut Anchors

Protect threads from damage during anchor installation. Heavy-duty sleeve anchors must be installed with sleeve fully engaged in part to be fastened. Set anchors to manufacturer's recommended torque, using a torque wrench. Following attainment of 10% of the specified torque, 100% of the specified torque must be reached within 7 or fewer complete turns of the nut. If the specified torque is not achieved within the required number of turns, the anchor must be removed and replaced unless otherwise directed by the Engineer.

3.1.2.2 Cartridge Injection Adhesive Anchors

Where approved for seismic application, clean all holes per manufacturer instructions to remove loose material and drilling dust prior to installation of adhesive. Inject adhesive into holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive. Follow manufacturer recommendations to ensure proper mixing of adhesive components. Sufficient adhesive must be injected in the hole to ensure that the annular gap is filled to the surface. Remove excess adhesive from the surface. Shim anchors with suitable device to center the anchor in the hole. Do not disturb or load anchors before manufacturer specified cure time has elapsed.

3.1.2.3 Capsule Anchors

Where approved for seismic application, perform drilling and setting operations in accordance with manufacturer instructions. Clean all holes to remove loose material and drilling dust prior to installation of adhesive. Remove water from drilled holes in such a manner as to achieve a surface dry condition. Capsule anchors must be installed with equipment conforming to manufacturer recommendations. Do not disturb or load anchors before manufacturer specified cure time has elapsed.

Observe manufacturer recommendations with respect to installation temperatures for cartridge injection adhesive anchors and capsule anchors.

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-- End of Section Table of Contents --

SECTION 23 08 91

VENTILATION SYSTEM

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, labor, materials, and supervision for providing complete and operating exhaust fans, louvers, and motors as specified herein and as shown on the drawings.

1.2 MEASUREMENT AND PAYMENT

No measurement will be made for the ventilation system. Payment will be made at the contract job price for "Ventilation System". Price and payment shall constitute full compensation for furnishing all plant, labor, materials, and equipment for the installation of the ventilation system; including exhaust fans, louvers, motors, fittings, miscellaneous metalwork, appurtenant items, and accessories; as specified herein and as shown on the drawings.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL (AMCA)

AMCA 500-D	(2012) Laboratory Methods of Testing Dampers for Rating
AMCA 511	(2010; R 2013) Certified Ratings Program for Air Control Devices

ALUMINUM ASSOCIATION (AA)

AA DAF-45	(2003) Designation System for Aluminum Finishes

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)

AAMA 2603	(2013) Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels
AAMA 611	(2014) Voluntary Specification for Anodized Architectural Aluminum

ASTM INTERNATIONAL (ASTM)

ASTM A 167	(1999; R 2009) Standard Specification for Stainless and Heat-Resisting

	Chromium-Nickel Steel Plate, Sheet, and Strip
ASTM A 366/A 366M	(1997e1) Standard Specification for Commercial Steel, Sheet, Carbon,(0.15 Maximum Percent Cold-Rolled
ASTM A 653/A 653M	(2009a) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM B 209	(2007) Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
ASTM B 221	(2014) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

1.4 SIZE

The size of the equipment specified herein represents minimum sizes that must be furnished. In the event the Contractor increases the size of the equipment or required additional wiring in order to provide for adaptation of equipment to the project, any such change in size shall be called to the attention of the Contracting Officer's Representative and approved by the Contracting Officer's Representative. Any expense incurred in increasing equipment sizes shall be borne by the Contractor.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation. When used, a designation following the "G" designation identifies the office that will review the submittal. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Metal Wall Louvers; G, EDS

Actuators; G, EDS

Supply Fan Assemblies; G, EDS

SD-06 Test Reports

Performance Tests; G, EDS

SD-10 Operation and Maintenance Data

Operating And Maintenance Manuals; G, EDS

Metal Wall Louvers

Actuators

Supply Fan Assemblies

1.6 MANUFACTURER'S QUALIFICATIONS SUBMITTALS

The Contractor shall submit evidence of the manufacturer's having five years of experience of manufacturing machines as specified or larger and of manufacturing 20 or more units operating in the U.S.A. during that five year period. The Contractor shall submit a written report from the manufacturer upon completion of the installation stating that the units have been properly installed, tested, and are ready for full time operation.

1.7 OPERATIONS AND MAINTENANCE DATA

The Contractor shall provide a minimum of 1/2 hours of instruction for the Supply Fan Assemblies, Metal Wall Louvers, and Actuators to the Government's personnel upon the completion of installation. The Contractor shall provide two (2) hard copy, and one digital of each of the Operating and Maintenance Manuals for review and for the Government's use prior to final acceptance of the project.

1.8 FIELD MEASUREMENTS AND COORDINATION

The Contractor shall make measurements and study structural layouts and manufacturer's information to complete the installation with actual final field conditions. Plans were prepared with available manufacturer's information on a particular piece of equipment, and equipment improvements or substitutions may change configurations of adjacent items and structural requirements. Drawings are generally diagrammatic. Contractor shall organize or coordinate his work with that of the different trades so that interferences of different equipment, piping, etc., shall be avoided and each piece of equipment, piping, etc., installed to function properly. In the case where an interference develops, the Contracting Officer's Representative is to be consulted to determine which equipment, piping, etc., is to be relocated regardless of which item was first installed.

1.9 DELIVERY, STORAGE, AND PROTECTION

Deliver materials to the site in an undamaged condition. Carefully store materials off the ground to provide proper ventilation, drainage, and protection against dampness. Louvers shall be free from nicks, scratches, and blemishes. Replace defective or damaged materials with new.

1.10 DETAIL DRAWINGS

Show all information necessary for fabrication and installation of metal wall louvers. Indicate materials, sizes, thicknesses, fastenings, and profiles.

1.11 COLOR SAMPLES

Colors of finishes for metal wall louvers shall closely approximate colors indicated. Where color is not indicated, submit the manufacturer's standard colors to the Contracting Officer for selection.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Galvanized Steel Sheet

ASTM A 653/A 653M, coating designation G90.

2.1.2 Aluminum Sheet

ASTM B 209, alloy 3003 or 5005 with temper as required for forming.

2.1.3 Extruded Aluminum

ASTM B 221, alloy 6063-T5 or -T52.

2.1.4 Stainless Steel

ASTM A 167, Type 302 or 304, with 2B finish.

2.1.5 Cold Rolled Steel Sheet

ASTM A 366/A 366M, Class 1, with matte finish. Use for interior louvers only.

2.2 METAL WALL LOUVERS

Weather resistant type, operable, manipulated by adequately-sized actuators, with insect screens and made to withstand a wind load of not less than 25 pounds per square foot. Wall louvers shall bear the AMCA certified ratings program seal for air performance and water penetration in accordance with AMCA 500-D and AMCA 511. The rating shall show a water penetration of 0.01 or less ounce per square foot of free area at a free velocity of 1250 feet per minute.

2.2.1 Extruded Aluminum Louvers

Fabricated of extruded 6063-T5 or -T52 aluminum with a wall thickness of not less than 0.081 inch.

2.2.2 Formed Metal Louvers

Formed of stainless steel sheet not thinner than 16 U.S. gage, or aluminum sheet not less than 0.081 inch thick.

2.2.3 Mullions and Mullion Covers

Same material and finish as louvers. Provide mullions for all louvers more than5 feet in width at not more than5 feet on centers. Provide mullions covers on both faces of joints between louvers.

2.2.4 Screens and Frames

For aluminum louvers, provide 14 or 16 gage aluminum square mesh,insect screening. For steel louvers, provide 12 or 16 gage zinc-coated steel square mesh,or 16 gage copper square mesh insect screening. Mount screens in removable, rewirable frames of same material and finish as the louvers.

2.3 FASTENERS AND ACCESSORIES

Provide stainless steel screws and fasteners for aluminum louvers and zinc-coated or stainless steel screws and fasteners for steel louvers. Provide other accessories as required for complete and proper installation.

2.4 ACTUATORS

Actuators must be electric (electronic). All actuators must be normally open (NO), normally closed (NC) or fail-in-last-position (FILP) as indicated. Normally open and normally closed actuators must be of mechanical spring return type. Electric actuators must have an electronic cut off or other means to provide burnout protection if stalled. Actuators must have a visible position indicator. Actuators must smoothly and fully open or close the devices to which they are applied. Electric actuators must have a full stroke response time in both directions of 90 seconds or less at rated load. Electric actuators must be of the foot-mounted type with an oil-immersed gear train or the direct-coupled type. Where multiple electric actuators operate from a common signal, the actuators must provide an output signal identical to its input signal to the additional devices. All actuators must be rated for their operating environment. Actuators used outdoors must be designed and rated for outdoor use. Actuators under continuous exposure to water, such as those used in sumps, must be submersible.

2.5 THERMOSTATS

Provide thermostats rated for outdoor use.

2.5.1 Nonmodulating Electric Room Thermostats

Contacts shall be single-pole double-throw (SPDT), hermetically sealed, and wired to identified terminals. Maximum differential shall be 2 degrees F one. Thermostat covers shall consist of locking metal or heavy-duty plastic, and shall be capable of being locked by an Allen wrench or special tool. Thermostats shall have manual switches as required by the application and a minimum range of 55 to 90 degrees F.

2.5.2 Thermostat Controls

In parallel with thermostat operation, provide wall-mounted 12 hour spring wound timer dial switches for manual control of fans while building is occupied.

2.6 FINISHES

2.6.1 Aluminum

Exposed aluminum surfaces shall be factory finished with a color selected by the Contracting Officer. Louvers shall have the same finish.

2.6.1.1 Anodic Coating

Clean exposed aluminum surfaces and provide an anodized finish conforming to AA DAF-45 and AAMA 611. Finish shall be:

a. Architectural Class II (0.4 mil to 0.7 mil), designation AA-M10-C22-A32, integral color anodized.

b. Architectural Class I (0.7 mil or thicker), designation AA-M10-C22-A42, integral color anodized.

2.6.1.2 Organic Coating

Clean and prime exposed aluminum surfaces. Provide a baked enamel finish

conforming to AAMA 2603, with total dry film thickness not less than 0.8 mil, color as selected by the Contracting Officer.

2.6.2 Steel

Provide factory-applied coating. Clean and phosphate treat exposed surfaces and apply rust-inhibitive primer and baked enamel finish coat, one mil minimum total dry film thickness, color as selected by the Contracting Officer.

2.7 SUPPLY FAN ASSEMBLIES

Provide direct driven fans. Provide unit housing that is designed for sealing to building surface and for discharge and condensate drippage away from the building surface. Construct housing of heavy gauge aluminum or galvanized steel. Equip unit with weatherhood and insect screen, disconnect switch, , manufacturer's standard motor-operated damper, an airtight and liquid-tight metallic wall sleeve. Provide totally enclosed fan cooled type motor enclosure. Use only lubricated bearings. weatherhood, insect screen, damper, and coller assembly should be sized such that pressure drop across the assebly is no more than 0.375 inch water gauge when fan operating.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Wall Louvers

Install using stops or moldings, flanges, strap anchors, or jamb fasteners as appropriate for the wall construction and in accordance with manufacturer's recommendations. Wall louvers with insect screens should induce no more than 0.1 inches water gauge of pressure drop at an airflow rate of 350 ft/minute in the exhaust direction. Louvers should provide a minimum of 4 square feet effective free area under intake flow.

3.1.2 Screens and Frames

Attach frames to louvers with screws or bolts.

3.2 PROTECTION FROM CONTACT OF DISSIMILAR MATERIALS

3.2.1 Copper or Copper-Bearing Alloys

Paint copper or copper-bearing alloys in contact with dissimilar metal with heavy-bodied bituminous paint or separate with inert membrane.

3.2.2 Aluminum

Where aluminum contacts metal other than zinc, paint the dissimilar metal with a primer and two coats of aluminum paint.

3.2.3 Metal

Paint metal in contact with mortar, concrete, or other masonry materials with alkali-resistant coatings such as heavy-bodied bituminous paint.

3.2.4 Wood

Paint wood or other absorptive materials that may become repeatedly wet and in contact with metal with two coats of aluminum paint or a coat of heavy-bodied bituminous paint.

3.3 PERFORMANCE TESTS

After individual component testing is complete, test the interlocked exhaust system as a whole to see that all items perform as integral parts of the system. Make corrections and adjustments as necessary to produce the conditions indicated or specified.

-- End of Section --

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SECTION 26 05 19.10 10

INSULATED WIRE AND CABLE

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, labor, materials, and supervision for providing complete insulated wire and cable as specified herein and as shown on the drawings.

1.2 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for installing the insulated wire and cable. Payment shall be included in the contract job price for "Electrical Work".

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 1202	(2006; R 2012; CORR 1 2012) Flame-Propagation Testing of Wire and Cable

INSULATED CABLE ENGINEERS ASSOCIATION (ICEA)

ICEA S-58-679	(2014) Control, Instrumentation and Thermocouple Extension Conductor Identification
ICEA T-30-520	(1986) Conducting Vertical Cable Tray Flame Tests with Theoretical Heat Input Rate of 70,000 B.T.U./Hour

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

ANSI/NEMA WC 71/ICEA S-96-659	(2014) Standard for Nonshielded Cables Rated 2001-5000 Volts for use in the Distribution of Electric Energy
NEMA WC 57	(2014) Standard for Control, Thermocouple Extension, and Instrumentation Cables
NEMA WC 70	(2021) Power Cable Rated 2000 Volts or Less for the Distribution of Electrical Energy

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2020; ERTA 20-1 2020; ERTA 20-2 2020; ERTA 20-3 2020; TIA 20-1; TIA 20-2; TIA

20-3; TIA 20-4; TIA 20-5; TIA 20-6; TIA 20-7; TIA 20-8; TIA 20-9; TIA 20-10; TIA 20-11; TIA 20-12; TIA 20-13; TIA 20-14; TIA 20-15; TIA 20-16; ERTA 20-4 2022) National Electrical Code

UNDERWRITERS LABORATORIES (UL)

UL 83	(2017; Reprint Mar 2020) UL Standard for Safety Thermoplastic-Insulated Wires and Cables
UL 1685	(2015) UL Standard for Safety Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
UL 2556	(2015) UL Standard for Safety Wire and Cable Test Methods

1.4 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submittals not having a "G" classification are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Wire and Cable; G

Conductors; G

Cable Manufacturing Data

SD-06 Test Reports

Test Report(s), Inspection Report(s), and Verification Report(s); G

1.5 DELIVERY, STORAGE, AND HANDLING

Furnish cables on reels or coils. Each cable and the outside of each reel or coil, must be plainly marked or tagged to indicate the cable length, voltage rating, conductor size, and manufacturer's lot number and reel number. Each coil or reel of cable must contain only one continuous cable without splices. Reels must remain the property of the Contractor.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Wire and Cable

Furnish wire and cable in accordance with the requirements specified herein and as shown on the drawings.

2.1.2 Rated Circuit Voltages

All power wire and cable must have minimum rated circuit voltages in

accordance with NEMA WC 70 or ANSI/NEMA WC 71/ICEA S-96-659, as applicable. Power wire and cable for circuit voltages rated 0-600 volts must be rated not less than 600 volts. Control wire and cable must have minimum rated circuit voltages in accordance with NEMA WC 57, but must be rated 600 volts if routed in raceway with other conductors that are rated 600 volts.

2.1.3 Conductors

2.1.3.1 Material for Conductors

Conductors must conform to all the applicable requirements of NEMA WC 57, NEMA WC 70 or ANSI/NEMA WC 71/ICEA S-96-659 as applicable. Copper conductors must be annealed copper material and they may be bare, or tin- or lead-alloy-coated, if required by the type of insulation used.

2.1.3.2 Size

Minimum wire size must be No. 12 AWG for power and lighting circuits; No. 10 AWG for current transformer secondary circuits; No. 14 AWG for potential transformer, relaying, and control circuits; No. 16 AWG for annunciator circuits; and No. 19 AWG for alarm circuits. Minimum wire sizes for rated circuit voltages of 2,001 volts and above must not be less than those listed for the applicable voltage in ANSI/NEMA WC 71/ICEA S-96-659, as applicable.

2.1.3.3 Stranding

Conductor stranding classes cited herein must be as defined for control conductors in NEMA WC 57 or as defined for 0-2,000 volts power conductors in NEMA WC 70, as applicable. Lighting conductors No. 10 AWG and smaller must be solid or have Class B stranding. Any conductors used between stationary and moving devices, such as hinged doors or panels, must have Class H or K stranding. All other conductors must have Class B or C stranding, except that conductors as shown, or in the schedule, as No. 12 AWG may be 19 strands of No. 25 AWG, and conductors shown as No. 10 AWG may be 19 strands of No. 22 AWG. Conductor stranding classes for circuit voltages 2,001 volts and above must be as defined in ANSI/NEMA WC 71/ICEA S-96-659, as applicable.

2.1.3.4 Conductor Shielding

Use conductor shielding conforming to NEMA WC 57 for control wire and cable as applicable. Use conductor shielding conforming to ANSI/NEMA WC 71/ICEA S-96-659, as applicable, on power cables having a rated circuit voltage above 2,000 volts.

2.1.3.5 Separator Tape

Where conductor shielding, strand filling, or other special conductor treatment is not required, a separator tape between conductor and insulation is permitted.

2.1.4 Insulation

2.1.4.1 Insulation Material

Unless specified otherwise or required by NFPA 70, wires in conduit, other than service entrance, must be 600-volt, Type THWN/THHN conforming to UL 83.

Insulation for control wire and cable must meet the requirements of NEMA WC 57. Insulation requirements for wire and cable rated less than 2,000 volts must meet the requirements of NEMA WC 70.

2.1.4.2 Insulation Thickness

The insulation thickness for each conductor must be based on its rated circuit voltage.

2.1.4.2.1 Power Cables, 2,000 Volts and Below

The insulation thickness for single-conductor and multiple-conductor power cables rated 2,000 volts and below must be as required by NEMA WC 70, as applicable. Some thicknesses of NEMA WC 70 will be permitted only for single-conductor cross-linked thermosetting polyethylene insulated cables without a jacket. NEMA WC 70 ethylene-propylene rubber-insulated conductors must have a jacket.

2.1.4.2.2 Single-Conductor and Multiple-Conductor Control Cables

The insulation thickness of control conductor sizes 22 AWG to 10 AWG used for control and related purposes must be as required by NEMA WC 57, as applicable. Control conductors larger than 10 AWG must be as required by NEMA WC 70.

2.1.5 Jackets

All cables must have jackets meeting the requirements of NEMA WC 57, NEMA WC 70, and ANSI/NEMA WC 71/ICEA S-96-659, as applicable, and as specified herein. Individual conductors of multiple-conductor cables must be required to have jackets only if they are necessary for the conductor to meet other specifications herein. Jackets of single-conductor cables and of individual conductors of multiple-conductor cables, except for shielded cables, must be in direct contact and adhere or be vulcanized to the conductor insulation. Multiple-conductor cables and shielded single-conductor cables must be provided with a common overall jacket, which must be tightly and concentrically formed around the core. Repaired jacket defects found and corrected during manufacturing are permitted if the cable, including jacket, afterward fully meets these specifications and the requirements of the applicable standards.

2.1.5.1 Jacket Material

The jacket must be one of the materials listed below. Polyvinyl chloride compounds will not be permitted.

2.1.5.1.1 General Use

Heavy-duty black neoprene	NEMA WC 70 or ANSI/NEMA WC 71/ICEA S-96-659
Heavy-duty chlorosulfonated polyethylene	NEMA WC 57 NEMA WC 70 or ANSI/NEMA WC 71/ICEA S-96-659

Heavy-duty cross-linked (thermoset) chlorinated polyethylene	NEMA WC 70 or ANSI/NEMA WC 71/ICEA S-96-659

2.1.5.1.2 Accessible Use Only, 2,000 Volts or Less

Cables installed where they are entirely accessible, such as cable trays and raceways with removable covers, or where they pass through less than 10 feet of exposed conduit only, must have jackets of one of the materials in item "a. General Use" or one of the following:

General-purpose neoprene	NEMA WC 70 or ANSI/NEMA WC 71/ICEA S-96-659
Black polyethylene (MDPE)	NEMA WC 57, NEMA WC 70, or ANSI/NEMA WC 71/ICEA S-96-659
Thermoplastic chlorinated polyethylene	NEMA WC 70 or ANSI/NEMA WC 71/ICEA S-96-659

2.1.5.2 Jacket Thickness

The minimum thickness of the jackets must be not less than 80 percent of the respective nominal thicknesses specified below.

2.1.5.2.1 Multiple-Conductor Cables

Thickness of the jackets of the individual conductors of multiple-conductor cables must be as required by NEMA WC 57, NEMA WC 70 or ANSI/NEMA WC 71/ICEA S-96-659 as applicable and must be in addition to the conductor insulation thickness required by the applicable respective NEMA publication for the insulation used. Thickness of the outer jackets and associated coverings of the assembled multiple-conductor cables must be as required by NEMA WC 57, NEMA WC 70, or ANSI/NEMA WC 71/ICEA S-96-659 as applicable.

2.1.5.2.2 Single-Conductor Cables

Single-conductor cables must have a jacket thickness as specified in NEMA WC 57, NEMA WC 70, or ANSI/NEMA WC 71/ICEA S-96-659 as applicable.

2.1.6 Multiple-Conductor Cables

Grounding conductor(s) conforming to NEMA WC 57, NEMA WC 70 or ANSI/NEMA WC 71/ICEA S-96-659 as applicable must be furnished for each multiple-conductor cable. Assembly and cabling must be as specified in paragraph "Cabling".

2.2 CABLE IDENTIFICATION

2.2.1 Color-Coding

Insulation of individual conductors of multiple-conductor cables must be color-coded in accordance with ICEA S-58-679, except that colored braids will not be permitted. Only one color-code method must be used for each cable construction type. Control cable color-coding must be in accordance with ICEA S-58-679. Power cable color-coding must be black for Phase A, red for Phase B, blue for Phase C, white for grounded neutral, and green for an insulated grounding conductor, if included. Other individual conductors must be color-coded as indicated, but such color-coding may be accomplished by applying colored plastic tapes or colored sleeves at terminations.

2.2.2 Cabling

Individual conductors of multiple-conductor cables must be assembled with flame-and moisture-resistant fillers, binders, and a lay conforming to NEMA WC 57, NEMA WC 70, or ANSI/NEMA WC 71/ICEA S-96-659. Flat twin cables are prohibited. Fillers must be used in the interstices of multiple-conductor round cables with a common covering where necessary to give the completed cable a substantially circular cross section. Fillers must be non-hygroscopic material, compatible with the cable insulation, jacket, and other components of the cable. The rubber-filled or other approved type of binding tape must consist of a material that is compatible with the other components of the cable and must be lapped at least 10 percent of its width.

2.2.3 Dimensional Tolerance

The outside diameters of single-conductor cables and of multiple-conductor cables must not vary more than 5 percent and 10 percent, respectively, from the manufacturer's published catalog data.

