REQUEST FOR QUOTE

SOLICITATION NUMBER:	**6982AF26Q000013**
SOLICITATION TYPE:	**REQUEST FOR QUOTE**
PROJECT NUMBER:	**AZ NP GRCA 14(2)**
PROJECT NAME:	**ROADWAY IMPROVEMENTS**

QUOTE DATE:
See Page A-1, Item 13A

ISSUING OFFICE:

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION
12300 W. DAKOTA AVENUE, SUITE 360
LAKEWOOD, CO 80228
Web site: https://highways.dot.gov/federal-lands
E-mail: CFLContracts@dot.gov

PROJECT	AZ NP GRCA 14(2)
LOCATION	GRAND CANYON NATIONAL PARK
COUNTY	COCONINO
LENGTH:	VARIOUS
STATE	ARIZONA
TYPE OF IMPROVEMENT	DRAINAGE, ASPHALT PAVING, PAVEMENT MARKING, PAVEMENT PATCHING, GUARDRAIL, PERMANENT TRAFFIC CONTROL

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Appendix A.....Fire Plan

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ELECTRONIC QUOTES WILL BE ACCEPTED. Please submit the following with your quote: Submit the following documents with your Quote Package-

- SF-1442, Solicitation, Offer & Award, Pages A-1 and A-2
- Schedule of Items including Buy American Act & Hazardous Materials
- Annual Representation and Certifications (FAR Provision 52.204-8) and Certification Regarding Responsibility Matters (FAR Provision 52.209-5)
- Technical Approach
- Relevant Experience

Submit Quotes to: **cflcontracts@dot.gov**

Quoters should retain all other pages for their information.

I. PRE-QUOTE INFORMATION

This is a combined synopsis/solicitation for commercial products or commercial services prepared in accordance with the format in Revolutionary Federal Acquisition Regulation Overhaul (RFO) part 12. This announcement constitutes the only solicitation; proposals are being requested and a written solicitation will not be issued.

Solicitation Number 6982AF26Q000013 is issued as a Request for Quote (RFQ) for roadway improvements including pavement preservation, structural patching, and safety enhancements—Grand Canyon National Park, Coconino County, AZ

This solicitation and subsequent contract are governed by the 48 CFR, Chapter 1, Federal Acquisition Regulation (FAR), Revolutionary FAR Overhaul (RFO), and Department of Transportation Acquisition Regulation (TAR).

The clauses and provisions contained herein are applicable to any order awarded as a result of this solicitation. The terms and conditions set forth herein supersede all other terms and conditions. Acceptance of the order in accordance with RFO 12.201-1(b)(2) constitutes acceptance of all terms and conditions contained herein.

This acquisition is set-aside for small business concerns. Applicable FAR, RFO and TAR provisions and clauses in this RFQ are incorporated by reference or full text. FAR, RFO and TAR

provisions and clauses incorporated by reference can be accessed electronically at https://www.acquisition.gov/content/regulations, https://www.acquisition.gov/faroverhaul/far-part-deviation-guide and https://www.acquisition.gov/tar.

Notice of SAM Registration – Offerors or Offerors are required to have an active Federal Government contracts registration in the System for Award Management (SAM) when they submit an offer or quotation, and at the time of award. Failure to be fully registered prior to submission of a quote may require award to the next successful registered offeror. See RFO Subpart 4.203-1(b).

Register online at www.sam.gov.

"System updates may lag policy updates. The System for Award Management (SAM) may continue to require entities to complete representations based on provisions that are not included in DOT solicitations

Examples include:
• 52.222-25, Affirmative Action Compliance, and
• 52.212-3(d), Offeror Representations and Certifications—Commercial Products and Commercial Services.
• 52.223-22, Public Disclosure of Greenhouse Gas Emissions and Reduction Goals—Representation.
• 52.212-3(t), Offeror Representations and Certifications—Commercial Products and Commercial Services.

Contracting officers will not need to consider these representations when making award decisions or enforce requirements. Entities are not required to, nor are they able to, update their entity registration to remove these representations in SAM."

Representations and Certifications – This solicitation is issued under NAICS 237310 – Highway, Street & Bridge Construction with a small business size standard of $45 million. If your average annual gross receipts for the past 5 years are above $45 million, you are a large business for this solicitation. If they are below $45 million you are a small business. Before submitting quotes, you must ensure you have completed your annual representations and certifications electronically at the SAM website at www.sam.gov. Include NAICS 237310 in your SAM profile.

Accuracy and Completeness of Quote- The Contractor is fully responsible to verify that all data is correct when an offer is submitted. Failure to properly update your data may cause the offer to be rejected.
Request for Technical Information – Questions relative to the plans and SCRs for this solicitation will only be accepted in writing (see Item 9 on Page A-3).

TECHNICAL QUESTIONS REGARDING THIS SOLICITATION WILL NOT BE ACCEPTED AFTER 4 P.M. ON JULY 10, 2026

Questions can be submitted to cflcontracts@dot.gov. Questions and answers will be posted at https://sam.gov

Revision of Quotations – Vendors may alter or retract their submissions via standard mail or electronic commerce (email), provided that the government receives notification **before the established closing deadline for receipt of quotes**. The Government will not be responsible for ANY failure attributable to the transmission or receipt of electronic commerce (email).

For all modifications, we **STRONGLY ENCOURAGE you to resubmit the entire schedule of items with a unit price and amount for every item, and a Schedule Total.** See RFO Clause 52.212-1, Instructions to Offerors—Commercial Products and Commercial Services (SEP 2023)(DEVIATION SEP 2025). Modifications which make the quote ambiguous, indefinite, or uncertain as to any essential requirement of the contract will cause the quote to be rejected as nonresponsive.

Email Address to submit modifications to quotes for this project is cflcontracts@dot.gov

II. POST AWARD INFORMATION

Insurance requirements - See Section 7- Legal Relations and Responsibility to the Public

NON-MANDATORY PRE-BID VIRTUAL MEETING

A **pre-bid virtual meeting** will be conducted to solicit contractor interest and to orient contractors with the project prior to the bid opening. A Representative from the Federal Highway Administration (FHWA) will conduct a meeting on **Tuesday, July 7, 2026, from 11:00 a.m. to 12:00 noon Local Mountain Time**. FHWA will provide a brief project presentation and will be available to answer questions.

If you would like to attend the virtual meeting, please email CFLContracts@dot.gov by **Monday, July 6, 2026, 11:00 a.m., Local Mountain Time** to request a link to join the presentation. The virtual meeting will be held using Google Meet. No summary of the meeting will be available for those who do not attend.

ATTENDANCE AT THE PRE-BID VIRTUAL MEETING IS NOT REQUIRED TO BID

SOLICITATION, OFFER AND AWARD *(Construction, Alteration or Repair)*	1. SOLICITATION NO. 6982AF26Q000013	2. TYPE OF SOLICITATION ☐ SEALED BID *(IFB)* ☒ NEGOTIATED *(RFP)*	3. DATE ISSUED 06/30/2026	PAGE OF PAGES 1 of 2

IMPORTANT - THE "OFFER SECTION ON THE REVERSE MUST BE FULLY COMPLETED BY OFFEROR.

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO. HFLCEO260192PR	6. PROJECT NO. AZ NP GRCA 14(2)

7. ISSUED BY: CODE: 69050001	8. ADDRESS OFFER TO:
FEDERAL HIGHWAY ADMINISTRATION CENTRAL FEDERAL LANDS DIVISION 12300 WEST DAKOTA AVENUE, SUITE 167 LAKEWOOD, COLORADO 80228	Jorey Deml, Contract Specialist Federal Highway Administration Central Federal Lands Division Office 12300 W. Dakota Avenue Lakewood, CO 80228

9. FOR INFORMATION CALL	A. NAME:	B. TELEPHONE NO. *(Include area code)*
SEE PAGE A-3	SEE PAGE A-3	SEE PAGE A-3

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:

ROADWAY CONSTRUCTION PROJECT IN STRICT ACCORDANCE WITH:

1. **48 CFR, CHAPTER 1, FEDERAL ACQUISTION REGULATION (FAR), REVOLUTIONARY FAR OVERHAUL (RFO) AND THE DEPARTMENT OF TRANSPORATION REGULATION (TAR)**
2. **DEPARTMENT OF LABOR, CONSTRUCTION WAGE RATE REQUIREMENT RATES.**
3. **PROJECT SPECIFIC REQUIREMENTS.**
4. **PLANS.**
5. **SCHEDULE OF ITEMS.**

11. The Contractor shall begin performance within __10__ calendar days and complete it within __*__ calendar days after receiving ☐ award ☒ notice to proceed. The performance period is ☒ mandatory ☐ negotiable. ***See Page A-3**

12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? *(If "YES," indicate within how many calendar days after award in Item 12B.)* ☒ YES ☐ NO	12B. CALENDAR DAYS 10

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and __1__ copies to perform the work required are due at the place specified in Item 8. by __2:00 p.m.__ (hour) local time on __07/15/2026__ (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 ☒ 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.

OFFEROR ***(Must be fully completed by offeror)***

14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*	15. TELEPHONE NO. *(Include area code)*
	16. REMITTANCE ADDRESS *(Include only if different than Item 14)*
UEI.	

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 with 60 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	SEE INDIVIDUAL BID SCHEDULE(S)

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 NO.										
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 BLOCK 27 *(4 copies unless otherwise specified)*	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO ☐ 10 U.S.C. 2304(c)( ) ☐ 41 U.S.C. 3304(a)( )
26. ADMINISTERED BY CODE: _____	27. PAYMENT WILL BE MADE BY FEDERAL HIGHWAY ADMINISTRATION CENTRAL FEDERAL LANDS HIGHWAY DIVISION 12300 W. DAKOTA AVENUE, SUITE 167 LAKEWOOD, COLORADO 80228

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. AWARD DATE

Item 9: **FOR GENERAL INFORMATION:** E-mail us at CFLContracts@dot.gov.

FOR TECHNICAL INFORMATION (plans and specifications): Questions must be submitted in writing by e-mail at CFLContracts@dot.gov .

Item 11: **COMPLETION DATE:** 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 **See Section 8** in the RFQ, subject to such extensions as may be authorized. The time stated for completion shall include final cleanup of the premises.

The completion date is based on the assumption that the successful offeror will receive the notice to proceed by August 19, 2026. The completion date will be extended by the number of calendar days after the above date that the Contractor receives the notice to proceed, except to the extent that the delay in issuance of the notice to proceed results from the failure of the Contractor to execute the contract and give the required performance and payment bonds within the time specified in the offer.

Work shall be completed on or before the date specified above, subject to such extensions as may be authorized by the terms of the contract and the specifications made a part thereof.

Item 12A: **PERFORMANCE AND PAYMENT BONDS:** See RFO *Clause 52.228-15 Performance and Payment Bonds-Construction* (Clauses begin on Page C-1) and Section 2 in the RFQ.

Item 13B: **BID BOND AMOUNT:** See RFO Provision *52.228-1 Bid Guarantee* (Provisions begin on Page B-1) and *Section 2 Bid Guarantee* of the RFQ. All bid guarantees must have original signatures with original corporate seals.

Item 19: **ACKNOWLEDGMENT OF AMENDMENTS:** FAILURE TO ACKNOWLEDGE AMENDMENTS, **IN ITEM 19 OF THE SF-1442,** BY THE DESIGNATED DATE AND HOUR SPECIFIED IN THE SOLICITATION MAY RESULT IN REJECTION OF YOUR QUOTE. If amendments are issued, they will be posted to https://sam.gov.

Item 24: **SUBMITTING INVOICES:** See *Section 9 Measurement and Payment* of the RFQ.

ESTIMATED PRICE: The price range of the project work is between $2,000,000 and $5,000,000.

Schedule of Items Instructions

QUOTERS, PLEASE NOTE: This RFQ is comprised of one (1) schedule. Before preparing the quote, carefully read the Solicitation Provisions and the following:

- Insert a numeric unit bid price for each pay item for which a quantity appears in the Schedule of Items. Unit bid prices should be quoted no more precisely than the nearest cent (2 decimal places). Unit bid prices quoted more precisely will be rounded up to the nearest cent by the Government

- Multiply the unit price by the quantity for each pay item and show the amount bid. When the words "Lump Sum" appear as a unit bid price, insert an amount for each lump sum pay item.

- Total all amounts quoted for each pay item and show the Construction Cost Total on the space provided on the last page of each schedule or option.

- Also show the Construction Cost Total for each schedule/option as well as the combined Total of each Schedule and the Option in the spaces provided on the Schedule of Items Summary page.

NOTE: If the amount quoted for a pay item is inconsistent with the product of the unit price provided by the quoter and the quantity provided by the Government, the unit price will govern and the Government will determine a corrected amount quoted for the pay item by multiplying the unit price by the quantity.

Basis for Award

To be eligible for award of contract, the offeror shall submit prices for each item necessary to complete all contract work in Schedule A.

The provision at RFO 52.212-2, Evaluation—Commercial Products and Commercial Services is not applicable to this solicitation. In lieu of this provision, quotes will be evaluated in accordance with FAR 12.203(c)(2).

The Government intends to make a single award to the responsible offeror whose quotation is determined to be the most advantageous to the Government, considering price and non-price factors identified in this solicitation. Consistent with RFO Part 12 procedures, the Government will use a **comparative evaluation** to determine which quotation is most advantageous. Under this method, the Government compares quotations directly to one another, assessing the relative strengths, weaknesses, and benefits of each, rather than evaluating each quotation against a fixed set of standards or using a formal rating system.

The Government may select a quotation that is not the lowest priced if its non-price factors provide superior value or reduced performance risk. Conversely, the Government may select a lower-priced quotation if its non-price factors contribute enough value that it is determined to be equal or close in merit to higher-priced alternatives.

EVALUATION FACTORS

The Government will perform a comparative assessment based on the following three factors:

1. PRICE

- The Government will evaluate the total price for all items in the Bid Schedule.
- Prices will be assessed for reasonableness per RFO 12.204.
- The Government may consider price differences in relation to the comparative advantages offered by non-price factors. Price is more important than the other factors on an individual basis.

2. TECHNICAL APPROACH

The technical approach should be in as much detail as the offeror considers necessary to fully explain the proposed technical approach or method. Provide an explanation of how the work will be done, including:

- **Capability and Subcontracting**: Provide a detailed explanation of your capability to execute the work. This should include a description of the specific tasks you intend to subcontract. If subcontractors are part of your proposed team, describe their roles in the project.

- **Key Personnel:** Submit a list of personnel with job titles and years of experience. Show the experience that the personnel have with similar projects.

- **Performance Schedule:** The Contractor is required to submit a schedule that outlines the planned sequencing of major work activities. The schedule should show durations for the major work activities and be expressed in calendar days.

3. RELEVANT EXPERIENCE

Provide three examples of projects similar in size, scope, and complexity completed within the last five years. To be considered "similar", a project must have been greater than $2,000,000 that included construction of guardrail system MSG- Type 4 Class B steel posts, asphalt concrete pavement patching Types 1 -3, pipe culverts, guardrail, and pavement markings. Include the following:

- Project title and location
- Brief description of work performed.
- Dollar value and year completed.
- Customer name and contact information

The Government is not required to assign weights, scores, formal ratings, or adjectival grades to any factor, consistent with comparative evaluation guidance

EVALUATION METHOD

The Government will utilize a multi-step process to ensure a fair and efficient selection:

1. **Administrative Review:** Determine if quotations are complete and compliant with RFQ requirements.

2. **Technical Acceptability:** Identify quotes that meet the minimum requirements of the Solicitation.

3. **Comparative Analysis:** Conduct a side-by-side comparison of all acceptable quotations. The Government will assess the relative benefits and tradeoffs of each.

4. **Selection Rationale:** Document key observations supporting the selection. Consistent with RFO 12.203, no formal scoring, adjectival ratings, or competitive range determinations will be used.

SCHEDULE OF ITEMS

Project No: AZ NP GRCA 14(2)

Project Name: Roadway Improvements

Schedule: A

Schedule Type: Base

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	ITEM COST
ITEM 1	MOBILIZATION	LPSM	ALL		
ITEM 2	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LPSM	ALL		
ITEM 3	DITCH, EXCAVATION	LNFT	450		
ITEM 4	REVET MATTRESS, GALVANIZED OR ALUMINIZED COATED	SQYD	30		
ITEM 5	ASPHALT CONCRETE PAVEMENT	TON	1,400		
ITEM 6	TACK COAT	TON	6		
ITEM 7	ASPHALT CONCRETE PAVEMENT PATCH, TYPE 1	SQYD	1,300		
ITEM 8	ASPHALT CONCRETE PAVEMENT PATCH, TYPE 2	SQYD	1,625		
ITEM 9	ASPHALT CONCRETE PAVEMENT PATCH, TYPE 3	SQYD	425		
ITEM 10	36-INCH PIPE CULVERT	LNFT	50		
ITEM 11	END SECTION FOR 36-INCH PIPE CULVERT	EACH	2		
ITEM 12	GUARDRAIL SYSTEM MGS, TYPE 4, CLASS B, STEEL POSTS	LNFT	3,625		
ITEM 13	TERMINAL SYSTEM, TYPE MGS TANGENT	EACH	7		
ITEM 14	TERMINAL SYSTEM, TYPE MGS-BAT	EACH	1		
ITEM 15	GATE (ROAD CLOSURE GATE)	EACH	1		
ITEM 16	SIGN SYSTEM	EACH	30		
ITEM 17	OBJECT MARKER, TYPE 2	EACH	100		
ITEM 18	DELINEATOR, TYPE SNOW POLE	EACH	1,250		
ITEM 19	PAVEMENT MARKINGS (TYPE B)	MILE	105		
ITEM 20	TEMPORARY TRAFFIC CONTROL	LPSM	ALL		
	Submitted by:		Schedule Total:		

Schedule	Bid Total
Schedule A - Base	

INSTRUCTIONS: When the offeror/principal is a corporation, include this certification with your offer/bid.

Corporate Certificate

I,_____(name), certify that I am the

_____(title), of the corporation named as the

Offeror/Principal herein;

that_____(name), who signed this

offer and/or bid bond on behalf of_____(company name) is

_____(title) of this corporation;

that the offer was duly signed for and on behalf of said corporation by authority and scope of

its governing body, and within the scope of its corporate powers.

_____(signature) Affix Corporate Seal

_____(title)

INSTRUCTIONS: When the offeror/principal is a limited liability corporation, include this certification with your offer/bid.

Limited Liability Certificate

I,_____(name), certify that I am the

_____(title), of the limited liability company

named as the Offeror/Principal herein;

that_____(name), who signed this

offer and/or bid bond on behalf of_____(company name) is

_____(title) of this company;

that the offer was duly signed for and on behalf of said company by authority and scope of its

governing body, and within the scope of its powers.

_____(signature)

_____(title)

Affix Company Seal
(as applicable)

INSTRUCTIONS: When the offeror/principal is a partnership, include this certification with your offer/bid.

Authority to Bind Partnership

This certifies that the names and signatures of all partners are listed below, and that the person signing the proposal has the authority to actually bind the partnership pursuant to its partnership agreement. Each of the partners individually has full authority to enter into and execute contractual instruments on behalf of said partnership, except as follows:

(State "None" or describe limitations, if any)

_____

_____

_____

_____

This authority shall remain in full force and effect until such time as the revocation of authority by any cause whatsoever has been furnished in writing to and acknowledge by the Contracting Officer.

(Include names and signatures of all partners)

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

INSTRUCTIONS: When the offeror/principal is a joint venture, include this certification with your offer/bid.

Authority to Bind Joint Venture

This certifies that the person signing the proposal has the authority to actually bind the joint venture pursuant to its joint venture agreement, and that each of the named persons listed below individually has full authority to enter into and execute contractual instruments on behalf of said joint venture, except as follows:

(State "None" or describe limitations, if any)

_____

_____

_____

_____

This authority shall remain in full force and effect until such time as the revocation of authority by any cause whatsoever has been furnished in writing to and acknowledge by the Contracting Officer.

(Include names and signatures of all applicable individuals)

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

INSTRUCTIONS: When the offeror/principal is a sole proprietorship, include this certification with your offer/bid.

Sole Proprietorship Requirement

An Offeror/Principal that is a sole proprietorship must submit an offer/bid and a bond signed by the sole proprietor, or by one duly authorized to sign for the sole proprietor. If the signature is by someone other than the sole proprietor, a copy of the power of attorney authorizing the individual to sign must be provided with the offer/bid.

BUY AMERICAN ACT- CONSTRUCTION MATERIALS

It is understood and agreed that the materials and components listed in Subparts 25.1 and 25.2 of the RFO are a part of this contract and are deemed to be Domestic Construction Material for the purposes of this contract.

NOTE TO CONTRACTOR:

The following information and any applicable supporting data is required for evaluation of requests under RFO Clause 52.225-9 Paragraph (c) & (d) and RFO Provision 52.225-10 Paragraph (b).

Material and/or Component

Construction Material Description	Unit of Measure	Quantity	*Cost Delivered to Job Site
Foreign Construction Material			
Comparable Domestic Material			

Material and/or Component

Construction Material Description	Unit of Measure	Quantity	*Cost Delivered to Job Site
Foreign Construction Material			
Comparable Domestic Material			

[Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).]*
[Please include name, address, telephone number and contact for suppliers surveyed. Attach copy of response; if oral, attach summary. Include all applicable supporting information.]

HAZARDOUS MATERIALS

As required by RFO Clause 52.223-3, Hazardous Materials Identification and Safety Data - Alternate I, the apparent low quoter must submit prior to award a Material Safety Data Sheet (MSDS) for all hazardous materials that the quoter identifies in paragraph (b) of the RFO clause and defined under the latest version of Federal Standard No. 313.

Hazardous Material	Identification Number

BIOBASED PRODUCTS AND SUSTAINABLE PRODUCTS AND SERVICES

See RFO Provision 52.223-1 Biobased Product Certification and RFO 52.223-2 Reporting of Biobased Products Under Service and Construction Contracts for usage, certification, and reporting requirements.

USE OF RECOVERED MATERIALS ON FEDERAL LANDS HIGHWAY PROJECTS

Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, as amended (42 U.S.C. 6901 et seq.), requires Federal, State, and local procuring agencies using appropriated Federal funds to purchase items composed of the highest percentage of recovered materials practical. Use of recovered materials is strongly encouraged on Federal Lands Highway Projects. Highway construction items covered by the Environmental Protection Agency's *Comprehensive Guidelines for Procurement of Products Containing Recovered Materials* include fly ash, ground granulated blast furnace slag, traffic barricades, traffic cones, hydraulic mulch and compost for mulch.

Use of fly ash and ground granulated blast furnace slag and construction materials containing fly ash and ground granulated blast furnace slag on Federal Lands Highway Projects:

- It is the policy of the United States Government that fly ash and ground granulated blast furnace slag and materials containing fly ash and ground granulated blast furnace slag shall have maximum practicable opportunity for incorporation into its construction projects.
- The Contractor agrees to investigate the use of fly ash and ground granulated blast furnace slag and materials containing fly ash and ground granulated blast furnace slag to the fullest extent consistent with the efficient performance of this contract. Both the contractor and the subcontractors are urged to seek out suppliers of fly ash and ground granulated blast furnace slag, cement and concrete containing fly ash and ground granulated blast furnace slag and to solicit quotes for these materials.
- Names of firms that supply fly ash and ground granulated blast furnace slag and materials containing fly ash and ground granulated blast furnace slag are available from the American Coal Ash Association and the National Slag Association.

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		6982AF26Q000013
20	3	000	000	00	For (Construction, Supplies Or Services) Construction	

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.

FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

QUOTER'S INFORMATION

INSTRUCTIONS: Answer all questions on this form inserting "none" or "not applicable" where appropriate. If more space is required attach additional sheets. Return the signed, dated and completed form with the bid to the address shown in the invitation for bids on or before the time set for bid opening. The prospective bidder shall provide any additional information requested by the Government during evaluation of the bids.

If the prospective bidder is a joint venture or general partnership, a separate Quoter's Qualifications form shall be provided individually for each joint venture participant or partner.

1. Name and address of business:

Name _____

Unique Entity ID and DUNS _____

Street _____

Employer ID Number (EIN)* _____

City _____ State _____ Zip Code _____

* Necessary for Government reporting purposes only.

County _____

Telephone Number (Include Area Code) _____

Fax Number (Include Area Code) _____

E-mail address _____

2. a. Type of organization (check appropriate box):

☐ Individual ☐ Non-profit organization ☐ Corporation

☐ Partnership ☐ Joint Venture ☐ Incorporated in: _____

If a Foreign entity:

☐ Individual ☐ Non-profit organization ☐ Corporation

☐ Partnership ☐ Joint Venture ☐ Registered in: _____

b. Size and type of Business Concern (check appropriate boxes):

☐ Large Business Concern ☐ Small Disadvantaged Business Concern ☐ Emerging Small Business

☐ Small Business Concern ☐ Women-Owned Small Business ☐ SBA 8(a) Certified

☐ HUB Zone Business Concern ☐ Veteran Owned Business Concern ☐ Service-Disabled Veteran-Owned Business Concern

3. If a joint venture or general partnership:

   a. Provide the name under which the project will be bid, the home office address, and name of the principal who will represent the company with regard to this project if different from "1." above.

   _____
   Principal

   _____
   Business Name

   _____
   Street

   _____
   City State Zip Code

   b. Provide the name and home office addresses of each of the joint venture partners; indicate which partner is the sponsoring partner. Attach a separate sheet for additional partners.

Sponsoring Partner	Other Partner
Street	Street
City State Zip Code	City State Zip Code

4. Date organization established:_____

5. Name of succeeded business, if any: _____

6. How many years have you been in business as:

   a. General contractor ___ years.

   b. Subcontractor ___ years.

7. a. Furnish the following information concerning the owner, partners, officers and directors:

Name	Title	Percent of Business Owned	Years of Business Experience	
			Contracting	Other

   b. Attach resumes of these key personnel as well as the on-site project manager(s) and superintendent(s), and specifically identify the following:

- Present position, responsibility, and length of employment.
- Amount and type of construction experience.
- Amount and type of highway construction experience, including position, responsibility, and a brief project description of each period of employment.
- Formal education and training, professional or technical registrations or licenses.

8. a. Contracts in force. (Attach additional sheets if necessary)

Project Name and Contract Numbers	Owner's Name, Address, and Contact Name, Email and Telephone #	Scope of Work Performed	Contract Amount	Estimated Completion Date	Name of Surety

b. Are there any unresolved claims or lawsuits associated with these projects? If so, state the amount in dispute, parties involved, nature and circumstances of the dispute, and status of the matter on a separate sheet.

9. a. List up to five of the largest jobs you have completed in the last five years which are similar in project work scope to this project. (Attach additional sheets if necessary)

Project Name and Contract Numbers	Owner's Name, Address, Contact Name, Email and Telephone #	Scope of Work Performed	Original and Final Contract Amounts	Original and Final Completion Dates	Names of On-site Project Manager and Superintendent	Name of Surety

b. Are there any unresolved claims or lawsuits associated with these projects? If so, state the amount in dispute, parties involved, nature and circumstances of the dispute, and status of the matter on a separate sheet

Solicitation Provisions

52.203-11 Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions. (SEP 2024)

52.203-18 Prohibition on Contracting with Entities that Require Certain Internal Confidentiality Agreements-Representation. (JAN 2017)

52.204-7 System for Award Management. (NOV 2024)(DEVIATION NOV 2025)

52.204-90 Offeror Identification (DEVIATION NOV 2025)

52.209-5 Certification Regarding Responsibility Matters. (AUG 2020)(DEVIATION SEP 2025)(DEVIATION JAN 2026)

52.209-7 Information Regarding Responsibility Matters (OCT 2018)(DEVIATION SEP 2025)(DEVIATION JAN 2026)

52.209-11 Representation by Corporations Regarding Delinquent Tax Liability or a Felony Conviction under any Federal Law (FEB 2016)(DEVIATION SEP 2025)(DEVIATION JAN 2026)

52.209-13 Violation of Arms Control Treaties or Agreements – Certification (NOV 2021)(DEVIATION SEP 2025)(DEVIATION JAN 2026)

52.212-1 Instructions to Offerors—Commercial Products and Commercial Services (SEP 2023)(DEVIATION SEP 2025)

52.216-1 Type of Contract. (APR 1984)(DEVIATION OCT 2025)

The Government contemplates award of a bilateral ***FIRM FIXED PRICE*** contract resulting from this solicitation.

(End of provision)

52.219-1 Small Business Program Representations (FEB 2024)(DEVIATION NOV 2025)

52.222-5 Construction Wage Rate Requirements Secondary Site of the Work. (MAY 2014)(DEVIATION OCT 2025)

52.223-1 Bio based Product Certification (MAY 2024)(DEVIATION FEB 2025) (DEVIATION DEC 2025)

As required by the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8101(4)) and the Energy Policy Act of 2005 (7 U.S.C. 8102(a)(2)(F)), the Offeror certifies, by signing this offer, that biobased products (within categories of products listed by the United States Department of Agriculture at https://www.biopreferred.gov/resources/categories.html to be used or delivered in the performance of the contract, other than biobased products that are not purchased by the Offeror as a direct result of this contract, will comply with the applicable specifications or other contractual requirements.

(End of provision)

52.225-10 Notice of Buy American Requirement—Construction Materials (MAY 2014)

52.228-1 Bid Guarantee. (SEP 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.

52.233-2 Service of Protest. (SEP 2006)(DEVIATION SEP 2025)

(a) Protests, (as defined in section 33.102), that are filed directly with an agency, and copies of any protests that are filed with the Government Accountability Office (GAO), must be served on the Contracting Officer identified in the solicitation by obtaining written and dated acknowledgment of receipt from them.

Mrs. Leslie Karsten
Acquisitions Branch Chief
Federal Highway Administration
12300 West Dakota Avenue, Suite 360

Lakewood, Colorado 80228

(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)

52.240-90 Security Prohibitions and Exclusions Representations and Certifications. (DEVIATION SEP 2025)

52.252-1 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): ***http://www.acquisition.gov/far*** and ***https://www.acquisition.gov/far-overhaul/far-part-deviation-guide/far-overhaul-part-52***

(End of provision)

52.252-3 Alterations in Solicitation. (APR 1984)

Portions of this solicitation are altered as follows: ***NONE***

(End of provision)

52.252-5 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 or contract of any Revolutionary FAR Overhaul (RFO) (48 CFR All Changed Chapters, https://www.acquisition.gov/far-overhaul/far-part-deviation-guide/far-overhaul-part-52) and the Department of Transportation Regulation (TAR) (48 CFR, Chapter 12) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of provision)

1252.239–92 Information and Communication Technology Accessibility Notice (NOV 2022)

Contract Clauses

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)

52.203-14 Display of Hotline Poster(s) (NOV 2021)

(a) *Definition.*

United States, as used in this clause, means the 50 States, the District of Columbia, and outlying areas.