PART 3 EXECUTION

3.1 INSTALLATION INSTRUCTIONS

Submit cable manufacturing data . The following information must be provided by the cable manufacturer for each size, conductor quantity, and type of cable furnished:

a. Minimum bending radius, in inches - For multiple-conductor cables, this information must be provided for both the individual conductors and the multiple-conductor cable.

b. Pulling tension and sidewall pressure limits, in pounds.

c. Instructions for stripping semiconducting insulation shields, if furnished, with minimum effort without damaging the insulation.

d. Upon request, compatibility of cable materials and construction with specific materials and hardware manufactured by others must be stated. Also, if requested, recommendations must be provided for various cable operations, including installing, splicing, terminating, etc.

3.2 TEST REPORT(S), INSPECTION REPORT(S), AND VERIFICATION REPORT(S)

3.2.1 Cable Data

Do not begin any wire and cable fabrication until materials are submitted and approved by the Contracting Officer. Submit cable data for approval including, but not limited to, dimensioned sketches showing cable construction and sufficient additional data to show that wire and cable meet the requirements of this Section.

3.2.2 Inspection and Tests

Inspection and tests of wire and cable furnished under these specifications must be made by and at the plant of the manufacturer, and must be witnessed by the Contracting Officer, unless waived in writing. The Government may require or perform further tests before or after installation. Testing in general must comply with NEMA WC 57, NEMA WC 70, or ANSI/NEMA WC 71/ICEA S-96-659 as applicable. Specific tests required for particular materials, components, and completed cables must be as specified in the sections of the above standards applicable to those materials, components, and cable types. Tests must also be performed in accordance with the additional requirements specified below. Submit 6 certified copies of test reports.

3.2.2.1 Flame Tests

All cable assemblies must pass either the vertical cable tray flame tests required by ICEA T-30-520 (stated in, but not required by NEMA WC 70), the vertical tray flame propagation test requirements of UL 1685 and IEEE 1202, the wire and cable burning characteristics test of the UL 2556 VW-1 Test, or (for control cables only) the flame test as required by NEMA WC 57. If such tests, however, have previously been made on identical cables, these tests need not be repeated. Instead, certified reports of the original qualifying tests must be submitted. In this case the reports furnished under paragraph "Reports," must include information, identify critical information, and verify that all of each cable's materials, construction, and dimensions are the same as those in the qualifying tests.

3.2.2.2 Independent Tests

The Government may make visual inspections, continuity or resistance checks, insulation resistance readings, power factor tests, or dc high potential tests at field test values. A cable's failure to pass these tests and inspections, or failure to produce readings consistent with acceptable values for the application, will be grounds for rejection of the cable.

3.2.2.3 Reports

Furnish results of tests. No wire or cable must be shipped until authorized. Lot number and reel or coil number of wire and cable tested must be indicated on the test reports.

WIRE TABLE						
Item No.	Size, AWG or kcmil	No. of Conds.	Rated Circuit Voltage	Stranding	Comments	Quantity, lin ft
Class _____ stranding may be substituted for _____ where indicated by "*".						

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SEISMIC PROTECTION FOR ELECTRICAL EQUIPMENT

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, labor, equipment, materials and performing all operations required for the installation of seismic support for electrical equipment; as specified herein and as shown on the drawings.

1.2 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for seismic support for electrical equipment. All costs in connection therewith shall be included in the contract job price for "Electrical Work".

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC 325	(2017) Steel Construction Manual

ASTM INTERNATIONAL (ASTM)

ASTM E580/E580M	(2022) Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 3-301-01	(2019, with Change 1, 2022) Structural Engineering

UNDERWRITERS LABORATORIES (UL)

UL 1598	(2021; Reprint Jun 2021) Luminaires

1.4 SYSTEM DESCRIPTION

1.4.1 General Requirements

Apply the requirements for seismic protection measures described in this section to the electrical equipment listed below.

1.4.2 Electrical Equipment

Include the following items to the extent required on the drawings or in other sections of these specifications:

Lighting Panels	Light Fixtures

1.4.3 Contractor Designed Bracing

Submit copies of the design calculations with the drawings. Calculations must be approved, certified, stamped and signed by a Registered Professional Engineer. Verify the capability of structural members to which bracing is attached for carrying the load from the brace. Design the bracing in accordance with UFC 3-301-01 and additional data furnished by the Contracting Officer. Accomplish resistance to lateral forces induced by earthquakes without consideration of friction resulting from gravity loads. UFC 3-301-01 uses parameters for the building, not for the equipment in the building; therefore, corresponding adjustments to the formulas are required. Loadings determined using UFC 3-301-01 are based on strength design; therefore, use AISC 325 for the design. Develop the bracing for the lighting panels and light fixtures.

1.4.4 Conduits Requiring No Special Seismic Restraints

Seismic restraints may be omitted from electrical conduit less than 2-1/2 inches trade size. Seismically protect all other interior conduit as specified.

1.5 EQUIPMENT REQUIREMENTS

Submit detail drawings along with catalog cuts, templates, and erection and installation details, as appropriate, for the items listed. Submittals must be complete in detail, indicating thickness, type, grade, class of metal, and dimensions; and must show construction details, reinforcement, anchorage, and installation with relation to the building construction. Submit copies of the design calculations with the detail drawings. Calculations must be stamped by a registered engineer and must verify the capability of structural members to which bracing is attached for carrying the load from the brace.

1.5.1 Rigidly Mounted Equipment

The lighting panels shall be constructed and assembled to withstand the seismic forces specified in UFC 3-301-01. Entirely locate each item of rigid electrical equipment and rigidly attach on one side only of a building expansion joint. Provide items such as piping, electrical conduit, which cross the expansion joint with flexible joints that are capable of accommodating displacements equal to the full width of the joint in both orthogonal directions.

1.6 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submittals not having a "G" classification are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Lighting Fixtures in Buildings

Equipment Requirements

SD-03 Product Data

Lighting Fixtures in Buildings; G

Equipment Requirements; G

Contractor Designed Bracing; G

PART 2 PRODUCTS

2.1 LIGHTING FIXTURE SUPPORTS

Provide lighting fixtures and supports conforming to UL 1598.

PART 3 EXECUTION

3.1 LIGHTING FIXTURES IN BUILDINGS

Provide lighting fixtures and supports conforming to the following:

3.1.1 Pendant Fixtures

Provide pendant fixtures conforming to the requirements of UFC 3-301-01.

3.1.2 Ceiling Attached Fixtures

3.1.2.1 Recessed LED Fixtures

Support recessed LED individual or continuous-row mounted fixtures by a seismic-resistant suspended ceiling support system built in accordance with ASTM E580/E580M. Provide seismic protection for the fixtures conforming to the requirements of UFC 3-301-01. Recessed lighting fixtures not over 56 pounds in weight may be supported by and attached directly to the ceiling system runners using screws or bolts, number and size as required by the seismic design. Provide lock or screw attachments for fixture accessories, including louvers, diffusers, and lenses.

3.1.2.2 Surface-Mounted LED Fixtures

Attach surface-mounted LED individual or continuous-row fixtures to a seismic-resistant ceiling support system built in accordance with ASTM E580/E580M. Provide seismic protection for the fixtures conforming to the requirements of UFC 3-301-01.

3.1.3 Assembly Mounted on Outlet Box

Design a supporting assembly, that is intended to be mounted on an outlet box, to accommodate mounting features on 4 inch boxes, plaster rings, and fixture studs.

3.1.4 Wall-Mounted Emergency Light Unit

Design and secure attachments for wall-mounted emergency light units for the worst expected seismic disturbance at the site.

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INTERIOR DISTRIBUTION SYSTEM

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, labor, equipment, materials and performing all operations required for the installation of disconnects and lighting panels as shown on the drawings and as specified in this section.

1.2 MEASUREMENT AND PAYMENT

The interior distribution system will not be measured for payment. Payment will be made at the contract job price for "Electrical Work". Price and payment shall constitute full compensation for furnishing all plant, labor, materials, and equipment required to complete the interior distribution system; including insulated wire and cable, seismic support for electrical equipment, lightning protection, interior and exterior lighting, and other work incidental thereto; all as specified herein and as shown on the drawings.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM B1	(2013) Standard Specification for Hard-Drawn Copper Wire
ASTM B8	(2011; R 2017) Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
ASTM D709	(2017) Standard Specification for Laminated Thermosetting Materials

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 81	(2012) Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System
IEEE 100	(2000; Archived) The Authoritative Dictionary of IEEE Standards Terms

INTERNATIONAL ELECTRICAL TESTING ASSOCIATION (NETA)

NETA ATS	(2021) Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems

NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA)

NECA NEIS 1	(2015) Standard for Good Workmanship in Electrical Construction

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

ANSI C80.1	(2020) American National Standard for Electrical Rigid Steel Conduit (ERSC)
ANSI C80.3	(2020) American National Standard for Electrical Metallic Tubing (EMT)
NEMA 250	(2020) Enclosures for Electrical Equipment (1000 Volts Maximum)
NEMA FU 1	(2012) Low Voltage Cartridge Fuses
NEMA ICS 1	(2000; R 2015) Standard for Industrial Control and Systems: General Requirements
NEMA ICS 6	(1993; R 2016) Industrial Control and Systems: Enclosures
NEMA KS 1	(2013) Enclosed and Miscellaneous Distribution Equipment Switches (600 V Maximum)
NEMA TC 2	(2020) Standard for Electrical Polyvinyl Chloride (PVC) Conduit
NEMA TC 3	(2021) Polyvinyl Chloride (PVC) Fittings for Use With Rigid PVC Conduit and Tubing
NEMA WD 1	(1999; R 2020) Standard for General Color Requirements for Wiring Devices
NEMA WD 6	(2016) Wiring Devices Dimensions Specifications
NEMA Z535.4	(2011; R 2017) Product Safety Signs and Labels

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2020; ERTA 20-1 2020; ERTA 20-2 2020; TIA 20-1; TIA 20-2; TIA 20-3; TIA 20-4) National Electrical Code
NFPA 70E	(2021) Standard for Electrical Safety in the Workplace

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.147	The Control of Hazardous Energy (Lock Out/Tag Out)
29 CFR 1910.303	Electrical, General

UNDERWRITERS LABORATORIES (UL)

UL 1	(2005; Reprint Jan 2020) UL Standard for Safety Flexible Metal Conduit
UL 6	(2007; Reprint Sep 2019) UL Standard for Safety Electrical Rigid Metal Conduit-Steel
UL 20	(2018; Reprint Jan 2021) UL Standard for Safety General-Use Snap Switches
UL 50	(2015) UL Standard for Safety Enclosures for Electrical Equipment, Non-Environmental Considerations
UL 67	(2018; Reprint Jul 2020) UL Standard for Safety Panelboards
UL 83	(2017; Reprint Mar 2020) UL Standard for Safety Thermoplastic-Insulated Wires and Cables
UL 248-4	(2010; Reprint Apr 2019) Low-Voltage Fuses - Part 4: Class CC Fuses
UL 248-8	(2011; Reprint Aug 2020) Low-Voltage Fuses - Part 8: Class J Fuses
UL 248-10	(2011; Reprint Aug 2020) Low-Voltage Fuses - Part 10: Class L Fuses
UL 248-12	(2011; Reprint Aug 2020) Low Voltage Fuses - Part 12: Class R Fuses
UL 248-15	(2018) Low-Voltage Fuses - Part 15: Class T Fuses
UL 360	(2013; Reprint Aug 2021) UL Standard for Safety Liquid-Tight Flexible Metal Conduit
UL 467	(2013; Reprint Jun 2017) UL Standard for Safety Grounding and Bonding Equipment
UL 486A-486B	(2018; Reprint May 2021) UL Standard for Safety Wire Connectors
UL 486C	(2018; Reprint May 2021) UL Standard for Safety Splicing Wire Connectors
UL 489	(2016; Rev 2019) UL Standard for Safety Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
UL 498	(2017; Reprint Sep 2021) UL Standard for Safety Attachment Plugs and Receptacles
UL 510	(2020) UL Standard for Safety Polyvinyl Chloride, Polyethylene and Rubber

	Insulating Tape
UL 514A	(2013; Reprint Aug 2017) UL Standard for Safety Metallic Outlet Boxes
UL 514B	(2012; Reprint May 2020) Conduit, Tubing and Cable Fittings
UL 514C	(2014; Reprint Feb 2020) UL Standard for Safety Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
UL 797	(2007; Reprint Mar 2021) UL Standard for Safety Electrical Metallic Tubing -- Steel
UL 869A	(2006; Reprint Jun 2020) Reference Standard for Service Equipment
UL 870	(2016; Reprint Mar 2019) UL Standard for Safety Wireways, Auxiliary Gutters, and Associated Fittings
UL 943	(2016; Reprint Feb 2018) UL Standard for Safety Ground-Fault Circuit-Interrupters
UL 1242	(2006; Reprint Aug 2020) Standard for Electrical Intermediate Metal Conduit -- Steel
UL 1283	(2017) UL Standard for Safety Electromagnetic Interference Filters
UL 1449	(2021) UL Standard for Safety Surge Protective Devices
UL 1660	(2019) Liquid-Tight Flexible Nonmetallic Conduit
UL 4248-1	(2017) UL Standard for Safety Fuseholders - Part 1: General Requirements
UL 4248-12	(2018) UL Standard for Safety Fuseholders - Part 12: Class R

1.4 DEFINITIONS

Unless otherwise specified or indicated, electrical and electronics terms used in these specifications, and on the drawings, are as defined in IEEE 100.

1.5 SUBMITTALS

Government approval is required for submittals with a "G"" classification. Submittals not having a "G" classification are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Panelboards; G

Wireways; G

Marking Strips Drawings; G

SD-03 Product Data

Receptacles; G

Circuit Breakers; G

Switches; G

Wire and Cable; G

Conduit; G

Surge Protective Devices; G

SD-06 Test Reports

600-volt Wiring Test; G

Grounding System Test; G

Ground-fault Receptacle Test; G

SD-07 Certificates

Fuses; G

SD-10 Operation and Maintenance Data

Electrical Systems, Data Package 5; G

1.6 QUALITY ASSURANCE

1.6.1 Fuses

Submit coordination data as specified in paragraph FUSES.

1.6.2 Regulatory Requirements

In each of the publications referred to herein, consider the advisory provisions to be mandatory, as though the word, "must" had been substituted for "should" wherever it appears. Interpret references in these publications to the "authority having jurisdiction," or words of similar meaning, to mean the Contracting Officer. Provide equipment, materials, installation, and workmanship in accordance with NFPA 70 unless more stringent requirements are specified or indicated. NECA NEIS 1 shall be considered the minimum standard for workmanship.

1.6.3 Standard Products

Provide materials and equipment that are products of manufacturers regularly engaged in the production of such products which are of equal material, design and workmanship and:

a. Have been in satisfactory commercial or industrial use for 2 years

prior to Proposal opening including applications of equipment and materials under similar circumstances and of similar size.

b. Have been on sale on the commercial market through advertisements, manufacturers' catalogs, or brochures during the 2-year period.

c. Where two or more items of the same class of equipment are required, provide products of a single manufacturer; however, the component parts of the item need not be the products of the same manufacturer unless stated in this section.

1.6.3.1 Alternative Qualifications

Products having less than a 2-year field service record will be acceptable if a certified record of satisfactory field operation for not less than 6000 hours, exclusive of the manufacturers' factory or laboratory tests, is furnished.

1.6.3.2 Material and Equipment Manufacturing Date

Products manufactured more than 3 years prior to date of delivery to site are not acceptable.

1.7 MAINTENANCE

1.7.1 Electrical Systems

Submit manufacturer's operation and maintenance data or manuals. Submit manufacturer's operation and maintenance manuals for electrical systems that provide basic data relating to the design, operation, and maintenance of the electrical distribution system for the building. Include the following:

a. Single line diagram of the "as-built" building electrical system.

b. Schematic diagram of electrical control system (other than HVAC, covered elsewhere).

c. Manufacturers' operating and maintenance manuals on active electrical equipment.

1.8 WARRANTY

Provide equipment items supported by service organizations that are reasonably convenient to the equipment installation in order to render satisfactory service to the equipment on a regular and emergency basis during the warranty period of the contract.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

As a minimum, meet requirements of UL, where UL standards are established for those items, and requirements of NFPA 70 for all materials, equipment, and devices.

2.2 CONDUIT AND FITTINGS

Conform to the following:

2.2.1 Rigid Metallic Conduit

2.2.1.1 Rigid, Threaded Zinc-Coated Steel Conduit

ANSI C80.1, UL 6.

2.2.2 Rigid Nonmetallic Conduit

PVC Type EPC-40, and EPC-80 in accordance with NEMA TC 2.

2.2.3 Intermediate Metal Conduit (IMC)

UL 1242, zinc-coated steel only.

2.2.4 Electrical, Zinc-Coated Steel Metallic Tubing (EMT)

UL 797, ANSI C80.3.

2.2.5 Flexible Metal Conduit

UL 1, limited to 6 feet.

2.2.5.1 Liquid-Tight Flexible Metal Conduit, Steel

UL 360, limited to 6 feet.

2.2.6 Fittings for Metal Conduit, EMT, and Flexible Metal Conduit

UL 514B. Ferrous fittings: cadmium- or zinc-coated in accordance with UL 514B.

2.2.6.1 Fittings for Rigid Metal Conduit and IMC

Threaded-type. Split couplings unacceptable.

2.2.6.2 Fittings for EMT

Steel compression type.

2.2.7 Fittings for Rigid Nonmetallic Conduit

NEMA TC 3 for PVC, and UL 514B.

2.2.8 Liquid-Tight Flexible Nonmetallic Conduit

UL 1660.

2.3 OUTLET BOXES AND COVERS

UL 514A, cadmium- or zinc-coated, if ferrous metal. UL 514C, if nonmetallic.

2.3.1 Floor Outlet Boxes

Provide the following:

a. Boxes: nonadjustable and concrete tight.

b. Each outlet: consisting of nonmetallic body with threaded openings for conduits, brass flange ring, and cover plate with 1 1/4 inch threaded plug.

c. Receptacle outlets: consisting of flush aluminum or stainless steel housing with duplex-type receptacle as specified herein.

d. Provide gaskets where necessary to ensure watertight installation.

2.4 CABINETS, JUNCTION BOXES, AND PULL BOXES

UL 50; volume greater than 100 cubic inches, NEMA Type 1 enclosure; sheet steel, hot-dip, zinc-coated. Where exposed to wet, damp, or corrosive environments, NEMA Type 4X.

2.5 WIRES AND CABLES

Provide wires and cables in accordance applicable requirements of NFPA 70 and UL for type of insulation, jacket, and conductor specified or indicated. Do not use wires and cables manufactured more than 12 months prior to date of delivery to site.

2.5.1 Conductors

Provide the following:

a. Conductor sizes and capacities shown are based on copper, unless indicated otherwise.

b. Conductors No. 8 AWG and larger diameter: stranded.

c. Conductors No. 10 AWG and smaller diameter: solid.

d. Conductors for remote control, alarm, and signal circuits, classes 1, 2, and 3: stranded unless specifically indicated otherwise.

e. All conductors: copper.

2.5.1.1 Minimum Conductor Sizes

Provide minimum conductor size in accordance with the following:

a. Branch circuits: No. 12 AWG.

b. Class 1 remote-control and signal circuits: No. 14 AWG.

c. Class 2 low-energy, remote-control and signal circuits: No. 16 AWG.

d. Class 3 low-energy, remote-control, alarm and signal circuits: No. 22 AWG.

2.5.2 Color Coding

Provide color coding for service, feeder, branch, control, and signaling circuit conductors.

2.5.2.1 Ground and Neutral Conductors

Provide color coding of ground and neutral conductors as follows:

a. Grounding conductors: Green.

b. Neutral conductors: White.

c. Exception, where neutrals of more than one system are installed in same raceway or box, other neutrals color coding: white with a different colored (not green) stripe for each.

2.5.2.2 Ungrounded Conductors

Provide color coding of ungrounded conductors in different voltage systems as follows:

a. 208/120 volt, three-phase

(1) Phase A - black

(2) Phase B - red

(3) Phase C - blue

b. 480/277 volt, three-phase

(1) Phase A - brown

(2) Phase B - orange

(3) Phase C - yellow

c. 120/240 volt, single phase: Black and red

2.5.3 Insulation

Unless specified or indicated otherwise or required by NFPA 70, provide power and lighting wires rated for 600-volts, Type THWN/THHN conforming to UL 83, except that grounding wire may be type TW conforming to UL 83; remote-control and signal circuits: Type TW or TF, conforming to UL 83. Where equipment or devices require 90-degree Centigrade (C) conductors, provide only conductors with 90-degree C insulation or better.

2.5.4 Bonding Conductors

ASTM B1, solid bare copper wire for sizes No. 8 AWG and smaller diameter; ASTM B8, Class B, stranded bare copper wire for sizes No. 6 AWG and larger diameter.

2.6 SPLICES AND TERMINATION COMPONENTS

UL 486A-486B for wire connectors and UL 510 for insulating tapes. Connectors for No. 10 AWG and smaller diameter wires: insulated, pressure-type in accordance with UL 486A-486B or UL 486C (twist-on splicing connector). Provide solderless terminal lugs on stranded conductors.

2.7 DEVICE PLATES

Provide the following:

a. UL listed, one-piece device plates for outlets to suit the devices

installed.

b. For metal outlet boxes, plates on unfinished walls: zinc-coated sheet steel or cast metal having round or beveled edges.

c. For nonmetallic boxes and fittings, other suitable plates may be provided.

d. Screws: machine-type with countersunk heads in color to match finish of plate.

e. Sectional type device plates are not be permitted.

f. Plates installed in wet locations: gasketed and UL listed for "wet locations."

2.8 SWITCHES

2.8.1 Toggle Switches

NEMA WD 1, UL 20, single pole, totally enclosed with bodies of thermoplastic or thermoset plastic and mounting strap with grounding screw. Include the following:

a. Handles: brown thermoplastic.

b. Wiring terminals: screw-type, side-wired.

c. Contacts: silver-cadmium and contact arm - one-piece copper alloy.

d. Switches: rated quiet-type ac only, 120/277 volts, with current rating and number of poles indicated.

2.8.2 Disconnect Switches

NEMA KS 1. Provide heavy duty-type switches where indicated, where switches are rated higher than 240 volts, and for double-throw switches. Utilize Class R fuseholders and fuses for fused switches, unless indicated otherwise. Provide horsepower rated for switches serving as the motor-disconnect means. Provide switches in NEMA 4X Type 304 stainless steel enclosure per NEMA ICS 6.

2.9 FUSES

NEMA FU 1. Provide complete set of fuses for each fusible switch. Coordinate time-current characteristics curves of fuses serving motors or connected in series with circuit breakers or other circuit protective devices for proper operation. Submit coordination data for approval. Provide fuses with a voltage rating not less than circuit voltage.