(b) *Display of fraud hotline poster(s).* Except as provided in paragraph (c)—

(1) During contract performance in the United States, the Contractor shall prominently display in common work areas within business segments performing work under this contract and at contract work sites-

(i) Any agency fraud hotline poster or Department of Homeland Security (DHS) fraud hotline poster identified in paragraph (b)(3) of this clause; and

(ii) Any DHS fraud hotline poster subsequently identified by the Contracting Officer.

(2) Additionally, if the Contractor maintains a company website as a method of providing information to employees, the Contractor shall display an electronic version of the poster(s) at the website.

(3) Any required posters may be obtained as follows:

General Fraud	**https://www.oig.dot.gov/sites/default/files/files/OIG-generic-2.pdf**

(c) If the Contractor has implemented a business ethics and conduct awareness program, including a reporting mechanism, such as a hotline poster, then the Contractor need not display any agency fraud hotline posters as required in paragraph (b) of this clause, other than any required DHS posters.

(d) *Subcontracts.* The Contractor shall include the substance of this clause, including this paragraph (d), in all subcontracts that exceed the threshold specified in Federal Acquisition Regulation 3.1004(b)(1) on the date of subcontract award, except when the subcontract—

(1) Is for the acquisition of a commercial product or commercial service; or

(2) Is performed entirely outside the United States.

(End of clause)

52.203-17 Contractor Employee Whistleblower Rights and Requirements to Inform Employees of Whistleblower Rights (NOV 2023)

52.203-19 Prohibition on Requiring Certain Internal Confidentiality Agreements or Statements (JAN 2017)

52.204-9 Personal Identity Verification of Contractor Personnel (JAN 2011)

52.204-10 Reporting Executive Compensation and First-Tier Subcontract Awards. (JUN 2020)(DEVIATION NOV 2025)

52.204-13 System for Award Management Maintenance. (OCT 2018)(DEVIATION NOV 2025

52.204-14 Service Contract Reporting Requirements (OCT 2016)(DEVIATION NOV 2025)

52.204-19 Incorporation by Reference of Representations and Certifications. (DEC 2014)(DEVIATION NOV 2025)

52.204-91 Contractor Identification (DEVIATION NOV 2025)

52.209-6 Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment. (JAN 2025)(DEVIATION SEP 2025)(DEVIATION JAN 2026)

52.209-10 Prohibition on Contracting With Inverted Domestic Corporations (NOV 2015)(DEVIATION SEP 2025)(DEVIATION JAN 2026)

52.211-12 Liquidated Damages - Construction. (SEP 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 $ ***2,900.00*** 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)

52.211-13 Time Extensions. (SEP 2000)

52.212-4 Terms and Conditions—Commercial Products and Commercial Services (NOV 2025)(DEVIATION SEP 2025)
This is a commercial construction acquisition. FAR 52.212-4 is amended as follows:

(b) *Inspection/Acceptance*. Inspection and Acceptance will be conducted in accordance with **FAR 52.246-12**, **Inspection of Construction (AUG 1996).**
(d) *Changes.* Changes will be handled in accordance with the following FAR clause: **52.243-4, Changes (JUN 2007)(DEVIATION JUL 2025)**

52.219-6 Notice of Total Small Business Set-Aside (NOV 2020)(DEVIATION NOV 2025)

52.219-8 Utilization of Small Business Concerns (JAN 2025)(DEVIATION NOV 2025)

52.219-14 Limitations on Subcontracting (OCT 2022)(DEVIATION NOV 2025)

52.219-28 Post-Award Small Business Program Rerepresentation (JAN 2025)(DEVAITION NOV 2025)

52.222-1 Notice to the Government of Labor Disputes. (FEB 1997)(DEVIATION OCT 2025)

52.222-3 Convict Labor. (JUN 2003)(DEVIATION OCT 2025)

52.222-4 Contract Work Hours and Safety Standards Act - Overtime Compensation. (MAY 2018)(DEVIATION OCT 2025)

52.222-6 Construction Wage Rate Requirements. (AUG 2018)(DEVIATION FEB 2025)(DEVIATION OCT 2025)

52.222-7 Withholding of Funds. (MAY 2014)(DEVIATION OCT 2025)

52.222-8 Payrolls and Basic Records. (JUL 2021)(DEVIATION OCT 2025)

52.222-10 Compliance with Copeland Act Requirements. (FEB 1988)(DEVIATION OCT 2025)

52.222-11 Subcontracts (Labor Standards). (MAY 2014)(DEVIATION FEB 2025)(DEVIATION OCT 2025)

52.222-12 Contract Termination - Debarment. (MAY 2014)(DEVIATION FEB 2025)

52.222-13 Compliance with Construction Wage Rate Requirements and Related Regulations. (MAY 2014)

52.222-14 Disputes Concerning Labor Standards. (FEB 1988)(DEVIATION OCT 2025)

52.222-15 Certification of Eligibility. (MAY 2014)

52.222-35 Equal Opportunity for Veterans. (JUN 2020)(DEVIATION OCT 2025)

52.222-36 Affirmative Action for Workers with Disabilities. (JUN 2020)(DEVIATION OCT 2025)

52.222-37 Employment Reports on Veterans (JUN 2020)(DEVIATION OCT 2025)

52.222-40 Notification of Employee Rights Under the National Labor Relations Act (DEC 2010)(DEVIATION OCT 2025)

52.222-50 Combating Trafficking in Persons (OCT 2025)(DEVIATION OCT 2025)

52.222-54 Employment Eligibility Verification (JAN 2025)(DEVIATION OCT 2025)

52.222-62 Paid Sick Leave Under Executive Order 13706 (JAN 2022)(DEVIATION OCT 2025)

52.222-90 Addressing DEI Discrimination by Federal Contractors (DEVIATION APR 2026)

(a) *Definitions*. As used in this clause—
Program participation means membership or participation in, or access or admission to: training, mentoring, or leadership development programs; educational opportunities; clubs; associations; or similar opportunities that are sponsored or established by the contractor or subcontractor.

Racially discriminatory diversity, equity, and inclusion (DEI) activities means disparate treatment based on race or ethnicity in the recruitment, employment (e.g., hiring, promotions), contracting (*e.g.*, vendor agreements), program participation, or allocation or deployment of an entity's resources.

(b) In connection with the performance of work under this contract, the Contractor agrees as follows:

(1) The Contractor will not engage in any racially discriminatory DEI activities;

(2) The Contractor will furnish all information and reports, including providing access to books, records, and accounts, as required by the Contracting Officer, for purposes of ascertaining compliance with this clause;

(3) In the event of the Contractor's or a subcontractor's noncompliance with this clause, this contract may be canceled, terminated, or suspended in whole or in part, and the Contractor or subcontractor may be declared ineligible for further Government contracts;

(4) The Contractor will report any subcontractor's known or reasonably knowable conduct that may violate this clause to the Contracting Officer and take any appropriate remedial actions directed by the Contracting Officer; and

(5) The Contractor will inform the Contracting Officer if a subcontractor sues the Contractor and the suit puts at issue, in any way, the validity of this clause.

(6) The Contractor recognizes that compliance with the requirements of this clause are material to the Government's payment decisions for purposes of 31 U.S.C. 3729(b)(4).

(c) The Contractor must include the substance of this clause, including this paragraph (c), in subcontracts at any tier, including those for commercial products and commercial services, except those where the place of delivery or performance is outside the United States.

(End of clause)

52.223-5 Pollution Prevention and Right-to-Know Information. (MAY 2024)

52.223-23 Sustainable Products and Services (May 2024)(DEVIATION FEB 2025)(DEVIATION DEC 2025)

52.223-2 Reporting of Biobased Products Under Service and Construction Contract. (MAY 2024)(DEVIATION FEB 2025)(DEVIATION DEC 2025)

(a) Definitions. As used in this clause—

Biobased product means a product determined by the U.S. Department of Agriculture (USDA) to be a commercial product or industrial product (other than food or feed) that is composed, in whole or in significant part, of biological products, including renewable domestic agricultural

materials and forestry materials, or that is an intermediate ingredient or feedstock. The term includes, with respect to forestry materials, forest products that meet biobased content requirements, notwithstanding the market share the product holds, the age of the product, or whether the market for the product is new or emerging. (7 U.S.C. 8101) (7 CFR 4270.2).

USDA-designated product category a generic grouping of biobased products that are listed by USDA in a procurement guideline (7 CFR part 4270) and for which USDA has provided minimum biobased content standards
(see https://www.biopreferred.gov/resources/categories.html).

(b) Requirement. The Contractor shall—

(1) Report to https://www.sam.gov, with a copy to the Contracting Officer, on the product types and dollar value of any biobased products in USDA-designated product categories purchased by the Contractor during the previous Government fiscal year, between October 1 and September 30; and

(2) Submit this report no later than—

(i) October 31 of each year during contract performance; and
(ii) At the end of contract performance.

(End of clause)

52.223-3 Hazardous Material Identification and Material Safety Data. (FEB 2021)(DEVIATION DEC 2025)

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

Sustainable product means—

(1) A product that contains recovered material designated by the EPA under the Comprehensive Procurement Guidelines (42 U.S.C. 6962) (40 CFR part 247)
(https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program#products).

(2) An energy-efficient product or low standby power device (42 U.S.C. 8259b) (10 CFR part 436, subpart C) (https://www.energy.gov/eere/femp/search-energy-efficient-products, https://www.energystar.gov/products?s=mega, and https://www.energy.gov/femp/low-standby-power-product-list).

(3) A biobased product that meets the content requirements of the USDA under the BioPreferred® program (7 U.S.C. 8102) (7 CFR Part 4270) (https://www.biopreferred.gov/).
(4) A substance identified in the EPA's Significant New Alternatives Policy (SNAP) program as a safe alternative to an ozone-depleting substance (42 U.S.C. 7671l) (40 CFR part 82, subpart G)
(https://www.epa.gov/snap/unacceptable-and-acceptable-substitutes-tables).

(b) Requirements. The Government has identified in the statement of work or elsewhere in the contract the sustainable products that are required during the performance of this contract. The Contractor shall ensure that it provides sustainable products as required by this contract, when the products are—

(1) Delivered to the Government;
(2) Furnished for use by the Government;
(3) Incorporated into the construction of a public building or public work; or

(c) Furnished for use in performing services under this contract, where the cost of the products is a direct cost to this contract.

(End of clause)

52.224-1 Privacy Act Notification. (APR 1984)

52.224-2 Privacy Act. (APR 1984)

52.225-9 Buy American-Construction Materials (OCT 2022)(DEVIATION NOV 2025)

(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. 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:

_____*[Contracting Officer to list applicable excepted materials or indicate "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 or Balance of Payments Program.

(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)*
Item 1:			
Foreign construction	_____	_____	_____

material.			
Domestic construction material.	_____	_____	_____
Item 2:			
Foreign construction material.	_____	_____	_____
Domestic construction material.	_____	_____	_____
[* *Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued)*]. [*List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.*] [*Include other applicable supporting information.*]			

(End of clause)

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)

52.228-11 Individual Surety - Pledges of Assets. (FEB 2021)

52.228-12 Prospective Subcontractor Requests for Bonds. (DEC 2022)

52.228-14 Irrevocable Letter of Credit (Nov 2014)

52.228-15 Performance and Payment Bonds - Construction. (JUN 2020)

52.229-3 Federal, State, and Local Taxes. (FEB 2013)(DEVIATION AUG 2025)

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

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)(DEVIATION SEP 2025) - Alternate I (DEC 1991)(DEVIATION SEP 2025)

52.233-3 Protest after Award. (AUG 1996)(DEVIATION SEP 2025)

52.233-4 Applicable Law for Breach of Contract Claim. (OCT 2004)(DEVIATION SEP 2025)

52.236-2 Differing Site Conditions. (APR 1984)(DEVIATION AUG 2025)

52.236-3 Site Investigation and Conditions Affecting the Work. (APR 1984)(DEVIATION AUG 2025)

52.236-5 Material and Workmanship. (APR 1984)(DEVIATION AUG 2025)

52.236-6 Superintendence by the Contractor. (APR 1984)(DEVIATION AUG 2025)

52.236-7 Permits and Responsibilities. (NOV 1991)(DEVIATION AUG 2025)

52.236-8 Other Contracts. (APR 1984)(DEVIATION AUG 2025)

52.236-9 Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements. (APR 1984)(DEVIATION AUG 2025)

52.236-10 Operations and Storage Areas. (APR 1984)(DEVIATION AUG 2025)

52.236-11 Use and Possession Prior to Completion. (APR 1984)(DEVIATION AUG 2025)
52.236-12 Cleaning Up. (APR 1984)(DEVIATION AUG 2025)

52.236-13 Accident Prevention. (NOV 1991)(DEVIATION AUG 2025) Alternate I (NOV 1991)

52.236-15 Schedules for Construction Contracts. (APR 1984)(DEVIATION AUG 2025)

52.236-17 Layout of Work. (APR 1984)(DEVIATION AUG 2025)

52.236-21 Specifications and Drawings for Construction. (FEB 1997)(DEVIATION AUG 2025)

52.240-91 Security Prohibitions and Exclusions (DEVIATION SEP 2025)

52.242-13 Bankruptcy. (JUL 1995)

52.242-14 Suspension of Work. (APR 1984)

52.243-4 Changes. (JUN 2007)(DEVIATION JUL 2025)
52.243-6 Change Order Accounting. (APR 1984)(DEVIATION JUL 2025)

52.244-6 Subcontracts for Commercial Products and Commercial Services (OCT 2025)(DEVIATION APR 2026)

52.245-1 Government Property (SEP 2021) - Alternate I (APR 2012)

52.245-9 Use and Charges. (APR 2012)

52.246-12 Inspection of Construction. (AUG 1996)

52.247-64 Preference for Privately Owned U.S.-Flag Commercial Vessels (NOV 2021)(DEVIATION OCT 2025)

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

52.252-2 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): ***http://www.acquisition.gov/far and https://www.acquisition.gov/far-overhaul***

(End of clause)

52.252-4 Alterations in Contract. (APR 1984)

Portions of this contract are altered as follows: ***NONE***

(End of clause)

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

(a) The use in this solicitation or contract of any Federal Acquisition Regulation Revolutionary FAR Overhaul (RFO) (48 CFR All Changed Chapters) 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 Department of Transportation Regulation (TAR) (48 CFR, Chapter 12) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of clause)

52.253-1 Computer Generated Forms. (JAN 1991)(DEVIATION OCT 2025)

1252.201-70 Contracting Officer's Representative (NOV 2022)

1252.223-70 Removal or Disposal of Hazardous Substances – Applicable Licenses and Permits (NOV 2022)

1252.223-71 Accident and Fire Reporting (NOV 2022)

1252.223-73 Seat Belt Use Policies and Programs (NOV 2022)

1252.228-74 Notification of Payment Bond Protection (NOV 2022)

(a) The prime contract is subject to the Bonds statute (historically referred to as the Miller Act) (40 U.S.C. chapter 31, subchapter III), under which the prime contractor has obtained a payment bond. This payment bond may provide certain unpaid employees, suppliers, and subcontractors a right to sue the bonding surety under the Bonds statute for amounts owned for work performed and materials delivery under the prime contract.

(b) Persons believing that they have legal remedies under the Bonds statute should consult their legal advisor regarding the proper steps to take to obtain these remedies. This notice clause does not provide any party any rights against the Federal Government, or create any relationship, contractual or otherwise, between the Federal Government and any private party.

(c) The surety which has provided the payment bond under the prime contract is: On File with

the FHWA.

(d) Subcontract flowdown requirements. This clause shall be flowed down to all subcontractors. Prime contractors shall insert this notice clause in all first-tier subcontracts and shall require the clause to be subsequently flowed down by all first-tier subcontractors to all their subcontractors, at any tier. This notice contains information pertaining to the surety that provided the payment bond under the prime contract and is required to be inserted in its entirety to include the information set forth in paragraph (c).

(End of clause)

1252.232–70 Electronic Submission of Payment Requests (NOV 2022)(DEVIATION AUG 2025)

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

(1) *Contract financing payment* has the meaning given in FAR 32.001.

(2) *Payment request* means a bill, voucher, invoice, or request for contract financing payment or invoice payment with associated supporting documentation. The payment request must comply with the requirements identified in FAR 32.905(b), "Content of Invoices," this clause, and the applicable Payment clause included in this contract.

(3) *Electronic form* means an automated system transmitting information electronically according to the accepted electronic data transmission methods and formats identified in paragraph (c) of this clause. Facsimile, email, and scanned documents are not acceptable electronic forms for submission of payment requests.

(4) *Invoice payment* has the meaning given in FAR 32.001.

(b) *Electronic payment requests.* Except as provided in paragraph (e) of this clause, the contractor shall submit payment requests in electronic form. Purchases paid with a Governmentwide commercial purchase card are considered to be an electronic transaction for purposes of this rule, and therefore no additional electronic invoice submission is required.

(c) *Processing system.* The Department of Transportation utilizes the DELPHI system for processing invoices. The DELPHI module for submitting invoices is called *iSupplier.* Access to DELPHI is granted with electronic authentication of credentials (name & valid email address) utilizing the GSA credentialing platform *login.gov.* Vendors submitting invoices are required to submit invoices via *iSupplier* (DELPHI) and authenticated via *www.login.gov.*

(d) *Invoice requirements.* To receive payment and in accordance with the Prompt Payment Act, all invoices submitted as attachments in *iSupplier* (DELPHI) shall contain the following:

(1) Invoice number and invoice date.

(2) Period of performance covered by invoice.

(3) Contract number and title.

(4) Task/Delivery Order number and title (if applicable).

(5) Amount billed (by CLIN), current and cumulative.

(6) Total ($) of billing.

(7) Cumulative total billed for all contract work to date.

(8) Name, title, phone number, and mailing address of person to be contacted in the event of a defective invoice.

(9) Travel. If the contract includes allowances for travel, all invoices which include charges pertaining to travel expenses will catalog a breakdown of reimbursable expenses with the appropriate receipts to substantiate the travel expenses.

(10) The following statement "The Contractor certifies that, by submitting this invoice to the Government, the supplies and/or services billed have been shipped, rendered, or delivered in accordance with instructions issued by the ordering officer; that they are reflected in the quantities and/or period of performance stated on the invoice; and that such supplies and/or services conform to the quantity and quality requirements specified in the applicable contract, order, or blanket purchase agreement.

Furthermore, pursuant to Executive Order 14173, Ending Illegal Discrimination And Restoring Merit-Based Opportunity, the Contractor certifies that it is in compliance with the Equal Protection principles of the Constitution and all applicable Federal anti-discrimination laws, and acknowledges that such compliance is material to the Government's payment decision under the False Claims Act (31 U.S.C. § 3729(b)(4)). The Contractor also affirms that it does not operate any diversity, equity, and inclusion (DEI) initiatives that are inconsistent with the Equal Protection principles of the Constitution and the non-discrimination requirements of Federal law, as interpreted by the Supreme Court in Students for Fair Admissions v. Harvard, 600 U.S. 181 (2023)."

(e) *Payment system registration.* All persons accessing the *iSupplier* (DELPHI) will be required to have their own unique user ID and password and be credentialed through *login.gov.*

(1) *Electronic authentication. See www.login.gov* for instructions.

(2) To create a *www.login.gov* account, the user will need a valid email address and a working phone number. The user will create a password and then *www.login.gov* will reply with an email confirming the email address.

(3) *iSupplier* (DELPHI) registration instructions: New users should navigate to: *http://einvoice.esc.gov* to establish an account. Users are required to log in to *iSupplier* (DELPHI) every 45 days to keep it active.

(4) *Training on DELPHI.* To facilitate use of DELPHI, comprehensive user information is available at *http://einvoice.esc.gov.*

(5) *Account Management.* Vendors are responsible to contact their assigned COR when their firm's points of contacts will no longer be submitting invoices, so they can be removed from the system.

(f) *Waivers.* For contractors/vendors who are unable to utilize DOT's DELPHI system, waivers may be considered by DOT on a case-by-case basis. Vendors should contact their Contracting Officer's Representative (COR) for procedures.

(g) *Exceptions and alternate payment procedures.* If, based on one of the circumstances set forth in 1232.7002(a) or (b), and the contracting officer directs that payment requests be made by mail, the contractor shall submit payment requests by mail through the United States Postal Service to the designated agency office. If alternate payment procedures are authorized, the Contractor shall include a copy of the Contracting Officer's written authorization with each payment request. If DELPHI is succeeded by later technology, the Contracting Officer will supply the Contractor with the latest applicable electronic invoicing instructions.

(End of clause)

1252.239–93 Information and Communication Technology Accessibility (NOV 2022)

POST-AWARD EVALUATION OF CONTRACTOR PERFORMANCE

Contractor Performance Evaluations

a. Interim and final evaluations of contractor performance will be prepared on this contract in accordance with FAR 42.1502 and TAM 1242.1502. The final performance evaluations will be prepared at the time of completion of work.
b. The Contractor can elect to review the evaluation and submit additional information or provide a rebuttal statement. The contractor will be permitted 60 calendar days to respond from the date of receipt of the evaluation. Contractor response is voluntary. If the contractor does not respond within 60 days, the Government will presume that the Contractor has no comment. Any disagreement between the parties regarding an evaluation will be referred to an individual at a level above the Contracting Officer, whose decision is final.
c. Copies of the evaluations, Contractor responses, and review comments, if any, will be retained as part of the contract file, and may be used to support future award decisions.

The Federal Highway Administration utilizes the Contractor Performance Assessment Reporting System (CPARS) to record and maintain past performance information. CPARS hosts a suite of web-enabled applications that are used to document contractor performance information that is required by Federal Regulations. The CPARS module

assesses performance on contracts for Systems, Services, Information Technology, and Operations Support; Architect-Engineer contracts; and Construction contracts. Reference material can be accessed in CPARS.

The registration process requires the Contractor to identify an individual that will serve as a primary contact. This individual will be authorized access to the evaluation for review and comment. In addition, the Contractor is encouraged to identify a secondary contact in the event the primary contact is unavailable to process the evaluation within the required 60 day time period. After the FHWA Focal Point registers the contract in CPARS, the contractor representative will receive a system generated email notifying him/her that the contract is registered. A system generated email will also provide the Contractor with a User ID if the person does not already have a CPARS User ID.

After a performance evaluation has been prepared and is ready for comment, the Contractor representative will receive a system generated email notification that the performance evaluation is electronically available for review and comment. The Contractor representative will receive an automated email whenever an assessment is completed and can subsequently retrieve the completed assessment from CPARS.

Contractors may access evaluations in CPARS for review and comment.

(End of Clause)

"General Decision Number: AZ20260044 05/18/2026

State: Arizona

Construction Types: Highway

Counties: Arizona Counties of
Coconino

Modification Number	Publication Date
0	01/02/2026
1	05/18/2026

CARP1912-003 07/01/2024

	Rates	Fringes
CARPENTER, EXCLUDES FORMWORK CONCRETE	$ 35.89	14.98

ENGI0012-046 12/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR: BULLDOZER	$ 35.56	18.12

ENGI0012-051 12/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR: PAVER/SPREADER/FINISH EQUIPMENT (ASPHALT, AGGREGATE, & CONCRETE)	$ 35.56	18.12

ENGI0012-052 12/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR: SCRAPER	$ 35.56	18.12

ENGI0012-053 12/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR: TRACTOR	$ 35.56	18.12

ENGI0012-057 12/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR: (DRILL RIG/AUGER)	$ 36.64	18.12

ENGI0012-064 12/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR: BOBCAT/SKID STEER/SKID LOADER	$ 32.29	18.12

ENGI0012-066 12/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR: BACKHOE/BACKHOE & LOADER COMBO/TRACK BACKHOE	$ 35.56	18.12

ENGI0012-067 12/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR: COMPACTOR/ROLLER	$ 35.56	18.12

ENGI0012-069 12/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR: LOADER/FRONT END LOADER	$ 35.56	18.12

ENGI0012-070 12/01/2024

	Rates	Fringes
TRUCK DRIVER: OFF ROAD TRUCK	$ 35.56	18.12

ENGI0012-071 12/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR: CRANE/DERRICK	$ 36.64	18.12

ENGI0012-072 12/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR: EXCAVATOR/TRACKHOE (GREATER THAN 1/2 CUBIC YARD)	$ 36.64	18.12
POWER EQUIPMENT OPERATOR: EXCAVATOR/TRACKHOE (1/2 CUBIC YARD OR SMALLER)	$ 35.56	18.12

ENGI0012-074 12/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR: MOTOR GRADER/BLADE	$ 36.64	18.12

ENGI0012-075 12/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR: MECHANIC	$ 37.67	18.12

LABO1184-016 06/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR: HORIZONTAL DIRECTIONAL DRILL	$ 31.98	9.26

LABO1184-017 06/01/2025

	Rates	Fringes
LABORER: FENCE ERECTOR	$ 27.41	9.26

LABO1184-021 06/01/2025

	Rates	Fringes
TRAFFIC CONTROL	$ 27.41	9.26

LABO1184-025 06/01/2025

	Rates	Fringes
LABORER: ASPHALT, INCLUDES RAKER, SHOVELER, SPREADER AND DISTRIBUTOR	$ 29.91	9.26

LABO1184-027 06/01/2025

	Rates	Fringes
LABORER: GRADE SETTER	$ 29.91	9.26

LABO1184-032 06/01/2025

	Rates	Fringes
LABORER: PIPELAYER	$ 30.88	9.26

LABO1184-033 06/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR: TRENCHER	$ 30.88	9.26

LABO1184-037 06/01/2024

	Rates	Fringes
CARPENTER: FORMWORK CONCRETE	$ 31.98	9.26

LABO1184-039 06/01/2025

	Rates	Fringes
LABORER: GENERAL	$ 27.41	9.26

LABO1184-044 06/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR: FORKLIFT	$ 30.88	9.26

LABO1184-047 06/01/2025

	Rates	Fringes
TRUCK DRIVER: CONCRETE	$ 30.88	9.26

LABO1184-048 06/01/2025

	Rates	Fringes
TRUCK DRIVER: DUMP	$ 30.88	9.26

LABO1184-049 06/01/2025

	Rates	Fringes
TRUCK DRIVER: WATER	$ 30.88	9.26

SUAZ2023-021 11/19/2024

	Rates	Fringes
TRUCK DRIVER: SWEEPER	$ 20.24	5.48
TRUCK DRIVER: OIL DISTRIBUTOR	$ 29.75	8.04
POWER EQUIPMENT OPERATOR: OILER	$ 31.56	10.69
POWER EQUIPMENT OPERATOR: MILLING MACHINE	$ 30.09	6.45
POWER EQUIPMENT OPERATOR: GRADE CHECKER	$ 29.74	13.07
POWER EQUIPMENT OPERATOR: FIELD EQUIPMENT SERVICEPERSON	$ 35.39	11.50
POWER EQUIPMENT OPERATOR: CONCRETE SCREED	$ 25.70	7.15
POWER EQUIPMENT OPERATOR: CONCRETE PUMP TRUCK	$ 43.11	10.87
POWER EQUIPMENT OPERATOR: BROOM/SWEEPER	$ 26.47	7.26
POWER EQUIPMENT OPERATOR: BOOM/CRANE TRUCK	$ 43.11	10.87
PAINTER: SIGN AND DISPLAY ERECTOR	$ 18.03	0.00
PAINTER: PAVEMENT MARKING	$ 24.60	6.34
LABORER: LANDSCAPE LABORER	$ 18.03	0.00
LABORER: CONCRETE SAW (HAND HELD/WALK BEHIND)	$ 25.22	5.08
IRONWORKER	$ 33.15	18.57
ELECTRICIAN	$ 29.00	7.58
CEMENT MASON/CONCRETE FINISHER	$ 30.09	0.00

SUUAVGAZ0006 01/01/2025

	Rates	Fringes
LABORER: MASON TENDER	$ 27.79	8.87

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

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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.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.65 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract from May 11, 2026, through December 31, 2026. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

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

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AZ NP GRCA 14(2)
ROADWAY IMPROVEMENTS

GENERAL DESCRIPTION

The AZ NP GRCA 14(2), ROADWAY IMPROVEMENTS project is located at the North Rim and Scenic Routes of the Grand Canyon National Park, in Coconino County, AZ approximately 55 miles from Jacob Lake, AZ and 92 miles from Kanab, UT.

The project proposes; asphalt pavement patching, asphalt overlays, ditch grading, culvert pipe with outlet protection installation, guardrail installation, permanent traffic control including signing and striping along with associated removals.

Limits of repairs to be determined in the field by the CO, based on existing conditions.

The general scope of repair is described for each route below. Detailed information on proposed repairs is found in the project plans:

North Entrance Road

Various safety and roadway repairs are proposed along the 12.70-mile segment of the North Entrance Road. These repairs include but are not limited to; removal of damaged pavement, guardrail and signs, pavement patching and asphalt overlays, installing new guardrail, permanent signs and permanent striping.

Cape Royal Road

There are 11 proposed repair locations on Cape Royal Road. The scope of repairs focuses primarily on pavement removal and replacement via pavement patching to repair damage to the roadway sustained during the fire. Repairs also include re-signing and striping pedestrian cross walks, guardrail removal, ditch grading and installation of a culvert with pinned revet mattress. Repair areas are also proposed to receive new permanent striping, matching the existing striping plan and lane widths. The approximate locations of proposed repairs are shown in the plans.

Point Imperial Road

There are 15 proposed repair locations on Point Imperial Road. The scope of repairs focuses primarily on pavement removal and replacement via pavement patching to repair damage to the roadway sustained during the fire. Repair areas are also proposed to receive new permanent striping, matching the existing striping plan and lane widths. The approximate locations of proposed repairs are shown in the plans.

ITEM DESCRIPTIONS

Item 1 – Mobilization **LPSM**

This item consists of all necessary work to mobilize to, and demobilize from, the site to perform all work included in this contract.

Item 2 – Removal of Structures and Obstructions **LPSM**

This item consists of removing, disposing and salvaging of structures, obstructions, and materials not designated to remain. Items include but are not limited to; existing guardrail, guardrail posts, signs, debris and other materials and obstructions.

Item 3 – Ditch Excavation **LNFT**

This item includes grading roadway ditches and removing any deleterious material.

Item 4 – Revet Mattress **SQYD**

This item consists of constructing and placing rock filled revet mattresses that are doweled into the existing slope.

Item 5 – Asphalt Concrete Pavement **TON**

This item includes placing, compacting and hot asphalt concrete pavement.

Item 6 – Tack Coat **TON**

This item includes applying an emulsified asphalt tack coat on a prepared surface.

Item 7 – Asphalt Pavement Patch, Type 1 **SQYD**

This item consists of repairing distressed areas of asphalt concrete pavement by patching.

Item 8– Asphalt Pavement Patch, Type 2 **SQYD**

This item consists of repairing distressed areas of asphalt concrete pavement by patching.

Item 9 – Asphalt Pavement Patch, Type 3 **SQYD**

This item consists of repairing distressed areas of asphalt concrete pavement by patching.

Item 10 – 36-Inch Pipe Culvert **LNFT**

This item consists of providing and installing pipe culverts.