2.9.1 Fuseholders

Provide in accordance with UL 4248-1.

2.9.2 Cartridge Fuses, Current Limiting Type (Class R)

UL 248-12, Class time-delay type. Provide only Class R associated fuseholders in accordance with UL 4248-12.

2.9.3 Cartridge Fuses, High-Interrupting Capacity, Current Limiting Type (Classes J, L, and CC)

UL 248-8, UL 248-10, UL 248-4, Class J for zero to 600 amperes, Class L for 601 to 6,000 amperes, and Class CC for zero to 30 amperes.

2.9.4 Cartridge Fuses, Current Limiting Type (Class T)

UL 248-15, Class T for zero to 1,200 amperes, 300 volts; and zero to 800 amperes, 600 volts.

2.10 RECEPTACLES

Provide the following:

a. UL 498, general purpose specification grade, grounding-type. Residential grade receptacles are not acceptable.

b. Ratings and configurations: as indicated.

c. Bodies: white as per NEMA WD 1.

d. Face and body: thermoplastic supported on a metal mounting strap.

e. Dimensional requirements: per NEMA WD 6.

f. Screw-type, side-wired wiring terminals or of the solderless pressure type having suitable conductor-release arrangement.

g. Grounding pole connected to mounting strap.

h. The receptacle: containing triple-wipe power contacts and double or triple-wipe ground contacts.

2.10.1 Ground-Fault Circuit Interrupter Receptacles

UL 943, duplex type for mounting in standard outlet box. Provide device capable of detecting current leak when the current to ground is 6 milliamperes or higher, and tripping per requirements of UL 943 for Class A ground-fault circuit interrupter devices. Provide screw-type, side-wired wiring terminals or pre-wired (pigtail) leads.

2.11 PANELBOARDS

Provide panelboards in accordance with the following:

a. UL 67 and UL 50.

b. Panelboards for use as service disconnecting: additionally conform to UL 869A.

c. Panelboards: circuit breaker-equipped.

d. Designed such that individual breakers can be removed without disturbing adjacent units or without loosening or removing supplemental insulation supplied as means of obtaining clearances as required by UL.

e. Where "space only" is indicated, make provisions for future installation of breaker sized as indicated.

f. Directories: indicate load served by each circuit of panelboard.

g. Directories: indicate source of service (e.g. upstream panel, switchboard, motor control center) to panelboard.

h. Type directories and mount in holder behind transparent protective covering.

i. Panelboard nameplates: provided in accordance with paragraph FIELD FABRICATED NAMEPLATES.

2.11.1 Enclosure

Provide panelboard enclosure in accordance with the following:

a. UL 50.

b. Indoor cabinets: NEMA 4X.

c. Front edges of cabinets: form-flanged or fitted with structural shapes welded or riveted to the sheet steel, for supporting the panelboard front.

d. All cabinets: fabricated such that no part of any surface on the finished cabinet deviates from a true plane by more than 1/8 inch.

e. Holes: provided in the back of indoor surface-mounted cabinets, with outside spacers and inside stiffeners, for mounting the cabinets with a 1/2 inch clear space between the back of the cabinet and the wall surface.

f. Flush doors: mounted on hinges that expose only the hinge roll to view when the door is closed.

g. Each door: fitted with a combined catch and lock latch.

h. Keys: two provided with each lock, with all locks keyed alike.

i. Finished-head cap screws: provided for mounting the panelboard fronts on the cabinets.

2.11.2 Panelboard Buses

Support bus bars on bases independent of circuit breakers. Design main buses and back pans so that breakers may be changed without machining, drilling, or tapping. Provide isolated neutral bus in each panel for connection of circuit neutral conductors. Provide separate ground bus identified as equipment grounding bus per UL 67 for connecting grounding conductors; bond to steel cabinet.

2.11.3 Circuit Breakers

UL 489, thermal magnetic-type having a minimum short-circuit current rating equal to the short-circuit current rating of the panelboard in which the circuit breaker will be mounted. Breaker terminals: UL listed as suitable for type of conductor provided. Series rated circuit breakers and plug-in circuit breakers are unacceptable.

2.11.3.1 Multipole Breakers

Provide common trip-type with single operating handle. Design breaker such that overload in one pole automatically causes all poles to open. Maintain phase sequence throughout each panel so that any three adjacent breaker poles are connected to Phases A, B, and C, respectively.

2.11.3.2 Circuit Breaker With Ground-Fault Circuit Interrupter

UL 943 and NFPA 70. Provide with auto-monitoring (self-test) and lockout features, "push-to-test" button, visible indication of tripped condition, and ability to detect and trip when current imbalance is 6 milliamperes or higher per requirements of UL 943 for Class A ground-fault circuit interrupter devices.

2.12 LOCKOUT REQUIREMENTS

Provide circuit breakers, disconnecting means, and other devices that are electrical energy-isolating capable of being locked out for machines and other equipment to prevent unexpected startup or release of stored energy in accordance with 29 CFR 1910.147, NFPA 70E and 29 CFR 1910.303.

2.13 GROUNDING AND BONDING EQUIPMENT

2.13.1 Ground Rods

UL 467. Ground rods: cone pointed copper-clad steel, with minimum diameter of 3/4 inch and minimum length 10 feet. Sectional type rods may be used for rods 20 feet or longer.

2.14 MANUFACTURER'S NAMEPLATE

Provide on each item of equipment a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

2.15 FIELD FABRICATED NAMEPLATES

Provide field fabricated nameplates in accordance with the following:

a. ASTM D709.

b. Provide laminated plastic nameplates for each equipment enclosure, relay, switch, and device; as specified or as indicated on the drawings.

c. Each nameplate inscription: identify the function and, when applicable, the position.

d. Nameplates: melamine plastic, 0.125 inch thick, white with black center core.

e. Surface: matte finish. Corners: square. Accurately align lettering and engrave into the core.

f. Minimum size of nameplates: one by 2.5 inches.

g. Lettering size and style: a minimum of 0.25 inch high normal block style.

2.16 WARNING SIGNS

Provide warning signs for flash protection in accordance with NFPA 70E and NEMA Z535.4 for switchboards, panelboards, industrial control panels, and motor control centers that are in other than dwelling occupancies and are likely to require examination, adjustment, servicing, or maintenance while energized. Provide field installed signs to warn qualified persons of potential electric arc flash hazards when warning signs are not provided by the manufacturer. Provide marking that is clearly visible to qualified persons before examination, adjustment, servicing, or maintenance of the equipment.

2.17 WIREWAYS

UL 870. Material: steel galvanized 16 gauge for heights and depths up to 6 by 6 inches, and 14 gauge for heights and depths up to 12 by 12 inches. Provide in length required for the application with hinged cover NEMA 3R enclosure per NEMA ICS 6.

2.18 SURGE PROTECTIVE DEVICES

(1) Provide parallel type surge protective devices (SPD) which comply with UL 1449 at the panelboard. Provide surge protectors in a NEMA 1 enclosure per NEMA ICS 6. SPD must have the same short-circuit current rating as the protected equipment and must not be installed at a point of system where the available fault current is in excess of that rating. Use Type 1 or Type 2 SPD and connect on the load side of a dedicated circuit breaker. Submit performance and characteristic curves.

(2) Provide the following modes of protection:

FOR SINGLE PHASE AND THREE PHASE WYE CONNECTED SYSTEMS-
Phase to phase (L-L)
Each phase to neutral (L-N)
Neutral to ground (N-G)
Phase to ground (L-G)

FOR DELTA CONNECTIONS-
Phase to phase (L-L)
Phase to ground (L-G)

(3) SPDs at the service entrance: provide with a minimum surge current rating of 80,000 amperes for L-L mode minimum and 40,000 amperes for other modes (L-N, L-G, and N-G) and downstream SPDs rated 40,000 amperes for L-L mode minimum and 20,000 amperes for other modes (L-N, L-G, and N-G).

(4) The minimum MCOV (Maximum Continuous Operating Voltage) rating for L-N and L-G modes of operation: 120 percent of nominal voltage for 240 volts and below; 115 percent of nominal voltage above 240 volts to 480 volts.

(5) Provide EMI/RFI filtering per UL 1283 for each mode with the capability to attenuate high frequency noise. Minimum attenuation: 20db.

2.19 FACTORY APPLIED FINISH

Provide factory-applied finish on electrical equipment in accordance with the following:

a. NEMA 250 corrosion-resistance test and the additional requirements as specified herein.

b. Interior and exterior steel surfaces of equipment enclosures: thoroughly cleaned followed by a rust-inhibitive phosphatizing or equivalent treatment prior to painting.

c. Exterior surfaces: free from holes, seams, dents, weld marks, loose scale or other imperfections.

d. Interior surfaces: receive not less than one coat of corrosion-resisting paint in accordance with the manufacturer's standard practice.

e. Exterior surfaces: primed, filled where necessary, and given not less than two coats baked enamel with semigloss finish.

f. Equipment located indoors: ANSI Light Gray.

PART 3 EXECUTION

3.1 INSTALLATION

Electrical installations, including weatherproof and hazardous locations and ducts, plenums and other air-handling spaces: conform to requirements of NFPA 70 and to requirements specified herein.

3.1.1 Service Entrance Identification

Service entrance disconnect devices, switches, and enclosures: labeled and identified as such.

3.1.1.1 Labels

Wherever work results in service entrance disconnect devices in more than one enclosure, as permitted by NFPA 70, label each enclosure, new and existing, as one of several enclosures containing service entrance disconnect devices. Label, at minimum: indicate number of service disconnect devices housed by enclosure and indicate total number of enclosures that contain service disconnect devices. Provide laminated plastic labels conforming to paragraph FIELD FABRICATED NAMEPLATES. Use lettering of at least 0.25 inch in height, and engrave on black-on-white matte finish. Service entrance disconnect devices in more than one enclosure: provided only as permitted by NFPA 70.

3.1.2 Wiring Methods

Provide insulated conductors installed in rigid steel conduit, IMC, rigid nonmetallic conduit, or EMT, except where specifically indicated or specified otherwise or required by NFPA 70 to be installed otherwise. Grounding conductor: separate from electrical system neutral conductor. Provide insulated green equipment grounding conductor for circuit(s) installed in conduit and raceways. Minimum conduit size: 1/2 inch in diameter for low voltage lighting and power circuits.

3.1.2.1 Pull Wire

Install pull wires in empty conduits. Pull wire: plastic having minimum 200-pound force tensile strength. Leave minimum 36 inches of slack at each

end of pull wire.

3.1.3 Conduit Installation

Unless indicated otherwise, conceal conduit under floor slabs and within finished walls, ceilings, and floors. Keep conduit minimum 6 inches away from parallel runs of flues and steam or hot water pipes. Install conduit parallel with or at right angles to ceilings, walls, and structural members where located above accessible ceilings and where conduit will be visible after completion of project.

3.1.3.1 Restrictions Applicable to Aluminum Conduit

a. Do not install underground or encase in concrete or masonry.

b. Do not use brass or bronze fittings.

c. Do not use when the enclosed conductors must be shielded from the effects of High-altitude Electromagnetic Pulse (HEMP).

3.1.3.2 Restrictions Applicable to EMT

a. Do not install underground.

b. Do not encase in concrete, mortar, grout, or other cementitious materials.

c. Do not use in areas subject to physical damage including but not limited to equipment rooms where moving or replacing equipment could physically damage the EMT.

d. Do not use in hazardous areas.

e. Do not use outdoors.

f. Do not use in fire pump rooms.

g. Do not use when the enclosed conductors must be shielded from the effects of High-altitude Electromagnetic Pulse (HEMP).

3.1.3.3 Restrictions Applicable to Nonmetallic Conduit

a. PVC Schedule 40.

(1) Do not use where subject to physical damage, including but not limited to, mechanical equipment rooms, electrical equipment rooms, fire pump rooms, and where restrictions are applying to both PVC Schedule 40 and PVC Schedule 80.

(2) Do not use above grade, except where allowed in this section for rising through floor slab or indicated otherwise.

b. PVC Schedule 40 and Schedule 80.

(1) Do not use where subject to physical damage, including but not limited to, hospitals, power plant, missile magazines, and other such areas.

(2) Do not use in hazardous (classified) areas.

(3) Do not use in penetrating fire-rated walls or partitions, or fire-rated floors.

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3.1.3.4 Underground Conduit

Plastic-coated rigid steel; plastic-coated steel IMC; PVC, Type EPC-40. Plastic coating: extend minimum 6 inches above floor.

3.1.3.5 Conduit Through Floor Slabs

Where conduits rise through floor slabs, do not allow curved portion of bends to be visible above finished slab. Where conduit rises through slab-on grade, seal all electrical penetrations to address radon mitigation and prevent infiltration of air, insects, and vermin.

3.1.3.6 Stub-Ups

Provide conduits stubbed up through concrete floor for connection to free-standing equipment with adjustable top or coupling threaded inside for plugs, set flush with finished floor. Extend conductors to equipment in rigid steel conduit, except that flexible metal conduit may be used 6 inches above floor. Where no equipment connections are made, install screwdriver-operated threaded flush plugs in conduit end.

3.1.3.7 Conduit Support

Support conduit by pipe straps, wall brackets, threaded rod conduit hangers, or ceiling trapeze. Plastic cable ties are not acceptable. Fasten by wood screws to wood; by toggle bolts on hollow masonry units; by concrete inserts or expansion bolts on concrete or brick; and by machine screws, welded threaded studs, or spring-tension clamps on steel work. Threaded C-clamps may be used on rigid steel conduit only. Do not weld conduits or pipe straps to steel structures. Do not exceed one-fourth proof test load for load applied to fasteners. Provide vibration resistant and shock-resistant fasteners attached to concrete ceiling. Do not cut main reinforcing bars for any holes cut to depth of more than 1 1/2 inches in reinforced concrete beams or to depth of more than 3/4 inch in concrete joints. Fill unused holes. In partitions of light steel construction, use sheet metal screws. In suspended-ceiling construction, run conduit above ceiling. Do not support conduit by ceiling support system. Conduit and box systems: supported independently of both (a) tie wires supporting ceiling grid system, and (b) ceiling grid system into which ceiling panels are placed. Do not share supporting means between electrical raceways and mechanical piping or ducts. Coordinate installation with above-ceiling mechanical systems to assure maximum accessibility to all systems. Spring-steel fasteners may be used for lighting branch circuit conduit supports in suspended ceilings in dry locations. Where conduit crosses building expansion joints, provide suitable watertight expansion fitting that maintains conduit electrical continuity by bonding jumpers or other means. For conduits greater than 2 1/2 inches inside diameter, provide supports to resist forces of 0.5 times the equipment weight in any direction and 1.5 times the equipment weight in the downward direction.

3.1.3.8 Directional Changes in Conduit Runs

Make changes in direction of runs with symmetrical bends or cast-metal fittings. Make field-made bends and offsets with hickey or conduit-bending machine. Do not install crushed or deformed conduits. Avoid trapped

conduits. Prevent plaster, dirt, or trash from lodging in conduits, boxes, fittings, and equipment during construction. Free clogged conduits of obstructions.

3.1.3.9 Locknuts and Bushings

Fasten conduits to sheet metal boxes and cabinets with two locknuts where required by NFPA 70, where insulated bushings are used, and where bushings cannot be brought into firm contact with the box; otherwise, use at least minimum single locknut and bushing. Provide locknuts with sharp edges for digging into wall of metal enclosures. Install bushings on ends of conduits, and provide insulating type where required by NFPA 70.

3.1.4 Boxes, Outlets, and Supports

Provide boxes in wiring and raceway systems wherever required for pulling of wires, making connections, and mounting of devices or fixtures. Boxes for metallic raceways: cast-metal, hub-type when located in wet locations, when surface mounted on outside of exterior surfaces, when surface mounted on interior walls exposed up to 7 feet above floors and walkways, and when specifically indicated. Boxes in other locations: sheet steel, except that aluminum boxes may be used with aluminum conduit, and nonmetallic boxes may be used with nonmetallic conduit system. Provide each box with volume required by NFPA 70 for number of conductors enclosed in box. Boxes for mounting lighting fixtures: minimum 4 inches square, or octagonal, except that smaller boxes may be installed as required by fixture configurations, as approved. Boxes for use in masonry-block or tile walls: square-cornered, tile-type, or standard boxes having square-cornered, tile-type covers. Provide gaskets for cast-metal boxes installed in wet locations and boxes installed flush with outside of exterior surfaces. Provide separate boxes for flush or recessed fixtures when required by fixture terminal operating temperature; provide readily removable fixtures for access to boxes unless ceiling access panels are provided. Support boxes and pendants for surface-mounted fixtures on suspended ceilings independently of ceiling supports. Fasten boxes and supports with wood screws on wood, with bolts and expansion shields on concrete or brick, with toggle bolts on hollow masonry units, and with machine screws or welded studs on steel. Threaded studs driven in by powder charge and provided with lock washers and nuts may be used in lieu of wood screws, expansion shields, or machine screws. In open overhead spaces, cast boxes threaded to raceways need not be separately supported except where used for fixture support; support sheet metal boxes directly from building structure or by bar hangers. Where bar hangers are used, attach bar to raceways on opposite sides of box, and support raceway with approved-type fastener maximum 24 inches from box. When penetrating reinforced concrete members, avoid cutting reinforcing steel.

3.1.4.1 Boxes

Boxes for use with raceway systems: minimum 1 1/2 inches deep, except where shallower boxes required by structural conditions are approved. Boxes for other than lighting fixture outlets: minimum 4 inches square, except that 4 by 2 inch boxes may be used where only one raceway enters outlet. Mount outlet boxes flush in finished walls.

3.1.4.2 Pull Boxes

Construct of at least minimum size required by NFPA 70 except where cast-metal boxes are required in locations specified herein. Provide boxes

with screw-fastened covers. Where several feeders pass through common pull box, tag feeders to indicate clearly electrical characteristics, circuit number, and panel designation.

3.1.4.3 Extension Rings

Extension rings are not permitted for new construction. Use only on existing boxes in concealed conduit systems where wall is furred out for new finish.

3.1.5 Mounting Heights

Mount panelboards, enclosed circuit breakers, and disconnecting switches so height of center of grip of the operating handle of the switch or circuit breaker at its highest position is maximum 79 inches above floor or working platform or as allowed in Section 404.8 per NFPA 70. Mount lighting switches 48 inches above finished floor. Mount receptacles 18 inches above finished floor, unless otherwise indicated. Mount other devices as indicated.

3.1.6 Conductor Identification

Provide conductor identification within each enclosure where tap, splice, or termination is made. For conductors No. 6 AWG and smaller diameter, provide color coding by factory-applied, color-impregnated insulation. For conductors No. 4 AWG and larger diameter, provide color coding by plastic-coated, self-sticking markers; colored nylon cable ties and plates; or heat shrink-type sleeves.

3.1.6.1 Marking Strips

Provide marking strips for identification of power distribution, control, data, and communications cables in accordance with the following:

a. Provide white or other light-colored plastic marking strips, fastened by screws to each terminal block, for wire designations.

b. Use permanent ink for the wire numbers

c. Provide reversible marking strips to permit marking both sides, or provide two marking strips with each block.

d. Size marking strips to accommodate the two sets of wire numbers.

e. Assign a device designation in accordance with NEMA ICS 1 to each device to which a connection is made. Mark each device terminal to which a connection is made with a distinct terminal marking corresponding to the wire designation used on the Contractor's schematic and connection diagrams.

f. The wire (terminal point) designations used on the Contractor's wiring diagrams and printed on terminal block marking strips may be according to the Contractor's standard practice; however, provide additional wire and cable designations for identification of remote (external) circuits for the Government's wire designations.

g. Prints of the marking strips drawings submitted for approval will be so marked and returned to the Contractor for addition of the designations to the terminal strips and tracings, along with any rearrangement of

points required.

3.1.7 Splices

Make splices in accessible locations. Make splices in conductors No. 10 AWG and smaller diameter with insulated, pressure-type connector. Make splices in conductors No. 8 AWG and larger diameter with solderless connector, and cover with insulation material equivalent to conductor insulation.

3.1.8 Covers and Device Plates

Install with edges in continuous contact with finished wall surfaces without use of mats or similar devices. Plaster fillings are not permitted. Install plates with alignment tolerance of 1/16 inch. Use of sectional-type device plates are not permitted. Provide gasket for plates installed in wet locations.

3.1.9 Grounding and Bonding

Provide in accordance with NFPA 70. Ground exposed, non-current-carrying metallic parts of electrical equipment, metallic raceway systems, grounding conductor in metallic and nonmetallic raceways, and neutral conductor of wiring systems.

3.1.9.1 Ground Rods

Provide ground rods and measure the resistance to ground using the fall-of-potential method described in IEEE 81. Do not exceed 25 ohms under normally dry conditions for the maximum resistance of a driven ground. . In high-ground-resistance, UL listed chemically charged ground rods may be used. If the resultant resistance exceeds 25 ohms measured not less than 48 hours after rainfall, notify the Contracting Officer who will decide on the number of ground rods to add.

3.1.9.2 Grounding Connections

Make grounding connections which are buried or otherwise normally inaccessible, excepting specifically those connections for which access for periodic testing is required, by exothermic weld or high compression connector.

a. Make exothermic welds strictly in accordance with the weld manufacturer's written recommendations. Welds which are "puffed up" or which show convex surfaces indicating improper cleaning are not acceptable. Mechanical connectors are not required at exothermic welds.

b. Make high compression connections using a hydraulic or electric compression tool to provide the correct circumferential pressure. Provide tools and dies as recommended by the manufacturer. Use an embossing die code or other standard method to provide visible indication that a connector has been adequately compressed on the ground wire.

3.1.9.3 Resistance

Maximum resistance-to-ground of grounding system: do not exceed 25 ohms under dry conditions. Where resistance obtained exceeds 55 ohms, contact Contracting Officer for further instructions.

3.1.10 Equipment Connections

Provide power wiring for the connection of motors and control equipment under this section of the specification. Except as otherwise specifically noted or specified, automatic control wiring, control devices, and protective devices within the control circuitry are not included in this section of the specifications and are provided under the section specifying the associated equipment.

3.1.11 Elevator

Provide circuit to line terminals of elevator controller, and disconnect switch on line side of controller, outlet for control power, outlet receptacle and work light at midheight of elevator shaft, and work light and outlet receptacle in elevator pit.

3.1.12 Repair of Existing Work

Perform repair of existing work, demolition, and modification of existing electrical distribution systems as follows:

3.1.12.1 Workmanship

Lay out work in advance. Exercise care where cutting, channeling, chasing, or drilling of floors, walls, partitions, ceilings, or other surfaces is necessary for proper installation, support, or anchorage of conduit, raceways, or other electrical work. Repair damage to buildings, piping, and equipment using skilled craftsmen of trades involved.

3.1.12.2 Existing Concealed Wiring to be Removed

Disconnect existing concealed wiring to be removed from its source. Remove conductors; cut conduit flush with floor, underside of floor, and through walls; and seal openings.

3.1.12.3 Removal of Existing Electrical Distribution System

Removal of existing electrical distribution system equipment includes equipment's associated wiring, including conductors, cables, exposed conduit, surface metal raceways, boxes, and fittings, as indicated.

3.1.12.4 Continuation of Service

Maintain continuity of existing circuits of equipment to remain. Maintain existing circuits of equipment energized. Restore circuits wiring and power which are to remain but were disturbed during demolition back to original condition.

3.1.13 Surge Protective Devices

Connect the surge protective devices in parallel to the power source, keeping the conductors as short and straight as practically possible. Maximum allowed lead length is 3 feet avoiding 90 degree bends. Do not locate surge protective devices inside a panelboard or switchboard enclosure.

3.2 FIELD FABRICATED NAMEPLATE MOUNTING

Provide number, location, and letter designation of nameplates as indicated. Fasten nameplates to the device with a minimum of two sheet-metal screws or two rivets.

3.3 WARNING SIGN MOUNTING

Provide the number of signs required to be readable from each accessible side. Space the signs in accordance with NFPA 70E.

3.4 FIELD QUALITY CONTROL

Furnish test equipment and personnel and submit written copies of test results. Give Contracting Officer 5 working days notice prior to each test. Where applicable, test electrical equipment in accordance with NETA ATS.

3.4.1 Devices Subject to Manual Operation

Operate each device subject to manual operation at least five times, demonstrating satisfactory operation each time.

3.4.2 600-Volt Wiring Test

Test wiring rated 600 volt and less to verify that no short circuits or accidental grounds exist. Perform insulation resistance tests on wiring No. 6 AWG and larger diameter using instrument which applies voltage of 1,000 volts DC for 600 volt rated wiring and 500 volts DC for 300 volt rated wiring per NETA ATS to provide direct reading of resistance. All existing wiring to be reused must also be tested.

3.4.3 Ground-Fault Receptacle Test

Test ground-fault receptacles with a "load" (such as a plug in light) to verify that the "line" and "load" leads are not reversed. Press the TEST button and then the RESET button to verify by LED status that the device is a self-test model as specified in UL 943.

3.4.4 Grounding System Test

Test grounding system to ensure continuity, and that resistance to ground is not excessive. Test each ground rod for resistance to ground before making connections to rod; tie grounding system together and test for resistance to ground. Make resistance measurements in dry weather, not earlier than 48 hours after rainfall. Submit written results of each test to Contracting Officer, and indicate location of rods as well as resistance and soil conditions at time measurements were made.

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SECTION 26 41 00

LIGHTNING PROTECTION SYSTEM

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, labor, equipment, materials and performing all operations required for the installation of a lightning protection system; as specified herein and as shown on the drawings.

1.2 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for the lightning protection. Payment shall be included in the contract job price for "Electrical Work".

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 81	(2012) Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2020; ERTA 20-1 2020; ERTA 20-2 2020; TIA 20-1; TIA 20-2; TIA 20-3; TIA 20-4) National Electrical Code
NFPA 780	(2020) Standard for the Installation of Lightning Protection Systems

UNDERWRITERS LABORATORIES (UL)

UL 96	(2016) UL Standard for Safety Lightning Protection Components
UL 467	(2013; Reprint Jun 2017) UL Standard for Safety Grounding and Bonding Equipment
UL Electrical Construction	(2012) Electrical Construction Equipment Directory

1.4 RELATED REQUIREMENTS

1.4.1 General Requirements

A lightning protection system shall be provided for the new shops building.

The Contractor shall furnish and install all materials as required. All materials used shall conform to UL standards for lightning protection systems and shall be made specifically for that purpose and be installed in such an approved manner to meet the Master Label installation. A Master Label shall be furnished. The lightning protection system shall conform to the requirements of UL 96A. The installation shall be made by a UL-listed firm qualified in the installation of Master Labeled lightning protection systems. All conductors, including down conductors, shall be completely concealed unless otherwise approved by the Contracting Officer. Prior to the installation of the system, the Contractor shall submit a complete plan of his/her proposed lightning protection system for approval.

1.4.2 Verification of Dimensions

Confirm all details of work, verify all dimensions in field, and advise Contracting Officer of any discrepancy before performing work. Obtain prior approval of Contracting Officer before making any departures from the lightning protection system's design.

1.4.3 System Requirements

Provide a system furnished under this section consisting of the latest UL Listed products of a manufacturer regularly engaged in production of lightning protection system components. Comply with NFPA 70, NFPA 780, and UL 96.

1.4.4 Lightning Protection System Installers Documentation

Provide documentation showing that the installer is certified with a commercial third-party inspection company whose sole work is lightning protection, or is a UL Listed Lightning Protection Installer. In either case, the documentation must show that they have completed and passed the requirements for certification or listing, and have a minimum of 2 years documented experience installing lightning protection systems for DoD projects of similar scope and complexity.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Overall lightning protection system; G

Each major component; G

SD-06 Test Reports

Lightning Protection and Grounding System Test Plan; G

Lightning Protection and Grounding System Test; G

SD-07 Certificates

Lightning Protection System Installers Documentation; G

Component UL Listed and Labeled; G

Lightning protection system inspection certificate; G

Roof manufacturer's warranty; G

1.6 QUALITY ASSURANCE

In each standard referred to herein, consider the advisory provisions to be mandatory, as though the word "shall" or "must" has been substituted for "should" wherever it appears. Interpret references in these standards to "authority having jurisdiction", or words of similar meaning, to mean Contracting Officer.

1.6.1 Installation Drawings

1.6.1.1 Overall System Drawing

Submit installation shop drawing for the overall lightning protection system. Include on the drawings the physical layout of the equipment (plan view and elevations), mounting details, relationship to other parts of the work, and wiring diagrams.

1.6.1.2 Major Components

Submit detail drawings for each major component including manufacturer's descriptive and technical literature, catalog cuts, and installation instructions.

1.6.2 Component UL Listed and Labeled

Submit proof of compliance that components are UL Listed and Labeled. Listing alone in UL Electrical Construction, which is the UL Electrical Construction Directory, is not acceptable evidence. In lieu of Listed and Labeled, submit written certificate from an approved, nationally recognized testing organization equipped to perform such services, stating that items have been tested and conform to requirements and testing methods of Underwriters Laboratories.

1.6.3 Lightning Protection and Grounding System Test Plan

Provide a lightning protection and grounding system test plan. Detail both the visual inspection and electrical testing of the system and components in the test plan. Identify (number) the system test points/locations along with a listing or description of the item to be tested and the type of test to be conducted. As a minimum, include a sketch of the facility and surrounding lightning protection system as part of the specific test plan for each structure.

1.6.4 Lightning Protection System Inspection Certificate

(1) Provide certification from a commercial third-party inspection company whose sole work is lightning protection, stating that the lightning protection system complies with NFPA 780. Third party inspection company cannot be the system installer or the system designer. Alternatively, provide a UL Lightning Protection Inspection Master Label Certificate for each facility indicating compliance to NFPA 780.

(2) Inspection must cover every connection, air terminal, conductor, fastener, accessible grounding point and other components of the lightning

protection system to ensure 100% system compliance. This includes witnessing the tests for the resistance measurements for ground rods with test wells, and for continuity measurements for bonds. It also includes verification of proper surge protective devices for power, data and telecommunication systems. Random sampling or partial inspection of a facility is not acceptable.

1.7 SITE CONDITIONS

Confirm all details of work, verify all dimensions in field, and advise Contracting Officer of any discrepancy before performing work. Obtain prior approval of Contracting Officer before changing the lightning protection system's design.

PART 2 PRODUCTS

2.1 MATERIALS

Do not use a combination of materials that forms an electrolytic couple of such nature that corrosion is accelerated in the presence of moisture unless moisture is permanently excluded from the junction of such metals. Where unusual conditions exist which would cause corrosion of conductors, provide conductors with protective coatings, such as tin or lead, or oversize conductors. Where a mechanical hazard is involved, increase conductor size to compensate for the hazard or protect conductors. When metallic conduit or tubing is provided, electrically bond conductor to conduit or tubing at the upper and lower ends by clamp type connectors or welds (including exothermic). All lightning protection components, such as bonding plates, air terminals, air terminal supports and braces, chimney bands, clips, connector fittings, and fasteners are to comply with the requirements of UL 96 classes as applicable.

2.1.1 Main and Bonding Conductors

NFPA 780 and UL 96 Class I, Class II, or Class II modified materials as applicable.

2.1.2 Copper Only

Provide copper conductors, except where aluminum conductors are required for connection to aluminum equipment.

2.2 COMPONENTS

2.2.1 Air Terminals

Provide solid air terminals with a blunt tip. Tubular air terminals are not permitted. Support air terminals more than 24 inches in length by suitable brace, supported at not less than one-half the height of the terminal.

2.2.2 Ground Rods

Provide ground rods made of copper-clad steel conforming to UL 467. Provide ground rods that are not less than 3/4 inch in diameter and 10 feet in length. Do not mix ground rods of copper-clad steel or solid copper on this contract.

2.2.3 Grounding Plates

Provide grounding plates made of copper-clad steel conforming to UL 96.

2.2.4 Connections and Terminations

Provide connectors for splicing conductors that conform to UL 96, class as applicable. Conductor connections can be made by clamps or welds (including exothermic). Provide style and size connectors required for the installation.

2.2.5 Connector Fittings

Provide connector fittings for "end-to-end", "Tee", or "Y" splices that conform to NFPA 780 and UL 96.

PART 3 EXECUTION

3.1 INTEGRAL SYSTEM

Provide a lightning protection system that meets the requirements of NFPA 780. Lightning protection system consists of air terminals, roof conductors, down conductors, ground connections, and grounding electrodes. Expose conductors on the structures except where conductors are required to be in protective sleeves. Bond secondary conductors with grounded metallic parts within the building. Make interconnections within side-flash distances at or below the level of the grounded metallic parts.

3.1.1 Roof-Mounted Components

Coordinate with the roofing manufacturer and provide certification that the roof manufacturer's warranty is not violated by the installation methods for air terminals and roof conductors.

3.1.1.1 Air Terminals

Use adhesive shoes with adhesive approved by the roof manufacturer when installing air terminals on "rubber" (EPDM) type roofs. Use a standing seam base for installation of air terminals on a standing seam metal roof that does not produce any roof penetrations.

3.1.1.2 Roof Conductors

Use adhesive shoes with adhesive approved by the roof manufacturer when installing roof conductors on "rubber" (EPDM) type roofs. Use a standing seam base for installation of roof conductors on a standing seam metal roof that does not produce any roof penetrations. Roof conductors are to be concealed within the ceiling cavities as much as practicable.

3.1.2 Down Conductors

Protect exposed down conductors from physical damage as required by NFPA 780. Use Schedule 80 PVC to protect down conductors. Paint the Schedule 80 PVC to match the surrounding surface with paint that is approved for use on PVC. Down conductors are to be concealed within the wall cavities.

3.1.3 Ground Connections

Attach each down conductor to ground rods by welding (including

exothermic), brazing, or compression. All connections to ground rods below ground level must be by exothermic weld connection or with a high compression connection using a hydraulic or electric compression tool to provide the correct circumferential pressure. Accessible connections above ground level and in test wells can be accomplished by mechanical clamping.

3.1.4 Grounding Electrodes

Extend driven ground rods vertically into the existing undisturbed earth for a distance of not less 10 feet. Set ground rods not less than 3 feet nor more than 8 feet, from the structure foundation, and at least beyond the drip line for the facility. After the completed installation, measure the total resistance to ground using the fall-of-potential method described in IEEE 81. Maximum allowed resistance of a driven ground rod is 25 ohms, under normally dry conditions when a ground ring electrode is not used. Contact the Contracting Officer for direction on how to proceed when two of any three ground rods, driven not less than 10 feet into the ground, a minimum of 10 feet apart, and equally spaced around the perimeter, give a combined value exceeding 50 ohms immediately after having driven. For ground ring electrode, provide continuous No. 1/0 bare stranded copper cable. Lay ground ring electrode around the perimeter of the structure in a trench not less than 3 feet nor more than 8 feet from the nearest point of the structure foundation, and at least beyond the drip line for the facility. Install ground ring electrode to a minimum depth of 30 inches. Install a ground ring electrode in earth undisturbed by excavation, not earth fill, and do not locate beneath roof overhang, or wholly under paved areas or roadways where rainfall cannot penetrate to keep soil moist in the vicinity of the cable.

3.1.5 Grounding Plates

Provide a grounding plate for each down conductor. Set grounding plates not less than 3 feet nor more than 8 feet, from the structure foundation, and at least beyond the drip line for the facility. Grounding plate is to be buried as deeply in the existing dirt as local conditions allow, without exceeding 10 feet in depth.

3.2 APPLICATIONS

3.2.1 Nonmetallic Exterior Walls with Metallic Roof

Bond metal roof sections together which are insulated from each other so that they are electrically continuous, having a surface contact of at least 3 square inches.

3.2.2 Personnel Ramps and Covered Passageways

Place a down conductor and a driven ground at one of the corners where the ramp connects to each building or structure. Connect down conductor and driven ground to the ground ring electrode or nearest ground connection of the building or structure. Where buildings or structures and connecting ramps are clad with metal, separately bond the metal of the buildings and ramps to a down conductor as close to grade as possible.

3.3 INTERFACE WITH OTHER STRUCTURES

3.3.1 Fences

Bond metal fence and gate systems to the lightning protection system

whenever the fence or gate is within 6 feet of any part of the lightning protection system in accordance with ANSI C2.

3.3.2 Exterior Overhead Systems

Bond to the nearest down conductor as close to grade as possible. This includes overhead pipes, conduits, cable trays, or any other metallic objects on the exterior of the building that enter a building. In addition, bond pipes, conduits, and cable trays to any metallic objects (such as steel structural support of air handling units or cooling towers) that are within 6 feet.

3.4 RESTORATION

Where sod has been removed, place sod as soon as possible after completing the backfilling. Restore, to original condition, the areas disturbed by trenching, storing of dirt, cable laying, and other work. Overfill to accommodate for settling. Include necessary topsoil, fertilizing, liming, seeding, sodding, sprigging or mulching in any restoration. Maintain disturbed surfaces and replacements until final acceptance.

3.5 FIELD QUALITY CONTROL

3.5.1 Lightning Protection and Grounding System Test

Test the lightning protection and grounding system to ensure continuity is not in excess of 1 ohm and that resistance to ground is not in excess of 25 ohms. Provide documentation for the measured values at each test point. Test the ground rod for resistance to ground before making connections to the rod. Tie the grounding system together and test for resistance to ground. Make resistance measurements in dry weather, not earlier than 48 hours after rainfall. Include in the written report: locations of test points, measured values for continuity and ground resistances, and soil conditions at the time that measurements were made. Submit results of each test to the Contracting Officer.

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SECTION 26 51 00

INTERIOR AND EXTERIOR LIGHTING

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, labor, equipment, materials and performing all operations required for the installation of interior and exterior lighting, as shown on the drawings and specified herein.

1.2 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for interior and exterior lighting covered in this section. Payment shall be included in the contract job price for "Electrical Work".

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM A580/A580M	(2018) Standard Specification for Stainless Steel Wire
ASTM A641/A641M	(2019) Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
ASTM A653/A653M	(2020) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A1008/A1008M	(2021a) Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable
ASTM B164	(2003; R 2014) Standard Specification for Nickel-Copper Alloy Rod, Bar, and Wire
ASTM B633	(2019) Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel

EUROPEAN UNION (EU)

Directive 2011/65/EU	(2011) Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment

ILLUMINATING ENGINEERING SOCIETY (IES)

ANSI/IES LM-79	(2019) Approved Method: Electrical and Photometric Measurements of Solid State Lighting Products
ANSI/IES LM-80	(2020) Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules
ANSI/IES LS-1	(2020) Lighting Science: Nomenclature and Definitions for Illuminating Engineering
ANSI/IES TM-15	(2020) Technical Memorandum: Luminaire Classification System for Outdoor Luminaires
ANSI/IES TM-21	(2019) Technical Memorandum: Projecting Long-Term Lumen, Photon, and Radiant Flux Maintenance of LED Light Sources
ANSI/IES TM-30	(2020) Technical Memorandum: IES Method for Evaluating Light Source Color Rendition
IES Lighting Library	IES Lighting Library

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 100	(2000; Archived) The Authoritative Dictionary of IEEE Standards Terms
IEEE C2	(2017; Errata 1-2 2017; INT 1 2017) National Electrical Safety Code

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA 250	(2020) Enclosures for Electrical Equipment (1000 Volts Maximum)
NEMA ANSLG C78.377	(2017) Electric Lamps— Specifications for the Chromaticity of Solid State Lighting Products
NEMA C82.77-10	(2020) Harmonic Emission Limits - Related Power Quality Requirements
NEMA SSL 1	(2016) Electronic Drivers for LED Devices, Arrays, or Systems
NEMA SSL 3	(2011) High-Power White LED Binning for General Illumination

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2020; ERTA 20-1 2020; ERTA 20-2 2020; TIA 20-1; TIA 20-2; TIA 20-3; TIA 20-4) National Electrical Code

NFPA 101 (2021) Life Safety Code

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

47 CFR 15 Radio Frequency Devices

UNDERWRITERS LABORATORIES (UL)

UL 924 (2016; Reprint May 2020) UL Standard for Safety Emergency Lighting and Power Equipment

UL 1598 (2021; Reprint Jun 2021) Luminaires

UL 8750 (2015; Reprint Sep 2021) UL Standard for Safety Light Emitting Diode (LED) Equipment for Use in Lighting Products

1.4 RELATED REQUIREMENTS

Materials not considered to be luminaires, luminaire accessories, or lighting equipment are specified in Section 26 20 00 INTERIOR DISTRIBUTION SYSTEM.

1.5 DEFINITIONS

a. Unless otherwise specified or indicated, electrical and electronics terms used in these specifications and on the drawings, must be as defined in IEEE 100 and ANSI/IES LS-1.

b. For LED luminaire light sources, "Useful Life" is the operating hours before reaching 70 percent of the initial rated lumen output (L70) with no catastrophic failures under normal operating conditions. This is also known as 70 percent "Rated Lumen Maintenance Life" as defined in ANSI/IES LM-80.

c. For LED luminaires, "Luminaire Efficacy" (LE) is the appropriate measure of energy efficiency, measured in lumens/watt. This is gathered from LM-79 data for the luminaire, in which absolute photometry is used to measure the lumen output of the luminaire as one entity, not the source separately and then the source and housing together.

d. Total harmonic distortion (THD) is the root mean square (RMS) of all the harmonic components divided by the total fundamental current.

1.6 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Luminaire Drawings; G

SD-03 Product Data

Luminaires; G

Light Sources; G

LED Drivers; G

Luminaire Warranty; G

Switches; G

Emergency Drivers; G

SD-05 Design Data

Luminaire Design Data; G

SD-06 Test Reports

ANSI/IES LM-79 Test Report; G

ANSI/IES LM-80 Test Report; G

ANSI/IES TM-21 Test Report; G

ANSI/IES TM-30 Test Report; G

1.7 QUALITY ASSURANCE

Data, drawings, and reports must employ the terminology, classifications and methods prescribed by the IES Lighting Library as applicable, for the lighting system specified.

1.7.1 Luminaire Drawings

Include dimensions, accessories installation details, and construction details. Photometric data, including CRI, CCT, LED driver type, zonal lumen data, and candlepower distribution data must accompany shop drawings.

1.7.2 Luminaire Design Data

a. Provide safety certification and file number for the luminaire family that must be listed, labeled, or identified in accordance with the NFPA 70. Applicable testing bodies are determined by the US Occupational Safety Health Administration (OSHA) as Nationally Recognized Testing Laboratories (NRTL) and include: CSA (Canadian Standards Association), ETL (Edison Testing Laboratory), and UL (Underwriters Laboratories).

b. Provide long term lumen maintenance projections for each LED luminaire in accordance with ANSI/IES TM-21. Data used for projections must be obtained from testing in accordance with ANSI/IES LM-80.

1.7.3 ANSI/IES LM-79 Test Report

Submit test report on manufacturer's standard production model of specified luminaire. Testing must be performed at the same operating drive current as specified luminaire. Include all applicable and required data in IES format as outlined under "14.0 Test Report" in ANSI/IES LM-79.

1.7.4 ANSI/IES LM-80 Test Report

Submit report on manufacturer's standard production LED light source (package, array, or module) of specified luminaire. Testing must be performed at the same operating drive current as specified luminaire. Include all applicable and required data as outlined under "8.0 Test Report" in ANSI/IES LM-80.

1.7.5 ANSI/IES TM-21 Test Report

Submit test report on manufacturer's standard production LED light source (package, array, or module) of specified luminaire. Testing must be performed at the same operating drive current as specified luminaire. Include all applicable and required data, as well as required interpolation information as outlined under "7.0 Report" in ANSI/IES TM-21.

1.7.6 ANSI/IES TM-30 Test Report

Submit color vector graphic in accordance with ANSI/IES TM-30 on manufacturer's standard production LED light source (package, array, or module) of specified luminaire. Include spectral distribution of test LED light source.

1.7.7 Test Laboratories

Test laboratories for the ANSI/IES LM-79 and ANSI/IES LM-80 test reports must be one of the following:

a. National Voluntary Laboratory Accreditation Program (NVLAP) accredited for solid-state lighting testing as part of the Energy-Efficient Lighting Products laboratory accreditation program for both LM-79 and LM-80 testing.

b. One of the qualified labs listed on the Department of Energy - LED Lighting Facts Approved Testing Laboratories List for LM-79 testing.

c. One of the EPA-Recognized Laboratories listed for LM-80 testing.

1.7.8 Regulatory Requirements

Equipment, materials, installation, and workmanship must be in accordance with the mandatory and advisory provisions of NFPA 70, unless more stringent requirements are specified or indicated. Provide luminaires and assembled components that are approved by and bear the label of UL for the applicable location and conditions unless otherwise specified.

1.7.9 Standard Products

Provide materials and equipment that are products of manufacturers regularly engaged in the production of such products which are of equal material, design, and workmanship. Products must have been in satisfactory commercial or industrial use for six months prior to Proposal opening. The six-month period must include applications of equipment and materials under similar circumstances and of similar size. The product must have been on sale on the commercial market through advertisements, manufacturers' catalogs, or brochures during the six-month period. Where two or more items of the same class of equipment are required, these items must be products of a single manufacturer; however, the component parts of the item need not be the products of the same manufacturer unless stated in this

section.

1.7.9.1 Alternative Qualifications

Products having less than a six-month field service record will be acceptable if a certified record of satisfactory field operation for not less than 6000 hours, exclusive of the manufacturers' factory or laboratory tests, is furnished.

1.7.9.2 Material and Equipment Manufacturing Date

Do not use products manufactured more than six months prior to date of delivery to site, unless specified otherwise.