Item 11– End Section For 36 Inch Pipe Culvert **EACH**

This item includes providing and installing culvert pipe end sections.

Item 12 – Guardrail System MGS, Type 4, Class B Steel Posts **LNFT**

This item includes constructing guardrail systems.

Item 13 – Terminal System, Type MGS Tangent **EACH**

This item includes providing and installing guardrail end terminal treatments and required grading.

Item 14 – Terminal System, Type MGS-BAT **EACH**

This item includes providing and installing guardrail end terminal treatments and required grading.

Item 15 – Gate (Road Closure Gate) **EACH**

This item includes providing and installing a roadway closure gate.

Item 16 – Sign System **EACH**

This item includes providing and installing permanent traffic control devices, including permanent signing with all required hardware.

Item 17 – Object Marker, Type 2 **EACH**

This item includes providing and installing permanent traffic control devices, including permanent object markers with all required hardware.

Item 18 – Delineator, Type Snow Pole **EACH**

This item includes providing and installing permanent traffic control devices, including permanent delineators as snow poles with all required hardware.

Item 19 – Pavement Markings, Type B **MILE**

This item includes placing permanent pavement markings on a prepared surface.

Item 20 – Temporary Traffic Control **LPSM**

This work consists of providing, installing, maintaining, relocating, and removing temporary traffic control devices and services as required for the control and protection of public traffic through the project.

PLANS

The plans are comprised of the following sheets shown in Table 1 below. Refer to the Plans for the full index to sheets.

Table 1 **Plan Sheets**	
Sheet Description/Subsection	**Number of Sheets**
General Information	5
Project Quantities	8
Typical Sections	1
Plan and Profile Sheets	33
Approach Road Plan and Profile Sheets	
Soil Erosion and Sediment Control	
Parking Lot Plan Sheets	
Grading Plans	
Riprap and Retaining Wall Layouts	2
Pavement Drawings	2
Bridge	
Drainage	4
Water and Sanitary Sewer Systems	
Miscellaneous Details	6
Permanent Vegetation	
Temporary Stream Diversion	
Permanent Traffic Control	5
Temporary Traffic Control	7
Electrical Systems	
Roadside Development	
Total Plan Sheets	**73**

SECTION 1 – TERMS, FORMAT, AND DEFINITIONS

Meaning of Terms. These specifications are generally written in the imperative mood. In sentences using the imperative mood, the subject, "*the Contractor*", is implied. Also implied in this language are "*shall*", "*shall be*", or similar words and phrases. In material specifications, the subject may also be the supplier, fabricator, or manufacturer supplying material, products, or equipment for use on the project. Wherever "*directed*", "*required*", "*prescribed*", "*requested*", or "*ordered*" are used, the "*direction*", "*requirement*", "*prescription*", or "*order*" of the Contracting Officer is intended. Wherever something is to be "*submitted*" or "*submitting to*", the Contracting Officer is intended. Similarly, wherever "*approved*", "*acceptable*", "*suitable*", "*satisfactory*", or similar words are used, the words mean "*approved by*", "*acceptable to*", or "*satisfactory to*" the Contracting Officer.

The word "*will*" generally pertains to decisions or actions of the Contracting Officer.

Specifications Format. These specifications are divided into Sections and Items. Sections apply to the contract and all work items. Each item consists of construction and material requirements for specific items of work. Work under these items is paid for directly or indirectly according to measurement and payment subsection of each Section and Item. If there is no pay item in the schedule of items, no direct payment is made.

Abbreviations. When these abbreviations are used, they represent the following:

(a) Acronyms.

3D — Three-Dimensional

AASHTO — American Association of State Highway and Transportation Officials

ACI — American Concrete Institute

AISC — American Institute of Steel Construction

AITC — American Institute of Timber Construction

ANSI — American National Standards Institute

ASR — Alkali-Silica Reactivity

ASTM — American Society for Testing and Materials (ASTM International)

ATSSA — American Traffic Safety Services Association

AWG — American Wire Gauge

AWPA — American Wood Protection Association

AWS — American Welding Society

AWWA — American Water Works Association

BMP — Best Management Practice

CDR – Contractor's Daily Record

CFR — Code of Federal Regulations

CO — Contracting Officer and authorized representatives

CPM — Critical Path Method

CRSI — Concrete Reinforcing Steel Institute

CTSM — Contingent Sum

EPA — Environmental Protection Agency

FAR — Federal Acquisition Regulations (48 CFR Chapter 1)

FHWA — Federal Highway Administration

FLH — Federal Lands Highway

FRP — Fiber-Reinforced Polymer

GPS — Global Positioning System

GRS — Geosynthetic Reinforced Soil

GSA — General Services Administration

HDPE — High Density Polyethylene

HPC — High-Performance Concrete

HPS — High-Performance Steel

HMA — Hot Mix Asphalt

HMWM — High Molecular Weight Methacrylate

IMSA — International Municipal Signal Association

ISO — International Organization for Standardization

ISSA — International Slurry Surfacing Association

IWRC — Independent Wire Rope Core

JMF — Job-Mix Formula

LPSM — Lump Sum

LRFD — Load and Resistance Factor Design

MASH — Manual for Assessing Safety Hardware

MPI — Master Painters Institute

MSE — Mechanically-Stabilized Earth

MTV — Material Transfer Vehicle

MUTCD — Manual on Uniform Traffic Control Devices for Streets and Highways

NACE — National Association of Corrosion Engineers

NCHRP — National Cooperative Highway Research Program

NEMA — National Electrical Manufacturers Association

NIST — National Institute of Standards and Technology

NMSA — Nominal Maximum Size Aggregate

NPCA — National Precast Concrete Association

NPS – National Park Service

NTP — Notice to Proceed

OSHA — Occupational Safety and Health Administration

PCI — Precast/Prestressed Concrete Institute

PPC — Polyester Polymer Concrete

PTFE — Polytetrafluoroethylene

PTI — Post-Tensioning Institute

PVC — Polyvinyl Chloride

QA — Quality Assurance

QC — Quality Control

QCM — Quality Control Manager

QCP — Quality Control Plan

RAP — Recycled Asphalt Pavement

RECP — Rolled Erosion Control Product

RSS — Reinforced Soil Slope

SDS — Safety Data Sheet

SF — Standard Form

SRWU — Segmental Retaining Wall Unit

SSPC — The Society for Protective Coatings

SWPPP — Storm Water Pollution Prevention Plan

S4S — Surfaced four sides (lumber)

TAR — Transportation Acquisition Regulations (48 CFR Chapter 12)

TSR — Tensile Strength Ratio

UL — Underwriter's Laboratory

U.S. — United States

U.S.C. — United States Code

USFS - United States Forest Service

UV — Ultraviolet

VFA — Voids Filled with Asphalt

VMA — Voids in Mineral Aggregate

VOC — Volatile Organic Compounds

WMA — Warm Mix Asphalt

(b) Unit abbreviations and symbols.

°F	—	degree Fahrenheit	temperature
ft	—	feet	length
ft^2	—	square feet	area

ft^3	—	cubic feet	volume
gal	—	gallon	volume
in	—	inches	length
in^2	—	square inches	area
in^3	—	cubic inches	volume
kip	—	1000 pounds	mass
ksi	—	kilopound per square inch	pressure
lb	—	pound	mass
lbf	—	pound-force	force
mi	—	mile	length
min	—	minute	time
oz	—	ounces	mass
ppm	—	parts per million	concentration
psi	—	pounds per square inch	pressure
sec	—	second	time
V	—	volt	electric potential
yd	—	yards	length
yd^2	—	square yards	area
yd^3	—	cubic yards	volume

(c) Slope notation. Slopes are expressed as the ratio of vertical to horizontal (V:H).

Definitions. Unless otherwise specified, the following terms are defined as follows:

Award — The written acceptance of a bid by the CO.

Backfill — Material used to replace or the act of replacing material removed during construction. Material placed or the act of placing material adjacent to structures.

Base — The lift or lifts of material placed on a subbase or subgrade to support a surface course.

Bid Guarantee — A form of security assuring that the bidder will not withdraw a bid within the period specified for acceptance and will execute a written contract and provide required bonds.

Bridge — A structure including supports erected over a depression or an obstruction (such as water, highway, or railway), having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes. It may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.

Clear Zone — The portion of the roadside, including the shoulder, available for the safe use by an errant vehicle.

Commercial Certification — See Section 6 Subsection Certification.

Completion Date — The date by which all contract work is to be complete.

Construction Limits — The limits that establish the area disturbed by construction operations and beyond which no disturbance is allowed.

Contract — The written agreement between the Government and the Contractor setting forth the obligations of the parties for the performance of and payment for the prescribed work.

Contracting Officer — An official of the Government with the authority to execute, administer, and terminate contracts, and make related determinations and findings. The term includes authorized representatives of the CO acting within the limits of their authority as delegated by the CO.

Contract Modification — A written change in the terms of the contract. Contract modifications are of the following forms:

(a) Administrative change. A unilateral contract change, in writing, that does not affect the substantive rights of the parties (such as a change in the paying office or the appropriation data).

(b) Change order. A written order, signed by the CO, directing the Contractor to make a change that FAR Clause 52.243-4 Changes authorizes the CO to order without the Contractor's consent.

(c) Supplemental agreement. A contract modification that is accomplished by the signature of the CO (unilateral contract modification) or by the signature of the CO and the Contractor (bilateral contract modification).

Contractor — The individual or legal entity contracting with the Government for performance of prescribed work.

Contract Time — The specified time allowed for completion of the contract work.

Crashworthy — A highway feature that has been successfully crash tested under applicable standards defined in MASH, the NCHRP Report 350, *Recommended Procedures for the Safety Performance Evaluation of Highway Features*, or approved through analysis by FHWA based on similarity to other

crashworthy features.

Cross-Section — A vertical section of the ground or structure at right angles to the centerline or baseline of the roadway or other work.

Culvert — A structure, not classified as a bridge, that provides an opening under the roadway.

Day — A calendar day starting and ending at midnight.

Density — Mass per unit volume of material. Specific gravity multiplied by the density of water.

Detour — A temporary rerouting of public traffic onto alternate existing roadways to avoid the work or part of the work.

Dewatering — Lowering and controlling water levels to allow excavation and construction to be performed.

Drawings — Design sheets or fabrication, erection, shop drawing, or construction details submitted to the CO by the Contractor according to FAR Clause 52.236-21 Specifications and Drawings for Construction. Also refers to submissions and submittals.

Federal Land Management Agencies — Federal agencies including, but not limited to, the National Park Service, U.S. Forest Service, U.S. Fish & Wildlife Service, U.S. Army Corps of Engineers, Bureau of Land Management, and Bureau of Reclamation.

Final Acceptance — The point at which the Government formally accepts the work and relieves the Contractor of further responsibility for the maintenance of the project. This excludes warranties, which remain in effect until they expire. See FAR Clause 52.246-21 Warranty of Construction.

Government — The Government of the United States of America.

Highway, Street, or Road — A general term denoting a public way primarily designed for purposes of multimodal travel.

Lane Mile — An area of pavement 1 mile long and 1 lane wide; not including turn lanes, turnouts, parking area lanes, or other auxiliary lanes.

Lift — When placing and compacting soils, aggregates, or pavement; a lift is a single, continuous layer of material that is uniformly compacted.

Material — Substances specified or necessary to complete the contract work.

Measurement — The process of identifying the dimensions, quantity, or capacity of a pay item. See Section 9 for measurement methods, terms, and definitions.

Neat Line — A line defining the proposed or specified limits of excavation or structure element for purposes of calculating quantities.

Notice to Proceed — Written notice to the Contractor to start the contract work.

Offer — A written submission by an offeror to perform work at a quoted price.

Offeror — An entity that makes an offer.

Pavement Structure — The combination of subbase, base, paving geotextiles, and surface courses placed on a subgrade to support and distribute the traffic load to the roadbed.

Pay Item — A specific item of work consisting of a unit, quantity, and method of measurement furnished by the Government and a price established by the contract.

Payment Bond — The security executed by the Contractor and surety or sureties and provided to the CO to ensure payments as required by law to persons supplying labor or material according to the contract.

Performance Bond — The security executed by the Contractor and surety or sureties and provided to the CO to guarantee completion of the contract work.

Plans — The contract plans furnished by the Government showing the location, type, dimensions, and details of the work.

Production Certification — See Subsection Certification

Professional Engineer — Engineers holding valid state licenses permitting them to offer engineering services directly to the public. Engineers that are experienced in the work for which they are responsible, take legal responsibility for their engineering designs, and are bound by a code of ethics to protect the public health.

Profile Grade — The trace of a vertical plane intersecting a particular surface of the proposed road construction located according to the plans, usually along the longitudinal centerline of the roadbed. Profile grade means either elevation or gradient of the trace according to the context.

Project — The specific section of the highway or other property on which construction is to be performed under the contract.

Right-of-Way — Real property necessary for the project, including roadway, buffer areas, access, and drainage areas.

Roadbed — The graded portion of a highway prepared as a foundation for the pavement structure and shoulders.

Roadside — The area between the outside shoulder edge and the right-of-way limits. The area between roadways of a divided highway may also be considered roadside.

Roadway — In general, the portion of a highway, including shoulders, primarily for vehicular use. A divided highway has two or more roadways. In construction specifications, the portion of a highway within the construction limits.

Roadway Prism — The area between the original and the final design cross-section.

Roller Pass — One trip of a roller in one direction over one spot.

Schedule of Items — The prepared schedule included with the Request for Quote forms, containing the estimated quantities of pay items for which unit bid prices are quoted.

Shop Drawings — See "Drawings"

Shoulder — A portion of the roadway contiguous with the traveled way that accommodates pedestrians, bicycles, stopped vehicles, and emergency use; and is used for lateral support of the subbase, base, and surface courses.

Sieve — See AASHTO M 92.

Solicitation — The complete assembly of documents (whether attached or incorporated by reference) furnished to prospective bidders.

Special Contract Requirement — An addition or revision to the Standard Specifications applicable to an individual project.

Specifications — The written requirements for performing work.

Standard Form — Numbered form issued by the GSA for use as contract documents.

Standard Specifications — *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects* approved for general application and repetitive use. Also referred to as the FP.

Station — A precise location along a survey line.

Structures — Bridges, culverts, catch basins, drop inlets, retaining walls, cribbing, manholes, endwalls, buildings, sewers, service pipes, underdrains, foundation drains, and other constructed features that may be encountered in the work.

Subbase — The lift or lifts of material placed on a subgrade to support a base.

Subcontract — The written agreement between the Contractor and an individual or legal entity setting forth the obligations of the parties for the performance of and payment for a specific portion of the work to be performed by the subcontractor.

Subcontractor — An individual or legal entity with which the Contractor sublets part of the work. This includes subcontractors and material suppliers in all tiers.

Subgrade — The top surface of a roadbed upon which the pavement structure, shoulders, and curbs are constructed.

Substantial Completion — The point at which the project is complete and can be safely and effectively used by the public without further delays, disruption, or other impediments. For conventional bridge and

highway work, the point at which bridge deck, parapet, pavement structure, shoulder, drainage, sidewalk, major demolition, roadway obliteration, permanent signing and markings, traffic barrier, safety appurtenance, utility, and lighting work is complete.

Substructure — Components of a bridge below the bearings of simple and continuous spans, skewbacks of arches, and tops of footings of rigid frames including backwalls, wingwalls, and wing protection railings.

Suitable Material — Rock or earth material that will provide stable foundations, embankments, or roadbeds, and is without organic matter, muck, frozen lumps, roots, sod, or other deleterious material. Suitable material may require drying or adding water, and other methods of manipulation before use. Suitable material includes the classifications of material for which the project was designed.

Superintendent — The Contractor's on-site representative who has authority to act for the Contractor and is responsible for directing and supervising construction operations on behalf of the Contractor.

Superstructure — The entire bridge, except the substructure.

Surety — An individual or corporation legally liable for the debt, default, or failure of a Contractor to satisfy a contract obligation.

Surface Course — The top lift or lifts of a pavement structure designed to accommodate the traffic load and resist skidding, traffic abrasion, and weathering.

Temporary Stormwater Diversion — A temporary rerouting of stormwater runoff in a controlled, non-erosive manner.

Temporary Stream Diversion — A temporary rerouting of water into a temporary channel or through a system of structures within the construction limits to maintain water flow through or around the project.

Temporary Traffic Diversion — A temporary rerouting of public traffic onto a temporary alignment within the construction limits to bypass the work or part of the work.

Traveled Way — The portion of the roadway designated for the movement of vehicles, not including the shoulders.

Unsuitable Material — Material that cannot create stable foundations, embankments, or roadbeds. Unsuitable material includes muck, sod, and soils with high organic contents.

Well-graded — Graded from coarse to fine with a wide range of particle sizes and substantial amounts of the intermediate particle sizes.

Work — The providing of labor, material, equipment, and other incidentals necessary to complete the project according to the contract.

SECTION 2 – QUOTE, AWARD, AND EXECUTION OF CONTRACT

Acquisition Regulations. Quote, award, and execution of the contract is governed by the FAR and TAR.

Preparation of Offers. Insert a numeric unit bid price for each pay item for which a quantity appears in the schedule of items. Multiply the unit bid price by the quantity for each pay item and show the amount bid. If mathematical checks made by the Government show a mistake in the amount quoted, the corrected unit price extension governs.

If "*LPSM*" appears as a unit of measure in the schedule of items, insert an amount quoted for each lump sum pay item.

If "*CTSM*" appears as a unit of measure in the schedule of items, include the Government inserted amount for the pay item in the total quoted amount.

Total the amounts quoted for each pay item and show the total bid amount.

The quantities listed in the schedule of items are approximate, unless designated as a contract quantity, and are used for the comparison of quotes. Payment will be made for the actual quantities of work performed and accepted or material provided according to the contract. The scheduled quantities may be increased, decreased, or deleted. Schedule of Items quantities are considered the original contract quantities.

Physical Data.

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

(a) Weather conditions: Contact the National Weather Service.

(b) The following design data is applicable to this project and posted on https://sam.gov/:

(1) Horizontal and vertical alignment listings in Portable Document Format (.pdf) and LandXML (.xml) formats;

Individual Surety. Follow the requirements of FAR Clause 52.228-11 Individual Surety-Pledge of Assets.

Complete and date the SF 28, *Affidavit of Individual Surety* after the solicitation date. The individual surety shall personally sign the SF 28. Bidders cannot serve as their own surety. See FAR 28.203 Individual Sureties.

After reviewing the SF 28, the CO may request the surety to submit further documentation with respect to its assets, debts, or encumbrances. The information may be required to be provided under oath. Failure of the surety to respond with the requested documentation within 7 days of receipt of the request is cause for rejection of the surety.

Any material misstatement by the surety, overstatement of assets (either as to ownership or value), or understatement of liabilities is cause for rejection of the surety. Substitution of individual sureties to support a bid bond after the bid opening will not be allowed.

Provide documentary evidence as to the ownership and value of the assets pledged in support of the bond and details of the security interest in the assets by the individual sureties for the apparent low bidder within 14 days after the opening of bids. Failure to submit evidence within the time required will be grounds for declaring the surety unacceptable.

After reviewing the SF 28 and documentary information on the security interest and the assets pledged, the CO may request the surety to submit further information and documents with respect to the documents submitted. The information may be required to be provided under oath. Failure of the surety to respond with the requested information or documents within 7 days of receipt of the request is cause for rejection of the surety.

Performance and Payment Bonds. Follow the requirements of FAR Clause 52.228-15 Performance and Payment Bonds – Construction.

Use SF 25, *Performance Bond* and SF 25A, *Payment Bond* for submitting the bonds.

Follow the requirements of Individual surety.

Submit the documentary evidence for individual sureties at the same time as the Affidavit of Individual Surety and security interest in assets pledged. A Contractor submitting an unacceptable individual surety in satisfaction of a performance or payment bond before the issuance of the NTP will be allowed one opportunity to substitute an acceptable surety or sureties within 7 days of receipt of notification that the surety is unacceptable.

The Government's right to direct the substitution of sureties to ensure the continuing acceptability of the bonds during the performance of the contract according to FAR Clause 52.228-2 Additional Bond Security is not restricted.

The requirements of this Subsection are in addition to the requirements in FAR 28.203, except where in conflict with the requirements in the FAR, in which case the FAR supersedes the requirements of this Subsection.

SECTION 3 – SCOPE OF WORK

Intent of Contract. The intent of the contract is to provide for the construction and completion of the work described in the contract documents. The precise details of performing the work are not described, except as considered essential for the successful completion of the work. Provide labor, material, equipment, tools, transportation, and supplies necessary to complete the work according to the contract.

Contractor Records. Follow the requirements of FAR Clause 52.222-8 Payrolls and Basic Records.

Upon request, provide records related to the contract to the Government for up to 3 years after final payment or for longer periods as provided by law.

Include a provision in subcontracts at all tiers giving the Government the same rights as provided above with respect to the subcontractor's records.

SECTION 4 – CONTROL OF WORK

Authority of the Contracting Officer. As stated in FAR 1.602-1(a), the CO has authority to execute, administer, or terminate contracts and make related determinations and findings. The CO may delegate authority to representatives to decide on acceptability, progress, and suspension of work, interpretation of the contract, and acceptable fulfillment of the contract.

Authority of Contracting Officer's Representative. As stated in FAR 1.602-2(d), CORs will be designated in writing by the CO to act on behalf of the CO to administer the contract. The COR will administer the contract according to the contract documents and the FAR. The COR lacks authority to make commitments outside of the terms of the contract; issue changes that affect price, quality, quantity, delivery, or other terms and conditions of the contract; or direct the Contractor or its subcontractor to operate in conflict with the contract terms and conditions.

Authority of Inspectors. Inspectors are authorized to inspect work, including the preparation, fabrication, or manufacture of material for the project. Inspectors are not authorized to alter or waive contract requirements, issue instruction contrary to the contract, act as foreperson for the Contractor, or direct the Contractor's operations. Inspectors have the authority to identify non-conforming work until the issue can be referred to and decided by the CO. An inspector is permitted to stop work in circumstances of imminent and substantial risk of death or injury.

Electronic Documentation. After award of the contract, provide documents in an approved electronic format.

Provide documents in their native file format (the format produced by the software that the document was created in) upon request.

Provide a resolution quality with color, text, and lines clearly discernible. Submit each document in an individual file. Name files with a unique document name that includes the document date, document description, and project number, or as requested.

Deliver electronic documents to the email address identified at the preconstruction conference or otherwise amended in writing by the CO. Documents delivered on removable media will not be accepted. Documents delivered after 5:00 p.m. local time will be considered received on the following business day.

In addition to electronic documents, provide paper copies of the following documents and other documents as directed:

(a) Documents required under Section 2;

(b) Weight records required under Section 9;

(c) Receiving records required under Section 9; and

Provide one paper copy of each document upon request, unless more paper copies are specified.

The CO will reject without review documents that are unreadable, corrupted, illegible, or include malicious content.

Signatures for Electronic Documentation. Sign documents requiring a signature by electronic signature or by wet signature.

(a) Definitions.

(1) Electronic signature. A computer data compilation of symbols or series of symbols executed, adopted, or authorized by an individual to be the legally binding equivalent of the individual's handwritten signature.

(2) Wet signature. A signature of ink from pen, or a scanned copy of an actual signature of ink from pen.

(b) Electronic signature. Unless the CO requests a wet signature, an electronic signature may be provided. Assume responsibility for the validity of electronic signatures. The Government will assume that the authorized individual's electronic signature is authentic.

Provide electronic signatures in the following formats:

(1) A digital signature from an encryption application;

(2) A digitized image of a paper signature; or

(3) A unique form or individual identification that can be used as a means of authenticating a record, record entry, or document.

(c) Wet signature. After signing a document by wet signature, scan the complete document into an electronic format.

Specifications and Drawings. Follow the requirements of FAR Clause 52.236-21 Specifications and Drawings for Construction.

(a) General. Submittals include both documents and drawings required to construct the work. Review submittals for accuracy, completeness, and compliance with the contract. Submittals that do not include evidence of Contractor review and verification may be returned for resubmission.

Time for approval starts over when submittals are returned for revision or when additional information is requested. Perform work related to submitted documents or drawings only after they are approved. Obtain written approval before changing or deviating from the approved submittals.

Submit documents and drawings according to Subsection Electronic Documentation.

(1) Drawings. Drawings include:

(a) Layouts that show the relative position (vertical and horizontal as appropriate) of work to be performed;

(b) Fabrication details for manufactured items and assemblies;

(c) Installation and erection procedures;

(d) Details of post-tensioning and other systems;

(e) Detailed trench and excavation procedures that conform to OSHA standards;

(f) Traffic control implementation drawings;

(g) Methods for performing work near existing structures or other areas to be protected; and

(h) Calculations that support each drawing.

Show drawing dimensions in the same units as shown in the plans. Limit drawings to a maximum size of 11 by 17 inches. Include the project number, name, and other identification as shown in the contract on each drawing and calculation sheet.

Drawings will be reviewed in the order they are received. Allow 10 days for approval of drawings and 40 days for approval of railroad structure drawings unless otherwise specified. Submit additional drawings for unique situations to clarify layout, construction details, or method if requested.

(2) Documents other than drawings. Documents other than drawings include descriptive literature, illustrations, schedules, performance and test data, certifications, and similar material submitted to certify or explain specific portions of the work required by the contract. Allow 10 days for approval unless otherwise specified.

(b) Specific requirements for concrete and miscellaneous structures.

(1) Submit drawings for the following:

(a) Site-specific layouts and installation procedures for all wall types;

(b) Site-specific layouts and installation procedures for gabion and revet mattress installations;

(c) Forms and falsework for cast-in-place non-bridge concrete structures and retaining walls less than or equal to 6 feet in height;

(d) Shoring systems and cofferdams less than 6 feet in height;

(e) Fabrication drawings for railings and parapets;

(f) Fabrication drawings for prestressed members;

(g) Fabrication and installation drawings for expansion joint assemblies;

(h) Fabrication drawings for bearing assemblies;

(i) Construction joint location and concrete deck placement sequences not according to the plans;

(j) Erection diagrams for structural plate structures (multi-plate structures);

(k) Steel fabrication and assembly drawings;

(l) Wood structure fabrication and assembly drawings;

(m) Utility hanger details;

(n) Fabrication and installation drawings for precast items other than precast bridge elements;

(o) Details and installation procedures for guardrail, guardrail terminal systems, and crash cushions; and

(p) Site-specific layouts for rockeries.

(2) Submit drawings and supporting calculations that bear the seal and signature of a professional engineer proficient in the applicable design field for the following:

(a) Forms and falsework for cast-in-place concrete structures greater than 6 feet in height;

(b) Forms and falsework for all cast-in-place bridge elements;

(c) Shoring systems and cofferdams greater than 6 feet in height;

(d) Shoring systems that support traffic loadings;

(e) Bridge concrete forms;

(f) Containment system for bridge work;

(g) Girder erection plans;

(h) Partial or full demolition of structural bridge elements;

(i) Post-tensioning systems;

(j) Precast bridge elements;

(k) FRP bridges and structural components;

(l) Concrete box culvert details;

(m) Concrete headwall and wingwall details;

(n) Reinforced soil slopes details;

(o) Ground anchors, soil nail, rock bolt, driven pile, drilled shaft, and micropile assembly details, layout, and installation and testing procedures;

(p) MSE and tie back wall details;

(q) Alternate retaining wall details;

(r) Details and installation procedures for proprietary wall systems; and

(s) Stream diversions.

(3) Submit drawings and supporting calculations that bear the seal and signature of a professional engineer who is proficient in the applicable design field and licensed in the state where the project will be constructed for the following:

(a) Falsework for structures with spans exceeding 16 feet;

(b) Falsework for structures with heights exceeding 14 feet;

(c) Falsework for structures if traffic, other than workers involved in constructing the structure, will travel under the structure;

(d) Temporary bridge structures and load ratings for temporary bridge structures;

(e) New or existing bridges structures to be used as temporary work platforms and load ratings for new or existing bridges to be used as temporary work platforms conforming to AASHTO, *The Manual for Bridge Evaluation* (MBE);

(f) New prefabricated bridges or prefabricated bridge superstructures and load ratings for new prefabricated bridge superstructures conforming to AASHTO, *MBE*;

(g) Helical piles; and

(h) Contractor-designed retaining structures including walls, reinforced soil slopes, and rockeries.

(c) As-built drawings. Maintain a separate set of plans exclusively for as-built drawings. Use the color "red" to identify changes. Use approved methods to record changes accurately and neatly. Include details and notes on additional information discovered during construction. Note additions or revisions to the location, character, and dimensions of work. Strikeout details shown that are not applicable to the completed work.

Retain as-built drawings at the project site or an alternate location as approved.

Keep as-built drawings current and maintain a revision log of changes made. Check and initial plan sheets that were incorporated in the completed work without change. Meet with the CO to jointly review as-built drawings and log for accuracy, completeness, and legibility before submission of each monthly invoice. The CO may retain a portion of the progress payment if as-built drawings are not

current.

Submit as-built drawings and revision logs before the final inspection. Correct errors and omissions found during the final inspection and resubmit as-built drawings for approval within 7 days after the final inspection.

When as-built drawings are approved, submit the final as-built drawings according to Subsection Electronic Documentation of this section.

Include the following in the final as-built drawings:

(1) Title sheet.

(a) "AS-BUILT DRAWINGS" (bold text);

(b) Name of Contractor;

(c) Project completion date;

(d) Revisions to project length;

(e) Revisions to begin and end stations of project;

(f) Revisions to index to sheets;

(g) Strikeout schedules or options not awarded;

(h) Plan notes; and

(i) A note stating, "Work was constructed as designed unless otherwise noted."

(2) Typical section sheets.

(a) Revisions in dimensions;

(b) Revisions in material;

(c) Revisions in station range;

(d) Revisions to curve widening table;

(e) Revisions to begin and end stations of project; and

(f) Strikeout schedules or options not awarded.

(3) Summary of quantities and tabulation sheets.

(a) Revisions to quantities, locations, notes, remarks, including totals;

(b) Strikeout unused pay items;

(c) Revisions to application rates; and

(d) Revisions to location, type, end treatments, riprap, and skew on the drainage summary.

(4) Plan and profile sheets. Note additions or revisions to the location, character, and dimensions of the following items:

(a) Plan.

(1) Alignment and curve and spiral information;

(2) Equations;

(3) Construction limits;

(4) Right-of-way;

(5) Road approaches;

(6) Subexcavation and roadway obliteration;

(7) Underdrains;

(8) Trenches and drains;

(9) Channels and ditches;

(10) Cut and fill slopes;

(11) Monuments and permanent references, including revised or new Control Points;

(12) Guardrail, guardwall, and end treatment;

(13) Constructed, relocated, or encountered utilities;

(14) Structures and obstructions abandoned in the roadbed; and

(15) Walls.

(b) Profile.