1.8 WARRANTY

Support all equipment items by service organizations which are reasonably convenient to the equipment installation in order to render satisfactory service to the equipment on a regular and emergency basis during the warranty period of this contract.

1.8.1 Luminaire Warranty

Provide and transfer to the Government the original LED luminaire manufacturers standard commercial warranty for each different luminaire manufacturer used on this contract.

a. Provide a written five year minimum replacement warranty for material, luminaire finish, and workmanship. Provide written warranty document that contains all warranty processing information needed, including customer service point of contact, whether or not a return authorization number is required, return shipping information, and closest return location to the luminaire location.

    (1) Finish warranty must include failure and substantial deterioration such as blistering, cracking, peeling, chalking, or fading.

    (2) Material warranty must include:

        (a) All LED drivers and integral control equipment.

        (b) Replacement when more than 15 percent of LED sources in any lightbar or subassembly(s) are defective, non-starting, or operating below 70 percent of specified lumen output.

b. Warranty period must begin in accordance with the manufacturer's standard warranty starting date.

c. Provide replacements that are promptly shipped, without charge, to the using Government facility point of contact and that are identical to or an improvement upon the original equipment. All replacements must include testing of new components and assembly.

PART 2 PRODUCTS

2.1 PRODUCT COORDINATION

2.2 LUMINAIRES

UL 1598, NEMA C82.77-10. Provide luminaires as indicated in the luminaire schedule and NL plates or details shown on the drawings, complete with light source, wattage, and lumen output indicated. All luminaires of the same type must be provided by the same manufacturer. Luminaires must be specifically designed for use with the driver and light source provided.

2.2.1 Luminaires

UL 8750, ANSI/IES LM-79, ANSI/IES LM-80. For all luminaires, provide:

a. Complete system with LED drivers and light sources.

b. Housings constructed of non-corrosive materials. All new aluminum housings must be anodized or powder-coated. All new steel housings must be treated to be corrosion resistant.

c. ANSI/IES TM-21, ANSI/IES LM-80. Minimum L70 lumen maintenance value of 50,000 hours unless otherwise indicated in the luminaire schedule. Luminaire drive current value must be identical to that provided by test data for luminaire in question.

d. Minimum efficacy as specified in the luminaire schedule. Theoretical models of initial lamp lumens per watt are not acceptable. If efficacy values are not listed in the luminaire schedule, provide luminaires that meet the following minimum values:

Luminaire Style	Minimum Luminaire Efficacy
Recessed 1 by 4, 2 by 4, and 2 by 2	100 LPW
Recessed Downlight (fixed, adjustable, wallwash)	80 LPW
Linear, Accent (undercabinet, cove)	45 LPW
Linear, Ambient (indirect wall mount, linear pendent)	100 LPW
High Bay, Low Bay, and Industrial Locations	100 LPW
Food Service and Hazardous Locations	60 LPW
Other (track, residential diffusers)	50 LPW
Exterior Wall Sconce	50 LPW
Steplight	30 LPW
Parking Garage Luminaire	100 LPW

e. UL listed for dry or damp location typical of interior installations. Any luminaire mounted on the exterior of the building must be UL listed

for wet location typical of exterior installations.

f. LED driver and light source package, array, or module are accessible for service or replacement without removal or destruction of luminaire.

g. Lenses constructed of heat tempered borosilicate glass, UV-resistant acrylic, or silicone. Sandblasting, etching and polishing must be performed as indicated in the luminaire description.

h. ANSI/IES TM-15. Provide exterior building-mounted luminaires that do not exceed the BUG ratings as listed in the luminaire schedule. If BUG ratings are not listed in the luminaire schedule, provide luminaires that meet the following minimum values for each application and mounting conditions:

Lighting Application	Mounting Conditions	BUG Rating
Exterior Wall Sconce	Above 4 feet AFF	B1-U0-G2
Exterior Wall Sconce	Below or at 4 feet AFF	B4-U0-G4
Steplight	Above 4 feet AFF	B1-U1-G2
Steplight	Below or at 4 feet AFF	B4-U1-G4
Parking Garage Luminaire	Ceiling mounted	B4-U4-G3

i. For all recessed luminaires that are identified to be in contact with insulation, provide luminaires that are IC-rated.

2.3 LIGHT SOURCES

NEMA ANSLG C78.377, NEMA SSL 3. Provide type, delivered lumen output, and wattage as indicated in the luminaire schedule shown on the drawings.

2.3.1 LED Light Sources

Provide LED light sources that meet the following requirements:

a. NEMA ANSLG C78.377. Emit white light and have a nominal CCT of 4000 Kelvin.

b. Minimum Color Rendering Index (CRI) of 80.

c. Directive 2011/65/EU. Restriction of Hazardous Substances (RoHS) compliant.

d. Light source color consistency by utilizing a binning tolerance within a 3-step McAdam ellipse.

2.4 LED DRIVERS

NEMA SSL 1, UL 8750. Provide LED drivers that are electronic, UL Class 1 or Class 2, constant-current type and that comply with the following requirements:

a. The combined driver and LED light source system does not exceed the minimum luminaire efficacy values as listed in the luminaire schedule

provided.

b. Operates at a voltage of 120-277 volts at 50/60 hertz, with input voltage fluctuations of plus/minus 10 percent.

c. Power Factor (PF) greater than or equal to 0.90 at full input power and across specified dimming range.

d. Maximum Total Harmonic Distortion (THD) less than 20 percent at full input power and across specified dimming range.

e. Operates for at least 50,000 hours at maximum case temperature and 90 percent non-condensing relative humidity.

f. Withstands Category A surges of 2 kV without impairment of performance. Provide surge protection that is integral to the driver.

g. Integral thermal protection that reduces the output power to protect the driver and light source from damage if the case temperature approaches or exceeds the driver's maximum operating temperature.

h. 47 CFR 15. Complies with the requirements of the Federal Communications Commission (FCC) rules and regulations, Non-Consumer (Class A) for EMI/RFI (conducted and radiated).

i. Class A sound rating.

j. Directive 2011/65/EU. Restriction of Hazardous Substances (RoHS) compliant.

2.5 LIGHTING CONTROLS

2.5.1 Devices

2.5.1.1 Switches

Provide line-voltage toggle switches as specified in Section 26 20 00 INTERIOR DISTRIBUTION SYSTEM. When used for non-digital loads, devices must be rated at 20 Amps inductive load, and be compatible with the lighting control systems.

2.6 EXIT AND EMERGENCY LIGHTING EQUIPMENT

2.6.1 LED Emergency Drivers

UL 924, NFPA 101. Provide LED emergency driver with automatic power failure detection, test switch and LED indicator (or combination switch/indicator) located on luminaire exterior, and fully-automatic solid-state charger, battery and inverter integral to a self-contained housing. Provide self-diagnostic function integral to emergency driver. Integral nickel-cadmium battery is required to supply a minimum of 90 minutes of emergency power at 5. Driver must be RoHS compliant, rated for installation in plenum-rated spaces and damp locations, and be warranted for a minimum of five years.

2.6.2 Self-Diagnostic Circuitry for LED Drivers

UL 924, NFPA 101. Provide emergency lighting unit with fully-automatic, integral self-testing/diagnostic electronic circuitry. Circuitry must

provide for a one minute diagnostic test every 28 days, and a 30 minute diagnostic test every six months, minimum. Any malfunction of the unit must be indicated by LED(s) visible from the exterior of the luminaire. A manual test switch must also be provided to perform a diagnostic test at any given time.

2.7 LUMINAIRE MOUNTING ACCESSORIES

2.7.1 Suspended Luminaires

a. Provide hangers capable of supporting twice the combined weight of luminaires supported by hangers.

b. Single-unit suspended luminaires must have cable hangers. Multiple-unit or continuous row luminaires with a separate power supply cord must have a tubing or stem for wiring at one point and a tubing or rod suspension provided for each unit length of chassis, including one at each end.

c. Provide all linear pendent and surface mounted luminaires with two supports per four-foot section or three per eight-foot section unless otherwise recommended by manufacturer.

d. Provide rods in minimum 0.18 inch diameter.

2.7.2 Recess and Surface Mounted Luminaires

Provide access to light source and LED driver from bottom of luminaire. Provide trim and lenses for the exposed surface of flush-mounted luminaires as indicated on project drawings and specifications. Luminaires recessed in ceilings which have a fire resistive rating of one hour or more must be enclosed in a box which has a fire resistive rating equal to that of the ceiling. For surface mounted luminaires with brackets, provide flanged metal stem attached to outlet box, with threaded end suitable for supporting the luminaire rigidly in design position. Flanged part of luminaire stud must be of broad base type, secured to outlet box at not fewer than three points.

2.7.3 Luminaire Support Hardware

2.7.3.1 Wire

ASTM A641/A641M. Galvanized, soft tempered steel, minimum 0.11 inches in diameter, or galvanized, braided steel, minimum 0.08 inches in diameter.

2.7.3.2 Wire for Humid Spaces

ASTM A580/A580M. Composition 302 or 304, annealed stainless steel, minimum 0.11 inches in diameter.

ASTM B164. UNS NO4400, annealed nickel-copper alloy, minimum 0.11 inches in diameter.

2.7.3.3 Threaded Rods

Threaded steel rods, 3/16 inch diameter, zinc or cadmium coated.

2.7.3.4 Straps

Galvanized steel, one by 3/16 inch, conforming to ASTM A653/A653M, with a light commercial zinc coating or ASTM A1008/A1008M with an electrodeposited zinc coating conforming to ASTM B633, Type RS.

2.8 EQUIPMENT IDENTIFICATION

2.8.1 Manufacturer's Nameplate

Each item of equipment must have a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

2.8.2 Labels

UL 1598. All luminaires must be clearly marked for operation of specific light sources and LED drivers. The labels must be easy to read when standing next to the equipment, and durable to match the life of the equipment to which they are attached. Note the following light source characteristics in the format "Use Only _____":

a. Correlated Color Temperature (CCT) and Color Rendering Index (CRI) for all luminaires.

b. Driver and dimming protocol.

All markings related to light source type must be clear and located to be readily visible to service personnel, but unseen from normal viewing angles when light sources are in place. LED drivers must have clear markings indicating dimming type and indicate proper terminals for the various outputs.

2.9 FACTORY APPLIED FINISH

NEMA 250. Provide all luminaires and lighting equipment with factory-applied painting system that as a minimum, meets requirements of corrosion-resistance testing.

PART 3 EXECUTION

3.1 INSTALLATION

IEEE C2, NFPA 70.

3.1.1 Light Sources

When light sources are not provided as an integral part of the luminaire, deliver light sources of the type, wattage, lumen output, color temperature (CCT), color rendering index (CRI), and voltage rating indicated to the project site and install just prior to project completion, if not already installed in the luminaires from the factory.

3.1.2 Luminaires

Set luminaires plumb, square, and level with ceiling and walls, in alignment with adjacent luminaires and secure in accordance with manufacturers' directions and approved drawings. Provide accessories as

required for ceiling construction type indicated on Finish Schedule. Luminaire catalog numbers do not necessarily denote specific mounting accessories for type of ceiling in which a luminaire may be installed. Provide wires, straps, or rods for luminaire support in this section. Install luminaires with vent holes free of air blocking obstacles.

3.1.2.1 Suspended Luminaires

Measure mounting heights from the bottom of the luminaire for ceiling-mounted luminaires and to center of luminaire for wall-mounted luminaires. Obtain the Conbtracting Officer's aapproval of the exact mounting height for this contract before commencing installation and, where applicable, after coordinating with the type, style, and pattern of the ceiling being installed. Support suspended luminaires from structural framework of ceiling or from inserts cast into slab.

a. Provide suspended luminaires with 45 degree swivel hangers so that they hang plumb and level.

b. Locate so that there are no obstructions within the 45 degree range in all directions.

c. The stem, canopy and luminaire must be capable of 45 degree swing.

d. Rigid pendent stem, aircraft cable, rods, or chains 4 feet or longer excluding luminaire must be braced to prevent swaying using three cables at 120 degree separation.

e. Suspended luminaires in continuous rows must have internal wireway systems for end to end wiring and must be properly aligned to provide a straight and continuous row without bends, gaps, light leaks or filler pieces.

f. Utilize aligning splines on extruded aluminum luminaires to assure minimal hairline joints.

g. Support steel luminaires to prevent "oil-canning" effects.

h. Match supporting pendents with supported luminaire. Aircraft cable must be stainless steel.

i. Match finish of canopies to match the ceiling, and provide low profile canopies unless otherwise shown.

3.1.2.2 Recessed and Semi-Recessed Luminaires

a. Support recessed and semi-recessed luminaires independently from the building structure by a minimum of two wires, straps or rods per luminaire and located near opposite corners of the luminaire. Secure horizontal movement with clips provided by manufacturer. Ceiling grid clips are not allowed as an alternative to independently supported luminaires.

b. Support round luminaires or luminaires smaller in size than the ceiling grid independently from the building structure by a minimum of four wires, straps or rods per luminaire, spaced approximately equidistant around.

c. Do not support luminaires by acoustical tile ceiling panels.

d. Where luminaires of sizes less than the ceiling grid are indicated to be centered in the acoustical panel, support each independently and provide at least two 3/4 inch metal channels spanning, and secured to, the ceiling tees for centering and aligning the luminaire.

e. Adjust aperture rings on all applicable ceiling recessed luminaires to accommodate various ceiling material thickness. Coordinate cut-out size in ceiling to ensure aperture covers cut-out entirely. Install aperture rings such that the bottom of the ring is flush with finished ceiling or not more than 1/16 inch above. Do not install luminaires such that the aperture ring extends below the finished ceiling surface.

3.1.3 LED Drivers

Provide LED drivers integral to luminaire as constructed by the manufacturer.

3.1.4 Exit Signs

NFPA 101. Wire exit signs and emergency lighting units ahead of the local switch, to the normal lighting circuit located in the same room or area.

-- End of Section --

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SECTION 31 62 13.20 12

PRESTRESSED CONCRETE PILES

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, equipment, labor, and materials, except materials specified to be furnished by the Government, and performing all operations in connection with the manufacture, and installation of prestressed concrete piles. Pile tests shall be in accordance with the provisions of Section 31 62 14.00 12 PILE LOAD TESTS.

1.2 MEASUREMENT

Precast prestressed concrete piles will be measured for payment by the linear foot on the basis of lengths along the axis of the pile in place below the top of pile head elevation and shall be limited to the lengths as shown on the drawings. Pile lengths will be measured to the nearest tenth of a foot. The portion of any pile driven below the tip elevation shown on the drawings will not be measured for payment unless overdriving was directed by the Contracting Officer.

1.3 PAYMENT

1.3.1 Driven Piles

Payment for the measured length of precast prestressed concrete piles acceptably driven will be made at the contract unit price per linear foot for "Precast Prestressed Concrete Piles". Price and payment shall constitute full compensation for furnishing all plant, labor, materials, and equipment required, and all incidental items needed to drive the piles, any back-driving of uplifted piles, spacing of piles, and furnishing the piles.

1.3.2 Pulled Piles

1.3.2.1 Sound Piles

Each concrete pile pulled at the direction of the Contracting Officer for inspection and found to be in good condition, will be paid for at the original contract price in its original driven position plus 50 percent of the contract unit price for the length pulled which shall constitute payment for pulling. Payment for a pulled pile shall include backfilling the pile hole if required. Undamaged pulled piles when redriven acceptably will be paid for at 50 percent of the contract unit price for furnishing and driving the measured length of piles redriven, which price and payment shall constitute payment for redriving only. Pulled piles which are damaged through no fault of the Contractor shall be replaced by a new pile which will be paid for at the contract unit price for the length acceptably driven.

1.3.2.2 Damaged Piles

When a pile is pulled for inspection and found to be damaged due to Contractor negligence, no payment will be made for originally furnishing and driving such pile nor for the operation of pulling and it shall be replaced by a new pile which will be paid for at the contract unit price for the length acceptably driven.

1.3.2.3 Misaligned or Misplaced Piles

When a pile is driven but not acceptably placed or driven out of alignment and pulled at the direction of the Contracting Officer, no payment will be made for either originally furnishing and driving such pile nor for the operation of pulling. If the pile is undamaged and it is acceptably redriven at the direction of the Contracting Officer, it will then be paid for at the contract unit price. If damaged, it shall be replaced by a new pile, which will then be paid for at the contract unit price.

1.4 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN CONCRETE INSTITUTE (ACI)

ACI SP-66	(2004) ACI Detailing Manual
ACI 301	(2010) Specifications for Structural Concrete

ASTM INTERNATIONAL (ASTM)

ASTM A416/A416M	(2018) Standard Specification for Low-Relaxation, Seven-Wire for Prestressed Concrete
ASTM A615/A615M	(2020) Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A1064/A1064M	(2017) Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C33/C33M	(2018) Standard Specification for Concrete Aggregates
ASTM C88	(2018) Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C150/C150M	(2020) Standard Specification for Portland Cement
ASTM C260/C260M	(2010a; R 2016) Standard Specification for Air-Entraining Admixtures for Concrete

ASTM C494/C494M	(2019) Standard Specification for Chemical Admixtures for Concrete
ASTM C595/C595M	(2020) Standard Specification for Blended Hydraulic Cements
ASTM C666/C666M	(2015) Resistance of Concrete to Rapid Freezing and Thawing
ASTM C1017/C1017M	(2013; E 2015) Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1567	(2013) Standard Test Method for Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)

AMERICAN WELDING SOCIETY (AWS)

AWS D1.4/D1.4M	(2011) Structural Welding Code - Reinforcing Steel

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE CRD-C 400	(1963) Requirements for Water for Use in Mixing or Curing Concrete

PRECAST/PRESTRESSED CONCRETE INSTITUTE (PCI)

PCI MNL-116	(1999) Manual for Quality Control for Plants and Production of Structural Precast Concrete Products

LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES (2016 Edition), LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT (LADOTD)

LSSRB 1003.08	Aggregates for Portland Cement Concrete and Mortar

MISSISSIPPI STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (MSSRBC)1990 EDITION, MISSISSIPPI STATE HIGHWAY DEPARTMENT (MSHD)

MSSRBC 703.02	Fine Aggregate for Portland Cement Concrete
MSSRBC 703.03	Coarse Aggregate for Portland Cement Concrete

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M295	(2021) Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Delivery, Storage, and Handling; G

Delivery, storage, and handling plans for piles shall be submitted for approval at least 30 days prior to delivery of piles to the jobsite.

Prestressed Concrete Piles; G

Detailed drawings of piles shall be submitted for approval at least 30 days prior to commencement of work. Drawings shall show pile dimensions and fabrication details, including forms, reinforcement, collars, shoes, splices, build-ups, embedded or attached lifting devices, pick- up and support points.

Pile Placement and Tolerances; G

Pile placement plans, as specified in paragraph "Pile Placement and Tolerances", shall be submitted for approval at least 30 days prior to delivery of piles to the jobsite.

Voids; G

Statements of materials and methods for forming voids shall be submitted for approval.

SD-03 Product Data

Pile Driving Equipment; G

Descriptions of pile driving equipment, including leads, extractors, jetting equipment, and preboring equipment, shall be submitted for approval at least 30 days prior to commencement of work. The following information for each hammer proposed shall be submitted for each proposed hammer:

(1) make and model

(2) ram weight (pounds)

(3) anvil weight (pounds)

(4) weight of the moving parts of the hammer (pounds)

(5) rated stroke (inches)

(6) rated energy range (foot-pounds)

(7) rated speed (blows per minute)

(8) steam or air pressure, hammer, and boiler and/or compressor (pounds per square inch)

(9) power pack description

(10) pile driving helmet, make, and weight (pounds)

(11) pile cushion material, type, proposed thickness, modulus of elasticity, and coefficient of restitution

(12) the make-up of the proposed cap block, including material type, dimensions, modulus of elasticity, and coefficient of restitution

(13) rated bounce chamber pressure curves or charts, including pressure correction chart for type and length of hose used with pressure gage (pounds per square inch)

SD-05 Design Data

Concrete Mix; G, EDS

At least 30 days prior to placement of concrete, the Contractor shall submit the mixture proportions that will produce concrete of the quality required. Mixture proportions shall include the dry weights of each cementitious material; the nominal maximum size of the coarse aggregate; the specific gravities, absorptions, and saturated surface-dry weights of fine and coarse aggregates; the quantities, types, and names of admixtures; and quantity of water per cubic yard of concrete. All materials included in the mixture proportions shall be of the same type and from the same source as will be used on the project. Documentation complying with Section 4 of ACI 301 shall be submitted to verify that the concrete mixture proportions selected will produce concrete of the quality specified.

Curing of Piles; G, EDS

Methods and details for curing piles shall be submitted for approval prior to casting piles.

SD-07 Certificates

Certificates of Compliance

Certificates of compliance for admixtures, aggregates, cement, pozzolan, reinforcing steel, and prestressing steel shall be submitted prior to commencing fabrication of piles. Certificates for admixtures, aggregates, cement, and pozzolan shall indicate conformance with the requirements of the specifications and shall be submitted along with concrete mix proportions. Manufacturer's literature indicating conformance may be submitted for admixtures. Aggregate source and gradation information shall be submitted for aggregates. If a blended product meeting ASTM C595/C595M is to be used, the manufacturer shall also certify in writing that the amount of pozzolan or slag in the finished cement will not vary more than plus or minus 5.0 mass percent of the finished cement from lot to lot or within a lot.

Driving Record Forms; G, EDS

The proposed form for recording pile driving records shall be submitted for approval 30 days prior to commencement of work. Requirements are specified in paragraph "Driving Records".

Driving Records

Original pile driving records shall be submitted daily after pile driving is completed.

1.6 QUALIFICATIONS

The precast concrete manufacturing plant shall be certified by the Prestressed Concrete Institute, Plant Certification Program, or the manufacturer shall establish a quality control program based on PCI MNL-116, prior to the start of production.

1.7 DELIVERY, STORAGE, AND HANDLING

Piles shall be stored, handled, and transported in accordance with PCI MNL-116 except as follows. Methods used for handling and storage of piles shall be such that the piles are not subjected to excessive bending stress, cracking, spalling, or other damage. Piles which are damaged during delivery, storage, or handling to the extent they are rendered unsuitable for the work, in the opinion of the Contracting Officer, will be rejected and shall be removed from the work site at no cost to the Government.

1.7.1 Delivery and Storage

Piles shall be held at the plant until the specified ultimate compressive strength is obtained or 14 days, whichever is greater. Storage areas for piles shall be stabilized and suitable foundations provided so differential settlement or twisting of the pile does not occur. Stacked piles shall be separated and supported by uniform load transferring material placed across the full width of each bearing point and in vertical planes between the piles. The stacks shall be limited to 5 feet in height unless otherwise approved. Each pile shall be stacked in a straight position and supported every 10 feet or less along its length (ends inclusive) to prevent excessive sweep in the pile.

1.7.2 Handling

Piles shall be lifted by means of a suitable bridle or slings attached to the pile at the marked pickup points. Unless special lifting devices are attached for pickup, pickup points shall be plainly marked on all piles after removal of the forms. Alternate pickup methods or locations shall be subject to approval prior to commencement of pile fabrication. Dragging of piles across the ground will not be permitted. The Contractor shall inspect each pile for sweep and structural damage such as cracking and spalling before transporting them from the storage site to the driving area. Sweep shall be checked by placing the pile on a firm level surface and rotating the pile. Sweep shall be limited to 2 inches over the length of the pile. The Contractor shall again check the pile for excessive sweep and damage immediately prior to placement in the driving leads. Piles having excessive sweep shall not be used.

1.8 QUALITY CONTROL

1.8.1 General

The Contractor shall establish and maintain quality control for pile manufacturing and driving operations, assure compliance with contract specifications and maintain quality control records for all construction operations including, but not limited to, the following:

(1) Testing and gradation of aggregates and compressive strength of concrete as required, including batched proportions.

(2) Setting and bracing of forms and checkout just prior to concrete placement, including accurate placement of reinforcing steel.

(3) Casting, handling and storage of precast, prestressed piling: records of prestressing tension strands.

(4) Curing method and duration.

(5) Driving of all piles and maintaining records of such.

1.8.2 Reporting

The original and two copies of these records and reports, as well as corrective action taken, shall be furnished the Government daily. Format of the report shall be as prescribed in the Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Admixtures

Chemical admixtures shall conform to ASTM C494/C494M. Air-entraining admixture shall conform to ASTM C260/C260M. Other chemical admixtures for use in producing flowing concrete shall comply with ASTM C1017/C1017M, Type 1 or 2. Calcium chloride or admixtures containing chlorides or nitrates shall not be used.

2.1.2 Aggregates

Aggregates shall conform to ASTM C33/C33M, except as specified otherwise herein. Coarse aggregate shall meet the additional requirements for Class 3M. Aggregates shall conform to the grading requirements of either ASTM C33/C33M, LSSRB 1003.08, or MSSRBC 703.02 and MSSRBC 703.03. Fine aggregates from different sources of supply shall not be mixed or stored in the same stockpile, or used alternately in the same concrete mix or the same structure without approval. The fineness modulus of fine aggregate shall not be less than 2.40 or greater than 3.00. For piles that will be exposed to freezing and thawing, fine and coarse aggregate subjected to five cycles of the sodium sulfate soundness test in accordance with ASTM C88 shall show a loss not greater than 10 percent. If the selected aggregates fail the soundness test, the aggregate source may be used if the concrete specimens made with the aggregates have a durability factor of not less than 80, based on 300 cycles of freezing and thawing, when tested in accordance with ASTM C666/C666M.

2.1.3 Cement

Portland cement shall conform to ASTM C150/C150M, low alkali, Type II with a maximum of 10 percent tricalcium aluminate, Vwith less than 5 percent tricalcium aluminate.

2.1.4 Pozzolan

Pozzolan shall conform toAASHTO M295 Class C or F with the optional alkali requirement of Table 2 or the Effectiveness in Controlling Alkali-Silica Reaction requirement of Table 4. Test results showing that the proposed combination of cementitious materials and aggregates will expand less than 0.10 percent in 16 days when tested in accordance with ASTM C1567 may be substituted for the Effectiveness in Controlling Alkali-Silica Reaction test.

2.1.5 Prestressing Steel

Prestressing steel shall be seven-wire, 0.50 inch diameter, Grade 270 low relaxation steel strand conforming to the requirements of ASTM A416/A416M. Steel shall be free from grease, oil, wax, paint, soil, dirt, loose rust, kinks, bends, and other defects.

2.1.6 Reinforcing Steel

Non-prestressing reinforcing steel shall conform to ASTM A615/A615M Grade 60, deformed.

2.1.7 Ties and Spirals

Steel for ties and spirals shall conform to ASTM A1064/A1064M

2.1.8 Water

Water for mixing concrete shall be fresh, clean, drinkable, and free from injurious amounts of oils, acids, alkalies, salts, sugar, organic materials, or other substances that may be deleterious to concrete or steel. Undrinkable water may be used if it meets the requirements of COE CRD-C 400. The time of set for concrete made with undrinkable water may vary from one hour earlier to one and one-half hours later than a control sample made with distilled water.

2.2 FABRICATION

2.2.1 Prestressed Concrete Piles

Prestressed concrete piles shall be solid concrete piles of the type indicated. Piles shall be cast as monolithic units of homogeneous concrete and pretensioned with prestressing steel. Manufacturing requirements for piles shall conform to PCI MNL-116 except as modified herein. Pick-up points shall be marked on the piles at the indicated location after removal of the forms. Detail drawings of piles, showing dimensions and fabrication details including forms, reinforcement shall be submitted for approval. The Contractor shall notify the Contracting Officer 1 week prior to the date casting of piles is to begin.

2.2.2 Forms

Forms shall be of steel, braced and stiffened against deformation,

accurately constructed, watertight, and supported on unyielding concrete casting beds. Form surfaces shall be within 1/4 inch of a true plane in a length of 50 feet. Forms shall permit movement of the pile without damage during release of the prestressing force. Voids shall be formed.

2.2.3 Reinforcements and Embedments

Reinforcing steel, prestressing steel, and embedded items shall be accurately positioned in the forms and secured to prevent movement during concrete placement. Steel shall have a minimum concrete cover of 2-1/2 inches. Reinforcing steel details shall conform to ACI SP-66. Welding of reinforcing steel shall be in accordance with AWS D1.4/D1.4M.

2.2.4 Concrete Mix

The concrete mix shall be selected by the Contractor to have a compressive strength of 6000 psi minimum at 28 days (90 days if pozzolan is used) and a slump of 5 inches maximum. If a higher slump is required, it shall be attained through the use of a chemical admixture for use in producing flowing concrete in accordance with ASTM C1017/C1017M, and the slump of the concrete shall not exceed 8 inches after the addition of the admixture and shall be in the range of 1 to 4 prior to adding the admixture. The water-cementitious materials ratio (by weight) shall be held to the minimum consistent with workability required for placement but in no case shall it exceed 0.40. If pozzolan is used, it shall range from 15 to 30 percent by weight of the total cementitious materials. Once production begins, changes to the mix will not be permitted without written submittal and approval of the proposed changes.

2.2.5 Concrete Work

Concrete shall not be deposited in the forms until the placement of the reinforcement and anchorages has been inspected and approved by the Contracting Officer. Conveying equipment shall be cleaned thoroughly before each run and the concrete conveyed from the mixer to the forms as rapidly as practicable using methods that will not cause segregation or loss of ingredients. Concrete shall be deposited as nearly as practicable in its final position in the forms. At any point in conveying, the free vertical drop of the concrete shall not exceed 3 feet. Chuting will be permitted if the concrete is deposited into a hopper before being placed in the forms. Concrete that has segregated in conveying shall be removed. Each pile shall be produced of dense concrete with smooth surfaces. Each pile shall be a continuous pour until it is completed. Vibrator heads shall be smaller than the minimum distance between steel pretensioning. Side forms shall not be removed until concrete has attained 3500 psi compressive strength. Dimensional tolerances shall conform to PCI MNL-116. The ends of all piles and corners of square piles shall be chamfered 3/4 inch.

2.2.6 Pretensioning

Anchorages for tensioning the prestressing steel shall be an approved type. The tension to which the steel is to be pretensioned shall be measured by the elongation of the steel and also by the jack pressure reading on a gauge or by the use of an accurately calibrated dynamometer. The gauge or dynamometer shall have been calibrated by a calibration laboratory approved by the Contracting Officer within 12 months of commencing work and every 6 months thereafter during the term of the contract. Means shall be provided for measuring the elongation of the

steel to the nearest 1/4 inch. The applied load determined from elongation measurements shall be computed using load-elongation curves for the steel used. When the difference between the results of measurement and gauge reading is more than 5 percent, the cause of the discrepancy shall be corrected. The tensioning steel shall be given a uniform prestress prior to being brought to design prestress. The same initial prestress shall be induced in each unit when several units of prestressing steel in a pile are stretched simultaneously.

2.2.7 Detensioning

Releasing of prestressing force in pretensioned piles shall be performed in a manner that minimizes eccentricity of prestress. Tension in the strands shall be released from the anchorage gradually. In no case shall the stress be released after casting without approval by the Contracting Officer. The transfer of prestressing force shall be done when the concrete has reached a compressive strength of not less than 3500 psi. The prestressing steel shall be cut or ground flush with the pile ends.

2.2.8 Curing of Piles

Piles shall be cured in accordance with the provisions contained in PCI MNL-116 except as follows. The maximum rate of heat gain shall not exceed 40 degrees Fahrenheit per hour and the maximum concrete temperature shall not exceed 160 degrees Fahrenheit during the curing cycle. Curing shall be continued until the concrete has attained a compressive strength of at least 3500 psi as determined by the concrete test cylinders.

2.3 TEST, INSPECTIONS, AND VERIFICATIONS

Testing during manufacture shall be performed by an approved commercial testing laboratory or by an approved laboratory maintained by the manufacturer of the material. Minimum requirements for testing during manufacture shall be as required in PCI MNL-116 except as modified herein.

2.3.1 Concrete Cylinders

A minimum of four standard 6-inch by 12-inch concrete test cylinders per casting bed shall be made to indicate transfer and 28-day (90-days if pozzolan is used) strengths.

2.3.2 Testing By Government

Facilities shall be made available to the Contracting Officer for making and testing any additional test cylinders desired.

2.3.3 Certificates of Compliance

The Contractor shall certify that admixtures, aggregates, cement, and pozzolan used conform with ther requirements of the specifcations. Manufacturer's literature indicating conformance may be submitted for admixtures.

PART 3 EXECUTION

3.1 PILE DRIVING EQUIPMENT

The Contractor shall select the proposed pile driving equipment as specified and submit descriptions of the proposed equipment for approval.

Equipment approval will be based on wave equation analysis submitted by the Contractor for approval and the engineering judgment of the Contracting Officer's representative. Stresses predicted by wave equation analysis shall not exceed 0.85 times the concrete compressive strength minus the effective prestress in compression and the effective prestress in tension. Final approval of the proposed equipment is subject to the satisfactory completion and approval of pile tests. Changes in the selected pile driving equipment will not be allowed after the equipment has been approved by the Contracting Officer except as specified herein and directed by the Contracting Officer. No additional contract time will be allowed for Contractor proposed changes in the equipment.

3.1.1 Pile Driving Hammers

Pile driving hammers shall be of the impact type and capable of satisfying the requirement of paragraph "Penetration Criteria". Hammers shall be steam or air of the single acting, double-acting, or differential acting type. The size or capacity of hammers shall be as recommended by the manufacturer for the pile type, weight, and soil formation to be penetrated. The rated energy of hammers shall be limited to a minimum of 15,000 foot-pounds. Boiler, compressor, or engine capacity shall be sufficient to operate hammers continuously at the full rated speed so that a single-acting hammer obtains a full upward stroke of the ram, a double-acting hammer operates at or near the blows per minute at which the hammer is rated, and a differential type hammer obtains a slight rise of the hammer base during each upward stroke. Single-acting hammers shall have a scale (in inches) (see the attachment at the end of this section) fixed to the hammer's ram guide and a pointed indicator fixed on the ram to allow reading of the hammer's stroke. Both the scale and indicator shall be easily legible to observers on the ground. Hammers shall have a gage to monitor hammer bounce chamber pressure for diesel hammers or pressure at the hammer for air and steam hammers. This gage shall be operational during the driving of piles and shall be mounted in an accessible location for monitoring by the Contractor and the Contracting Officer.

3.1.2 Pile Driving Leads

Leads shall align the pile and hammer concentrically, and maintain the pile in proper position and alignment throughout driving. Hammers shall be supported and guided with fixed extended leads or fixed underhung leads. The leads shall be of sufficient length to fully accommodate the combined length of the pile and hammer. Two intermediate pile supports shall be provided in the leads to reduce the unbraced length of the pile during driving and pulling.

3.1.3 Driving Helmets and Pile Cushions

A driving helmet including a pile cushion shall be used between the top of the pile and the ram to prevent impact damage to the pile. The driving helmet and pile cushion combination shall be capable of protecting the head of the pile, minimize energy absorption and dissipation, transmit hammer energy uniformly over the top of the pile and prevent excessive tensile stresses from developing in the concrete during driving. The driving helmet shall fit loosely around the top of the pile so that the pile is not restrained by the helmet if the pile tends to rotate during driving. The pile cushion may be of solid wood or of laminated construction, completely cover the top surface of the pile, and be retained by the driving helmet. Minimum thickness of the pile cushion shall be 3 inches and the thickness shall be increased so as to be suitable for the size and length of pile,

character of subsurface material to be encountered, hammer characteristics, and the required driving resistance.

3.1.4 Cap Blocks

The cap block (hammer cushion) used between the driving cap and the hammer ram may be of solid hardwood block with grain parallel to the pile axis and enclosed in a close-fitting steel housing or may consist of aluminum and approved industrial type plastic laminate disks stacked alternately in a steel housing. Steel plates shall be used at the top and the bottom of the cap block. The cap block shall be replaced if it has been damaged, highly compressed, charred, or burned or has become spongy or deteriorated in any manner. If a wood cap block is used, it shall not be replaced during the final driving of any pile. Under no circumstances will the use of small wood blocks, wood chips, rope, or other material permitting excessive loss of hammer energy be permitted.

3.1.5 Pile Extractors

Impact hammers are required for pulling piles.

3.2 INSTALLATION

3.2.1 Lengths of Permanent Piles

The lengths of piles required are indicated on the drawings.

3.2.2 Pile Placement and Tolerances

A pile placement plan shall be developed to show the installation sequence and the methods proposed for controlling the location and alignment of piles and submitted for approval. Piles shall be placed accurately in the correct location and alignments, both laterally and longitudinally, and to the vertical or batter lines indicated. The Contractor shall establish a permanent baseline during pile driving operations to provide for inspection of pile placement by the Contracting Officer. The baseline shall be established prior to driving permanent piles and shall be maintained during the installation of the permanent piles. Prior to driving and with the pile head seated in the hammer, the Contractor shall check each pile for correct alignment. A final lateral deviation from the correct location at the cutoff elevation of not more than 3 inches will be permitted. A vertical deviation from the correct cutoff elevations shown on the drawing of not more than 1 inch will be permitted. A final variation in slope of not more than 1/4 inch per foot of longitudinal axis will be permitted. A final variation in rotation of the pile about its center line of not more than 7.5 degrees will be permitted. The correct relative position of all piles shall be maintained by the use of templates or by other approved means. Piles not located properly or exceeding the maximum limits for rotation, lateral deviation, and/or variation in alignment shall be pulled and redriven at a directed location.

3.2.3 Pile Driving

Piles shall not be driven within 100 feet of concrete less than 7 days old nor within 30 feet of concrete less than 28 days old unless otherwise authorized. Driving shall not result in cracking, crushing, or spalling of concrete. The sequence of installation shall be such that pile heave is minimized. Where heave is anticipated, pile driving shall start at the center of the group and proceed outward. The Contracting Officer shall be

notified 30 days prior to the date driving is to begin.

3.2.3.1 Driving Records

The Contractor shall develop driving record forms for recording the pile driving operations, obtain approval of this form, and compile complete records of the operations. Pile driving records shall include pile dimensions and location, pile identification number, casting date, date driven, original pile length, cutoff and tip elevations, description of hammer used, rated hammer energy, observed stroke and rate of hammer operation (blows per minute), air or steam pressure at the hammer or bounce chamber pressure, length of pressure hose, penetration under the combined weight of the pile and hammer, number of blows required for each foot of penetration throughout the entire length of each pile and for each inch of penetration in the last foot of penetration, time for start and finish of driving, total driving time in minutes and seconds for each pile, cushion information including changes during driving, and any other information as required or requested. Record shall also include information such as unusual driving conditions, interruptions or delays during driving, observed pile damage, heave detected in adjacent piles, records of restriking, depth and description of voids formed adjacent to the pile, and any other pertinent information.

3.2.3.2 Penetration Criteria

Piles shall be driven to the required depth of penetration as shown on the drawings. The required depth of penetration will be established subsequent to the analysis of pile tests as specified in Section 31 62 14.00 12 PILE LOAD TESTS.

3.2.3.3 Driving

(1) Permanent and test piles shall be driven with hammers of the same model and manufacturer, same energy and efficiency, and using the same driving system. The hammer shall be operated at all times at the speed and under the conditions recommended by the manufacturer subject to the approval of the Contracting Officer. Once pile driving has begun, conditions such as alignment and batter shall be kept constant. Each pile shall be driven continuously and without interruption until the required depth of penetration has been attained. Deviation from this procedure will be permitted only for necessary changes to the pile cushion or whenever driving is stopped by causes that reasonably could not have been anticipated. Pile cushion changes will be considered necessary whenever the cushion has become highly compressed, charred, burned, or deteriorated. Changes to the cushion will not be allowed near the end of driving. A pile that cannot be driven to the required depth because of an obstruction, as indicated by a sudden unexplained change in blow count and drifting, shall be pulled and redriven or shall be cut off and abandoned, whichever is directed by the Contracting Officer's representative.

(2) A pile that has not reached the required penetration criteria when the top has been driven to the specified elevation shall be reported to the Contracting Officer. The Contracting Officer will direct the Contractor to drive a replacement pile at an adjacent location or pull the pile and drive a longer pile in its place. A pile which cannot be driven to the required tip elevation because the maximum permissible driving stress is exceeded shall be reported to the Contracting Officer. The Contracting Officer will direct the Contractor to cut off the pile, pull and redrive the pile, or perform other corrective measures.

3.2.3.4 Heaved Piles

When driving piles in clusters or under conditions of relatively close spacing, observations shall be made to detect heave of adjacent piles. Heaved piles shall be restruck sufficiently to relieve soil setup and driven to the original penetration criteria.

3.2.3.5 Pulled Piles

Piles damaged or impaired for use during driving shall be pulled and replaced with new piles, or shall be cut off and abandoned and new piles driven as directed. The Contracting Officer may require that any pile be pulled for inspection. Piles pulled at the direction of the Contracting Officer and found to be in suitable condition shall be redriven at a directed location.

3.2.3.6 Jetting

Jetting of piles will not be permitted.

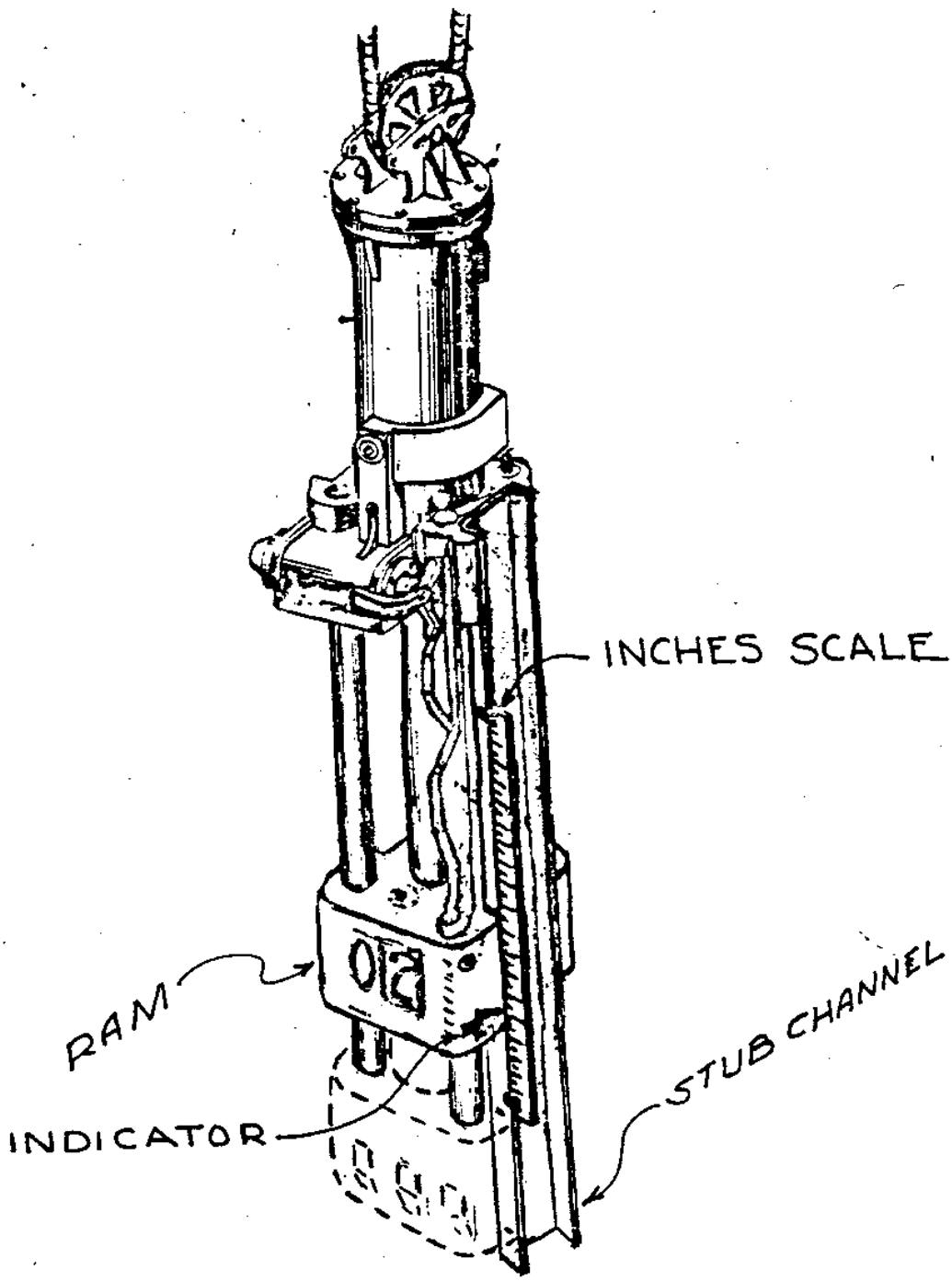
3.2.3.7 Preboring

Preboring will not be allowed.

3.2.3.8 Void Backfill

Voids occurring around piles as a result of pile driving or due to any other cause and abandoned holes for piles that have been pulled shall be filled to within 3 feet of the adjacent ground surface with a tremie-placed slurry (from bottom to top of hole). The slurry shall consist of one part portland cement, two parts bentonite, and six parts sand mixed with enough water to produce a slurry viscous enough to thoroughly fill the voids. The upper 2 feet of the hole shall be filled with earth and compacted to the same density as the surrounding soil.