(1) Grades, elevations, and stationing of points of intersection;

(2) Equations;

(3) Culvert diameter, length, type, skew, and stationing;

(4) Culvert extension and length of existing culvert;

(5) Walls;

(6) Limits of reinforced soil slopes, rock embankment; and

(7) Guardrail, guardwall, and end treatment.

(5) Miscellaneous sheets. Note additions or revisions to the location, character, and dimensions of the following items:

(a) Parking areas and turnouts;

(b) Curbs and sidewalks;

(c) Fencing;

(d) Landscaping and planting;

(e) Pavement markings;

(f) Signs;

(g) Permanent erosion control measures;

(h) Rock bolts and dowels;

(i) Draped rockfall protection;

(j) Midslope rockfall attenuator;

(k) Roadside rockfall protection;

(l) Anchored wire mesh;

(m) Drain holes in rock;

(n) Horizontal drains; and

(o) Plan notes.

(6) Standard and detail sheets. Note the additions or revisions to the character and dimensions of details.

Coordination of Contract Documents. The FAR, TAR, Contract, plans are contract documents. A requirement in one document is binding as though occurring in all the contract documents. The contract documents are intended to be complementary and to describe and provide for a complete contract. In case of discrepancy, calculated and shown dimensions govern over scaled dimensions. The contract documents govern in the following order:

(a) FAR;

(b) TAR;

(c) Contract; and

(d) Plans;

Load Restrictions. Follow the requirements of FAR Clause 52.236-10 Operations and Storage Areas.

Comply with legal load restrictions while hauling material and equipment on public roads and bridges to and from the project. Regardless of the legal or posted load limit, control loads to prevent damage to existing and new infrastructure within the project limits.

Obtain necessary oversize or overweight vehicle permits and escorts for moving oversized or overweight loads. Provide a copy of the permits and associated loading calculations for roads and bridges within the project limits. A special permit does not relieve the Contractor of liability for damage resulting from moving or using material or equipment to or within the job site.

Unless otherwise permitted, do not operate equipment or vehicles that exceed the legal load limits over new or existing structures, or pavements within the project. Ensure loads do not damage subgrade or utilities.

Replace or restore infrastructure damaged during operations to original condition.

Construction Loading of Structures. Protect new and existing structures within the project limits from construction loads.

Construction loads include, but are not limited to, the weight of cranes, trucks, paving equipment, other heavy construction, or material delivery equipment, as well as the delivery or storage of materials placed on or adjacent to the structure or parts thereof during the various stages (phases) of the work.

If construction loads are planned to be located on or adjacent to a structure to be protected, determine the anticipated construction load, the construction loading capacity of the structure, and the effects the construction load will have on the structure. Consider the sequencing of the work, including construction phasing.

If the loading capacity of the structure is not provided, determine the appropriate loading capacity information.

Submit drawings and calculations for approval according to Subsection Specifications and Drawings that bear the seal and signature of a professional engineer who is proficient in the applicable design field before

starting work.

Inspection at the Plant. Work may be inspected at the point of production or fabrication. Manufacturing plants may be inspected for compliance with specified manufacturing methods. Material samples may be obtained for laboratory testing for compliance with quality requirements. Allow entry at all times to the parts of the plant producing the work.

Other Contracts. Follow the requirements of FAR Clause 52.236-8 Other Contracts.

SECTION 5 – CONTROL OF MATERIAL

Source of Supply and Quality Requirements. Follow the requirements of FAR Clause 52.236-5 Material and Workmanship. Select sources and submit acceptable material. Notify the CO of proposed sources before delivery to the project to expedite material inspection and testing. Do not incorporate material requiring submittal into the work until approved.

Material may be approved at the source of supply before delivery to the project. Provide source quality test results dated within 12 months from NTP. Approval of a material source does not constitute acceptance of material submitted from the source. If an approved source fails to supply acceptable material during the life of the project, further use of that source may be denied.

Submit samples of material for source quality verification testing for material if requested.

Materials containing petroleum-based solvents such as cutback asphalts and traffic paints may be restricted from use by local laws or ordinances in certain geographic areas. Upon presenting proof of such restrictions, alternate materials considered acceptable to the CO may be substituted for the materials specified in the contract.

Certify, according to Section 7, (d) Clearances for Contractor-selected, noncommercial areas., that sources of rock, sand, gravel, earth, subsoil, or other natural material imported into the project construction limits are noxious weed free.

Material Sources.

(a) Government-available material stockpile. The quality of the material in the stockpile has been preapproved for use in backfilling removed burnt guardrail posts See the site map for locations. The quantity available at the locations shown is unknown. Determine available quantity and supplement material as needed.

Table S5-1
Material Stockpiles

Location	Approved Use
Lindbergh Hill	Backfill material for burnt post removals
CC Hill	Backfill material for burnt post removals

(b) Contractor-located sources. The Contractor is responsible for Contractor-located material sources, including established commercial material sources. Use sources that fulfill the contract quantity and quality requirements. Determine the quantity, type of equipment, and work necessary to select and produce an acceptable material. Secure permits and clearances for use of the source and submit copies of the documents to the CO. Follow the environmental requirements of Section 7. Submit available historical data indicating acceptable material can be produced from the source. Perform QC sampling and testing according to the approved Contractor QCP in Section 10 Contractor Quality Control, aggregate source quality tests, and acceptance testing for the required Section of work. Allow the CO the opportunity to witness sampling and splitting of the test material.

Handling and Storing Material. Handle and store material to preserve its quality and fitness for the work. Stored material approved before storage may again be inspected before use in the work. Locate stored material to facilitate prompt inspection. The Contractor may use the locations shown in the plans for the purposes described below for staging and stockpiling. Confirm available spaces with the CO.

Table S5-2
Staging Areas

Location	Approved Use
Lindbergh Hill	Staging, stockpiling, equipment parking
CC Hill	Staging, stockpiling, equipment parking
Ballfield Yard	Staging, stockpiling, equipment parking
North Rim Parking Area	Employee parking and temporary equipment parking

Request and obtain approval for use of staging areas. Use only approved portions of the areas for storing material or equipment. Provide additional space as needed. Do not use private property for storage without written permission of the owner or lessee. Submit copies of agreements and documents. For Contractor-located, non-commercial staging, storing, and material handling areas, secure environmental clearances according to Section 7.

Use products according to the manufacturer's recommendations for handling, storage, and disposal. Follow the requirements of FAR Clause 52.236-10 Operations and Storage Areas and FAR Clause 52.236-12 Cleaning Up. Maintain the staging and storage areas in a clean, neat, and orderly condition.

Store construction, building and waste materials, and containers in designated areas indoors or protect with a suitable covering.

Keep the manufacturer's SDS, an inventory of the material, and emergency numbers near the storage area. Take appropriate measures to ensure that incompatible chemicals are not stored next to each other.

Store construction materials within the limits shown in the plans. Properly store materials according to the applicable permit. Check the storage areas weekly and according to the applicable permit.

Submit a site map showing the material storage and stockpile locations at least 10 days before the start of construction activities.

Provide security for stored material.

Restore Government-furnished storage sites to their original condition.

Use of Material Found in the Work. Stone, gravel, sand, or other material found in the excavation may be used for another pay item, if approved. If material found in the excavation is used for another pay item, material will be paid both as excavation and as the other pay item for which it is used. Replace excavation used with acceptable material at no additional cost to the Government. Excavate or remove material only from within the grading limits, as indicated by the slope and grade lines.

The right to use and process material found in the work excludes the use and processing of material for

nongovernment contract work, except for the disposal of waste material. If the Contractor produces or processes more material from Government lands than the quantities required for the contract, the Government may:

(a) Take possession of the excess material and direct its use, paying the Contractor only for the cost of production; or

(b) Require removal of the material and restoration of the land to a satisfactory condition at no additional cost to the Government.

SECTION 6 – ACCEPTANCE OF WORK

Conformity with Contract Requirements. Follow the requirements of FAR Clause 52.246-12 Inspection of Construction.

References to standard documents and test methods of AASHTO, ASTM, GSA, and other recognized standard authorities refer to the documents and methods in effect on the date of the Invitation for Bids (IFB) or Request for Quote (RFQ).

Use the FLH Testing Forms for reporting materials test results unless otherwise approved. Use the FLH Test Methods in effect on the date of the IFB or RFQ for testing materials, when applicable.

Use ASTM E29, Absolute Method, for test results and related calculations.

Perform work to the lines, grades, cross-sections, dimensions, and processes or material requirements shown in the contract.

Incorporate manufactured material into the work according to the manufacturer's recommendations or to these specifications, whichever is stricter.

If standard manufactured items are specified (such as fence, wire, plates, rolled shapes, and pipe conduits that are identified by gauge, density, or section dimensions) the tolerances for masses or dimensions will be established manufacturing tolerances unless otherwise noted.

Plan dimensions and contract specification values are the values to be strived for and complied with as the design values from which deviations are allowed. Perform work and provide material that is uniform in character and reasonably close to the prescribed value or within the specified tolerance range. The purpose of a tolerance range is to accommodate occasional minor variations from the median zone that are unavoidable for practical reasons.

Perform process control testing as required. Do not rely on the availability of Government test results for process control.

The Government may inspect, sample, or test any work, at any time before acceptance of the entire work. If the Government tests work, copies of test reports will be provided to the Contractor upon request. Government tests may or may not be performed at the work site.

Work will be evaluated for conformance to contract requirements and will be designated as follows:

(a) Conforming work. Acceptable work conforming to the Contract will be paid for at the contract price per unit of measurement. Four methods of determining conformity and accepting work are described in Subsections Visual Inspection through Measured and Tested for Conformance. The primary method of acceptance is specified in the Acceptance Subsection of each Section, but work may be rejected if it is found not to comply with the contract.

(b) Nonconforming work. Remove, repair, or replace work at no additional cost to the Government that does not conform to the contract or to prevailing industry standards where no specific contract

requirements are noted. Provide temporary traffic control and perform other related work to correct nonconformities at no additional cost to the Government.

As an alternative to removal and replacement, the Contractor may submit a written request for approval that includes the following:

(1) Alternatives.

(a) Have the work accepted at a reduced price; or

(b) Perform corrective measures to bring the work into conformity.

(2) Supporting rationale and documentation. Include references or data justifying the proposal based on an evaluation of test results, effect on service life, value of material or work, quality, aesthetics, and other tangible engineering basis.

The CO will determine disposition of the nonconforming work.

If the accuracy of Government test results is disputed, inform the CO. If the dispute is unresolved after reasonable steps are taken to resolve the dispute, further evaluation may be obtained by written request.

Where sample and testing procedures refer to AASHTO, ASTM, or other standards (designated as FLH T), use the procedure as modified in the FLH *Field Materials Manual*.

Where the specifications refer to AASHTO T 11, follow "Procedure B - Washing Using a Wetting Agent".

Where the specifications refer to AASHTO T 310, follow the "Direct Transmission Method of In-Place Nuclear Density and Moisture Content".

Visual Inspection. Acceptance is based on visual inspection of the work for compliance with the contract. Use prevailing industry standards in the absence of specific contract requirements or tolerances.

Material accepted by visual inspection may be sampled and tested for conformance.

Certification. For material manufactured off site, use a manufacturer with an ISO 9000 certification or an approved testing and inspection system. Require the manufacturer to clearly mark the material or packaging with a unique product identification or specification standard to which it is produced.

Other than references in or to the FAR or Federal Law, when the Standard Specifications or Special Contract Requirements reference certifications, certificates, certified documents, equipment, or individuals; the references refer to documentation of non-regulatory, peripheral contract requirements that are required to be validated by an individual or organization having unique knowledge or qualifications to perform such validation.

See Table S6-1 for schedule for full or partial acceptance by material certification. Submit certification and sample of material for testing as required.

Check certifications before incorporating the material into the work to ensure that the requirements of the contract have been met. Mark the certifications with the following information: project number and name; pay item number and description; date; and Contractor-signed certification stating "to the best of our knowledge the materials certified by the attached certification represent the materials incorporated into the work of this contract".

Table S6-1
Schedule For Full or Partial Acceptance by Materials Certification

Description	Material	Material Property Or Specification	Certification Frequency	Sample Frequency
Crushed Aggregate	Crushed aggregate	Source, quality and gradation	1 per source	1 per source
Asphalt Concrete	Aggregate asphalt mix	Source quality, gradation, stability, and grade	1 per mix	1 per source
Permanent Pavement Markings, Temporary Traffic Control	As Specified	As specified	1 per source	–
Cementitious Material	Portland cement, blended hydraulic cement, mortar cement	AASHTO M 85, M 240, ASTM C91 and ASTM C1392 as applicable	1 per shipment	1 per 100 tons
Asphalt Binder	Asphalt cement	AASHTO M 226 or M 320, as applicable	1 per shipment	1 per shipment
Emulsified Asphalt	Emulsified asphalt	AASHTO M 140 or M 208 as applicable	1 per shipment	1 per shipment
Antistrip Additive	As specified	As applicable	1 per shipment	–
Metal Pipe	As specified	As applicable	1 per shipment	–
Plastic Pipe	As specified	As applicable	1 per shipment	–
Reinforcing Steel	As specified	As applicable	1 per shipment	For reinforcing steel, submit 3, 1-yard bars of each size and grade of bar furnished.
Fencing and Mesh Fabrics	As specified	As applicable	1 per shipment	–
Concrete Curing Material and Additives	As specified	As applicable	1 per material source per material type	–
Joint Material	As specified	As applicable	1 per shipment	–

Description	Material	Material Property Or Specification	Certification Frequency	Sample Frequency
Roadside Improvement Material	As specified	As applicable	1 per shipment	–
Geosynthetic Material	As specified	As applicable	1 per shipment	1 per project per type
Traffic Signing and Marking Material	As specified	As applicable	1 per shipment	–
Coating Material	As specified	As applicable	1 per batch\lot	1 sample for quantities > 25 gallons
Anchor Material	As specified	As applicable	1 per shipment per material type	–
Guardrail	As specified	As applicable	1 per shipment	–
Miscellaneous Material	As specified	As applicable	1 per shipment per material type	–

Material accepted by certification may be sampled and tested for conformance.

Provide a commercial certification unless a production certification is identified in the Acceptance Subsection.

(a) Commercial certification. A commercial certification is a manufacturer's or Contractor's representation that the material complies with the contract. The representation may be labels, catalog data, stamped specification standards, or supplier's certifications indicating the material is produced to a commercial standard or specification.

Submit one commercial certification for similar material from the same manufacturer.

(b) Production certification. A production certification is a supplier's certification that the material has been produced to a specific standard and is accompanied by test data performed within the past 12 months and other information as described below to support that the material complies with the contract.

Submit a production certification from the manufacturer for each shipment of material. Include the following:

(1) Date and place of manufacture;

(2) Lot number or other means of cross-referencing to the manufacturer's inspection and testing system; and

(3) Substantiating evidence that the material conforms to the contract quality requirements,

including the following:

(a) Test results on material from the same lot and documentation of the inspection and testing system;

(b) A statement from the manufacturer that the material complies with the contract; and

(c) Manufacturer's signature or other means of demonstrating accountability for the certification.

Measured or Tested Conformance. Perform necessary measurements and tests to ensure work complies with the contract.

Use prevailing industry standards in the absence of contract requirements or tolerances.

Submit measurements, tests, and supporting data for acceptance.

If Government testing is performed on work, the results may be used for acceptance purposes.

Partial and Final Acceptance. Maintain the work during construction and until the project is accepted. Repair damage before final acceptance of the entire project at no additional cost to the Government. See FAR Clause 52.236-11 Use and Possession Prior to Completion.

(a) Partial acceptance. When a segment of the project is completed, a final inspection of that segment may be requested by the Contractor. If the segment is complete and in compliance with the contract, it may be accepted. If accepted, the CO may relieve the Contractor of further responsibility for maintenance of the completed segment.

When public traffic is accommodated through construction and starts using sections of roadway as they are completed, continue maintenance of such sections until final acceptance.

(b) Final acceptance. Notify the CO when the entire project is complete to schedule an inspection. If work is determined to be complete, the inspection will constitute the final inspection. The Contractor will be notified in writing of final acceptance as of the date of the final inspection. Final acceptance relieves the Contractor of further responsibility for the maintenance of the project.

If the inspection discloses unsatisfactory work, the CO will provide to the Contractor a list of the work that is incomplete or requires correction. Immediately complete or correct the work. Submit notification when the work has been completed.

Protection and Restoration of Property and Landscape. Follow the requirements of FAR Clause 52.236-9 Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements.

Do not disturb the area beyond the construction limits.

(a) Property. Preserve public and private property. Protect monuments established for perpetuating horizontal, vertical, cadastral, or boundary control. If necessary to destroy a monument, reestablish the monument according to applicable state statute or by the direction of the agency or individual who established the monument.

(b) Vegetation. Replace trees, shrubs, or vegetated areas damaged by construction operations as directed and at no additional cost to the Government. Remove damaged limbs of existing trees by an approved arborist.

(c) Archeological. Do not excavate, remove, damage, alter, or deface archeological or paleontological remains or specimens. Control the actions of employees and subcontractors on the project to ensure that protected sites are not disturbed or damaged. Should these items be encountered, suspend operations at the discovery site, notify the CO immediately and continue operations in other areas. The CO will inform the Contractor when operations may resume at the discovery site.

(d) Utilities. Before starting work in an area, contact the local utility locating service to mark the utilities. Protect utilities from construction operations. Cooperate with utility owners to expedite the relocation or adjustment of their utilities to minimize interruption of service and duplication of work.

If utility services are interrupted because of damage by the construction, immediately notify the utility owner, the CO, and other proper authorities. Cooperate with them until service is restored. Do not work around fire hydrants until provisions for continued service are made and approved by the local fire authority.

Notify the CO if utility work is required. Compensation for the work will be provided under applicable clauses of the contract. Satisfactorily repair damage due to the fault or negligence of the Contractor at no additional cost to the Government.

Repair of damage to underground utilities not shown in the plans or identified before construction, and not caused by the fault or negligence of the Contractor will be paid for by the Government.

The locations of the utilities shown in the plans have been certified to a Quality Level D according to the CFLHD *Utility Data Quality Certification* requirements available at https://highways.dot.gov/federal-lands/rw-util/cfl

Table S7-2
Status of Utilities

	Utility Type	Company	Contact Name	Phone Number / Email	Status(1)
1	Buried Water	NPS	Adam Leavy	Adam.Leavy@nps.gov 928-310-8654	4
2	Buried Sewer	NPS	Adam Leavy	Adam.Leavy@nps.gov 928-310-8654	4
3	Buried Power	NPS	Adam Leavy	Adam.Leavy@nps.gov 928-310-8654	4
4	Buried Power	Garkane	Bryant Shakespear	Bryant.shakespear@garkane.com 435-689-0347	4
5	Buried Fiber Buried Phone	NPS	Peter Jones	Peter.Jones@nps.gov 928-638-7710 928-606-1708	4
6	Buried Fiber Buried Phone	Lumen	Chad Dykes	Chad.Dykes@lumen.com 602-595-9133	4

(1) Status is defined as follows:
Status 1: The utilities are in conflict with the project and require relocation by others during construction.
Status 2: The utilities are in conflict with the project and require relocation by the Contractor during construction.
Status 3: The utilities are in conflict with the project and require relocation by others before construction.
Status 4: The utilities are located within the project right-of-way but require no relocation.

Bulletin Board. Provide a weatherproof bulletin board of suitable size and construction for continuous display of posters and other information required by the contract. Erect and maintain the bulletin board at a conspicuously accessible location on the project and remove and dispose of it after project final acceptance.

Display the following documents on the bulletin board:

(a) Form FHWA 1022, *Notice* that the project is subject to Title 18, U.S.C., Section 1020 poster;

(b) Department of Labor, Wage and Hour Division (WHD), WHD 1321, *Employee Rights Under The Davis-Bacon Act* poster (regarding proper pay);

(c) Department of Labor, OSHA, *Job Safety and Health It's The Law* poster, according to CFR Title 29, Part 1903;

(d) "General Wage Decision" contained in the contract;

(e) OSHA, Emergency telephone numbers (in areas where 911 is not available), according to CFR Title 29, Part 1926.50(f);

(f) Department of Labor, WHD Publication, *Employee Rights and Responsibilities Under the Family and Medical Leave Act* poster according to CFR Title 29, Part 825.300(a);

(g) WHD 1462, Employee Polygraph Protection Act poster; and

(h) National Labor Relations Act (NLRA), *Employee Rights Under The National Labor Relations Act* poster according to Executive Order 13496.

Responsibility for Damage Claims. Indemnify and hold harmless the Government, its employees, and its consultants from suits, actions, or claims brought for injuries or damage received or sustained by a person, persons, or property resulting from the construction operations or arising out of the negligent performance of the contract.

Procure and maintain until final acceptance of the contract, liability insurance of the types and limits specified below. Obtain insurance from companies authorized to do business in the appropriate state. Ensure the insurance covers operations under the contract whether performed by the Contractor or by subcontractors.

Before work starts, submit "*certificates of insurance*" certifying that the policies will not be changed or canceled until 30 days' written notice has been given to the Government. Insurance coverage in the minimum amounts set forth below does not relieve the Contractor of liability in excess of the coverage.

Carry insurance conforming to the following minimums:

(a) Worker's compensation insurance. Minimum required by law.

(b) Comprehensive or commercial general liability insurance.

(1) Personal injury and property damage coverage;

(2) Contractual liability coverage;

(3) Completed operations liability coverage;

(4) $1,000,000 combined single limit for each occurrence; and

(5) $2,000,000 general aggregate limit.

(c) Automobile liability insurance. $1,000,000 combined single limit for each occurrence.

Contractor's Responsibility for Work. Assume responsibility for all work until final acceptance, except as provided in Section 6 Acceptance of work. This includes periods of suspended work. Protect the work against injury, loss, or damage from all causes whether arising from the execution or non-execution of the work. Maintain public traffic according to Section 13 PUBLIC TRAFFIC.

Rebuild, repair, restore, and make good losses, injuries, or damages to any portion of the work. This includes losses, injuries, or damages caused by vandalism, theft, accommodation of public traffic, and weather that occurs during the contract.

The Government will only be responsible for costs attributable to repairing or replacing damaged work caused by declared enemies and terrorists of the Government and cataclysmic natural phenomenon. The Government will not be responsible for delay costs, impact costs, or extended overhead costs.

Furnishing Right-of-Way. The Government will obtain right-of-way.

Sanitation, Health, and Safety. Follow the requirements of FAR Clause 52.236-13 Accident Prevention, Alternate 1. Submit an accident prevention plan.

Observe rules and regulations of Federal, state, and local health officials. Do not allow workers to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous.

Admit OSHA inspectors or other legally responsible officials involved in safety and health administration to the project work site upon presentation of proper credentials.

Report accidents on forms furnished by the Government or with prior approval, on forms used to report accidents to other agencies or insurance carriers. Maintain an OSHA Form 300, *Log of Work-Related Injuries and Illnesses* and make it available for inspection.

Install a reverse signal alarm audible above the surrounding noise level on motorized vehicles having an obstructed view and on earth-moving and compaction equipment.

Legal Relationship of the Parties. In the performance of the contract, the Contractor is an independent contractor. The Contractor's independent contractor status does not limit the Government's general rights under the contract. No Government employee or a business organization owned or substantially owned or controlled by one or more Government employees may be a contractor.

Environmental Protection. Comply with the following:

(a) Federal Water Pollution Control Act (Clean Water Act) 33 USC § 1251 et seq.

(1) Do not operate equipment or discharge material within the boundaries of wetlands and the waters of the United States as defined by the Federal and state regulatory agencies. Permits are issued by the U.S. Army Corps of Engineers according to 33 USC § 1344 and delegated by the agency having jurisdiction. If an unauthorized discharge occurs:

(a) Prevent further contamination;

(b) Notify appropriate authorities and the CO; and

(c) Mitigate damages.

(2) Construct and maintain barriers in work areas and in material sources to prevent sediment, petroleum products, chemicals, and other liquids and solids from entering wetlands or waters of the United States. Remove and properly dispose of barrier collected material.

(3) Do not revise terms or conditions of permits without the approval of the issuing agency.

(4) Do not ford running streams with construction equipment. Obtain approval from the CO to use temporary bridges or other structures whenever crossings are necessary.

(5) Locate machinery servicing and refueling areas away from streambanks, wetlands, shorelines, lakes, and reservoirs to reduce the possibility and minimize the impacts of accidental spills or discharges.

(b) Oil and hazardous substances. Submit a hazardous spill plan as required by Federal, state, or local regulations at least 2 days before starting work. Where a hazardous spill plan is not required submit a "*Spill Prevention, Control, and Countermeasure (SPCC) Plan*".

Describe preventative measures including the location of refueling and storage facilities and the handling of hazardous material. Describe actions to be taken in case of a spill. Identify personnel, equipment, and resources available to address spill prevention and response.

Do not use equipment with leaking fluids. Repair equipment leaks immediately. Keep absorbent material manufactured for containment and cleanup of hazardous material on the job site. Sand and soils are not approved absorbent materials.

Notify the CO of hazardous spills. Report the spill to the appropriate federal, state, and local authorities as required by the SPCC plan or hazardous spill plan.

Follow the requirements of Appendix: *National Park Service (NPS) Spill Prevention, Control, and Countermeasure Plan for Non-Qualified Facility, Grand Canyon National Park. Dated July 19, 2022.*

(c) Dirt, plant, and foreign material. Remove dirt, plant, and foreign material from vehicles and equipment before mobilizing to work site. Prevent introduction of noxious weeds and non-native plant species into the work site. Follow applicable Federal land management agency and state rules and regulations. Maintain cleaning and inspection records.

All vehicles and equipment entering the project area must be clean of noxious weeds and free from oil leaks and are subject to inspection. Thoroughly wash construction equipment, including the undercarriage and any surface where soil containing exotic seeds may exist. Allow the CO to inspect each piece of equipment before entering the project. Provide the cleaning and inspection records to the CO.

(d) Clearances for Contractor-selected, noncommercial areas. Contractor-selected, noncommercial areas include material sources, disposal sites, waste areas, water sources, haul roads, and staging areas located outside project construction limits and permitted commercial areas. Allowed commercial areas include enterprises or developed areas providing same type material or use over the last 2 years with appropriate permits and agreements.

Use rock, sand, gravel, earth, subsoil, or other natural materials from a Contractor-selected non-commercial materials source that has been certified free of noxious weeds. Materials imported into the project limits which do not include a noxious weed free certification may be rejected and ordered to be removed from the project limits. The CO has the discretion of requesting inspection of certified materials by a third party and rejecting the use of the source if noxious weeds or seeds thereof are found to be present.

Before using a Contractor-selected, noncommercial areas, submit the following for approval:

(1) Description, schedule, and map of area.

(2) Documentation of compliance with applicable laws, rules, and regulations.

(3) Owner approval for the area use. If use of Federal land is proposed, submit an approval letter or special use permit from the applicable Federal land management agency.

(4) Legal compliance for the area use. Submit documentation showing compliance with applicable tribal, state, and local laws including permits or other approvals issued for the area use.

(5) Any required certifications.

(e) Project-specific commitments.

(1) General Wildlife: Do not feed or approach wildlife. Care must be taken not to disturb reptiles, migratory birds, raptors, bats, or other wildlife found nesting, hibernating, estivating, or living in or near the worksite.

(2) Site Housekeeping: Clean up the worksite at the end of each day (e.g., dispose of trash, pick up scrap) to minimize the likelihood of wildlife visiting the site. All trash/recycling receptacles and dumpsters must be wildlife-proof certified and tightly covered.

(3) California Condors: If Condors are observed within the project limits, cease operations and notify the CO. Do not interact with condors. The CO will inform the contractor when work may resume.

(4) Park Orientation Meeting: All contractor, and subcontractor staff must attend a Park orientation meeting prior to beginning work. Orientation will cover park rules protecting cultural and natural resources, how to recognize an archeological site (including historic trash), procedures for reporting possible archeological discoveries, and penalties for damaging cultural and natural resources. Record the first meeting for workers coming on to the project after the initial training. Provide a participation log to the CO for all completed trainings.

Protection of Forests, Parks, and Public Lands. Comply with the rules and regulations of the state fire marshal, conservation commission, Federal land management agency, or other authority having jurisdiction governing the protection of land including or adjacent to the project.

Comply with the fire prevention plan included in the Appendix. The CO will order the emergency suspension of operations when conditions are unsafe as determined by the CO and the land management agency.

SECTION 8 – PROSECUTION AND PROGRESS

Commencement, Prosecution, and Completion of Work. A preconstruction conference will be held after the contract is awarded and before starting work. Seven days before the preconstruction conference, submit copies of the preliminary work plan according to Section 12 Construction Schedule.

Limit operations according to Section 7 and Section 13.

Limit operations as follows:

(a) Nighttime operations may be permitted. Submit a written request, describing the hours of operations and proposed work activities to the CO 14 calendar days in advance for review. Do not begin night work or nighttime closures until CO approves the request. Keep operations to either Day or Night-time operations, but not both concurrently.

(b) Weekend work is not permitted before the Labor Day holiday.

(c) Perform no work at the North Rim Lodge Parking areas between March 1 and August 31.

Perform no work except to maintain traffic control devices, erosion control devices, the roadway driving surface, and to control dust during the listed holidays and surrounding days as shown in Table 108-2.

Table S8-1
Holidays and Surrounding Days

Holiday	Time	Remarks
Independence Day	Noon July 3 to 6:00 a.m. July 5	If July 4 falls on a weekend, Friday, or Monday, do not work the weekend. If July 4 falls on a Saturday, do not work the preceding Friday. If July 4 falls on a Sunday, do not work the following Monday.
Labor Day	Noon Friday to 6:00 a.m. Tuesday	–
Thanksgiving Day	Noon Wednesday to 6:00 a.m. Monday	–
Christmas Day / New Year's Day	Noon December 23 to 6:00 a.m. January 2	If December 23 or January 1 falls on a Monday, do not work the adjacent weekend and do not work on December 23. If January 1 falls on a Friday, do not work the weekend.

Schedule at least 2 non-workdays out of every 14 days. The selected non-workdays do not need to be consecutive, but they must be scheduled. Notify the CO at least 2 weeks before changing the scheduled days off.

The CO may grant written approval for exemptions to scheduled days off for specific project operations and for periods of limited duration. The contract completion date is November 13, 2026.

Labor. Follow the requirements of FAR Clause 52.222-6 Construction Wage Rate Requirements.

Adjacent or virtually adjacent work sites are defined to be work sites within ½ mile of the project. Application of Construction Wage Rate Requirements (Davis-Bacon Act) for work sites beyond ½ mile of the project will be determined by the CO.

Subcontracting. Subcontracting does not relieve the Contractor of liability and responsibility under the contract and does not create any contractual relation between subcontractors and the Government. The Contractor is liable and responsible for actions or lack of action of subcontractors.

Within 14 days of subcontract award, submit a completed SF 1413 and 1413S. Complete Part I for each Subcontractor, and include Part II when the Subcontractor performs on-site work. Complete other forms that may be required by the Government to show the work subcontracted and the total dollar amount of the subcontract. Submit the above required information for each Subcontractor at lower tiers.