-- End of Section --



PILE HAMMER

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SECTION 31 62 14.00 12

PILE LOAD TESTS

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, equipment, labor, materials, and performing compression pile test; including all operations necessary to drive the reaction and test piles, and to pull and remove the reaction piles as specified herein and as shown on the drawings. Test methods described herein are in accordance with ASTM D1143/D1143M and ASTM D3689/D3689M. The Contractor shall submit his/her plan for conducting pile testing to the Contracting Officer for approval a minimum of 15 days prior to the beginning of the tests. The test pile sites are as shown on the drawings. Piles are specified in Section 31 62 13.20 12 PRESTRESSED CONCRETE PILES.

1.2 REFERENCES

The following publications, referred to thereafter by basic designation only, form a part of this specification to the extent indicated:

ASTM INTERNATIONAL (ASTM)

ASTM D1143/D1143M	(2020) Piles Under Static Axial Compressive Load
ASTM D3689/D3689M	(2022) Standard Test Methods for Deep Foundations Under Static Axial Tensile Load

1.3 MEASUREMENT AND PAYMENT

Compression pile tests will be measured by each pile test satisfactorily performed. Payment will be made at the contract unit price per each for "Compression Pile Load Test". Price and payment shall constitute full compensation for performing the load test, including calibration of the extensometers, load cell, and hydraulic jack; driving all reaction/support piling; placing and removing the load frame for each test; placing and removing test loads and test equipment; extracting reaction or support piles; backfilling pulled pile holes; submission of load test results/report; and all operations incidental thereto.

1.4 QUALITY CONTROL

1.4.1 General

The Contractor shall establish and maintain quality control for all operations to assure compliance with the contract requirements and maintain records of his/her quality control for all construction operations including, but not limited to, the following:

(1) Facilities and personnel providing for installation and reading by the Contractor of all measuring devices.

(2) Compression test (pile number, location); loading frames and description (number, size, type, and location of supporting piles); sequence and method of loading; records of measurements, and driving records.

1.4.2 Reporting

The original and two copies of these records and tests, as well as records of corrective action taken, shall be furnished to the Government daily. Format of reports other than test data shall be as prescribed in Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Pile Test Procedures; G, RO

The Contractor shall submit a detailed plan of the pile test procedure to the Contracting Officer a minimum of 20 days prior to the pile driving and setup.

Loading Frames, Pile Lateral Support, and Testing Procedure; G, RO

The Contractor shall furnish his/her loading frame set-up and lateral support with computations used in the design of the loading frame and lateral support, and his/her plan for conducting the pile test to the Contracting Officer for approval.

SD-03 Product Data

Pile Test Equipment Calibration; G, RO

Descriptions of pile driving equipment, including leads, extractors, jetting equipment, and preboring equipment, shall be submitted for approval at least 30 days prior to commencement of work. The following information for each hammer proposed shall be submitted for each proposed hammer:

(1) make and model
(2) ram weight (pounds)
(3) anvil weight (pounds)
(4) weight of the moving parts of the hammer (pounds)
(5) rated stroke (inches)
(6) rated energy range (foot-pounds)
(7) rated speed (blows per minute)
(8) steam or air pressure, hammer, and boiler and/or compressor (pounds per square inch)
(9) power pack description
(10) pile driving helmet, make, and weight (pounds)
(11) pile cushion material, type, proposed thickness, modulus of elasticity, and coefficient of restitution

(12) the make-up of the proposed cap block, including material type, dimensions, modulus of elasticity, and coefficient of restitution

(13) rated bounce chamber pressure curves or charts, including pressure correction chart for type and length of hose used with pressure gage (pounds per square inch)

SD-05 Design Data

Pile Test Setup Design; G, RO

The Contractor shall submit drawings and design computations for the pile test setup. The design computations shall include, but not be limited to loading frame design, lateral support design, and design of support/reaction piles. Pile test setup design shall be submitted to Contracting Officer a minimum of 20 days prior to pile driving and setup.

SD-06 Test Reports

Pile Test Data

The Contractor shall furnish all data from each pile tested including the pile driving records as required in Section 31 62 13.20 12 PRESTRESSED CONCRETE PILES within 24 hours after completion of each test. If a test pile fails at or less than 200% of the service load, preliminary field test data shall be provided to the Contracting Officer within 4 hours of the completion of the test. Blow counts shall be recorded for each foot of each test pile and furnish copies to the Contracting Officer. The Pile Driving Report shall include, but not be limited to; unusual driving conditions, interruptions or delays during driving, and any other information considered pertinent. Pile test data shall be recorded for all items shown in paragraph REPORTS. Copies of these forms shall also be furnished to the Contracting Officer.

Pile Test Equipment Calibration

The Contractor shall furnish calibration curves (before and after testing program) of the hydraulic jack and load cell as required in paragraph "Apparatus for Applying Pile Load and Measuring Movement".

1.6 TEST MEASUREMENT

Measurements of compression deflections and settlements, of the test piles and reports on all test piles shall be made by the Contractor.

1.7 REPORTS

The report of the load test shall include the following items where applicable:

1.7.1 General

(1) Project Identification

(2) Location

(3) Pile Test Procedures

(4) Pile Test Setup Design

1.7.2 Pile Installation Equipment

(1) Make, model, type, and size of hammer

(2) Weight of hammer and ram

(3) Stroke of ram

(4) Rated energy and operating speed of hammer

(5) Type and thickness of cap blocks and pile cushions

(6) Weight and dimensions of drive-cap and follower

1.7.3 Test and Support Piles

(1) Identification of test pile(s)

(2) Type of piles

(3) Pile material including basic specifications

(4) Dimensions of pile

(5) Pile weight as driven

(6) Which piles vertical-batter

(7) Degree of batter

(8) Driven length

(9) Embedded length

(10) Tested length, and

(11) Final elevation of piles butt referenced to fixed datum (identify datum)

1.7.4 Pile Installation - Test and Support

(1) Date driven

(2) Pre-excavation or jetting - depth, size, pressures, duration, etc.

(3) Operating of hammer during final driving

(4) Driving log, blows per foot

(5) Final penetration resistance, blows per inch

(6) Description of special installation procedures used, and

(7) Notation of any unusual occurrences during installation

1.7.5 Pile Testing and Pile Test Data

(1) Date tested

(2) Type of test pile

(3) Type of load application apparatus

(4) Number of support piles of each test

(5) Instrumentation used to measure pile movement(serial numbers of the hydraulic ram, load cell, extensometers, and level used for each test shall be recorded on the data sheet).

(6) Special testing procedures used

(7) Temperature and weather conditions during test

(8) Tabulation of all load-time-movement reading

(9) Gages, scales, and reference points identified

(10) Adjustment made to field data and explanation

(11) Notation of any unusual occurrences during test, and

(12) Pile Test Equipment Calibration

PART 2 PRODUCTS

2.1 TYPES AND PROPERTIES

New piles to replace damaged piles shall comform to the requirements of Section 31 62 13.20 12 PRESTRESSED CONCRETE PILES. Tip elevations are shown on the drawings.

PART 3 EXECUTION

3.1 PLACING AND DRIVING CASINGS AND TEST PILES

Test piles shall be driven in accordance with the requirements of Section 31 62 13.20 12 PRESTRESSED CONCRETE PILES.

3.2 TEST PILE LOADING

3.2.1 Scope

This part covers procedures for testing vertical foundation piles to determine the response of the pile to a static compressive load applied axially to the pile. Determination of the allowable compression load for the pile is made by the incremental loading and measurement of the pile deformation. The Contractor shall drive all test and reaction piles prior to starting the load tests.

3.2.1.1 Compression Test

Test piles shall be furnished in the lengths required and driven as directed by the Contracting Officer at the location shown on the drawings.

A minimum time period of 21 days shall be allowed to elapse between driving of the test piles, including driving of the reaction piles, and the initiation of a compression test. There will be no payment nor additional time granted for delays incurred between driving of test piles and initiation of pile tests.

3.2.2 General Procedures

The Contractor shall provide and be responsible for furnishing all necessary apparatus, measuring equipment, and personnel to install, test, and extract the test piles described within this specification in its entirety. The recording and reporting of all data shall be the responsibility of the Contractor. However, the Contracting Officer's representative shall have free access to the pile test data at any time. A Government representative (engineer) will be present during the load tests. The Contractor shall provide the Contracting Officer 72 hours notice prior to initiating each pile load test in order that arrangements may be made to have a Government representative present during the test. The reduction, analysis, and interpretation of the test data will be accomplished by Government personnel after completion of each pile test. Additional pile tests, as described herein, or otherwise may be required as determined by the Contracting Officer. In order to prevent disturbances to the instrumentation readings, construction activities, equipment movement, or operation of construction equipment, will not be permitted within 200 feet of any load test in progress.

Loading Frames, Pile Lateral Support, and Testing Procedure

3.2.3 Loading Frames

Loading frames shall be constructed so that the loads are applied axially to minimize eccentric loading. Design considerations such as sizes, numbers, and material of specific beams, support piles, bearing plates, etc., shall be the responsibility of the Contractor and subject to approval of the Contracting Officer. Included with his/her plan for conducting the tests, the Contractor shall submit computations used in the design of the loading frame. The computations shall be certified by a registered professional engineer. For the compression test, a steel bottom bearing plate of appropriate thickness for the loads involved shall not be less than the size of the pile butt, nor less than the area covered by the base of the hydraulic jack. A top bearing plate shall have a size not less than the load cell head, nor less than the total width of the reactor beam(s). The support piles for the loading frame shall be placed at least five times the maximum diameter of the largest support or test pile, but in no case less than a clear distance of 8-feet (2.4 meters). The box or platform shall be loaded with any suitable material such as soil, rock, concrete, steel, or water filled tanks with a total weight (including that of the test beams(s) and box or platform) at least 10 percent greater that the anticipated maximum test load. Each load frame shall be designed to support at least 300% of the service load (see project drawings for test pile and service load details). The Contractor shall retest the test pile at no additional cost to the Government if failure occurs to the reaction piles or reaction frames prior to the failure of the test pile.

3.2.4 Pile Lateral Support during Load Testing

The Contractor shall provide all necessary lateral bracing/lateral support of the test pile within the casing during pile load test. The Contractor shall submit calculations stamped by a registered engineer exhibiting

analysis and design of any required bracing when the pile is subject to the maximum test load. The lateral bracing/support shall provide support in all directions without restricting vertical movement. The support is only required for the load test, not for installation.

3.2.5 Apparatus for Applying Pile Load and Measuring Movement

All equipment related to the load test (extensometers, level, load cell, hydraulic jack, scales, mirrors, etc.) and testing shall be furnished and operated by the Contractor. Typical apparatus setup is depicted on the drawings. The hydraulic jack shall be equipped with a pressure reading gage calibrated in tons and with a ram having a spherical bearing head to minimize eccentric loading. The jack shall be capable of maintaining constant loads between load changes and shall be calibrated prior to the test so that the load applied is controllable to within 5 percent. The load cell (non-self-leveling) shall be an electric strain gage type equipped with a readout device. Load cells shall be calibrated prior to the test to an accuracy within 2 percent of the applied load. The changing and maintaining of loads on each test pile shall be done utilizing the load cell as the primary loading device and pressure gage on the jack as a backup. However, both readings shall be recorded. Extensometers shall be used to measure pile movement and shall have dial gages with stems having at least a 2-inch travel, or sufficient gage blocks shall be provided to allow this travel with shorter gage stems. Gages shall be read to an accuracy of 0.001 inch. Smooth bearing surfaces perpendicular to the direction of the measurements shall be provided for by the gage stems. The hydraulic jack, load cell, and extensometers shall be calibrated both before the start and after the completion of the testing program, by a certified testing laboratory for both the loading and unloading cycles and calibration curves furnished to the Contracting Officer. The calibration curves shall be load cell strain readings versus load in tons. In developing the calibration curves, the load cell shall be placed above the jack in the testing machine and the loads shall be applied through the ram to the load cell to the testing machine in the actual working manner of the field loading system. Two reference beams, one on each side of the pile, shall be independently supported with supports firmly embedded in the ground at a clear distance of not less than 8 feet from the test pile, and 7 to 8 feet from the support piles. Reference beams shall be of sufficient stiffness to prevent excessive deflections. Reference beam stakes shall have firmly embedded in the ground. If steel reference beams are used, one end of each beam shall be free to move as the length of the beams change with temperature variations. As a backup to the extensometers, an engineer's level and scale shall be used to check the movement of the test pile. The level shall also be used to check the movement of the support piles. Scales used to measure pile movements shall read to 1/64th of an inch or to 0.01 inch. Target rods shall read 0.001 foot. All dial gages, scales, and reference points shall be clearly marked with a reference number or letter to assist in recording data accurately. Readings from the surveyor's level may be taken on a target rod or a scale and shall be referenced to two permanent benchmarks located outside the immediate test area or the surveyor's level shall be mounted on an object of fixed elevation (for example, a driven pile) outside of the immediate test area. Readings shall be taken on two fixed points or scales on opposite sides of the pile or pile cap or on a single fixed point or scale in the center of the pile top or pile cap. Readings shall be taken on a sufficient number of support piles and on the reference beams to establish if there is any movement. A water-resistant tarpaulin of minimum dimension of 12-feet x 12-feet shall be installed by the Contractor to protect at all times the instrumentation, measuring system, and prevent adverse

temperature variations.

3.2.6 Loading Procedure and Measurement of Pile Movement

The anticipated service loads for the test are shown on the drawings. After the test piles and reaction piles are driven, the Contractor shall allow a time period of not less than 21 days to elapse before loading the test piles. Apply loads to the piles in increments of 25 percent of the anticipated service load until 200 percent of the service load is reached or until failure, which ever occurs first. The rate of application and removal of load shall be 2 tons per minute. The Contractor shall take readings of time, load, and movement and record them for each load increment or load decrement. When the 25 percent increment has been reached, the Contractor shall maintain the load for 2 hours and readings shall be taken at the 2 minute, 8 minute, 15 minute, 30 minute, 60 minute, and 120 minute intervals. After the application of loads equal to 50, 100, and 150 percent of the test load, remove the applied load in each case in decrements equal to the loading increments with 20 minutes between decrements. After removing each total applied load, reapply the load to the previous load level in increments equal to 50 percent of the test load with 20 minutes between increments. When the previous load level has been obtained, increase load in 25 percent increments to the next load level. When 200 percent of the service load has been applied and failure has not occurred, allow the 200 percent service load to remain on the pile for 24 hours, except in the event that the average rate of settlement is greater than 0.01 inch/hour, hold the total load on the pile for 48 hours. During this time, readings shall be taken every hour. After the required holding time, remove the load in decrements of 50 percent of the service load with 1 hour between decrements. After the load has been applied and removed in accordance with the above, reload the pile to 200 percent of the service load in increments of 50 percent, allowing 20 minutes between increments. The Contractor shall then increase the load in increments of 10 percent of the service load until failure occurs or the applied load reaches 300 percent of the service load. The time lapse between increments shall be 20 minutes. If failure does not occur, hold the full load for 2 hours at which time remove the load in four equal decrements, allowing 20 minutes between decrements. For purposes of stopping pile tests in progress, failure is achieved when the full extent of the extensometers is reached. If failure occurs before the load reaches 300 percent of the service load then the load shall be removed in 4 equal decrements allowing 20 minutes between decrements. Test apparatus shall not be removed from the pile until approval is received from the Government representative. To illustrate the loading and pile measurement procedures, a sample test schedule is provided following this paragraph.

SAMPLE OF COMPRESSION PILE TEST SCHEDULE

Load (Tons)	Elapsed Time	Incremental Time	Remarks
0	0:00	0 min.	
5	0:03	3 min.(load rate 2 tons/min)	25% service load
	0:05	2 min.	Take Reading(TR)
	0:11	8 min.	"
	0:18	15 min.	"
	0:33	30 min.	"
	1:03	60 min.	"
	2:03	120 min.	"
10	2:06	3 min.	50% service load
	2:08	2 min.	TR
	2:14	8 min.	"
	2:21	15 min.	"
	2:36	30 min.	"
	3:06	60 min.	"
	4:06	120 min.	"
5	4:09	3 min.	Decrement 25% service load (TR)
	4:29	20 min.	TR
0	4:32	3 min.	Decrement 0% service load (TR)
	4:52	20 min.	TR
10	4:57	5 min.	Increment 50%
	5:17	20 min.	TR
15	5:20	3 min.	75% service load
	5:22	2 min.	TR
	5:28	8 min.	"
	5:35	15 min.	"
	5:50	30 min.	"
	6:20	60 min.	"
	7:20	120 min.	"
20	7:23	3 min.	100% service load
	7:25	2 min.	TR
	7:31	8 min.	"
	7:38	15 min.	"
	7:53	30 min.	"
	8:23	60 min.	"
	9:23	120 min.	"
15	9:26	3 min.	Decrement 75% service load (TR)
	9:46	20 min.	TR
10	9:49	3 min.	Decrement 50% service load (TR)
	10:09	20 min.	TR

SAMPLE OF COMPRESSION PILE TEST SCHEDULE

Load (Tons)	Elapsed Time	Incremental Time	Remarks
0	10:14	5 min.	Decrement 0% service load (TR)
	10:34	20 min.	TR
10	10:39	5 min.	Increment 50% service load
	10:59	20 min.	TR
20	11:04	5 min.	Increment 100% service load
	11:24	20 min.	TR
25	11:27	3 min.	125% service load
	11:29	2 min.	TR
	11:35	8 min.	"
	11:42	15 min.	"
	11:57	30 min.	"
	12:27	60 min.	"
	13:27	120 min.	"
30	13:30	3 min.	150% service load
	13:32	2 min.	TR
	13:38	8 min.	"
	13:45	15 min.	"
	14:00	30 min.	"
	14:30	60 min.	"
	15:30	120 min.	"
25	15:33	3 min.	Decrement 125% service load (TR)
	15:53	20 min.	TR
20	15:56	3 min.	Decrement 100% service load (TR)
	16.16	20 min.	TR
10	16:21	5 min.	Decrement 50% service load (TR)
	16:41	20 min.	TR
0	16:46	5 min.	Decrement 0% service load (TR)
	17:06	20 min.	TR
10	17:11	5 min.	Increment 50% service load
	17:31	20 min.	TR
20	17:36	5 min	Increment 100% service load
	17:56	20 min.	TR
30	18:01	5 min.	Increment 150% service load
	18:21	20 min.	TR
35	18:24	3 min.	175% service load
	18:26	2 min.	TR
	18:32	8 min.	"
	18:39	15 min.	"
	18:54	30 min.	"

SAMPLE OF COMPRESSION PILE TEST SCHEDULE

Load (Tons)	Elapsed Time	Incremental Time	Remarks
	19:24	60 min.	TR
	20:24	120 min.	"
40	20:27	3 min.	200% service load.
	20:29	2 min.	Continue to hold load for 24 hours.
	20:35	8 min.	If settlement is greater than .01
	20:42	15 min.	inch/hour hold
	20:57	30 min.	load for 48 hours.
	21:27	60 min.	TR
	22:27	120 min.	"
	23:27	3 hr.	"
	0:27	4 hr.	"
	1:27	5 hr.	"
	19:27	23 hr.	"
	20:27	24 hr.	"
30	20:32	5 min.	Decrement 150% service load (TR)
	20:52	20 min.	TR
	21:12	40 min.	"
	21:32	60 min.	"
20	21:37	5 min.	Decrement 100% service load (TR)
	21:57	20 min.	TR
	22:17	40 min.	"
	22:37	60 min.	"
10	22:42	5 min.	Decrement 50% service load (TR)
	23:02	20 min.	TR
	23:22	40 min.	"
	23:42	60 min.	"
0	23:47	5 min.	Decrement 0% service load (TR)
	0:07	20 min.	TR
	0:27	40 min.	"
	0:47	60 min.	"
10	0:52	5 min.	Increment 50% service load
	1:12	20 min.	TR
20	1:17	5 min.	Increment 100% service load

SAMPLE OF COMPRESSION PILE TEST SCHEDULE

Load (Tons)	Elapsed Time	Incremental Time	Remarks
	1:37	20 min.	TR
30	1:42	5 min.	Increment 150% service load
	2:02	20 min.	TR
40	2:07	5 min.	Increment 200%
	2:27	20 min.	TR
42	2:28	1 min.	Increment 210%
	2:48	20 min.	TR
44	2:49	1 min	Increment 220%
	3:09	20 min.	TR
46	3:10	1 min.	Increment 230%
	3:30	20 min.	TR
48	3:31	1 min.	Increment 240%
	3:51	20 min.	TR
50	3:52	1 min.	Increment 250%
	4:12	20 min.	TR
52	4:13	1 min.	Increment 260%
	4:33	20 min.	TR
54	4:34	1 min.	Increment 270%
	4:54	20 min.	TR
56	4:55	1 min.	Increment 280%
	5:15	20 min.	TR
58	5:16	1 min.	Increment 290%
	5:36	20 min.	TR
60	5:37	1 min.	Increment 300% service load
	5:57	20 min.	TR
	6:17	40 min.	"
	6:37	60 min.	"
	6:57	80 min.	"
	7:17	100 min.	"
	7:37	120 min.	"
45	7:45	8 min.	Decrement 75% (TR)
	8:05	20 min.	TR
30	8:13	8 min.	Decrement 50% (TR)
	8:33	20 min.	Decrement 25% (TR)
	9:01	20 min.	TR
0	9:09	8 min.	Decrement 0% (TR)
	9:29	20 min.	TR

END OF TEST

Loading and unloading time increments have been rounded upward to the nearest whole minute. Service load = 20.0 tons (SAMPLE).

Loading and unloading time increments have been rounded upward to the nearest whole minute. Service load - 12.75 tons (SAMPLE)

3.2.7 Additional Load Cycles

Any load cycles not accomplished in accordance with these specifications shall be redone at the direction of the Contracting Officer.

3.3 REMOVAL OF PILES

After the pile tests are completed and accepted at each site, all support piles, and test piles shall be pulled. The remaining holes in the ground shall be filled to within 2 feet of the ground surface with the cement-bentonite-sand slurry. The slurry shall consist of one part cement, two parts bentonite, and six parts sand mix with enough water to produce a slurry, liquid enough to thoroughly fill voids but have no less than twelve pounds of solids per gallon. The upper 2 feet of the holes shall be filled with earth and compacted to the same density as the surrounding soil.

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SECTION 32 12 00.00 12

INCIDENTAL PAVING

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, labor, materials, equipment, and performing all operations necessary for batching, transporting, placing and finishing concrete for the transition slab paving at the end of ramp as shown on the drawings.

1.2 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for the transition slab paving work covered in this section. Payment will be included in the contract job price for "Cast-In-Place Concrete".

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM A615/A615M	(2020) Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES (2016 Edition), LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT (LADOTD)

LSSRB 203.08	Cut Area Preparation
LSSRB 302	Class II Base Course
LSSRB 601	Portland Cement Concrete Pavement
LSSRB 901	Portland Cement Concrete
LSSRB 1005.01	Joint Fillers
LSSRB 1009.01	Reinforcing Steel, Stand, and Wire Rope
LSSRB 1011.01	Curing Materials

1.4 QUALITY CONTROL

1.4.1 General

The Contractor shall establish and maintain quality control for paving operations to assure compliance with contract requirements and maintain records of his/her quality control for all construction operations

including, but not limited to the following:

(1) Check asphalt, concrete, and aggregate materials, and job mix for compliance with contract requirements; and inspect the plant mixes in accordance with the applicable LDOTD specifications.