In FAR Clause 52.219-8, Utilization of Small Business Concerns and FAR Clause 52.232-27 Prompt Payment for Construction Contracts, the term "*subcontracts*" includes on-site and off-site work and supply contracts.

Determination and Extension of Contract Time. Conform to the following:

(a) Definitions.

(1) Time impact analysis. The procedure by which the Contractor demonstrates the effect of specific time impacts on the overall construction schedule. Time impacts may result in an increase or decrease in contract time.

(2) Float. The amount of time between when an activity "*can start*" (the early start) and when an activity "*must start*" (the late start).

(b) Time impact analysis. Comply with the applicable contract clauses when requesting a time extension. Notify the CO in writing within 7 days after identifying a time impact.

Submit a time impact analysis and revised construction schedule within 14 days after the end of the time impact event for which notice has been given. Include the following:

(1) A title page or header block with:

(a) Contract number;

(b) Project number and name;

(c) Contractor name;

(d) Current fixed completion date;

(e) Date of submittal; and

(f) Consecutive number for each analysis.

(2) State the impact that requires a time impact analysis:

(a) CO proposed or directed contract modification;

(b) Contractor proposed contract modification;

(c) Weather delay; or

(d) Other Government caused delay.

(3) A copy of the most current approved construction schedule existing before the impact.

(4) A detailed narrative describing each impact event. Describe impacts to each affected activity in the construction schedule. Include the following:

(a) Contract clauses under which the request is being made;

(b) Cause of the impact;

(c) Start date of the impact;

(d) Duration of the impact; and

(e) Methods to be employed to re-sequence or reschedule the work to mitigate the impact. Discuss the feasibility of re-sequencing future work to mitigate delay. Re-sequencing or rescheduling of work will be at no additional cost to the Government. Include corresponding rationale and assumptions of measures which increase the cost of mitigating the impact.

(5) A revised construction schedule to show the impact of the activities identified, including re-sequencing which would mitigate the delay.

(c) Time extensions. Only delays or modifications that affect critical activities or cause noncritical activities to become critical will be considered for time extensions.

If a CPM schedule is used, no time extension will be made for delays or modifications that use available float as shown in the most current approved construction schedule existing before the impact.

No time extension will be made for a claim that states insufficient time was provided.

For delays due to weather, demonstrate that the weather was unusually severe based on the most recent 10 years of historical data according to FAR Clause 52.249-10 Default (Fixed-Price Construction).

If a quantity variation described in Section 9 Pricing of Adjustments results in an increase in the time necessary for completion, the Contractor may request, in writing, an extension of time as provided within this Subsection.

(d) Execution of the time impact analysis. Incorporate accepted logic changes or time extensions into the construction schedule update by the next monthly submittal.

Failure to Complete Work on Time. Follow the requirements of FAR Clause 52.211-12 Liquidated Damages — Construction.

Liquidated damages in the amount specified in FAR Clause 52.211-12 Liquidated Damages — Construction will be assessed for each day beyond the time allowed to complete the contract until substantial completion of the work.

If a winter shutdown occurs during this period, liquidated damages in an amount equal to 10 percent of the amount shown in FAR Clause 52.211-12 Liquidated Damages — Construction will be assessed for each day until work resumes at which time full liquidated damages will be assessed.

Stop Work Order. Follow the requirements of FAR Clause 52.236-13 Accident Prevention and FAR Clause 52.242-14 Suspension of Work. The CO may order the performance of the work to be stopped, either in whole or in part, for such periods deemed necessary including, but not limited to, the following:

(a) Weather or soil conditions considered unsuitable for prosecution of the work; or

(b) Failure of the Contractor to:

(1) Correct conditions unsafe for the workers or the general public;

(2) Carry out written orders given by the CO; or

(3) Perform provisions of the contract.

SECTION 9 – MEASUREMENT AND PAYMENT

Measurement of Work. Take and record measurements and perform calculations to determine pay quantities for invoicing for work performed. Take or convert measurements of work according to U.S. Customary measures.

Unless otherwise specified, measure when the work is in-place and complete according to the contract. Measure the actual work performed, except do not measure work outside the design limits or other adjusted or specified limits (staked limits). Measure structures to the lines according to the plans or to approved lines adjusted to fit field conditions.

Take measurements as described in Measurement Terms and Definitions unless otherwise modified by the Measurement Subsection of the Section controlling the work being performed.

Measurement of quantities for payment for the individual pay items will be based on the contract price for each pay item according to Table S9-1.

Table S9-1
Decimal Accuracy of Quantities for Payment

Contract Unit Price	Decimal Accuracy of Quantities for Payment
Less than $1.00	0 decimal
$1.00 to $100.00	1 decimal
Greater than $100.00	2 decimals

Decimal precision for measurement is one decimal beyond accuracy of quantities for payment.

Remeasure quantities if it has been determined that a portion of the work is acceptable, but has not been completed to the lines, grades, and dimensions shown in the plans or established by the CO.

Prepare, sign, and submit measurement notes and supporting field note documentation using an approved format. Unacceptable measurement notes will be rejected and returned. Correct rejected measurement notes and resubmit.

Submit measurement notes within 24 hours of completing work that is in-place and complete according to the contract. For on-going work, submit measurement notes weekly or as approved. When work is not complete, identify the measurement as being an interim measurement. Submit the final measurement when the work is completed. Measurement notes form the basis of the Government's receiving reports described in Progress Payments, Invoice Requirements, Governments Receiving Report.

Include the following information in the measurement notes:

(a) Project number and name;

(b) Line item number, pay item number, and description;

(c) Date the work was performed;

(d) Location of the work;

(e) Measured quantity;

(f) Calculations made to arrive at the quantity;

(g) Supporting sketches and details as needed to clearly define the work performed and the quantity measured;

(h) Names of persons measuring the work;

(i) Identification as to whether the measurement is interim or final; and

(j) Signed certification statement by the persons taking the measurements and performing the calculations, that the measurements and calculations are correct.

Measurement Terms and Definitions.

Unless otherwise specified, the following terms are defined as follows:

(a) Acre. 43,560 square feet. Make longitudinal and transverse measurements for area computations horizontally. Do not make deductions from the area computation for individual fixtures having an area of 500 square feet or less.

(b) Contingent sum. Perform only the work authorized by written order. The estimated cost of the contingent sum work is approximate and is considered the maximum cost for the required work. The quantity to be paid will be equivalent to the costs incurred. Submit paid invoice receipts as documentation.

(c) Contract quantity. The quantity to be paid is the quantity listed in the schedule of items. The contract quantity will be adjusted for authorized changes that affect the quantity or for errors made in computing this quantity. If there is evidence that a quantity specified as a contract quantity is incorrect, submit calculations, drawings, or other evidence indicating why the quantity is in error and request in writing that the quantity be adjusted.

(d) Cubic foot and cubic yard. Measure by one of the following methods:

(1) In place. Measure solid volumes by one of the following:

(a) Average end area method. Take cross-sections of the original ground. Use design or staked templates to determine end areas. Compute the quantity using the average end areas multiplied by the horizontal distance along a centerline or reference line between the end areas.

(a) Finite element analysis method. Use digital terrain modeling to determine the difference between existing and constructed terrain surfaces.

(2) In the hauling vehicle. Measure according to Subsections Weighing Procedures and Devices and receiving procedures.

Measure the cubic yard volume in the hauling vehicle using three-dimensional measurements at the point of delivery. Use vehicles bearing a legible identification mark with the body shaped so

the actual contents may be readily and accurately determined. Before use, mutually agree in writing on the volume of material to be hauled by each vehicle. Vehicles carrying less than the agreed volume may be rejected or accepted at the reduced volume.

Level selected loads. If leveling reveals the vehicle was hauling less than the approved volume, reduce the quantity of all material received since the last leveled load by the same ratio as the current leveled load volume is to the agreed volume. Payment will not be made for more than the agreed volume.

Material measured in the hauling vehicle may be weighed and converted to cubic yards for payment purposes if the conversion factors are mutually agreed to in writing.

(3) In the structure. Measure according to the lines of the structure as shown in the plans, except as altered by the CO to fit field conditions. Make no deduction for the volume occupied by reinforcing steel, anchors, weep holes, piling, or pipes less than 8 inches in diameter.

(4) By metering. Use an approved metering system.

(e) Day. A 24-hour period starting and ending at midnight. Round portions of a day up to the full day.

(f) Each. One entire unit. Measure the actual number of units completed and accepted.

(g) Gallon. The quantity may be measured by the following methods:

(1) Measured volume container. Use an approved container with a verified volume.

(2) Metered volume. Use an approved metering system.

(3) Commercially-packaged volumes. Use the volume as identified on the commercially-packaged product.

(4) Measured by mass. Use an approved weighing device.

When asphalt material is measured by the gallon, measure the volume at 60 °F or correct the volume to 60 °F using recognized standard correction factors.

(h) Hour. 60 minutes. Measure the actual number of hours ordered by the CO and performed by the Contractor. Round portions of an hour up to the next half hour. Measure time in excess of 40 hours per week at the same rate as the first 40 hours.

(i) Linear foot. As applicable, measure the work along its length from end-to-end, parallel to the base or foundation, along the top, along the front face, or along the invert. Do not measure overlaps.

(j) Lump sum. Do not measure directly. The bid amount is complete payment for all work described in the contract and necessary to complete the work for that pay item. The quantity is designated as "*All*". Estimated quantities of lump sum work shown are approximate.

(k) M-gallon. 1000 gallons. Measure according to Measurement and Payment(g).

(l) Mil. Thousandth of an inch. Use to measure thickness.

(m) Mile. 5280 linear feet. Measure horizontally along the centerline of each roadway, approach road, or ramp.

(n) Month. A month as defined by the Gregorian calendar. Measure portions of a month by prorating based on the total days worked.

(o) Pound. Measure according to Subsections Weighing Procedures and Devices and receiving procedures. If sacked or packaged material is provided, the net weight as packed by the manufacturer may be used.

(p) Square foot and square yard. 1 square yard equals 9 square feet. Measurements for area computations will be made horizontally or vertically to the surface being measured. No deductions from the area computation will be made for individual fixtures having area of 9 square feet or less. Do not measure overlaps.

(q) Thousand board feet measure. 1000 board feet. Measurement equal to 1000 feet of wood that is 12 inches wide and 1 inch thick.

(r) Ton. 2000 pounds. Measure according to Subsections Weighing Procedures and Devices and receiving procedures.

No adjustment in a contract price will be made for variations in quantity due to differences in the specific gravity or moisture content.

Use net-certified scale masses or masses based on certified volumes in the case of rail shipments as a basis of measurement subject to correction if asphalt material is lost from the car or the distributor, wasted, or otherwise not incorporated in the work. If asphalt material is shipped by truck or transport, net-certified masses, subject to correction for loss or foaming, may be used for computing quantities.

When emulsified asphalt is converted from volume to mass, use a factor of 240 gallons per ton regardless of temperature.

If the asphalt binder for asphalt concrete pavement is stored in tanks devoted exclusively to the project, base quantities on invoices. If asphalt binder for asphalt concrete pavement is not stored in tanks devoted exclusively to the project or if the validity of the quantity requested for payment is in question, base quantities on the asphalt content determined by testing.

(s) Week. A 7-day period starting and ending at the same designated time. Measure portions of a week by prorating based on the total days worked.

Weighing Procedures and Devices. Batch masses may be acceptable for determination of pay quantities if an approved automatic weighing, cycling, and monitoring system is included as part of the batching equipment.

If a weighing device is determined to indicate less than true mass, no additional payment will be made for material previously weighed and recorded. If a weighing device is determined to indicate more than true

mass, material received after the last previously correct weighing accuracy test will be reduced by the percentage of error in excess of 0.5 percent.

When material is proportioned or measured and paid for by mass, provide one of the following:

(a) Commercial weighing system. Use permanently-installed and certified commercial scales.

(b) Invoices. If bulk material is shipped by truck or rail and is not passed through a mixing plant, submit a supplier's invoice with net mass or volume converted to mass. Perform check weighing as requested.

(c) Project weighing system. Provide, erect, and maintain approved automatic digital scales. Provide scales that record mass at least to the nearest 100 pounds. Maintain the scale accuracy to within 0.5 percent of the correct mass throughout the calibration range of the scale.

Do not use spring balances. Do not use scales mounted on non-stationary equipment.

Install and maintain platform scales with the platform level with rigid bulkheads at each end. Make the platform of sufficient length to allow simultaneous weighing of all axle loads of the hauling vehicle. Coupled vehicles may be weighed separately or together according to Subsection 2.20, paragraph UR.3.3, Single-Draft Vehicle Weighing of the NIST *Handbook 44, Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices*.

Install and maintain belt-conveyor scales according to Subsection 2.21, Belt-Conveyor Scale Systems of the NIST *Handbook 44, Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices.*

Before production on the project, after relocation, and at least once per year; have the weighing portion of the system checked and certified by the State bureau of weights and measures or a private scale service certified by the bureau of weights and measures. Seal the system to prevent tampering or other adjustment after certification.

Attach an automatic printer to the scale that is programmed or otherwise equipped to prevent manual override of mass information. For weighed pay quantities, program the printer to provide the following information for each weighing:

(1) Project number and name;

(2) Line item number, pay item number, and description;

(3) Date;

(4) Time;

(5) Ticket number;

(6) Haul unit number;

(7) Net mass in load at least to the nearest 100 pounds;

(8) Subtotal net mass for each haul unit since the start of the shift; and

(9) Accumulated total net mass for all haul units since the start of the shift.

If a printer malfunctions or breaks down, the Contractor may manually weigh and record masses for up to 24 hours provided the method of weighing meets other contract requirements.

Provide competent scale operators to operate the system.

When platform scales are used, weigh empty haul units at least twice per day.

Use an approved format for the mass records. Submit the original records and a written certification as to the accuracy of the masses at the end of each shift.

Receiving Procedures. When the method of measurement requires weighing or volume measurement in the hauling vehicle, provide a person to direct the spreading and distribution of material and to record the location and placement of the material on the project. During the placement, maintain a record of each delivery and document it in an approved manner. Include the following as applicable:

(a) Project number and name;

(b) Line item number, pay item number, and description;

(c) Location where placed;

(d) Date;

(e) Load number;

(f) Truck identification;

(g) Time of arrival;

(h) Mass or volume; and

(i) Spread person's signature.

Submit the original records and a written certification of the delivery of the material at the end of each shift.

Measurement and Payment. Payment for contract work is provided, either directly or indirectly, under the pay items listed in the schedule of items.

(a) Direct payment. Payment is provided directly under a pay item listed in the schedule of items when one of the following applies:

(1) The work is measured in the Measurement Subsection of the Section ordering the work and the schedule of items contains a pay item for the work from the Section ordering the work.

(2) The Section ordering the work references another Section for the work and the schedule of items contains a pay item for the work from the referenced Section.

(b) Indirect payment. Work for which direct payment is not provided is a subsidiary obligation of the Contractor. Payment for such work is indirectly included under other pay items listed in the schedule of items. This includes instances when the Section ordering the work references another Section for performing the work and the work is not referenced in the Measurement Subsection of the Section ordering the work.

Compensation provided by the pay items included in the schedule of items is full payment for performing contract work in a complete and acceptable manner. Risk, loss, damage, or expense arising out of the nature or prosecution of the work is included in the compensation provided by the pay items.

Work measured and paid for under one pay item will not be paid for under other pay items.

The quantities listed in the schedule of items are approximate unless designated as a contract quantity. Limit pay quantities to the quantities staked, ordered, or otherwise authorized before performing the work. Payment will be made for the actual quantities of work performed and accepted or material provided according to the contract. No payment will be made for work performed in excess of that staked, ordered, or otherwise authorized.

Pricing of Adjustments. Determine costs according to FAR Part 31 Contract Cost Principles and Procedures. Follow the requirements of FAR clauses providing for an equitable price adjustment.

If agreement on price and time cannot be reached, the CO may make a unilateral determination.

If the work will delay contract completion, request a contract time extension according to Section 8, Determination and Extension of Contract Time.

(a) Contract modification standard rates. Provide the following information to the CO with contract modification proposals.

(1) Overhead. Provide copies of the current job site and home office overhead rates for the Contractor and subcontractors that have been certified or audited by the Contractor's controller or accountant. Provide supporting data, which justifies the rates. List each cost category that is included in overhead and identify the cost pools to which overhead is applied.

(2) Equipment. Provide a complete descriptive listing of equipment to be used by the Contractor and subcontractors, including the make, model, and year of manufacturer of each piece of equipment and attachments to the base equipment. Provide the following cost information:

(a) Rented equipment. Provide current invoices to support rented or leased equipment costs.

(b) Owned equipment. Determine allowable ownership and operating costs for Contractor- and subcontractor-owned equipment using actual equipment cost data determined from the

operating cost records and following the U.S. Army Corps of Engineers *Construction Equipment Ownership and Operating Expense Schedule* (CEOOES) method. If actual equipment cost data is not available, provide the CO with a statement signed by an individual that can bind the Contractor that such cost data is not available.

Provide a complete set of supporting documentation containing ownership records that are available, including purchase records, depreciation records, maintenance records, or other records that relate to the ownership and operating costs for each piece of equipment.

If actual costs cannot be determined, or are not provided at the preconstruction conference, use the rates shown in the CEOOES for the region where costs are incurred. Adjust the rates for used equipment and for other variable parameters used in the schedules. Provide the CO with supporting documentation.

Compute standby costs from approved ownership records or, if actual costs cannot be determined, according to CEOOES. Do not exceed 8 hours in a 24-hour period or 40 hours in a week. Do not include standby for periods when the equipment would have otherwise been in an idle status or for equipment that was not in operational condition.

(b) Proposal for forward priced work. Submit a written proposal, including price breakdown, for each line item of the work. Identify the major elements of the work, the quantity of the element, and its contribution to the proposed price. Submit additional information as requested to allow the CO to determine the reasonableness of the proposed price. Provide the following information:

(1) Direct costs.

(a) Material. Include estimated costs of material delivered to the work.

(b) Labor. Include a list of anticipated crew members and estimated work hours. Show basic hourly wage rates, fringe benefits, applicable payroll costs (such as FICA, FUTA, worker's compensation, insurance, and tax levies), paid subsistence, and travel costs for each labor classification and foreperson employed in the work.

(c) Equipment. Include documentation or invoices to support equipment costs according to Subsection (a)(2) above.

(d) Other direct costs. Include documentation to support other estimated direct costs (such as bonds, mobilization, demobilization, permits, and royalties).

(e) Production rates. Include estimated production rates for major elements of the work.

(f) Subcontract costs. Include supporting data as required.

(2) Overhead. Include overhead costs according to Subsection (a)(1) above. Limit Contractor overhead applied to subcontractor payments to 5 percent unless a higher percentage is justified.

(3) Profit. Include a reasonable profit, except when precluded by the FAR.

(c) Post-work pricing. When a contract modification is not forward priced, it requires a change order and a supplemental agreement reflecting the resulting equitable adjustment. When negotiating the price of a contract modification after all or most of the work has been performed, submit the following:

(1) Direct costs.

(a) Material. Include invoices showing the cost of material delivered to the work.

(b) Labor. Include a list of crew members and actual hours worked. Show actual wage rates, fringe benefits, applicable payroll costs (such as FICA, FUTA, worker's compensation, insurance, and tax levies), paid subsistence, and travel costs for each labor classification and foreperson employed in the adjusted work.

(c) Equipment. Include documentation or invoices to support equipment costs according to Subsection (a)(2) above.

(d) Other direct costs. Include documentation to support other estimated direct costs (such as bonds, mobilization, demobilization, permits, and royalties).

(e) Production rates. Include actual hours of performance daily for each labor classification and for each piece of equipment. Include production rate information reflecting the actual work occurring on an approved Contractor daily record document.

(f) Subcontract costs. Include supporting data as required.

(2) Overhead. Include overhead costs according to Subsection (a)(1) above. Limit Contractor overhead applied to subcontractor payments to 5 percent unless a higher percentage is justified.

` **3) Profit.** Include a reasonable profit, except when precluded by the FAR. Limit profit to 10 percent of the total cost. Due to the limited risk in post-work pricing, a lower profit percentage may be determined by a profit analysis according to FAR 15.404-9 Profit.

(d) Cost or pricing data. This contract is a commercial acquisition executed under the Revolutionary FAR Overhaul (RFO) Part 12. If a market-based price analysis cannot be performed for a directed change, the Contracting Officer retains the authority to request 'Data Other Than Certified Cost or Pricing Data' consistent with commercial market practices to establish a fair and reasonable price.".

(e) Variation in estimated quantity. If the quantity of a unit-priced item is an estimated quantity and the actual quantity of the unit-priced item varies more than 15 percent above or below the estimated quantity, an equitable adjustment in the contract price may be made upon request of either party. The equitable adjustment will be based upon any increase or decrease in costs due solely to the variation above 115 percent or below 85 percent of the estimated quantity.

Eliminated Work. Follow the requirements of FAR Clause 52.243-4 Changes.

Work may be eliminated from the contract without invalidating the contract. The Contractor is entitled to compensation for direct costs incurred before the date of elimination of work plus profit and overhead on the direct incurred costs. Anticipated profit and overhead expense on the eliminated work will not be

compensated.

Progress Payments. Follow the requirements of FAR Clause 52.232-5 Payments under Fixed-Price Construction Contracts and FAR Clause 52.232-27 Prompt Payment for Construction Contracts.

(a) General. Only invoice payments will be made under this contract. Invoice payments include progress payments made monthly as work is accomplished and the final payment made upon final acceptance. Only one progress payment will be made each month. No progress payment will be made in a month in which the work accomplished results in a net payment of less than $1,000. The CO may withhold partial progress payment according to Subsection Progress Payments (h) for failure to make satisfactory progress until a construction schedule or schedule update is approved.

(b) Invoice requirements. Submit the invoice to the Government's designated billing office with the following items:

(1) The information required by FAR Clause 52.232-27(a)(2) Contractor's invoice.

(2) A tabulation of total quantities and contract prices of work accomplished or completed on each pay item. Do not include quantities unless measurement notes for those quantities were submitted by the closing date. Do not include quantities of work involving material for which test reports required under Sections 10 and 11, or certifications required by Section 6, Subsection Certification are, or will be, past due as of the closing date.

(3) The certification required by FAR Clause 52.232-5(c) and if applicable, the notice required by FAR Clause 52.232-5(d).

(4) If applicable, a copy of the notices that are required by FAR Clause 52.232-27(e)(5) and (g).

(5) The amount included for work performed by each subcontractor under the contract.

(6) The total amount of each subcontract under the contract.

(7) The amounts previously paid to each subcontractor under the contract.

Submit a separate statement documenting the total cumulative value for on-site work subcontracted to date as a percentage of the original contract amount.

(c) Government's receiving report. The Government's receiving report will be developed using the measurement notes received by the CO and determined acceptable.

(d) Closing date and invoice submittal date. The closing date for progress payments will be designated by the CO. Include work performed after the closing date in the following month's invoice.

Submit invoices to the designated billing office by the 7th day following the closing date. Invoices received by the designated billing office after the 16th day following the closing date will not be accepted for payment processing that month. Include late, unprocessed invoice submittals in the following month's invoice.

No closing dates will be permitted from September 1 to October 5. Do not submit invoices between September 1 and October 5.

(e) Processing progress payment requests. No payment will be made for work unless measurement notes for the work are submitted by the closing date.

(1) Proper invoices. If the invoice meets the requirements of Subsection Progress Payments(b), and the quantities and unit prices shown on the Contractor's invoice agree with the corresponding quantities and unit prices shown on the Government's receiving report, the invoice will be paid.

(2) Invoices received between the 8th and 16th day following the closing date.

(a) Proper invoices. If the invoice meets the requirements of Subsection Progress Payments(b), and the quantities and unit prices shown on the Contractor's invoice agree with the corresponding quantities and unit prices shown on the CO's receiving report, the invoice will be deemed proper and forwarded for processing within 7 days of receipt.

(b) Defective invoices. If the invoice does not meet the requirements of Subsection Progress Payments(b), the invoice will be deemed defective, the Contractor so notified according to FAR Clause 52.232-27(a)(2), and no progress payment will be made that month. Correct the deficiencies and resubmit the invoice the following month.

If the invoice meets the requirements of Subsection Progress Payments(b) but has quantities or unit prices exceeding the corresponding quantities and unit prices shown on the Government's receiving report, the Government's data for that item of work will be used. The Contractor's invoice, as revised by the Government's receiving report, will be forwarded for processing within 7 days of the Government's receipt of the invoice. The Contractor will be notified of the reasons for any changes to the invoice.

(f) Partial payments. Progress payments may include partial payment for material to be incorporated in the work according to FAR Clause 52.232-5(b)(2), provided the material meets the requirements of the contract and is delivered on, or in the vicinity of, the project site or stored in acceptable storage places.

Partial payments for stockpiled manufactured material (aggregates) will be based on Contractor process control test results. If test results show the material to be out-of-specification, or in "reject" where statistical evaluation procedures are used, no payment for stockpiled materials will be made.

Partial payment for material does not constitute acceptance of such material for use in completing items of work. Partial payments will not be made for living or perishable material until incorporated into the project.

Individual and cumulative partial payments for preparatory work and material will not exceed the lesser of:

(1) 80 percent of the contract bid price for the item; or

(2) 100 percent of amount supported by copies of invoices submitted.

The quantity paid will not exceed the corresponding quantity estimated in the contract. The CO may adjust partial payments as necessary to protect the Government.

Final Payment. Follow the requirements of FAR Clause 52.232-5 Payments under Fixed-Price Construction Contracts and FAR Clause 52.232-27 Prompt Payment for Construction Contracts.

Upon final acceptance and verification of final pay records, the Government will send an SF 1034, *Public Voucher for Purchases and Services other than Personal* (final voucher) and a release of claims document. Execute both the voucher and the release of claims and return the documents to the Government for payment. The date of approval by the Government of the final voucher for payment constitutes the date of final settlement of the contract.

If unresolved claims exist or claims are proposed, reserve the right to the claims by listing a description of each claim and the amount being claimed on the release of claims document.

Failure to execute and return the voucher and release of claims document within 90 days after receipt will constitute execution of the documents and the release of claims against the Government arising by virtue of the contract. In this event, the day after 90 days from receipt constitutes the date of final settlement of the contract.

SECTION 10 – CONTRACTOR QUALITY CONTROL

Description

This work consists of planning and implementing a construction quality process to ensure work conforms to the contract. This work also includes inspection and documentation, and process control sampling and testing. See FAR Clause 52.246-12 Inspection of Construction.

This work also consists of preparing electronic CDRs and measurement notes (pay notes and supporting field documentation), including entering labor, equipment, subcontractors, and inspection records.

Construction Requirements

Qualifications. At least 10 days before starting work, submit documentation of the following for approval:

(a) QCM. Provide a Full-time QCM with documented authority to stop non-compliant work or work that results in non-compliance with contract requirements.

Provide a QCM with at least 3 years' experience in areas of material testing, inspection, management, supervision, and QC on highway construction projects of similar type and scope;

(b) Alternate QCM. Provide an alternate QCM, meeting QCM qualifications;

(c) Inspectors. Provide inspectors with at least 2 years' experience inspecting work of similar type and scope; and

(d) Testers. Provide testers with at least 1 year's experience in the type of sampling and testing required, and with one of the following for the type of sampling and testing performed:

(1) National Institute for Certification in Engineering Technologies (NICET) Level II certification in construction materials testing for similar material types or equivalent state or industry certification;

(2) Certification by a state or regional certification program, such as Western Alliance for Quality Transportation Construction or Northeast Transportation Technician Certification Program; or

(3) At least 1 year of employment by an AASHTO accredited laboratory performing equivalent sampling and testing with competence according to AASHTO R 18.

Quality Control Plan. Develop and submit a QCP for approval at least 10 days before starting a Section of work. Include the work of subcontractors, material suppliers, and technical services suppliers. Include the work required under Section 11 Contractor Testing. Do not perform work unless the QCP for that Section is approved. Approval does not imply that the QCP will result in contract compliance.

Modifications or additions may be required to any part of the plan that is not adequately covered. Acceptance of the quality control plan will be based on the inclusion of the required information. Acceptance does not imply any warranty by the Government that the plan will result in consistent contract compliance. It remains the responsibility of the Contractor to demonstrate such compliance.

For each Section of work, include the following:

(a) QC personnel. Provide the name, authority, responsibilities, and qualifications of the QCM and other personnel directly involved in inspection and testing.

(b) QC procedures. Describe the inspection, testing, and other activities to be performed for each phase of work. Include methods, schedules, equipment, and laboratory facilities.

Include the following for materials to be tested:

(1) Pay item;

(2) Brief operational work plan including, but not limited to, the locations, crews, equipment, and proposed methods to complete the work. Describe the plan for staging, disposal, and storage areas.

Include the following in the plan for each Section of work:

(a) The process to ensure the completed work conforms to contract requirements.

(b) The inspection and testing frequency to ensure the process remains valid or work is being performed according to the established process.

(3) Sampling, testing, and acceptance requirements including the location of sampling, and the frequency of testing. At a minimum, perform testing according to the requirements in each applicable Section;

(4) Personnel responsible for performing the inspection, sampling, and testing;

(5) Laboratory testing facilities to be used for process control and project acceptance testing; and

(6) Proposed reporting formats.

(7) List the material to be tested by pay item, tests to be conducted, the location of sampling, and the frequency of testing.

(c) Records. Describe the reporting format for inspection, testing, certification, and daily reports.

(d) Subcontractors and suppliers. Include the work of all subcontractors. If a subcontractor is to perform work under this Section, explain how the subcontractor's inspection plan will interface with the Prime Contractor first tier subcontractors and lower tier subcontractors and organizations, and the CO. Include the work of major suppliers and suppliers of structural and geotechnical services and materials.

Revise the QCP if contract quality requirements are not achieved, or changes occur in the contract, work processes, or personnel.

Modifications or additions may be required to any part of the plan that is not adequately covered. Acceptance of the quality control plan will be based on the inclusion of the required information. Acceptance does not imply any warranty by the Government that the plan will result in consistent contract compliance. It remains the responsibility of the Contractor to demonstrate such compliance.

Quality Control Manager. Provide a QCM who is on site while contract work is being performed. Do not assign the QCM manual labor or equipment operation duties.

Do not use an alternate QCM for more than 3 consecutive days unless approved.

Certifications and Submittals.

For materials or work accepted by certification according to Section 6, Certification, review all certifications to ensure compliance with the requirements of the contract before incorporating materials into the work and provide a signed copy of the reviewed certification to the CO. According to FAR Subpart 46.407, materials or work without proper certification will be rejected in writing, and payment for such material or work will be withheld until proper certification has been provided to the CO.

Prosecution of Work. Address each of the subjects shown for each phase of construction:

(a) Preparatory phase.