(2) Verify that prepared fill and shell base surfaces are ready to receive paving materials and that the requirements of the test specified herein have been met prior to applying paving materials.

1.4.2 Reporting

The original and two copies of these records and tests, as well as the records of corrective action taken, shall be furnished to the Government daily. The format of the report shall be as prescribed in Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL.

PART 2 PRODUCTS

2.1 PAVING MATERIALS

2.1.1 Concrete

Concrete shall be portland cement concrete Class B meeting the requirements of LSSRB 901.

2.1.2 Reinforcing Steel

ASTM A615/A615M complying with LSSRB 1009.01.

2.1.3 Joint Filler

LSSRB 1005.01.

PART 3 EXECUTION

3.1 CONCRETE PAVING

Provide concrete paving over base course where indicated in plan meeting the requirements of LSSRB 601. Materials utilized in curing of the paving shall comply with LSSRB 1011.01.

3.2 BASE COURSE

Provide a crushed stone base course, Class II, meeting the requirements of LSSRB 302 over a properly prepared subgrade meeting the requirements of LSSRB 203.08.

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TURF ESTABLISHMENT AND MAINTENANCE

PART 1 GENERAL

1.1 SCOPE

The work provided herein consists of the Contractor furnishing all plant, labor, equipment, and materials, and performing all operations necessary for establishment and maintenance of turf on areas as specified herein. Turf will be considered established when the areas to be turfed have produced the required grass species in accordance with paragraph ESTABLISHMENT.

1.2 MEASUREMENT

1.2.1 Seeding and Mulching

Measurement for seeding and mulching will be made by the acre. Acreage will be determined from surface areas affected by construction activities. Measurement will be to the nearest foot and units computed to the nearest one-hundredth of an acre. No separate measurement will be made for placement of material required for repairs as described in paragraph REPLANTING.

1.2.2 Fertilizer

Measurement for applying initial and post fertilizer to the soil as recommended by the certified agronomist after reviewing the soil testing results shall be made by the pound. The fertilizer weights shall be computed based on the available weights of nitrogen, phosphorous, or potassium required by the Turf Establishment Plan. Other inert or elemental materials typically included in the fertilizer shall not be included in the weight measurement. Measurement will be computed to the nearest one-hundredth of a pound.

1.2.3 Lime or Sulfur Soil Amendment

Measurement for applying soil amendments (lime and/or sulfur) to the soil as recommended by the certified agronomist after reviewing the soil testing results shall be made by the ton. Measurement will be computed to the nearest one-hundredth of a ton.

1.3 PAYMENT

1.3.1 Seeding and Mulching

Payment for seeding and mulching will be made at the contract unit price per acre for "Seeding and Mulching". Price and payment shall constitute full compensation for furnishing all plant, labor, materials and equipment, including soil testing, Turf Establishment Plan, and watering to prepare the soil and apply the seed and mulch at the applicable rates as specified herein. After seeding and mulching is completed, the Contractor may

request partial payment only. Material certification and invoices must be provided to authorize the initial 60% payment when seeding is completed. The final 40% will be paid after the turf is established and finally accepted in accordance with paragraph ESTABLISHMENT.

1.3.2 Fertilizer

Payment for initial and post fertilizer as required by the Turf Establishment Plan shall be made at the contract unit price per pound for "Fertilizer". Price and payment shall constitute full compensation for furnishing all plant, labor, materials and equipment necessary to apply the fertilizer at the applicable rates as described in the Turf Establishment Plan.

1.3.3 Lime Soil Amendment

Payment for lime application will be made at the contract unit price per ton for "Lime Soil Amendment". Price and payment shall constitute full compensation for furnishing all plant, labor, materials and equipment to apply the lime soil amendment at the applicable rates as described and recommended in the Turf Establishment Plan.

1.3.4 Sulfur Soil Amendment

Payment for sulfur application will be made at the contract unit price per ton for "Sulfur Soil Amendment". Price and payment shall constitute full compensation for furnishing all plant, labor, materials and equipment to apply the sulfur soil amendment at the applicable rates as described and recommended in the Turf Establishment Plan.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-07 Certificates

Seed

The Contracting Officer's Representative shall be furnished duplicate signed copies of statements certifying that each container of seed delivered is labeled in accordance with the Federal Seed Act and any Louisiana Department of Agriculture regulations. This certification shall be obtained from the supplier and shall be furnished on or with all copies of seed invoices.

Turf Establishment Plan; G

The Contractor shall submit a Turf Establishment Plan for approval. The plan shall include recommendations for fertilizer and/or soil amendment application based upon soil testing results by a certified agronomist or soil scientist for each completed section of levee to be turfed. The Contractor shall provide the name of the certified agronomy testing laboratory in addition to copies of the levee/embankment material soil analyses data sheets. Soil analyses shall include soil pH, phosphorus, potassium, calcium, magnesium, sodium, sulfur, copper, zinc,

chloride, total dissolved salts, conductivity, and sodium absorption ratio. In addition to the soil amendment and fertilization plan, the Turf Establishment Plan shall describe procedures and specific equipment used for ground surface preparation, seeding, and mulching.

1.5 QUALITY CONTROL

1.5.1 General

The Contractor shall establish and maintain quality control for the work specified in this section to assure compliance with contract requirements and maintain records of this quality control for all construction operations including, but not be limited to, the following:

(1) Soil and Water Analyses - Soil and water analysis reports from a certified agronomic laboratory. Water used for irrigation subsequent to establishment shall be tested a minimum of once every 30 days. Soil samples will be taken in accordance with paragraph "Soil Analysis" and the test results used to determine weights of fertilizer and soil amendments required.

(2) Preparation of Ground Surface - Location and quality of finished dressing, including necessary clearing, filling, or dressing out of washes, smoothness and uniformity of surfaces, and time of year.

(3) Herbicides - Manufacturer's label, MSDS, date of application, rate of application, location and area of application, environmental conditions during herbicide application (e.g. temperature), valid applicator licensing, Pesticide Safety Plan.

(4) Fertilizing - Quality of fertilizer materials used. Areas fertilized, quantity applied, and method of application. Certificate of analysis and certificate of delivery shall be furnished to the Contracting Officer to verify quality and quantity as specified in paragraph TURF ESTABLISHMENT PLAN. The rate of application shall be checked daily to insure conformance to soil testing laboratory recommendations.

(5) Seeding - Seed species and cultivar, seed label, area covered, quantity of seed applied, and method of seed distribution. All bags of seed furnished shall have an analysis tag showing all information required by the Louisiana Seed Law. Seed furnished shall be from the previous season's crop and the date of analysis shown on each tag shall be within 5 months of time of delivery. Rate of application shall be checked daily to insure that the rate conforms to the requirements of paragraph "General".

(6) Mulching - Quality and type of mulch material applied, area covered by the mulch, quantity applied, and method of mulch application. Certificate of delivery showing weight of material delivered for either vegetative or fiber mulch shall be furnished to verify rate of application in accordance with paragraph APPLYING AND ANCHORING MULCH.

(7) Maintenance and Repair - Location and type of maintenance problems and remedial treatment performed in accordance with paragraph "Damage to Established Seeding Area".

(8) Water/Irrigation - Water analysis report, area where water was obtained, area where water was applied, purpose of water application (irrigation or used during establishment), quantity applied, and method of application.

1.5.2 Reporting

The Contractor shall furnish the original and two copies of the inspection and test records, as well as "corrective action taken" records, to the Contracting Officer's Representative daily. Format of the report shall be as prescribed in SECTION 01 45 04.00 10 CONTRACTOR QUALITY CONTROL.

1.6 AREAS TO BE TREATED

Fertilizing, soil amending, seeding, and mulching shall be performed on all disturbed areas within the construction limits.

1.7 COMMENCEMENT, PROSECUTION, AND COMPLETION

1.7.1 General

Preparation of the ground surface, fertilizing, and soil amending shall be in accordance with paragraphs PREPARATION OF GROUND SURFACE and APPLICATION OF FERTILIZER AND SOIL AMENDMENTS. Seeding operations shall be accomplished during the applicable growing season as specified in paragraph SEEDING.

1.7.2 Sequence of Work

The sequence of operations for work prescribed in this section, except mowing, shall be as follows:

(1) Soil Analyses

(2) Preparation of Ground Surface

(3) Fertilization and Soil Amendments

(4) Seeding

(5) Mulching

(6) Water Application

(7) Mowing

1.8 HERBICIDE APPLICATION PLAN

Approved herbicides may be used on areas requiring new turf establishment. At least 30 days prior to application of any herbicide, the Contractor shall furnish a Herbicide Application Plan. The Contractor shall ensure that the plan for herbicide applications complies with all applicable local, state, and federal requirements. The plan shall include the following items, as a minimum:

(1) proposed herbicides and application rates
(2) copies of herbicide manufacturer's labels and material safety data sheets
(3) any state-imposed conditions, copies of commercial and/or

restricted use herbicide applicators' certificates from the states in which the work is to be performed
(4) an activity hazard analysis
(5) environmental protection procedures
(6) spill containment procedures
(7) residue and container disposal procedures
(8) noncompliance reporting and response procedures

1.9 TURF ESTABLISHMENT PLAN

At least 14 calendar days prior to initiating grass establishment, the Contractor shall furnish a Turf Establishment Plan for review and approval. The plan shall include recommendations for fertilizer and/or soil amendment application based upon soil testing results for each completed section of levee to be turfed. These test shall be performed by a certified agronomist. Recommendations based on soil testing results will be from a testing laboratory, state agricultural extension services, or private consultant. However, the Turf Establishment Plan must be prepared by the Contractor and approved by a certified agronomist or certified soil scientist to clearly indicate the application rates for soil amendments and fertilizer. In addition to soil amendment and fertilization, the Turf Establishment Plan shall describe procedures and specific equipment used for ground surface preparation, seeding, and mulching. Unless the approved Turf Establishment Plan contains a variation, the minimum requirements for ground surface preparation, seeding, and mulching contained in this specification will be controlling.

1.9.1 Certified Agronomy Testing Laboratory

The Contractor shall provide the name of the certified agronomy testing laboratory in addition to copies of the levee/embankment material soil analyses as part of the turf establishment plan. Soil analyses shall include soil pH, phosphorus, potassium, calcium, magnesium, sodium, sulfur, copper, zinc, chloride, total dissolved salts, conductivity, and sodium absorption ratio.

1.9.2 Certified Water Analysis

The Contractor shall also provide the name of the certified water analysis laboratory as well as copies of the findings for all proposed water sources, other than municipal water sources, earmarked for grass establishment and irrigation. Water analyses shall include pH, alkalinity, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfur, total dissolved salts, conductivity, and sodium absorption ratio.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Fertilizer and Soil Amendments

Fertilizers and soil amendments in accordance with the approved Turf Establishment Plan shall be of commercial grade, uniform in composition, free flowing and suitable for the Contractor's application method. Materials shall be delivered in bulk or labeled containers and shall conform to current Louisiana Department of Agriculture requirements for commercial fertilizers and soil amendments. Federal and state Government conforming labels that indicate producer's name, type, analysis, weight, and warranty of producer shall accompany each delivery of fertilizer. The

Contractor shall provide duplicate signed copies of invoices from suppliers of fertilizer and/or soil amendments showing quantity, grade, and fertilizer analysis indicating percentages of nitrogen (soluble and insoluble), phosphorus, and potassium.

2.1.2 Seed

For turf establishment, the Contractor shall furnish and apply certified (blue-tag) seed in accordance with regulations from the U.S. Department of Agriculture (under the Federal Seed Act) and the Louisiana Department of Agriculture. Seed must be in sealed or unopened containers prior to initiation of application. Seed that is wet, moldy or otherwise non-viable due to damage in transit or storage will not be accepted. Seed that is older than one year past label germination tests will not be accepted.

2.1.3 Mulch

Mulch shall be 100% thermally treated wood mulch fiber or higher quality mulch that shall be furnished and applied by the Contractor. All mulch products shall include a minimum 3% tackifier or be anchored by a method approved by the Contracting Officer, unless the manufacturer specifies an anchoring method. Materials that contain noxious grass or weed seeds that might be detrimental to the seed establishment or turf growth or to adjacent areas will not be acceptable. Mulch shall be 100% thermally treated wood fiber or higher quality mulch as specified in the Turf Establishment Plan

2.1.4 Water Source

Water, applied during establishment and irrigation of grass on the embankment from a water source other than municipal water supply shall be analyzed by a certified water analysis laboratory. The water source shall be tested every 30 days or until operations cease use of the water source for irrigation purposes. In addition to the agronomic tests to determine irrigation water suitability, the contractor should not apply water as irrigation that may contain any substance toxic to plants or that limits plant growth (e.g. oil, acid, alkali, salt, etc.).

2.1.5 Herbicides

Herbicides shall be delivered to the mixing site in original, un-opened containers bearing legible labels indicating the EPA registration numbers and product label. All operations associated with herbicide applications shall be in strict compliance with the manufacturer's label, an approved herbicide application plan, and all local, state, and federal regulations. The Government shall be informed as to the exact date, location and time of herbicide application prior to herbicide use.

PART 3 EXECUTION

3.1 SOIL AND WATER ANALYSIS

3.1.1 Soil Analysis

Soil samples shall be collected for every 5 acres of disturbed area to be turfed. Each soil sample shall be a composite sample from no less than six random areas within the 5-acre area to a depth of four inches on the levee, embankment, and/or berm surfaces. Collected soil shall be mixed in a clean, non-metallic container. All organic matter from existing vegetation

shall be removed from the soil sample prior to submission to the testing laboratory.

3.1.2 Water Source Analysis *(Not Municipal Water Source)

Water samples from borrow canals or similar sites shall be collected in duplicate in the volume of one liter (per sample) in a clean plastic container for analysis by a certified agronomic water analysis laboratory. Debris such as sediment and algae shall be limited from within the sample.

3.2 PREPARATION OF GROUND SURFACE

3.2.1 General

Equipment, in good condition, shall be provided for ground preparation and for handling and placing all materials. The Contracting Officer's Representative shall approve equipment before work is initiated as part of the Turf Establishment Plan.

3.2.2 Vegetative and Debris Removal

Prior to soil preparation, existing vegetation shall be removed. Vegetation removal may be accomplished through mowing (scalping) or herbicide application. Any debris or material (e.g. clippings, shell, rocks, gravel) that may hinder seed germination, limit plant growth, or interfere with mowing operations shall be removed. The Contractor shall utilize a landscape rock rake or similar equipment supplemented with hand labor to remove this debris prior to fertilizing, seeding and mulching. If an herbicide is to be applied, an Herbicide Plan shall be submitted for approval by the Contracting Officer prior to herbicide application in accordance with paragraph HERBICIDE APPLICATION PLAN.

3.2.3 Grading

Where grades have not been established, the areas shall be graded as directed by the Contracting Officer's Representative and all surfaces shall be left in a true and even condition. The Contracting Officer's Representative will conduct a Pre-Turfing inspection prior to commencement of turfing operations.

3.2.4 Soil Preparation

Soil shall be tilled to a depth of 2 inches by plowing, disking, harrowing, or other approved methods in the Turf Establishment Plan in order to provide an acceptable seed bed. The soil preparation shall be performed only during periods acceptable for turf establishment, in the opinion of the Contracting Officer's Representative. Environmental conditions that may constitute unacceptable periods for soil preparation include, but are not limited to, drought, high winds, excessive moisture, etc. The work shall cease until conditions are more favorable for turf establishment. Any additional soil repair shall be completed prior to turf establishment.

3.3 APPLICATION OF FERTILIZER AND SOIL AMENDMENTS

Adjustment of soil nutrient levels will be in accordance with the approved Turf Establishment Plan as specified in paragraph TURF ESTABLISHMENT PLAN. Unless otherwise specified in the approved plan, initial fertilizers and soil amendment applications shall be incorporated into the top two inches of soil prior to seeding.

3.3.1 Fertilizer

In accordance with the approved Turf Establishment Plan, fertilizer shall be incorporated to a depth of 2 inches prior to seeding.

3.3.2 Soil pH

Soil pH shall be between 5.4 and 8.2. If the soil pH is outside of this range, one of the following amendments shall be added to adjust the soil pH.

3.3.2.1 Increasing Soil pH

A pulverized or palletized agricultural lime source shall be applied prior to planting and incorporated into the top 2 inches of soil. The rate of lime application shall be as specified in the approved Turf Establishment Plan. Dolomitic lime may be substituted for lime if magnesium levels are insufficient in accordance with the soil test results. Materials shall be hydrated lime conforming to Section 1018.03 of the 2006 edition of LDOTD Standard Specification for Roads and Bridges. The quantity of lime to be mixed with the embankment shall be determined by the soil testing results, and shall be sufficient in quantity to permit compaction to the specified density. The lime shall be uniformly spread and uniformly mixed with the soil.

3.3.2.2 Reduce Soil pH

Agricultural grade elemental sulfur shall be applied, as specified in the approved Turf Establishment Plan, prior to planting. Elemental sulfur shall be incorporated into the top two inches of soil.

3.4 SEEDING

3.4.1 General

The applicable seed shall be sown at the rate and time as indicated in the table below, unless otherwise specified in the approved Turf Establishment Plan. When delays in operations extend the work beyond the most favorable planting season for the species designated, or when conditions are such by reason of drought, high winds, excessive moisture, or other factors that satisfactory results are not likely to be obtained, work shall be stopped as directed by the Contracting Officer's Representative and resumed only when conditions are favorable for turf establishment or when approved alternative or corrective measures and procedures have been completed. If inspection during or after seeding operations indicates that areas have been left unplanted or other areas have not been adequately addressed, additional seed shall be applied.

March 2 to September 14
hulled common Bermuda grass - 150 lbs (min) of PLS/acre or bermuda grass/seashore paspalum mix or bermuda grass/bahiagrass mix - 150 lbs (min) of PLS / acre

September 15 to March 1
Step 1 - annual ryegrass-40 lbs (min) of PLS / acre to provide coverage during months when environmental conditions are not suitable for common bermuda grass establishment.

Step 2 - between March 2 and September 14 - hulled common bermuda

grass - 150 lbs (min) of PLS/acre or bermuda grass/seashore paspalum mix or bermuda grass/bahiagrass mix- 150 lbs (min) of PLS / acre

Hulled Bermuda grass may be planted in the month of February if soil temperatures are in excess of 65 F for a minimum of 7 consecutive days.

PLS (Pure Live Seed) = (label germination rate x label purity) x 100

Example of how to calculate PLS
PLS = (0.95 germination rate x 0.85 purity) x 100
PLS = 81%
Therefore 1 lb PLS requires 1/0.81 = 1.23 lbs of seed

3.4.2 Damage to Established Seeding Area

The Contractor shall be fully responsible for any damage to the establishment areas caused by his/her operations. Areas that become damaged as a result of poor workmanship or failure to meet the requirements of the specifications will be ordered repaired and reseeded to specification requirements, without any additional cost to the Government.

3.5 APPLYING AND ANCHORING MULCH

Application of mulch shall follow these guidelines unless otherwise specified in the approved Turf Establishment Plan. The mulch shall be vegetative non-asphalt mulch consisting of 100% thermally treated wood fiber or higher quality mulch. Hydro-mulch shall be applied at the rate specified in the turf establishment plan. Hydro-mulching will include a minimum 3% tackifier or be anchored by a method approved by the Contracting Officer, unless manufacturer specifies an anchoring method. The mulch and tackifier shall be applied by means of approved equipment.

3.6 WATER APPLICATION DURING TURF ESTABLISHMENT

Unless the Contracting Officer's Representative concurs that acceptable levels from precipitation have occurred to support grass establishment, watering operations will be conducted one to two days after seeding. Water shall be applied at least 2 times per week for a period of 28 days unless otherwise directed by the Contracting Officer's Representative. The application of water shall sufficiently moisten at least the top 2 inches of soil with each irrigation event. The application of water in excess, so that surface runoff occurs, is prohibited. The Contractor shall repair all damaged areas, including tire ruts and repairs to seeded and mulched areas, caused by watering at no additional cost to the Government.

3.7 INSPECTIONS AND REPORTS

After initial planting, the Contractor shall inspect newly turfed areas at least once every two weeks. For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, names of personnel making the inspection, inspection date, height of vegetation, observations and conclusions, maintenance performed, and corrective actions, if required. The report shall be furnished to the Contracting Officer's Representative within 24 hours of the inspection as a part of the Contractor's daily QC Report.

3.8 REPLANTING

The Contractor shall restore/repair any eroded areas or bare spots along the alignment in accordance with the requirements of this specification, all at no additional cost to the Government.

3.9 POST-PLANTING FERTILIZER APPLICATION

For those areas that do not require replanting, approximately one month after the initial planting, fertilizer shall be applied at the minimum rate of 45 lbs per acre using a slow-release nitrogen fertilizer formula, or at a rate as recommended in the Turf Establishment Plan. The fertilizer shall be applied with irrigation or rainfall occurring within 24 hours.

3.10 ESTABLISHMENT

Turf will be considered established and completed when the areas to be turfed have produced the required grass species, either Bermuda, Bahia or Seashore Paspalum, over a minimum of 75 percent of the entire area as determined by the Contracting Officer's Representative by random sampling. Seventy-five percent coverage shall be confirmed by the use a 1 meter square constructed from PVC with 100 blocks of 100cm2 (10 cm grid). Measurements shall be made on both sides of the levee every 100 to 250 feet. If 25 blocks of the 1-meter square are not filled with the intended vegetative species; that section of the levee shall be deemed unacceptable.

3.11 INSPECTION AND ACCEPTANCE

Acceptance inspections of the entire turfed area shall be performed by the Contracting Officer's Representative by random sampling and supplemented by visual inspections. If inspection determines that turf establishment is not complete, the Contractor shall meet with the Contracting Officer's Representative at the job site to identify bare spots, eroded areas and rutting damage and to discuss the Contractor's plan of operation for completing new turf establishment. Prior to acceptance of turfed areas by the Contracting Officer's Representative, the Contractor shall restore any damaged areas resulting from the Contractor's operations or by natural forces at no additional cost to the Government. Partial reaches will not be accepted unless determined by the Contracting Officer's Representative to be in the best interest of the Government.

3.12 INITIAL SEEDING AND FERTILIZING ACCEPTANCE

Provided all other features of work have been accepted and completed, and provided all work within the project limits have had initial seed, mulch, and fertilizer accepted, no liquidated damages will be assessed after acceptable completion of initial seeding, mulching and fertilization. The remainder of turf establishment requirements remain in force.

-- End of Section --