(1) In a preparatory phase meeting, review the contract requirements for the work; the process for constructing the work; and the plan for inspecting, testing, measuring, and reporting the work. Include the project superintendent, QCM, work foreperson, and the CO in the meeting. Schedule and conduct a preparatory meeting for each type of work to be performed at least one week prior to beginning the work.

(2) Review and coordinate certifications, submittals, plans, drawings, and permits.

(3) Verify the capabilities of equipment, material, and personnel. Provide training as necessary.

(4) Establish a detailed testing schedule based on the production schedule.

(5) Ensure preparatory testing and inspection is accomplished.

(6) Review accuracy of the surveying and staking.

(b) Start-up phase.

(1) In a start-up phase meeting, review the contract requirements and the processes for constructing the work with the personnel who will be performing the work. Invite the CO, project superintendent, QCM, testers, and inspectors of the work being performed, and the personnel directly supervising and performing the work. Review the planned testing, inspection, and reporting requirements with the quality control personnel responsible for the testing and inspection. Explain the reporting procedures to be used if defective work is identified. Conduct a start-up meeting for each type of work to be performed upon beginning the work.

(2) Inspect, test, and report start-up work according to the QCP and ensure the work conforms to the contract.

(c) Production phase.

(1) Inspect, test, and report according to the QCP and evaluate the acceptability of the work produced.

(2) Identify and correct deficiencies.

(3) Request Government inspection.

(4) Provide feedback on processes and deficiencies. Identify root causes of deficiencies and make timely and effective changes to work processes to prevent repeated deficiencies.

Sampling and Testing.

Perform sampling and testing according to the approved QCP. As a minimum perform process control testing according to the Sampling, Testing, and Acceptance Requirements tables at the end of each Section where applicable. Where no minimums are specified, submit proposed tests to be performed and the proposed sampling and testing frequencies.

(a) Sample splitting. Schedules and times or locations for obtaining on-site split samples for Government use will be provided by the CO using a procedure for random sampling. Sample any material that appears defective or inconsistent with similar material being produced, unless such material is voluntarily removed and replaced or otherwise corrected according to Section 6.

(b) Testing. Provide a laboratory equipped with all test equipment necessary to satisfy the requirements of the contract. Ensure test equipment has been checked, calibrated, standardized, and otherwise verified according to AASHTO and ASTM standards by an individual qualified to perform the work. Perform an equipment inspection after the laboratory has been moved to its permanent location on the project site, and anytime it is moved thereafter. Inspect equipment within 10 days of actual use for project testing, and at least once a year thereafter. Do not use equipment that has not been inspected or is found to be deficient. Mark deficient equipment and take it out-of-service until repaired or replaced and shown by subsequent inspection to perform as required. Maintain records documenting laboratory equipment inspections. Provide certification stating the equipment conforms to testing requirements and provide evidence of current inspection. Keep laboratory facilities clean and maintain equipment in proper working condition. Allow the CO unrestricted access to the laboratory for inspection and review.

The CO may require a demonstration of proficiency in sampling and testing capabilities. One or more proficiency samples may be provided by the Government to verify basic qualifications. Provide the results of the proficiency samples to the CO within 48 hours of receipt of the material.

Records and Control Charts. Maintain complete testing and inspection records by pay item number and make them accessible to the CO.

(a) QC and construction operations reports. For each day of work, prepare an *"Inspector's Daily Record of Construction Operations"* (*Contractors Daily Reports (CDR))* using Form FHWA 1413 or an approved alternate form. Report inspection results in detail, including deficiencies observed and corrective actions taken. Identify locations of work and labor and equipment used, including actual hours worked, to perform each item of work. When submitting test results on material being incorporated into the work, report test results within the reporting times indicated in the sampling and testing requirements at the end of each section or as specified in the contract. Include the following certification signed by the contractor with overall responsibility for the inspection system:

"It is hereby certified that the information contained in this record is accurate and that all work documented herein complies with the requirements of the contract. Any exceptions to this certification are documented as a part of this record."

Submit the record and certification within 24 hours of the work being performed. If the record is incomplete, in error, or otherwise misleading, a copy of the record will be returned with corrections noted. Correct rejected CDRs and resubmit the revised CDR within 24 hours. When chronic errors or omissions occur, correct the procedures by which the records are produced.

(b) Test Results. Label test results according to Section 11 Contractor Testing. Attach worksheets used to determine test values to the test result forms when submitted.

(c) Control charts. Maintain linear control charts that identify the test number, test parameter, upper and lower specification limit applicable to each test parameter, and test results for applicable material. Use the control charts to document variability of the process, to identify production and equipment problems, and to identify actions to improve processes or quality.

Update and post control charts daily in a location accessible to the CO. Stop production and correct the process when problems are evident.

Acceptance. The Contractor's QC process will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance based on its demonstrated effectiveness to ensure work conforms to the contract. Performance of the work may be stopped according to Section 8, either in whole or in part, for failure to comply with the requirements of this Section.

The Government may charge to the Contractor the cost of any additional inspections required when the work being inspected is found not to comply with contract requirements during the initial inspection. Work stop orders, due to recurring deficiencies of work required by this Section, will be rescinded after the Contractor demonstrates to the CO that changes were made to the quality control plan and system which resulted in the correction of those deficiencies. There will be no adjustment in the contract time, or

payments to the Contractor for any impacts, delays, or other costs due to any periods of work stoppage resulting from failure to comply with the requirements of this Section.

CDRs will be evaluated under Subsection Section 6, Subsection Visual Inspection.

Measurement and Payment

Do not measure Contractor Quality Control for payment. See Section 9, Measurement and Payment.

SECTION 11 – CONTRACTOR SAMPLING AND TESTING

Description

This work consists of obtaining samples, testing, and reporting the required test results. It excludes Contractor process and QC sampling and testing required under Section 10 Contractor Quality Control.

Construction Requirements

General. Sample and test material according to the Sampling, Testing, and Acceptance Requirements tables included at the end of each Section. Provide testers conforming to Section 10 Contractor Quality Control. Perform additional sampling and testing as directed if material does not meet requirements.

Provide the CO the opportunity to witness sampling, splitting, and testing of material.

Where process control sampling and testing frequencies are identical to the sampling and testing frequencies for acceptance, the process control samples may be used for acceptance for the applicable work.

Sampling. Sample and split samples according to AASHTO or other acceptable procedures. For statistical acceptance sampling, the exact location of sampling will be determined by the CO based on random numbers. Perform splits when required and deliver the Government's portion of the sample or split sample in an acceptable container suitable for shipment. Label samples with the following:

(a) Project number and name;

(b) Pay item number and description;

(c) Source of material;

(d) Sample number;

(e) Date sampled;

(f) Time sampled;

(g) Location sample taken;

(h) Name of person sampling;

(i) Name of person witnessing sampling; and

(j) Type of test required on sample.

Testing. Conform to Section 10 Contractor Quality Control for sampling and testing. Demonstration of testing competence may be required.

Laboratory (Contractor-Provided).

Provide a field laboratory or commercial laboratory equipped with all test equipment necessary to satisfy the requirements of the contract.

The sampling and testing services of a commercial laboratory meeting or exceeding the requirements described herein may be used if all contract sampling and testing requirements are satisfied by the use of the commercial facility.

Ensure test equipment has been checked, calibrated, standardized or otherwise verified according to AASHTO and ASTM standards by an individual qualified to do this work. Ensure mobile laboratories receive an equipment inspection after the laboratory has been moved to its permanent location on the project site and anytime it is moved thereafter. Inspect equipment within 10 days of actual use in project testing and at least once a year thereafter. Do not use equipment that has not been inspected or is found to be deficient. Mark deficient equipment and take it out-of-service until it is repaired or replaced and shown by subsequent inspection to perform as required. Maintain records documenting these inspections in the laboratory. Provide certifications stating the equipment conforms to testing requirements and provide evidence of current inspection.

The CO may require the Contractor to perform testing to demonstrate acceptable equipment and an acceptable level of technician competence. The CO may also check equipment and inspection records to verify condition. Repair or replace equipment not meeting applicable requirements. Keep laboratory facilities clean and maintain equipment in proper working condition. Provide the CO unrestricted access to the laboratory for inspection and review.

Records. If tests are on material being incorporated in the work, report test results within 24 hours unless otherwise specified in the Sampling, Testing, and Acceptance Requirements tables. Report test results on forms containing sample information required by Section 11 Contractor Testing. Label interim measurements used to determine the results. Attach worksheets used to determine test values to the test result forms. Payment for work may be delayed or the work stopped until test results are submitted.

Acceptance. Contractor sampling and testing will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance based on Government verification testing.

Measurement and Payment

Do not measure Contractor Testing for payment. See Section 9, Measurement and Payment.

SECTION 12 – SCHEDULES FOR CONSTRUCTION CONTRACTS

Description

This work consists of scheduling, monitoring, and reporting the progress of construction activities.

Definitions.

(a) Baseline construction schedule. The first approved construction schedule submitted after the preliminary work plan, showing the order to perform the work, and the dates for starting and completing the work. Once approved the baseline construction schedule cannot be changed.

(b) Construction schedule. Designated as a Critical Path Method (CPM) schedule.

(1) CPM schedule. A CPM schedule includes a time-scaled logic diagram, tabular schedule, written narrative, and a submittal list.

The time-scaled logic diagram is a computer-generated diagram showing the sequence in which the Contractor, in coordination with subcontractors, plans to perform the work; the interdependence of all activities and milestones; the work completed through the data date; and the remaining work necessary to complete the project.

(c) Construction schedule update. An update to the previously approved construction schedule that shows the completed work and the remaining work necessary to complete the project and includes progressing of the schedule, changes to the schedule logic, changes to the schedule activities, changes to the activity durations, or any other modification to the schedule of planned work. A construction schedule update may show construction being completed at a date other than the contract completion date.

(d) Critical path. The longest sequence of activities in the CPM schedule that determines the project's duration. If the duration of any activity on the critical path is changed, the time required to complete the project will change unless a separate CPM schedule adjustment is made.

(e) Preliminary work plan. A narrative and schedule diagram of contract activities for the first 60 days after the NTP.

Construction Requirements

General. Follow the requirements of FAR Clause 52.236-15 Schedules for Construction Contracts.

Designate an individual who will be the authorized representative responsible for the schedule. Submit the name of the authorized representative with the preliminary work plan.

Failure to include elements of work in the schedule that are required for performance of the contract, even if approved by the Government, will not excuse the Contractor from completing the work required by the contract completion date.

Approval of the construction schedule does not relieve the Contractor of the responsibility to schedule the

work to meet the contract requirements.

Do not suppress or sequester float. Do not alter planned durations and sequencing to give the appearance that activities do not have float. Float time within the construction schedule is not for use or benefit of either the Government or the Contractor but is a jointly owned project resource available to both parties as needed to meet the contract completion date. Either party has the full use of float until it is depleted.

In case of discrepancy, the approved electronic format governs over native file format of the construction schedule.

Preliminary Work Plan. Do not start work, except mobilization and temporary traffic control without an approved preliminary work plan. No progress payments will be made until a preliminary work plan has been approved. Include the following:

(a) A title page stating contract number, project number, project name, Contractor name, contract completion date, date of submittal, submittal number, and "Preliminary Work Plan";

(b) A schedule diagram showing work activities;

(c) Description of proposed work within each activity including the type and quantity of equipment, labor, and material to be used;

(d) Description of site mobilization;

(e) Description of planned production rates for each applicable pay item by pay item quantities;

(f) Description of the number of workdays per week, holidays, number of shifts per workday, and number of hours per shift. Include all calendars used in the schedule module;

(g) Estimate of idle and partially idle periods within each activity, showing start and finish dates;

(h) Description of expected and critical delivery dates for equipment and material that can affect completion of the project. Describe the fabrication and delivery of key and long-lead time procurement activities;

(i) Name of vendor, supplier, or subcontractor to perform an activity. State assumptions made in scheduling their work;

(j) A list of shop drawings, sample submittals, and review times; and

(k) A list of drawings, permits, and other submittals by pay item number required for the entire contract period.

Submit a preliminary work plan at least 7 days before the preconstruction conference. Within 10 days of submission, the preliminary work plan will be approved or rejected. If rejected, submit a revised plan within 3 days.

Baseline Construction Schedule. Submit a construction schedule within 7 days of the NTP. Include a title page or header block for each component with the contract number, project number, project name, Contractor name, contract completion date, date of submittal, and submittal number. Show all activities including those in the preliminary work plan.

Include activities for permit review and approval. Refer to the permitting agencies to determine an appropriate duration for permit application review, permit approval, and distribution of permits.

Prepare and submit a CPM construction schedule.

(a) CPM schedule. Depict the order and interdependence of all activities and the sequence of the work that will be accomplished by the Contractor and subcontractors.

Do not provide logic relationships between unrelated activities. Do not constrict start or finish dates without rationale.

Obtain approval before using lags or leads in the construction schedule. Remove lags or leads and replace with an activity identifying the lag or lead upon request.

(1) Time-scaled logic diagram.

(a) Show activity descriptions. Relate activities or groups of activities to pay items. Include activities for submittals, submittal reviews, fabrication, and deliveries. Do not include continuous activities (such as traffic control and QC).

(b) Show activity name or description with the activity bar on the diagram.

(c) Group activities by area (such as separate distinct bridges or roadways), and by type of work (such as submittals, utilities, roadway, or bridge).

(d) Show original and remaining durations for construction activities. Break construction activities into subtasks with activity durations no longer than 20 workdays.

(e) Show original and remaining durations of non-construction activities (such as mobilization and submittals). Include pay item number, and the fabrication and delivery of key materials. Non-construction activities may have durations exceeding 20 workdays consistent with the contract. Indicate intended submittal dates and delivery dates for fabrication and delivery activities. Allow for review of each submittal.

(f) Start the construction schedule with the date of the NTP and conclude with a milestone that shows the contract completion date.

(g) Show early start and finish dates.

(h) Show late start and finish dates.

(i) Show total float and free float.

(j) Show relationship lines. Include at least one predecessor and one successor activity for each activity, except for the NTP and contract completion date.

(k) Use a time scale to graphically show the work scheduled for performance.

(l) Show the sequence and interdependence of all activities.

(m) Identify the critical path.

(2) Tabular schedule. Submit a tabular schedule sorted by early start and total float. Include the following information in the tabular schedule:

(a) Activity number;

(b) Activity description;

(c) Subcontractor and supplier activity codes;

(d) Activity percent complete;

(e) Original and remaining duration;

(f) Early and late schedule dates;

(g) Total float;

(h) A predecessor/successor report; and

(i) Other tabular schedule report formats for analyzing CPM schedule revisions or time impacts, if requested.

(3) Written narrative. Describe the rationale and assumptions used in the development of the construction schedule. Use the time-scaled logic diagram as the basis of schedule-related comments and reference specific activities by number and description. Ensure there are no conflicts between the diagram and the narrative. Include the following:

(a) Description of the planned critical path and the general sequence of work.

(b) Information and references to adequately define the scope of work by pay item included in each major activity type (such as roadway excavation and aggregate base course). Include station numbers and location.

(c) Description of the resource loading planned for use in the performance of the work for each major activity. Include manpower allocation by types of labor and crew size, types and number of equipment and special equipment, material, and subcontractors.

(d) Description of the basis (including the resource loading above) for the calculation of the duration for major activities, to be stated as quantity production rates.

(e) Description of workdays per week, number of shifts per workday, and number of hours per shift.

(f) A description of the assumptions used in converting workdays to calendar dates. Include anticipated holidays, non-workdays, winter shutdowns, and other constraints within the contract. Describe calendars used in the schedule module and list the calendar used for each activity in the schedule module.

(g) Name of the subcontractor or supplier performing an activity and identify their activity codes used on the schedule diagram. State assumptions made in the scheduling of the subcontractor's or supplier's work.

(h) Description of site mobilization and critical delivery dates for equipment and material that can affect completion of the project.

(i) A description of organizational limitations (such as resource constraints or subcontractor commitments) which limit scheduling flexibility.

(j) Estimate of idle and partially idle periods within each activity, showing start and finish dates.

(k) A list and description of constraints used in the CPM scheduling software.

(4) Submittal list. Provide a submittal list.

Submit the construction schedule according to Section 4.

Within 10 days of submission, the construction schedule will be approved or rejected. If rejected, submit a corrected schedule within 7 days. If rejected again, schedule a meeting within 3 days to discuss corrections and submit another construction schedule.

If a construction schedule is not received within 10 days after the NTP is issued, the CO will withhold the progress payment according to Section 9, Subsection Progress Payments(h) until the construction schedule is received.

The approved construction schedule with supporting documents becomes the baseline construction schedule.

Construction Schedule Update. Submit a construction schedule update by the 15th day of each month, or on the date established by the CO.

Submit the construction schedule update according to Section 4.

Do not make changes to the schedule logic, activities, or critical path without prior approval.

Within 5 days of submission, the construction schedule update will be approved or rejected. If rejected, submit a corrected construction schedule within 5 days. If rejected again, schedule a meeting within 3 days to discuss corrections and submit another construction schedule.

If an acceptable construction schedule update is not received by the 15th day of the month, or on the date established by the CO, the CO will withhold 10 percent of each progress payment according to Section 9, Subsection Progress Payments(h)(3), until a construction schedule update is approved. Failure to receive approval of a prior construction schedule update does not relieve the Contractor of the responsibility to meet the requirement to provide construction schedule updates each month.

Submitting a proposed construction schedule update is not considered a notification of delay or of other basis for change. Continue to submit monthly construction schedule updates until a construction schedule update is approved.

Approval of a construction schedule update showing completion past the fixed completion date will not alter the fixed completion date or affect the Government's rights under the contract.

(a) Update summary. Provide a summary of the changes and progressing made to the construction schedule since the last approved construction schedule update.

(b) Written narrative. Submit an update of the written narrative identifying adjustments made to each operation since the last update. Include the following:

(1) Equipment added or removed from the project;

(2) Changes to labor (such as added crews or subcontractors);

(3) Work shift adjustments (such as extended hours or added shifts);

(4) Changes to anticipated periods of suspension or holiday;

(5) Changes in material delivery;

(6) Early completion of individual work items;

(7) Efficiency of operations;

(8) Changes to the critical path and logic revisions;

(9) Delays and disruptions that are ongoing as of the date of the proposed construction schedule update. If delays or disruptions have occurred, propose efforts to return the project to a schedule consistent with the contract requirements including the commitment of additional resources or other appropriate action; and

(10) Notification that completion date or other contract requirements will not be met, if applicable.

(c) Submittal list. Provide an update to the submittal list. Include the following:

(1) Actual dates for submittals;

(2) Proposed dates for anticipated submittals;

(3) CO's responses (approved, rejected, or approved as noted); and

(4) Comments.

(d) CPM schedule updates.

(1) Tabular schedule. Update the tabular schedule. Include the following:

(a) Actual start and finish dates for completed activities;

(b) Remaining duration required to complete each activity started, or scheduled to start, but not completed;

(c) Float remaining for each activity;

(d) Percentages for completed and partially completed activities;

(e) Additional tabular schedules using different sort parameters if requested; and

(f) Revised construction activities affected by impacts addressed with a time impact analysis. Include a revised completion date for the total work.

(*f*) Revised construction activities affected by impacts addressed with an approved time impact analysis. Include a revised completion date for the total work.

(2) Updated time-scaled logic diagram. Update the diagram and show the approved baseline construction schedule on the construction schedule update for comparison. Show the data date for the update.

Progress Meetings. Schedule and facilitate a weekly progress meeting. Invite the CO, superintendent, QCM, and other personnel directly supervising or managing the project.

Provide a two-week look-ahead schedule one day before the meeting. Review actual progress as compared to the planned progress and review planned activities for the upcoming 2 weeks. Discuss the status of submittals, QC documentation, contract modifications, and requests for information.

Acceptance. Construction schedules and supporting documents will be evaluated under Section 6, Subsection Visual Inspection.

Measurement and Payment

Do not measure construction schedule, narrative, schedule updates and three week look aheads for payment. See Section 9, Measurement and Payment.

SECTION 13 – PUBLIC TRAFFIC

Description

This work consists of controlling and protecting public traffic adjacent to and within the project. See FAR Clause 52.236-13 Accident Prevention.

Construction Requirements

Accommodating Traffic During Work. Accommodate traffic according to the MUTCD, ITEM 20, this Section, and as shown in the plans. At least 10 days before intended use, submit a temporary traffic control plan according to Section 4.

Ensure the safety and convenience of the public and protect the residents and property adjacent to the project. Accommodate public traffic on roads adjacent to and within the project until the project is accepted according to Section 6.

Immediately open the road to emergency vehicles.

Maintaining Roadways During Work. Maintain roadways as follows:

(a) Construct and remove temporary traffic diversions and bridges as required by the temporary traffic control plan. Do not construct temporary traffic diversions outside of the clearing limits or use alternate route detours without approval.

(b) Maintain intersections and provide access to trails, roads, streets, businesses, parking areas, residences, garages, farms, and other features at all times.

(c) Snow removal to facilitate the work is the Contractor's responsibility. Snow removal to provide public access is the responsibility of the maintaining agency and may be performed at the maintaining agency's discretion. Allow the maintaining agency access to perform snow removal.

(d) Provide dust control as required by the SWPPP. Apply water as ordered to maintain visibility and eliminate hazardous conditions.

(e) Remove accumulations of soil and other material from the traveled way.

(f) Do not allow water to pond on the traveled way.

(g) Maintain the roadway, detours, and temporary traffic diversions in a safe and acceptable condition.

If corrective action is requested and the corrective action is not taken immediately, the condition may be corrected by the CO and the cost of the corrective action deducted from monies due the Contractor.

Maintaining Roadways During Non-Work Periods. Maintain roadways and traffic control for public traffic during periods when work is not in progress. Snow removal to provide public access is the responsibility of the maintaining agency.

Limitations on Construction Operations. When the roadway is open to public traffic, perform the following:

(a) Limit construction-caused delays to public traffic as shown in Section 8 and the Table below. For all other times and dates not listed, limit construction-caused delays to public traffic to no more than 30 minutes per passage through the project.

Table S13-1
Closures to Public Traffic

Type	Month - Month	Day to Day	Time	Remarks
Cape Royal Road				
Full Closure	October 16, 2026 – October 31, 2026	Sunday – Saturday	Continuous Closure	The route may be closed to public traffic during this time.
Point Imperial Road				
Full Closure	October 16, 2026 – October 31, 2026	Sunday – Saturday	Continuous Closure	The route may be closed to public traffic during this time.

If the full closure of Cape Royal Road and Point Imperial Road is requested, provide the following Provide public notice 14 days in advance of approved closure and place a Temporary Traffic Control Portable Changeable Message Sign at the closed road entrance.

(b) Operate equipment in the direction of traffic, where practical.

(c) For shoulder drop-offs of 3 inches or less, provide "*Low Shoulder*" warning signs. For shoulder drop-offs more than 3 inches, provide a 1V:3H fillet with "*Shoulder Drop-Off*" warning signs. Complete the construction of shoulders adjacent to traffic lanes to the same elevation within 14 days.

(d) Provide minimum lane widths of 10 feet. For two-way traffic, provide a minimum width of 22 feet. Use barricades, drums, or other approved devices to delineate traffic lanes through areas where the edge of pavement or intended path has been obliterated by construction operations. Notify and coordinate with the oversize load permitting authority for lane width limitations before reducing lane width or closing roadway shoulders.

(e) Locate staging areas outside the clear zone or behind approved traffic barriers. Obtain approval of the location and access to staging areas. Store unused traffic control devices at staging areas.

(f) Park equipment outside of the clear zone or behind approved traffic barriers.

(g) Provide parking areas for employee's personal vehicles in approved areas.

(h) Provide uninterrupted two-way communications between flaggers and between flaggers and pilot cars unless flaggers can see each other and communicate. Citizen band radios are unacceptable. Make communication devices available to the CO as necessary or if requested.

(i) Maintain existing guardrails, barriers, and bridge railings until removal is necessary for construction. Use a temporary barrier or appropriate channelizing devices while the guardrails and bridge rails are absent. Install permanent barriers, guardrails, and bridge rails as soon as possible.

Nighttime Operations. Perform construction operations during the hours of daylight. Daylight hours are defined as one-half hour after sunrise to one-half hour before sunset.

Where nighttime operations are allowed, submit a night lighting plan for approval. Include the number of lights, types, and locations. Submit the proposed plan at least 14 days before use. Do not use vehicle or incandescent lights for work zone lighting.

Provide and install the approved system to illuminate the entire work area. Position the lights so they do not shine directly at motorists traveling from any direction. If the operation is moving, move the lighting with the operation. Describe how lighting system moves will be accomplished and designate a person responsible. Provide lighting at each flagger location. Equip vehicles with an exterior flashing yellow dome light. If arrow boards are used, reduce brightness by an acceptable level during nighttime.

Traffic Control Supervisor. Provide a traffic control supervisor (TCS) certified by a state department of transportation, ATSSA, or other acceptable certification programs. At least 10 days before starting work, submit documentation of appropriate certifications for approval.

Provide a TCS during construction operations and as necessary to inspect the devices as defined below. Provide the TCS's name and 24-hour telephone numbers at the preconstruction conference.

Do not designate the superintendent as the TCS.

During the contract, including periods of suspensions and work stoppages, perform the following:

(a) Implement the temporary traffic control plan and monitor the effectiveness of the plan.

(b) Coordinate traffic control operations. Include those of subcontractors and suppliers.

(c) Ensure the condition, position, and applicability of traffic control devices in use.

(d) Immediately correct traffic control deficiencies.

(e) Coordinate and ensure that traffic control devices are provided, installed, maintained, removed, stored, replaced, relocated, and cleaned according to ITEM 20. Ensure unused traffic control devices are properly handled and stored.

(f) Conduct weekly traffic safety meetings for construction workers and invite the CO to these weekly meetings.

(g) Submit a weekly certification that inspections and reviews were conducted and that the traffic control devices meet contract requirements. Include the number and types of devices in use. Report with the weekly certification, changes or corrective actions taken to ensure the safe passage of public traffic through the project.

(h) Inspect traffic control devices, including those in staging, storage, material source, and disposal areas, as follows:

(1) Daily, during daylight hours and during hours of darkness;

(2) Weekly during:

(a) Daylight hours and hours of darkness when work is suspended for periods of more than one week; and

(b) Periods of winter suspension.

(3) Additional inspections, day or night, as directed; and

(4) Submit reports of inspections within 24 hours.

(i) Before winter suspension, conduct an inspection of the project with the CO to ensure proper provisions are made for winter travel during the period of suspension.

(j) Provide temporary flagging assistance.

Acceptance. Controlling and protecting public traffic work will be evaluated under Section 6, Subsection Visual Inspection.

Measurement and Payment

Do not measure controlling and protecting public traffic for payment. See Section 9, Measurement and Payment.

SECTION 14 – CONSTRUCTION SURVEY AND STAKING

Description

This work consists of surveying, staking, calculating, and recording data for the control of work. See FAR Clause 52.236-17 Layout of Work.

Construction Requirements

Qualifications. Provide technically qualified survey crews experienced in highway construction survey and staking. Provide personnel who can perform in a timely and accurate manner. At least 10 days before starting survey and staking work, submit a résumé for each individual.

Submittals. At the preconstruction conference, submit a price breakdown by individual tasks if construction survey and staking is paid by the lump sum for use in making progress payments.

General. Provide a crew supervisor on-site when surveying and staking is in progress. Provide survey instruments and supporting equipment that can achieve the specified tolerances. If approved, construction equipment controlled with a GPS or Robotic Total Station (RTS) machine guidance system may be used in the construction of subgrade, subbase, and base aggregate courses, or other construction operations.

Provide acceptable tools and supplies of the type and quality suitable for highway survey work. Provide stakes and hubs of sufficient length to provide a solid set in the ground with sufficient surface area above ground for necessary legible and durable markings.

Include staking activities in the construction schedule according to Section 12. Include the dates and sequence of each staking activity.

The Government may set initial horizontal and vertical control points for the project. If the Government sets initial horizontal and vertical control points, the Government will provide data for use in establishing control for completion of the work. If the Contractor is tasked with setting initial horizontal and vertical control for the project, provide the contractor-established control network to the Government for verification.

The Government will furnish design data listed in Section 2, Physical Data. Reformatting and additional calculations may be required for the convenient use of the Government-furnished data. Provide immediate notification to the CO of apparent errors in the initial staking or in the Government-furnished data.

The Government will establish vertical and horizontal survey control points.

Record survey and measurement field data in an approved format. Submit as-staked data and corrections made to the Government-furnished survey data. Submit survey and measurement data at least weekly while surveys are being conducted. Field data and supporting documentation become the property of the Government upon completion of the work.

Discuss and coordinate the following with the CO before surveying or staking:

(a) Surveying and staking methods;

(b) Stake marking;

(c) Grade control for courses of material;

(d) Referencing;

(e) Structure control;

(f) Field staking data;

(g) Localization of the GPS systems to the Government-established control points; and

(h) Other procedures and controls necessary for the work.

Preserve initial reference and control points. Notify the CO of missing control points or stakes at least 10 days before starting construction. Reestablish initial control points and obtain approval before starting construction.

Acceptance of the construction staking does not relieve the Contractor of responsibility for correcting errors discovered during the work and for bearing additional costs associated with the error.

Maintain legibility of stake markings for the duration of the project or until notified in writing the stakes are no longer needed. Replace stakes as necessary to ensure markings are maintained.

Remove and dispose of flagging, paint, lath, stakes, and other staking material after the project is complete.

Compute and provide calculations supporting pay quantities. Measure quantities within the tolerances established by the CO according to Section 9 Measurement and Payment.

Survey and Staking Requirements. Perform survey, staking, recording of data, and calculations as necessary to construct the project. Survey and set stakes to the tolerances shown in Table S14-1. Reset stakes and hubs as required and maintain in an acceptable condition for the duration of the project or until notified they can be removed. Notify the CO if errors are discovered.

(a) Clearing and grubbing limits. Before ground disturbance occurs, set clearing and grubbing limits on both sides of centerline at least every 100 feet. Label each clearing and grubbing limit reference stake with station and offset from centerline.

When the centerline curve radius is less than or equal to 250 feet, use a maximum longitudinal spacing between stakes of 25 feet. When the centerline is on a tangent or the curve radius is greater than 250 feet, use a maximum longitudinal spacing between stakes of 50 feet.

(b) Grade finishing stakes.

(1) Conventional survey methods. Set grade finishing stakes for grade elevations and horizontal alignment, on centerline and on each shoulder at design roadway cross-section locations. Set stakes

at the top of subgrade and the top of aggregate course. Reset grade finishing stakes as many times as necessary to construct the subgrade and each aggregate course.

During turnout or pullout construction, set stakes on the centerline, on each normal shoulder, and on the shoulder of the turnout. In parking areas, set stakes at the center and along the edges of the parking area. Set stakes in ditches to be paved.

If the centerline curve radius is less than or equal to 250 feet, use a maximum longitudinal spacing between stakes of 25 feet. If the centerline curve radius is greater than 250 feet, use a maximum longitudinal spacing between stakes of 50 feet. Use a maximum transverse spacing between stakes of 20 feet. Use brushes or guard stakes at each stake.

(g) Culverts.

(1) Verify and set culvert locations at the inlet, outlet, and inlet basin points as shown in the plans. Plot to scale the profile along the culvert centerline. Show the existing ground, flow line, roadway section, and culvert including end treatments and other appurtenances. Show the elevations, grade, culvert length, degree of elbow, catch points, and hinge points on the plot.

(2) Perform the following if the culvert design shown in the plans does not fit field conditions, when the CO requires adjustment to a culvert location, or when a culvert design isn't furnished for a new culvert, culvert replacement, or culvert extension:

(a) Recommend a revised culvert location and alignment if needed.

(b) Survey and record the ground profile along the culvert centerline and additional channel profile for an appropriate offset to capture required information in Subsection 152.05(g)(2)(e).

(c) Determine the slope catch points at the inlet and outlet.

(d) Set reference points and record information necessary to determine culvert length and end treatments.

(e) Plot to scale the profile along the culvert centerline. Show the existing ground, flow line, roadway section, culvert, end treatments, and other appurtenances. Show elevations, grade, culvert length, and degree of elbow.

(1) For single skewed culverts, submit a plotted field-design cross-section normal to roadway centerline and at each end section. Plot the offset and elevation of existing ground at the end section and at proposed template break points between centerline and the end section. Ensure the template design embankment slope is not exceeded.

(2) For multiple skewed culverts, submit a plotted field design cross-section normal to roadway centerline and at the end sections (left and right) nearest to the shoulder. Plot the offset and elevation of existing ground at the end section and at proposed template break points between centerline and the end section. Ensure the template design embankment slope is not exceeded.

(3) Submit the plotted field-design cross-section for approval of final culvert length and alignment. Plot at a clear and readable scale.

(4) Set inlet, outlet, and reference stakes when the field design has been approved. Stake inlet and outlet ditches to ensure the culvert and end treatments (such as drop inlets) are functional.

(5) Adjust slope, reference, and clearing stakes as necessary to provide for culvert inlet treatments in cut slopes. Readjust slope, reference, and clearing stakes as necessary when culvert inlets are moved from their plan locations. Review slope adjustments with the CO and obtain approval.

(c) Miscellaneous survey and staking. Survey and stake other work as directed to the proper location and required tolerances. Propose staking increments and tolerances for approval if not shown in Table S14-1.

Table S14-1
Construction Survey and Staking Tolerances(1)

Staking Phase	Horizontal, feet (±)	Vertical, feet (±)
Control points set from existing control points	0.03	$0.01 \times \sqrt{N}$ (2)
Mapping, topography, & cross-section points	0.16	0.16
Centerline points(3) & references	0.06	0.06
Slope stake and slope stake references(4)	0.16	0.16
Culverts, ditches, & minor drainage structures stakes	0.16	0.06
Retaining walls stakes	0.06	0.03
Curb & gutter stakes	0.06	0.03
Bridge substructures stakes	0.03(5)	0.03
Bridge superstructures stakes	0.03(5)	0.03
Clearing & grubbing limit stakes	1.00	–
Roadway subgrade finish stakes(6)	0.16	0.03
Roadway finish grade stakes(6)	0.16	0.03

(1) At statistical 95 percent confidence level. Tolerances are relative to existing Government control points.
(2) N is the number of instrument setups.
(3) Centerline points: point of curve (PC), point of tangent (PT), point on tangent, point on curve (POC).
(4) Take the cross-sections normal to the centerline ±1 degree.
(5) Bridge control is established as a local network and the tolerances are relative to that network.
(6) Includes paved ditches.

Acceptance. Construction survey and staking will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance.

Survey notes will be evaluated under Section 6, Subsection Visual Inspection.

Measurement and Payment

Do not measure controlling and protecting public traffic for payment. See Section 9, Measurement and Payment.

SECTION 15 – SOIL EROSION CONTROL, SEDIMENT CONTROL, AND STORMWATER POLLUTION PREVENTION PLAN

Description

This work consists of preparing and maintaining a SWPPP including non-stormwater pollution prevention. This work also consists of implementing the SWPPP including, but not limited to, furnishing, constructing, and maintaining soil erosion and sediment control devices to eliminate or minimize pollutants in stormwater discharges from the project.

Material

Use erosion and sediment control devices and BMP's that are certified weed-free, barley-fee, and wheat-free. Do not use monofilament plastic for erosion or sediment control products. Provide biodegradable matting with large diameter natural fiber erosion netting. Do not import wood chips or other erosion control stabilization soils and material without approval. Provide material certifications for proposed products with the approved SWPPP.

Construction Requirements

Qualifications. Provide a SWPPP Developer, Erosion Control Supervisor, and On-Site Stormwater Lead with experience in implementing erosion and sediment control. Provide documentation that personnel meet the qualifications in the applicable Construction General Permit (CGP) or the qualifications below, whichever is more stringent. Include certifications in those states where applicable. One person may serve in more than one role if qualified.

Submit the following for approval as part of the SWPPP submittal:

(a) SWPPP Developer. A résumé describing the following:

(1) Have completed 40 hours of stormwater management training;

(2) Have 5 years of highway or equivalent experience developing SWPPPs and designing site-specific BMPs; and

(3) Be registered or certified in the state in which the project is located for one or more of the following:

(a) Professional engineer, geologist, or hydrologist;

(b) Licensed landscape architect; or

(c) Other state or nationally recognized certification program for erosion and sediment control professionals.

(b) Erosion Control Supervisor. A résumé describing the following:

(1) Both of the following:

(a) Have completed 24 hours of stormwater management training; and

(b) Have 3 years of highway or equivalent construction experience that included oversight of erosion, sediment, and pollution control BMPs; or

(2) One of the following:

(a) Meet requirements of SWPPP Developer above; or

(b) Be registered or certified as a stormwater inspector from a state or nationally recognized certification program for stormwater inspectors.

(c) On-Site Stormwater Lead. A résumé describing the following:

(1) Both of the following:

(a) Have completed 8 hours of stormwater management training;

(b) Have 1 year of highway construction experience including stormwater management duties; or

(2) One of the following:

(a) Meet requirements of Erosion Control Supervisor above; or

(b) Be registered or certified as a stormwater inspector from a state or nationally recognized certification program for stormwater inspectors.

Roles and Responsibilities.

(a) SWPPP Developer. Develop the SWPPP for the project based on requirements in the CGP, plans, and specifications. Show construction phasing of erosion, sediment, and pollution prevention BMPs for all construction activities on a site plan to meet water quality regulations. Review field changes and update the SWPPP when substantial changes occur.

(b) Erosion Control Supervisor. Implement the SWPPP, which includes but is not limited to, scheduling installation and maintenance of all BMPs, job site inspections, and other activities for pollution prevention. Review all inspection reports and ensure that the SWPPP and site plan are implemented and updated.

(c) Stormwater Lead. Install and maintain BMPs, conduct site inspections, monitor water quality, and perform all on-site and reporting activities required to comply with the CGP. Inform the Erosion Control Supervisor when changes are made. The Stormwater Lead is required to be on the project site during working hours, and available during non-work hours to do inspections before, during, and after qualifying rain events.

General. Develop, submit, and manage a SWPPP according to the CGP requirements. Contract permits amend the requirements of this Section. Submit the SWPPP to the CO at or before the preconstruction conference. Allow 10 days for CO review and approval.

If soil erosion and sediment pollution control measures are not functioning as intended, take corrective action to eliminate or minimize pollutants in stormwater discharges from the project.

Controls and Limitations on Work. Mark clearing limits and construct sediment perimeter control measures before ground disturbing activities. Before the start of a construction activity, implement appropriate pollution prevention measures for the activity. No soil disturbing construction activity, including clearing and grubbing, may begin on the project until the SWPPP has been reviewed and approved, the NOI has been accepted by the permitting agency and is active, and the CO has authorized on-site work to proceed.

Limit the combined grubbing and grading operations areas to 5 acres of exposed soil at one time.

Stormwater Pollution Prevention Plan. Prepare, submit, and implement a Construction SWPPP following the SWPPP template of the state in which the project is located. Include the Federal Highway Administration as an operator on the project in charge of plans and specifications.

Provide a SWPPP according to the CGP.

Provisions in the SWPPP are incorporated by reference into the contract. Provide an electronic copy of the SWPPP.

Based on the approved SWPPP, provide the CO a list of the planned pollution prevention devices for each of the following: erosion controls, sediment controls, and non-stormwater controls.

Implement the SWPPP as required throughout the construction period. Modify the erosion, sediment, and non-stormwater pollution control details and SWPPP plans as necessary to accommodate project site conditions and proposed construction operations. Update the SWPPP when modifying erosion, sediment, and non-stormwater pollution controls. Provide a copy of the updated SWPPP monthly to the CO for review.

Soil Erosion Control. Apply erosion control measures to stabilize soils and to control temporary concentrated flows throughout the duration of the project. Construct and maintain measures according to the manufacturer's recommendations.

Sediment Control. Apply sediment control measures to intercept, slow, and detain the flow of stormwater throughout the duration of the project. Construct and maintain measures according to the manufacturer's recommendations.

Non-Stormwater Controls. Apply non-stormwater measures as needed and as required in the SWPPP to control non-stormwater discharges, and to prevent or limit potential pollutants at their source from contact with stormwater throughout the duration of the project. Construct and maintain measures according to the manufacturer's recommendations.

Acceptance. Material for erosion, sediment, and non-stormwater pollution control measures will be evaluated under Subsections Visual Inspection and Certification.

Construction, maintenance, and removal of erosion control, sediment control, and non-stormwater controls will be evaluated under Subsections Visual Inspection and Measured or Tested for Conformance.

Measurement

Do not measure original and any replacement erosion, sediment, or non-stormwater pollution control measures.

Do not measure additional or changed erosion, sediment, or non-stormwater pollution control measures required when planned controls are not functioning as intended and corrective actions are taken.

Payment

Do not measure Erosion and Sediment Control Devices, maintenance for payment. Do not measure the SWPPP for payment. See Section 9, Measurement and Payment.

ITEM 1 — MOBILIZATION

Description

This work consists of moving personnel, equipment, material, and incidentals to the project and performing work necessary before starting work at the project site. This work also includes obtaining permits, insurance, and bonds. This work includes demobilizing from the project.

Measurement

Measure the pay items listed in the schedule of items according to Section 9, Measurement and Payment.

Payment

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the schedule of items. Payment will be full compensation for the work prescribed in this Section. See Section 9, Measurement and Payment.

Progress payments for mobilization by the lump sum will be paid as follows:

(a) Bond premiums will be reimbursed from the mobilization pay item according to FAR Clause 52.232-5 Payments under Fixed-Price Construction Contracts, after receipt of the evidence of payment.

(b) 50 percent of the pay item amount, less the amount paid under (a), will be paid after 5 percent of the original contract amount is earned from pay items (not including mobilization). The amount paid will not exceed 5 percent of the original contract amount.

(c) 100 percent of the pay item amount, less the amount paid under Subsections (a) and (b), will be paid after 10 percent of the original contract amount is earned from pay items (not including mobilization). The amount paid will not exceed 10 percent of the original contract amount.

(d) Any portion of the pay item amount more than 10 percent of the original contract amount will be paid after final acceptance.

ITEM 2— REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Description

This work consists of removing, disposing, and salvaging of structures, obstructions, and materials not designated to remain. The work also includes backfilling the trenches, holes, and pits resulting from structure removal.

Material

Conform to the following Subsection:

Government Available Material	Section 5
Contractor Located Sources	Section 7

Construction Requirements

Submittals. At least 10 days before starting the specified work, submit the following according to Section 4:

(a) Hazardous material disposal plan. Submit a detailed disposal plan according to Disposing of Hazardous Material in this Item, that includes how material will be handled, loaded, and transported to the disposal facility. Submit a copy of disposal permits. Include the name and address of the facility where the material will be taken. Describe steps that will be taken to ensure that contaminated materials will be contained throughout the process. Measures may include additional steps or precautions when lifting and handling the material.

Removing Material.

(a) Full removal. Remove the structure or obstruction from the project unless otherwise specified. Raze and remove buildings, foundations, pavements, culverts, sidewalks, curbs, fences, structures, and other obstructions interfering with the work and not designated to remain.

(b) Partial removal. Remove structures and obstructions in the roadbed to 36 inches below subgrade elevation. Remove structures and obstructions outside the roadbed to 24 inches below finished ground or to the natural stream bottom.

Construct structurally adequate debris shields to contain debris within the construction limits. Do not allow debris to enter wetlands and waters, travel lanes open to public traffic, or areas designated not to be disturbed.

Except in excavation areas, backfill and compact resulting trenches, holes, and pits left by structure and guardrail post/sign post and other removal with common backfill to the lines and grades of the finished ground. Backfill according to the subsection below.

Backfilling. Place backfill in compacted lifts no more than 6 inches in thickness. Compact according to the subsection below.

Compacting. Determine optimum moisture content and maximum dry density according to AASHTO T 99, Method C. Adjust the moisture content of the backfill to a moisture content suitable for compaction.

Compact material placed in each lift to at least 95 percent of the maximum density. Determine the in-place density and moisture content according to AASHTO T 310 or other approved test procedures.

Do not apply density requirements as measured by AASHTO T 310 to material that cannot be tested or compacted to maximum values determined by AASHTO T 99. For this material, fill the voids around the rocky material in each lift with structural backfill or foundation fill as appropriate. Compact each lift until there is no visible evidence of further consolidation.

Disposing of Material. Dispose of unsuitable and excess material. Recycle or dispose of material legally off the project according to Sections 5 and 7. Submit a statement documenting the nature and quantity of material processed or sold for recycling. Otherwise, submit a signed copy of the disposal agreement before disposal starts.

Dispose of hazardous material according to the subsection below.

Disposing of Hazardous Material. Dispose of material according to Federal, state, and local rules and regulations.

Include the SDS with the material to the disposal facility. Ensure that loads transported from the site are adequately contained and covered. Submit a copy of the receiving report from the disposal facility acknowledging that the material being delivered contains hazardous material.

Acceptance. Removal of structures and obstructions will be evaluated under Section 6, Subsection Visual Inspection.

Backfilling and compacting trenches, holes, and pits resulting from structure removal will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance.

Measurement

Measure the pay items listed in the schedule of items according to Section 9, Measurement and Payment.

Payment

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the schedule of items. Payment will be full compensation for the work prescribed in this Section. See Section 9, Measurement and Payment.

ITEM 3— DITCH EXCAVATION

Description

This work consists of excavating material and reconditioning ditches. This work also consists of conserving and placing topsoil material.

Construction Requirements

Conserved Topsoil. Conserve topsoil from roadway excavation and embankment foundation areas. Stockpile conserved topsoil in low windrows less than 3 feet in height and located immediately beyond the rounding limits of cut and embankment slopes or in other approved locations. Separate topsoil from other excavated material. Do not drive or park on conserved topsoil.

Place conserved topsoil on completed slopes.

Ditch Excavation. Remove slide material, sediment, vegetation, and other debris from existing ditches and culvert inlets and outlets. Excavate and reshape ditches and culvert inlets and outlets to achieve positive drainage and uniform ditch width, depth, and grade or as shown in the plans.

Disposal of Unsuitable or Excess Material. Dispose of unsuitable or excess material according to Item 2. If needed, excess material may be used to backfill holes from guardrail or sign post removal.

Acceptance. Ditch excavation will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance.

Placing conserved topsoil will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance.

Removal of obstructions will be evaluated under Item 2.

Measurement

Measure the pay items listed in the schedule of items according to Section 9, Measurement and Payment.

Payment

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the schedule of items. Payment will be full compensation for the work prescribed in this Section. See Section 9, Measurement and Payment.

ITEM 4. — GABIONS AND REVET MATTRESSES

Description

This work consists of constructing rock filled revet mattresses pinned to a prepared surface with rock dowel materials.

Material

Conform to the following material requirements listed in the plans for revet mattress.

Construction Requirements

General. Survey according to Section 14 and verify the limits of installation. Submit installation drawings according to Section 4.

Revet Mattresses. Construct revet mattresses according to Subsections (a) through (f) below.

(a) Surface Preparation. Excavate and prepare the underlying surface for the revet mattress. Provide a smooth, flat, firm, unyielding foundation.

(b) Geotextile Placement. Identify, store, and handle geosynthetics according to ASTM D4873 and the manufacturer's recommendations. Elevate and protect geosynthetic rolls with a waterproof cover if stored outdoors. Maintain product identification labels in a visible location on the inside of the core. Limit geosynthetics exposure to less than 10 days of ultraviolet radiation.

Unless otherwise specified, overlap geosynthetics in the direction, sequence, and distance according to the manufacturer's recommendations.

For seams sewn on site, comply with the manufacturer's recommendations. Obtain approval of the seam before installation. Use thread consisting of high strength polypropylene or polyester. Do not use nylon thread. Use thread that is resistant to ultraviolet radiation and a contrasting color to the geotextile.

Place a geotextile filter against the vertical edges of the mattress and backfill against the geotextile filter using common backfill or the specified backfill. For slope or wave protection, place the long dimension of the geotextile down the slope. For stream bank protection, place the long dimension of the geotextile parallel to the centerline of the channel.

Overlap or sew seams at the ends and sides of adjoining sheets.

(1) **Overlapping.** Overlap the uphill or upstream sheet over the downhill or downstream sheet. For above water applications, overlap the geotextile at least 12 inches. For underwater applications, overlap the geotextile at least 36 inches.

(2) **Sewing.** Sew the geotextile seam according to the approved installation plan.

(c) Backfilling. Place revet mattress baskets on the geotextile starting at the toe of the slope and proceeding upward. Place onto the geotextile from a height of less than 12 inches. Place slope protection rock or aggregate backfill onto the geotextile from a height less than 36 inches. Do not allow stones weighing more than 100 pounds to roll down the slope. In underwater applications, place the geotextile and cover material in the same day

(d) Basket Assembly. Provide twisted wire or welded wire mesh baskets. Do not damage wire coatings during basket assembly, structure erection, cell filling, or backfilling. Rotate the basket panels into position and join the vertical edges with fasteners according to the manufacturers recommendations. Temporary fasteners may be used for basket assembly if they are supplemented during structure erection with permanent fasteners according to the manufacturers recommendations. Rotate the diaphragms into position and join the vertical edges according to the manufacturers recommendations.

(e) Cell Filling. Overfill revet mattresses by 1 to 2 inches. Remove kinks and folds in the wire mesh, and properly align the baskets. Place rock carefully in the basket cells to prevent bulging of the baskets and to minimize voids in the rock fill. Maintain the basket alignment.

Place stiffeners and cross-tie wires as recommended by the manufacturer in each unrestrained exterior basket cell greater than 12 inches in height. This includes interior basket cells left temporarily unrestrained. Place stiffeners and cross-tie wires concurrently with rock placement.

Fill the cells in a row to ensure no cell is filled more than 12 inches above an adjacent cell. Repeat this process until the basket is full and the lid bears on the final rock layer. Secure the lid so that no more than a 1-inch gap remains at any connection.

Secure the lid to the sides, ends, and diaphragms according to the manufacturers recommendations. Make exposed basket surfaces smooth and neat with no sharp rock edges projecting through the wire mesh.

(f) Anchor Stakes. Install Revet Anchor Stakes as shown in the plans.

Acceptance. Material for revet mattresses will be evaluated under Section 6, Subsections Visual Inspection and Certification.

Materials for revet anchor stakes will be evaluated under Section 6, Subsections Visual Inspection and Certification.

Geotextile filters will be evaluated under Section 6, Subsections Visual Inspection and Certification.

Construction of revet mattresses will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance.

Survey will be evaluated under Section 14.

Measurement

Measure the pay items listed in the bid schedule according to Section 9, Measurement and Payment and the following as applicable:

When measuring revet mattresses by the square yard, measure the exposed face on a plane parallel to the revet mattress face.

Payment

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Section 9, Measurement and Payment.

ITEM 5 — ASPHALT CONCRETE PAVEMENT

Description

This work consists of constructing asphalt concrete facilities using HMA or WMA.

The project is located at high elevation, with cooler temperatures. Long haul times are anticipated. The use of a WMA mix should be considered, but is not required.

Construction Requirements

Composition of Mix (Job-Mix Formula). Conform to current state department of transportation material specifications for asphalt concrete.

Submit a state department of transportation JMF approved within the past 12 months for approval at least 10 days before production that meets the current state department of transportation requirements for the location and type of facility being constructed.

For each proposed JMF, submit a production certification conforming to state department of transportation specifications. Submit the strength, quality, and gradation specifications for the asphalt concrete mix. Include copies of laboratory test reports that demonstrate aggregate, asphalt binder, additive, and mix properties meet state department of transportation specifications. Submit the maximum specific gravity (density) of the mix as determined by AASHTO T 209.

Use an asphalt binder grade PG XX-22, PG XX-28 or PG XX-34 according to AASHTO M 320.

Conform to AASHTO M 320, Table 1.

In AASHTO M 320, Table 1 replace footnote *f* with the following:

[f] If the creep stiffness is below 300 MPa, the direct tension test is not required. If the creep stiffness is between 301 and 600 MPa, use the creep stiffness value. The *m*-value requirement must be satisfied in both cases.

Production Start-Up Procedures. Conform to Section 10 Contractor Quality Control, including conducting a pre-patching and pre-pave work meeting.

Equipment.

(a) Pavers. Provide pavers that are:

(1) Self-contained, power-propelled units with adjustable vibratory screeds with full-width screw augers;

(2) Heated for the full width of the screed;

(3) Capable of spreading and finishing courses of asphalt concrete mix in widths at least 12 inches more than the width of one lane;

(4) Equipped with a receiving hopper having sufficient capacity to ensure a uniform spreading operation;

(5) Equipped with automatic feed controls, which are properly adjusted to maintain a uniform depth of material ahead of the screed;

(6) Operable at forward speeds consistent with satisfactory asphalt concrete mix lay down;

(7) Capable of producing a smooth-finished surface without segregating, tearing, shoving, or gouging;

(8) Equipped with automatic screed controls with sensors that can sense grade from an outside reference line, sensing the transverse slope of the screed, and providing the automatic signals that operate the screed to maintain grade and transverse slope; and

(9) If required, provide a screed mounted safety edge device that can:

(a) Maintain contact with the road shoulder surface;

(b) Allow automatic transition to intersections and obstructions; and

(c) Constrain and reduce the volume of the asphalt concrete material head to increase the density of the extruded profile.

Do not use conventional single plate strike-off.

Surface Preparation. Clean the existing surface of loose material, dirt, or other deleterious material by approved methods. Apply an asphalt tack coat to contact surfaces of pavements, curbs, gutters, manholes, and other structures according to ITEM 6. In locations designated for an asphalt overlay, the Contractor may use a scratch course for leveling existing rutting and other distressed areas.

Weather Limitations. Place asphalt concrete mix on a dry, unfrozen surface when the air temperature in the shade is above 35 °F and rising. For HMA, conform to Table I5-1. For WMA, adjust Table I5-1 minimum lay-down temperatures according to the manufacturer's recommendations.

Table I5-1
Asphalt Concrete Mix Placement Temperature

Compacted Lift Thickness	< 2 Inches	2 to 3 Inches	> 3 Inches
Road Surface Temperature, °F	Minimum Lay-Down Temperature, °F(1)		
< 35	(2)	(2)	(2)
35 to 39.9	(2)	(2)	280
40 to 49.9	(2)	285	275
50 to 59.9	295	280	270
60 to 69.9	285	275	265
70 to 79.9	280	270	265
80 to 89.9	270	265	260
≥ 90	265	260	255

(1) Do not heat the asphalt concrete mix above the temperature specified in the approved asphalt concrete mix design.
(2) Do not pave.

Hauling. Use vehicles with clean and smooth metal beds free of holes for hauling asphalt concrete mixes.

Coat the beds with an approved material to prevent the asphalt concrete mix from adhering to the beds. Do not use petroleum derivatives or other coating material that contaminates or alters the characteristics of the mix. Drain the bed before loading.

Equip each truck with a canvas cover or other suitable material of sufficient size to protect the asphalt concrete mix from the weather. If necessary to maintain temperature, use insulated truck beds and securely fastened covers. Provide access ports or holes for checking temperature of asphalt concrete mix in the truck.

Placing and Finishing. Do not use mixes produced from different plants unless the mixes are produced according to the same JMF, use material from the same sources, and are approved.

Place HMA at temperatures shown in Table I5-1. Place WMA at temperatures according to the manufacturers recommendations. Measure temperature of the asphalt concrete mix in the hauling vehicle immediately before dumping into the spreader or measure it in the windrow immediately before pickup.

Place the mix with a paver conforming to Equipment requirements above. Control horizontal alignment using a reference line. Automatically control the grade and slope from reference lines, a ski and slope control device, or dual skis. Use skis having a minimum length of 20 feet.

In areas where mechanical spreading and finishing are impractical, place and finish the asphalt concrete mix by other approved methods to produce a uniform finished surface.

Compacting. Thoroughly and uniformly compact the asphalt surface by rolling. In places inaccessible to rollers, use approved alternate equipment. Do not cause cracking, shoving, or undue displacement.

Monitor the compaction process with nuclear density gauges calibrated according to ASTM D2950 within 6 months before use. Check the standard and reference on each day of use according to the ASTM D2950 standardization and reference check sections. Compact to at least 91.0 percent of the maximum specific gravity (density) determined in Composition of Mix.

Do not pass rollers over an unsupported edge of freshly laid asphalt concrete mix. Continue rolling until roller marks are eliminated, cracks are sealed, and the required density is obtained. For HMA, do not roll the mix after the surface cools below 175 °F.

Joints, Trimming Edges, and Cleanup. Complete pavement construction of adjacent traffic lanes to the same elevation within 24 hours. If elevation differences more than 3 inches between adjacent lanes are left overnight, sign with "*Uneven Lanes*" warning signs and provide a 1V:3H fillet.

Make transverse joints vertical to the depth of the new pavement at connections to existing pavements and previously placed lifts. Form vertical and clean transverse joints by cutting back the previous run to expose the full-depth course. Protect saw cut edge from equipment and traffic. Repair damaged joints by sawcutting before placement of adjoining asphalt concrete pavement.

Apply an asphalt tack coat to the edge of both transverse and longitudinal joints according to ITEM 6.

Dispose of material trimmed from the edges and other discarded asphalt concrete mix according to ITEM 2.

Make the longitudinal joint in the top layer at the centerline of the pavement on two-lane roadways or at the lane lines of roadways with more than two lanes. Establish the centerline of the pavement from recorded data defined in Section 14 or construction staking data if furnished by the Government. Offset the longitudinal joint in the layer immediately below at least 6 inches from the joint.

See the plans for curve widening locations and details. For two-lane roadways make the longitudinal joint at the centerline of the pavement. Do not vary the shoulder width where curve widening exists.

At connections to existing pavements and previously placed lifts, make the transverse joints vertical to the depth of the new pavement. Form transverse joints by cutting back the previous run to expose the full depth of the course.

Pavement Straightedge Measurement. Measure the pavement surface using a 10-foot metal straightedge at right angles and parallel to the centerline. Defective areas are deviations between the surface and the bottom of the straightedge more than ¼ inch measured between two contacts of the straightedge or deviations more than ¼ inch measured at the end of the straightedge.

Correct defective areas using one of the methods shown below. Obtain approval for the method of correction before starting corrective work. Allow 5 days for review and approval of correction method proposal.

(a) Milling. Replace the defective area by milling at least one-half of the pavement depth and repaving with the approved asphalt concrete mix. Extend defective area corrections beyond the wheel path.

(b) Sawcutting. Replace the defective area by sawcutting and removing the defective area and repaving with the approved asphalt concrete mix. Saw cut and remove the defective area according to Item 2. Extend defective area corrections beyond the wheel path.

(c) Grinding. Use a diamond blade machine to grind off the defective surface area. Submit the manufacturer and model of the equipment to be used. Identify the starting and ending station of each grind location, the grinding depth, and lateral extent of grinding. Submit the type of seal to be placed after grinding is completed for approval. Limit the grinding depth to 12.5 percent of the design pavement thickness. If grinding more than this depth, provide a minimum 1-inch overlay.

(d) Other. Submit a proposal for approval for other correction methods not listed above.

Acceptance. See Table I5-2 for sampling, testing, and acceptance requirements. If no asphalt concrete type is designated, evaluate according to Type I in Table I5-2.

Asphalt binder will be evaluated under Section 6, Subsection Certification.

Asphalt concrete mix properties will be evaluated under Section 6, Subsections Certification and Measured or Tested for Conformance.

Construction of asphalt concrete facilities will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance.

Pavement straightedge measurement will be evaluated under Section 6, Measured or Tested for Conformance.

Measurement

Measure the pay items listed in the schedule of items according to Section 9, Measurement and Payment.

If a scratch course is applied, do not measure for payment.

Payment

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the schedule of items. Payment will be full compensation for the work prescribed in this Section. See Section 9, Measurement and Payment.

Table I5-2
Sampling, Testing, and Acceptance Requirements

Material or Product (Subsection)	Type of Acceptance (Subsection)	Characteristic	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time	Remarks
Production								
Item 5: Asphalt Concrete Pavement	Measured & tested for conformance	Job-mix formula	Composition of Mix (JMF), gradation and asphalt content	1 per 300 tons	Behind the paver before compaction	Yes	24 hours	–
		Density(1)	AASHTO T 166	"	In-place after compacting	"	"	Deliver cores to CO after testing is completed
		Maximum specific gravity(2),(3)	AASHTO T 209	"	Behind the paver before compaction	"	"	–
		Surface tolerance	Straightedge measurement	Continuously, after compaction	Finished pavement surface	No	"	–
		Placement temperature	–	First load & as directed thereafter	Hauling vehicle before dumping, or windrow before pickup	"	Upon completion of measurement	–
	Process control	Gradation at the plant	AASHTO T 27 & T 11	Contractor determined	Cold feed or hot bins as applicable	No	24 hours	–
		Moisture content of aggregates	AASHTO T 255	"	Stockpile	"	"	–
		Density	ASTM D2950	1 per 500 ft	In-place after compacting	"	"	–
Production								
Item 7-9: Asphalt	Measured & tested for		–					

Concrete Pavement Patch, Type 1 - 3	conformance	Density(1)	AASHTO T 166	Type 1,2: 1 per 200 sqyd Type 3: No cores required	In-place after compacting	"	"	Deliver cores to CO after testing is completed
		Maximum specific gravity(2),(3)	AASHTO T 209	Type 1, 2: 1 per day. Type 3: No sample required	Behind the paver before compaction	"	"	–
		Surface tolerance	Straightedge measurement	Type 1, 2: Continuously, after compaction. Type 3: No measurement required	Finished pavement surface	No	"	–
		Placement temperature	–	First load & as directed thereafter	Hauling vehicle before dumping, or windrow before pickup	"	Upon completion of measurement	–
	Process control	Gradation at the plant	AASHTO T 27 & T 11	Contractor determined	Cold feed or hot bins as applicable	No	24 hours	–
		Moisture content of aggregates	AASHTO T 255	"	Stockpile	"	"	–

(1) For asphalt concrete Type I, cut two 6-inch diameter side by side cores. Obtain cores as soon as the pavement has cooled sufficiently to allow coring, but not later than 12 hours after final rolling. Remove them with a core retriever and fill and compact the core holes with asphalt concrete mixture. Label the cores and protect them from damage due to handling and temperature. Submit one core for verification testing. Dry the other core to constant mass at 125±5 °F or vacuum dry it according to ASTM D7227 before performing the core density and measuring the thickness. Use 62.245 pounds per cubic foot to convert specific gravity to density.
(2) After production paving has begun, use the average maximum specific gravity value (AASHTO T 209) for each day to adjust the percent compaction for the cores that represent that day's paving.
(3) Do not use the supplemental procedure for mixtures containing porous aggregate (dry back method of AASHTO T 209).

ITEM 6 — ASPHALT TACK COAT

Description

This work consists of applying an emulsified asphalt tack coat on a prepared surface.

Material

Conform to the following:

Emulsified Asphalt. Conform to AASHTO M 140 or AASHTO M 208.

Current state approved tack coat material may be used if approved. Submit proof of compliance with state specifications.

Water for construction. Provide water for earthwork, pavement courses, dust control, and incidental construction that is free of substances detrimental to the work.

Construction Requirements

General. Provide an asphalt distributor with the following:

(a) Heater for uniformly heating the asphalt;

(b) Full circulation spray bar adjustable to 15-foot width;

(c) Positive controls including tachometer, pressure gauge, volume measuring device, or calibrated tank to uniformly deposit asphalt over the full width within 0.02 gallons per square yard of the required rate; and

(d) Thermometer for measuring asphalt temperature in the tank.

Current state approved tack coat material may be used if approved. Submit proof of compliance with state specifications.

Surface Preparation. Clean the existing surface of loose material, dirt, or other deleterious material by approved methods. If the surface is concrete, remove excess joint and crack filler material. Remove all pavement markings except waterborne or solvent borne traffic paint by approved methods. Protect manholes, valve covers, curb and gutter, and other adjacent facilities from damage or overspray.

Weather Limitations. Apply asphalt tack only when the following apply:

(a) Surface is dry and unfrozen;

(b) Ambient air temperature is above 35 °F and rising;

(c) Precipitation is not anticipated before the emulsified asphalt breaks; and

(d) Weather is not foggy.

Application. If using slow-setting emulsified asphalt, dilute by adding an equal quantity of water to the emulsified asphalt.

Calibrate asphalt distributors before the start of the project and if directed. Calibrate the spray bar height, check nozzle angle, and verify longitudinal and transverse application rates according to ASTM D2995.

Spread building paper on the pavement surface at the start and end of each asphalt application so distributor flow is started and stopped on the paper.

Apply asphalt uniformly at the optimum application rate determined from the control strip. Do not apply more asphalt than can immediately be covered with aggregate. Correct skipped areas or deficiencies.

Submit documentation of calibrations and application rates at the end of each day's production.

Use AASHTO R 112 to determine application rates. Provide the CO with the target application rate for approval.

Set distributor spray bar height to ensure uniform coverage and at least a double overlap, but no more than triple overlap coverage. Set nozzle angle settings between 15 and 30 degrees from the center of the spray bar axis. Use the same size nozzles with all set at the same angle and open.

Apply the asphalt tack coat uniformly and completely by fogging with a hand spray attachment or by other approved methods if application with a distributor spray bar is not practical.

Squeegee the excess emulsified asphalt from the surface and dispose of according to ITEM 2 Allow the tacked surfaces to completely break before placing the covering course. Place the covering course within 4 hours of placing the asphalt tack coat.

Acceptance. See Table I6-1 for sampling, testing, and acceptance requirements.

Emulsified asphalt will be evaluated under Section 6, Subsections Visual Inspection and Certification.

Construction of the tack coat will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance.

Measurement

Measure the pay items listed in the schedule of items according to Section 9, Measurement and Payment and the following as applicable:

Measure asphalt tack coat including water added for dilution. Indicate a breakdown of total emulsion and water added on the load invoices provided to the CO.

Do not measure asphalt tack coat used for asphalt concrete pavement patching.

Payment

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the schedule of items. Payment will be full compensation for the work prescribed in this Section. See Section 9, Measurement and Payment

Table I6-1
Sampling, Testing, and Acceptance Requirements

Material or Product (Subsection)	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time	Remarks
Production									
Emulsified asphalt	Process control	Placement temperature	–	–	1 per distributor truck minimum	Distributor truck	No	Before incorporating into work	–
Tack coat	"	Application rate & daily yield	–	–	1 per day minimum	Contractor determined	No	End of shift	–

ITEMS 7, 8 AND 9 — ASPHALT CONCRETE PAVEMENT PATCHING

Description

This work consists of repairing distressed areas of asphalt concrete pavement by patching.

Material

Crushed Aggregate. Provide hard, durable particles or fragments of crushed stone or gravel conforming to the size and quality requirements for crushed aggregate material normally used locally in the construction and maintenance of highways by Federal or state agencies. Provide crushed aggregate with a maximum size of 1 inch as determined by AASHTO T 27 and AASHTO T 11. Provide well-graded crushed aggregate, free of organic matter, lumps or balls of clay, and other deleterious material.

Emulsified Asphalt. Conform to AASHTO M 140 or AASHTO M 208.

Current state approved tack coat material may be used if approved. Submit proof of compliance with state specifications.

Water for Construction. Provide water for earthwork, pavement courses, dust control, and incidental construction that is free of substances detrimental to the work.

Asphalt Concrete Pavement. Hot asphalt concrete pavement conforming to ITEM 5. For Asphalt Concrete Pavement Patch, Type 3 use a 3/8” or ½” NMAS.

Construction Requirements

General. The approximate type, size, and location of asphalt concrete pavement patches are shown in the plans. Verify the type, size, and location of patching with the CO prior to beginning work.

Place and compact asphalt concrete pavement according to ITEM 5 so the patched surface matches the same grade as the adjacent surface.

Dispose of debris and unsuitable and excess material according to Item 2.

Asphalt Concrete Pavement Patch, Type 1. Type 1 patching consists of removal and replacement of asphalt concrete pavement, base, and subgrade materials.

(a) Patch areas. Extend the repair area 12 inches beyond the distressed area. If patch limits are within 24 inches of the pavement edge, extend the patch limit to the pavement edge. Make the minimum transverse dimension of the patch one-half of the travel lane width and the minimum longitudinal dimension of the patch 36 inches.

(b) Pavement removal. Mill completely through the pavement or saw cut and remove the pavement. If sawcutting, cut through the existing pavement and around the perimeter of the patch area. Make saw cuts perpendicular to the roadway surface and at right angles to each other. Remove the pavement, base, and subgrade to the depth shown in the plans.

(c) Crushed Aggregate. Place and compact crushed aggregate to the correct line, grade and cross section.

Determine the optimum moisture content according to AASHTO T 180, Method D. Mix the aggregate and adjust the moisture content to obtain a uniform mixture with a moisture content within 2 percent of the optimum moisture content. Spread and shape the mixture on the prepared surface in a uniform lift. Place mixture in a lift no more than 6 inches in compacted thickness.

Determine the maximum density of the mixture according to AASHTO T 180, Method D.

Compact the full width of each lift. Roll from the sides to the center, parallel to the centerline of the road. Along curbs, headers, walls, and places not accessible to the roller, compact the material with approved tampers or compactors.

Compact each lift to at least 95.0 percent of maximum density. Determine the in-place density and moisture content according to AASHTO T 310 or other approved test procedures.

Asphalt millings may be used for crushed aggregate material.

(d) Patching. Apply an asphalt tack coat to the edges of the patch area according to Item 6. Provide asphalt concrete pavement with a JMF meeting the requirements of Item 5.

Asphalt Concrete Pavement Patch, Type 2. Type 2 patching consists of removal and replacement of asphalt concrete pavement and a portion of the underlying materials. Remove asphalt concrete pavement and underlying materials to the depth shown in the plans.

(a) Patch areas. Extend the repair area 12 inches beyond the distressed area. If patch limits are within 24 inches of the pavement edge, extend the patch limit to the pavement edge. Make the minimum length and width of the patch 36 inches.

(d) Pavement removal. Remove pavement according to Pavement Patch, Type 1 above, except remove the pavement to expose subbase or subgrade as shown in the plans. Shape underlying base course to uniform surface and compact to provide an unyielding surface.

(b) Patching. Apply an asphalt tack coat to the edges of the patch area according to Item 6. Provide asphalt concrete pavement with a JMF meeting the requirements of Item 5.

Asphalt Concrete Pavement Patch, Type 3. Type 3 patching consists of removal and replacement of an asphalt concrete pavement.

(a) Pavement removal. Remove distressed asphalt concrete pavement by approved methods. Clean the patch area by applying compressed air, sweeping, and other approved methods.

(b) Patching. Apply an asphalt tack coat to asphalt concrete surfaces within the patch area according to Item 6. Provide asphalt concrete pavement with a JMF meeting the requirements Item 5. Place the asphalt material either by hand, with a blade, or other approved methods.

Acceptance. Construction of asphalt concrete pavement patching will be evaluated under Section 6, Subsection Visual Inspection and Measured or Tested for Conformance.

Asphalt concrete will be evaluated under ITEM 5.

Asphalt tack coat will be evaluated under ITEM 6.

Crushed aggregate will be evaluated under Section 6, Subsections Certification and Mesaured or Tested for Conformance. See Table I7-1 for sampling requirements.

Measurement

Measure the pay items listed in the schedule of items according to Section 9, Measurement and Payment.

Payment

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the schedule of items. Payment will be full compensation for the work prescribed in this Section. See Section 9, Measurement and Payment.

Table I7-1
Sampling, Testing, and Acceptance Requirements

Material or Product	Type of Acceptance (Subsection)	Characteristic	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Production							
Crushed aggregate(1)	Measured & tested for conformance	Moisture-density	AASHTO T 180, Method D(3)	1 per aggregate supplied	Production output or stockpile	Yes	Before using in work
		Density	AASHTO T 310 or other approved procedures	1 per 200 sqyds	In-place after compaction	No	Before placing next lift
Crushed aggregate	Process control	Moisture content (in-place)	AASHTO T 310 or other approved procedures	1 per 200 sqyd	In-place after compaction	No	Before placement of next lift or as requested

(1) Sampling and testing required for roadway aggregate.
(2) Use only sieves indicated for the specified gradation.
(3) At least 5 points per proctor.

ITEMS 10 AND 11 — CULVERT PIPE AND END SECTIONS

Description

This work consists of providing and installing culvert pipe and appurtances.

Material

Conform to the following:

Metallic-Coated Corrugated Steel Pipe. Provide pipe, special sections (such as elbows, branch connections, and prefabricated flared end sections) and coupling bands conforming to AASHTO M 36 and either AASHTO M 218, AASHTO M 274, or AASHTO M 289 for the dimensions, classification type, and thicknesses specified.

Corrugated Metal Units. Conform to AASHTO M 36 for steel corrugated units. See the plans for the diameter, shape, specific pipe classification and, if applicable, class. For coatings, conform to the following:

Metallic-Coated Spiral Rib Pipe. Provide pipe, special sections (such as elbows and branch connections), and coupling bands conforming to AASHTO M 36, Type IR and Type IIR, AASHTO M 218, AASHTO M 274, or AASHTO M 289 for the dimensions, thicknesses, and coating type specified.

Gaskets for Metal Pipe.

(a) O-ring gaskets for flexible metal pipe. Conform to ASTM C1619, Class C.

(b) Continuous flat gaskets for flexible metal pipe with flat bands or bands with projections.

(1) Conform to ASTM D1056

(2) Gasket Thickness: ½ in greater than the nominal depth of pipe corrugations

(c) Continuous flat gaskets for flexible metal pipe with corrugated bands.

(1) Conform to ASTM D1056.

(2) Gasket thickness ⅜ in

Construction Requirements

General. Provide culvert pipe with a wall thickness at least that shown in the plans or determined from the fill-height tables shown in the plans. Use the same material and coating on contiguous pipe sections and special sections (such as elbows and branch connections). For culvert extensions, provide the same material as the existing culvert.

Plans show the size, length, and approximate location of culverts. Determine final location, skew, length, elevations, and grade according to Section 14. Do not order culvert material until the CO has accepted the final structure size, length, and alignment. Place culvert with a minimum of 2% slope.

Laying Metal Pipe. Clear the area of vegetation and obstructions and dispose of according to Item 2. Excavate trench for culvert pipe according to the following:

Slope the sides of excavations, use shoring and bracing, and use other safety features according to OSHA safety standards 29 CFR, Part 1926, Subpart P, Excavations. If sides of excavations are sloped for safety considerations, submit one copy of the design that demonstrates compliance with OSHA standards. If support systems, shield systems, or other protective systems are used, design the shoring submit drawings and construction details according to Section 4.

Position the pipe with a longitudinal joint so the joint is opposite the invert. Fully join pipe sections with leak-resistant seals according to AASHTO M 36 or AASHTO M 196. Use one of the following:

(a) Coupling bands with gaskets. Limit the use of coupling bands with projections (dimples) to attaching prefabricated flared end sections.

(b) Bedding for Pipe Culverts. Level the foundation. Place uncompacted bedding material over the foundation in a layer of uniform thickness. Lay 4 inches of bedding for pipes with diameters of 12 to 54 inches. Lay 6 inches of bedding for pipe with diameters larger than 54 inches. Recess the bedding to receive the joints for pipes with belled joints. Place the culvert on the uncompacted bedding layer and backfill according to (c).

(c) Backfill. Place and compact common backfill or plastic pipe backfill in evenly balanced lifts on each side of the pipe to a height of 12 inches above the top of the pipe culvert. Complete backfilling to the top of the trench. Place and compact common backfill in the trench in lifts no more than 6 inches in thickness according to Compacting below.

Compacting. Determine optimum moisture content and maximum dry density according to AASHTO T 99, Method C. Adjust the moisture content of the backfill to a moisture content suitable for compaction.

Compact material placed in each lift to at least 95 percent of the maximum density. Determine the in-place density and moisture content according to AASHTO T 310 or other approved test procedures.

Do not apply density requirements as measured by AASHTO T 310 to material that cannot be tested or compacted to maximum values determined by AASHTO T 99. For this material, fill the voids around the rocky material in each lift with structural backfill or foundation fill as appropriate. Compact each lift until there is no visible evidence of further consolidation.

Acceptance. Material for culverts and drains will be evaluated under Section 6, Subsections Visual Inspection and Certification.

Installation of culverts and drains will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance.

Survey work will be evaluated under SECTION 14.

Measurement

Measure the pay items listed in the schedule of items according to Section 9, Measurement and Payment

and the following as applicable:

When measuring pipe by the linear foot, measure along the invert.

Measure end sections, elbows, and branch connections by the each. If there is no pay item for elbows or branch connections, measure them as additional pipe length along the invert.

Payment

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the schedule of items. Payment will be full compensation for the work prescribed in this Section. See Section 9, Measurement and Payment.

ITEMS 12, 13 AND 14 — GUARDRAIL AND END TERMINAL SYSTEMS

Description

This work consists of constructing guardrail systems. This work also consists of removing existing guardrail systems.

Types and classes of metal beam guardrail are designated according to AASHTO M 180.

This work also consists of finishing galvanized steel surfaces with a reactive colorant to produce a natural weathered appearance.

Material

Conform to the following:

Metal beam rail. Provide metal beam rail conforming to Task Force 13 (TF13), *Guide to Standardized Roadside Hardware*.

(1) Galvanized steel. Provide W-beam or thrie-beam rail fabricated from corrugated sheet steel conforming to AASHTO M 180 for the designated shape, type, class, and mass of coating specified.

Guardrail Posts. Provide guardrail posts conforming to TF13, *Guide to Standardized Roadside Hardware*.

(a) Steel. Provide posts of the appropriate size shape according to ASTM A6. Zinc-coat the embedded portion of corrosion resistant (weathering) steel posts according to ASTM A123.

Guardrail Blockouts. Provide guardrail blockouts conforming to TF13, *Guide to Standardized Roadside Hardware*.

(a) Wood. Treat according to AASHTO M 133.

(b) Steel. Provide steel conforming to Guardrail posts requirements above.

(c) Plastic or composite. Provide blockouts that are crashworthy. Provide a new homogeneous blockout with uniform texture that does not crack, chip, flake, peel, or splinter after fabrication.

Guardrail Hardware. Provide hardware conforming to TF13, *Guide to Standardized Roadside Hardware*. For angles, channels, wide flanges, and plates not contained in TF13, conform to ASTM A36 for non-weathering steel and ASTM A242 for corrosion resistant (weathering) steel. For structural tubing for short steel posts, conform to ASTM A500 or ASTM A513, Grade 1008.

Galvanize soil plates and structural tubing according to AASHTO M 111. Do not punch, drill, cut, or weld the metal after galvanizing.

Provide a flexible hinged guardrail delineator that allows the reflector to fold down and spring back to an upright position after impact. Provide retroreflective sheeting conforming to ASTM D4956, including

supplementary requirements. Use Type IV or XI reflective sheeting permanently adhered to 0.090-inch minimum thick body. Manufacture reflector tabs from 0.15-inch aluminum or plastic. Use an adhesive that resists peeling with a force of 5 pounds per inch of width. Use mildew resistant adhesive that has no staining effect on retroreflective sheeting.

Provide nuts, bolts, and cables conforming to the following:

(a) Galvanized nuts and bolts. Provide nuts conforming to ASTM A563, Grade A. Provide bolts conforming to ASTM A307, Grade A.

(b) Corrosion resistant (weathering) nuts and bolts. Provide nuts conforming to ASTM A563, Grade C3. Provide bolts conforming to ASTM A449, Type 3.

(c) Cable. Provide cable conforming to AASHTO M 30, Type II, Class A.

Weathering Agent. Provide a weathering agent that colors rock, cementitious, and galvanized surfaces to a brownish earth tone.

Submit products meeting the following characteristics for approval:

(a) Non-toxic product that accelerates oxidation to create a permanent natural color and look that can be customized to match the existing natural tones and colors into the surrounding environment;

(b) Contains chemical components that have no adverse reactions or effects on soils, plants, and animals;

(c) Does not contain corrosive by-products once the product has been applied;

(d) Does not alter or damage galvanization layer on galvanized steel; and

(e) Does not contain pigments.

Natina® products are acceptable for coloring rock surfaces; cementitious surfaces; and galvanized surfaces. Identification by brand name is intended to be descriptive, not restrictive, and is intended to indicate the quality and characteristics of products that will be satisfactory.

Construction Requirements

Qualifications. At least 10 days before starting guardrail work, submit one of the following for the guardrail supervisor:

(a) Résumé describing at least 3 years' experience in guardrail installation;

(b) A certificate showing successful completion of the ATSSA Guardrail Installation Training; or

(c) A certificate showing successful completion of a state department of transportation guardrail installation training course.

General. Provide guardrail systems and terminals that are crashworthy.

Apply weathering agent to the required galvanized surfaces at the manufacturer's facility. After application, cure the treated guardrail materials to develop the full coloration according to the manufacturer's recommendations.

Repair damages or discoloration to the final finish by field applying weathering agent according to the manufacturer's recommendations.

Comply with all applicable federal, state, and local regulations. Furnish material SDS for all cleaning and staining products.

If proprietary systems, terminals, or crash cushions are required, install according to the manufacturer's recommendations. Submit the installation manual, completed inspection checklists, and drawings from the manufacturer according to Section 4.

Provide tangent terminals meeting MASH Test Level 3.

Treat all galvanized material for guardrail systems with a weathering agent.

Post Installation. Complete adjacent earthwork, aggregate placement and other roadway surfaces to line and grade as applicable before installation of guardrail posts.

Do not damage adjacent pavement, subsurface utilities, or drainage features during post installation.

Posts may be installed by either drilling or driving. Ensure posts installed by drilling have sufficiently sized holes to allow thorough compaction of backfill around each post. Backfill post holes in 6-inch lifts with approved material. Tamp and compact each lift. Replace posts damaged during driving operations.

Install the posts plumb and at the location, spacing, and elevation as shown in the plans. If a post cannot be placed at its normal location due to a non-removable obstruction, an additional blockout may be added as approved. If the post cannot be offset with the addition of a blockout, the following options are allowed as approved: the post-in-rock detail, the long span detail, or the omission of a post as shown in the plans.

Use post lengths shown in the plans. Do not change the post lengths or spacings in terminals or structure transitions.

Treat field cuts for wood posts with two coats of preservative. Do not place field cuts in contact with the ground.

Rail Element Installation. Do not modify specified hole diameters or slot dimensions.

(a) Steel rail. Shop bend curved guardrail with a radius of 150 feet or less.

Install rail elements in a smooth continuous line with the laps in the direction of traffic flow. Use bolts that extend at least ¼ inch, but no more than 1 inch beyond the nuts.

Coat scrapes on galvanized surfaces that expose the base metal with two coats of zinc-oxide coating material. Further coat the affected surfaces with a weathering agent.

Guardrail Construction Exposed to Traffic. If a roadway is open to traffic during construction, complete guardrail installations within 5 days from the day the structure, pavement, shoulder, or whichever is the controlling item of work is sufficiently completed to allow guardrail installation. In areas where guardrail construction is not restricted by other construction, complete removal of existing guardrail and construct new guardrail within 48 hours of starting work.

Delineate unfinished sections of guardrail installation or follow an approved method of protecting traffic from the unfinished guardrail elements.

Schedule guardrail installation so work is finished before work suspension or other extended periods of time.

Acceptance. Material for guardrail will be evaluated under Section 6, Subsections Visual Inspection and Certification.

Construction of guardrail will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance.

Reactive colorant finishes will be evaluated under Subsection Visual Inspection.

Measurement

Measure the pay items listed in the schedule of items according to Section 9, Measurement and Payment and the following as applicable:

Payment

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the schedule of items. Payment will be full compensation for the work prescribed in this Section. See Measurement and Payment.

ITEM 15 — GATE (ROAD CLOSURE GATE)

Description

This work consists of fabricating, coating, delivering and erecting a road closure gate.

Material

Concrete. Provide a 4,000 PSI concrete mix design used by local or state agencies.

Gate Materials. See plans for additional material requirements.

Construction Requirements

General. Clear along the fence line. Remove and dispose of trees, brush, logs, upturned stumps, roots of downed trees, rubbish, and debris according to Item 2.

Grubbing is not required, except where short and abrupt changes in the ground contour require removal of stumps to properly grade the fence line. Remove or cut stumps according to Item 2.

Perform clearing and leveling with minimum disturbance to the terrain outside the Gate Envelope.

Gate (Roadway Closure Gate). Verify proposed gate location on site with the CO. Submit gate details, dimensions and material certifications for review. Submit powder coating color sample chips for review. Allow 7 days for review. If gate is a non-commercial product, submit fabrication drawing for review.

Hinge gate to prevent removal of the gate without tools. Set the gate in an approximately horizontal plane. Set the gate so it swings freely inward and outward and fastens securely in its latch holder/gate stops. Set gate to swing open at least 90 degrees in each direction.

Submit proposed gate for review, provide drawings and information according to Section 4. Allow 10 days for review.

Construct cast-in-place concrete for gate foundations.

Placing and Curing Concrete. Moisten the forms and foundation immediately before placing concrete. Discharge concrete within the time limit shown in

Place concrete to avoid segregation of material. Consolidate with vibrators or other approved methods. Place concrete as close to its final position as possible. Do not use aluminum pipe for transporting or placing concrete. Do not exceed 30 minutes between deliveries of batches for a single pour on a structure.

Do not apply water to plastic concrete surfaces during finishing operations.

Cure concrete at least 7 days, using either forms in place, curing compound or both.

Remove and replace cracking, spalling, or scaling concrete to the nearest joint.

Acceptance. Material for gates, bollards, concrete will be evaluated under Section 6, Subsections Visual Inspection and Certification.

Construction of gates, and bollards will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance.

Coatings will be evaluated under Visual Inspection and Measured or Tested for Conformance.

Excavation and backfill will be evaluated under Section 6, Subsection Visual Inspection.

Minor concrete will be evaluated under Section 6, SubsectionsVisual Inspection and Measured or Tested for Conformance.

Measurement

Measure the pay items listed in the schedule of items according to Section 9, Measurement and Payment.

Payment

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the schedule of items. Payment will be full compensation for the work prescribed in this Section. See Measurement and Payment.

ITEMS 16, 17 AND 18 — PERMANENT TRAFFIC CONTROL

Description

This work consists of installing and removing and resetting permanent traffic control devices.

Material

Conform to the MUTCD and the following:

Delinator, Type Snow Pole. *"SHUR-TITE 96" SNOW POLE SHUR-FELX DRIVABLE DELINATOR"*

Object Marker, Type 2. Conform to the following:

Object Marker Posts. Provide flanged U-channel steel posts weighing at least 2 pounds per foot and conforming to ASTM A36. Galvanize according to AASHTO M 111.

Hardware. Provide galvanized steel or aluminum alloy lag screws, washers, clip angles, wood screws, shear plates, U-bolts, clamps, bolts, nuts, and other fasteners.

For high-strength steel bolts, nuts, and washers, Provide bolts conforming to ASTM F3125 or ASTM F3148 as specified. If not provided as an assembly (ASTM F3125 Grades F1852 and F2280, or ASTM F3148), provide nuts conforming to ASTM A563, Grade DH or DH3, with the S1 *Supplementary Lubricant Requirement*, and provide washers conforming to ASTM F436. Use Type 3 bolts, nuts, and washers to connect uncoated weathering steel components. Use Type 1 or 3 in other scenarios.

Provide fastener assembly coatings conforming to ASTM F3125 Annex A1 or ASTM F3148 Table 1. If hot-dip or mechanically galvanized coatings are used, use a lubricated nut dyed blue.

Provide fastener assemblies (bolt, nut, and washers) that have been rotation-capacity tested by the manufacturer and fastener components that have been assigned a rotation-capacity lot number.

Galvanize steel hardware according to AASHTO M 232.

For aluminum alloy bolts, nuts, and washers, extruded bars, rods, shapes, and tubes, conform to ASTM B221, alloy 6061-T6. For rolled or extruded structural shapes, conform to ASTM B308, alloy 6061-T6.

Aluminum Bolt Heads and Nuts**.** Conform to American standard heavy hexagon ANSI B18.2. For threads, conform to American standard coarse series, Class 2 fit, ANSI specification B1.1, Unified Inch Screw Threads (UN, UNR, and UNJ Thread Forms).

For neoprene or nylon washers, provide ⅛-inch thick by 1-inch minimum outside diameter with maximum allowable applied torque of 480 inch-pounds.

Object Marker Retroreflectors. Provide retroreflectors that are ready for mounting.

(a) Acrylic plastic lens. Provide an acrylic plastic lens with a minimum dimension of 3 inches with prismatic optical elements and a smooth, clear, transparent face. Fabricate the back from similar material and fuse it to the lens around the entire perimeter to form a homogenous unit. Seal the units against the intrusion of foreign material. Conform to Table I18-1 regardless of the orientation angle.

Table I18-1
Minimum Coefficient of (Retroreflective)
Luminous Intensity (R_I)(1)

Candelas per Foot-candle				
Observation Angle	**Entrance Angle**	**White(2)**	**Yellow**	**Red**
0.1°	0°	115	70	30
0.1°	20°	45	25	12

(1) See ASTM E808.
(2) Crystal, clear, or colorless are acceptable color designations.

Mount the retroreflector unit in a housing fabricated from 0.063-inch ASTM B209, aluminum alloy 3003-H-14 or similar, or from 0.064-inch cold rolled and hot-dip galvanized steel. Provide antitheft attachment hardware.

(b) Retroreflective sheeting. Provide a prismatic retroreflective sheeting with a minimum dimension of 3 inches and with a Class 1 or Class 2 adhesive backing conforming to Table I18-2. Attach the sheeting to an aluminum or plastic support panel (target plate) of the size and dimension specified.

Conform to ASTM D4956, including supplementary requirements. Clean and degrease the face of the metal panels using methods recommended by the manufacturer before applying retroreflective sheeting. Wipe plastic panels clean with a slightly dampened cloth before applying retroreflective sheeting. Provide retroreflective sheeting conforming to Table I18-2.

Table I18-2
Retroreflective Sheeting Types

Application	Description	Sheeting Types
Permanent	Roadside signs	Type III, IV, VIII, IX, or XI prismatic retroreflective sheeting. Use fluorescent yellow-green sheeting for signs associated with school buses, schools, and related supplementary plaques.

Permanent Signs. Conform to the following:

Sign Posts. Provide sign posts that are straight, smooth, and without defects affecting strength, durability, or appearance. Conform to the following:

(a) Galvanized metal. Conform to the following:

(1) U-channel steel. Provide flanged, channel, galvanized steel posts conforming to ASTM A499, Grade 60 and the following:

(a) Punching. Starting 1 inch from the top and extending the full length of the post, drill or punch ⅜-inch holes on 1-inch centers along the centerline of the bottom of the U. Remove burrs and sharp edges.

(b) Galvanizing after punching AASHTO M 111

(2) Square tubular steel. Provide square tubular galvanized steel posts conforming to ASTM A1011, Grade 55 and the following:

(a) Punching. Starting 1 inch from the top and extending the full length of the post, drill or punch $^{7}/_{16}$-inch holes on 1-inch centers along the centerline of all four sides, in true alignment and opposite each other directly and diagonally. Remove burrs and sharp edges.

(b) Galvanizing after punching ASTM A123 or ASTM B695

Sign Panels. Package sign panels in protective material and transport in a vertical position. Provide sign panels that show the manufacturer's name and date of manufacture on the back. Conform to the following:

(b) Steel. Provide continuous coated (galvanized) 0.08-inch sheet steel blanks conforming to ASTM A653 and zinc coating designation G90.

Provide panels with a substantially plane surface. Do not use twisted or buckled panels.

(c) Aluminum. Provide panels conforming to ASTM B209, alloy 6061-T6 or 5052-H38.

Fabricate temporary panels and permanent panels smaller or equal to 30 by 30 inches from 0.080-inch-thick aluminum sheets. Fabricate larger permanent panels from 0.125-inch-thick aluminum sheets.

Provide blanks without laminations, blisters, open seams, pits, holes, or other defects that may affect their appearance or use. Use blanks with uniform thickness and that are commercially flat.

Join extruded aluminum panel sections with panel nuts, bolts, and washers to achieve the desired sign size. Use 6- and 12-inch plate heights to achieve the sign panel vertical dimensions in increments of 6 inches. Do not include more than one 6-inch plate per sign.

(d) Extruded aluminum. Provide panels conforming to ASTM B221, aluminum alloy 6063T6. Conform to (b) Aluminum above for panel thickness and fabrication. The maximum allowable deviation from flat on the face is 0.05 inch per foot.

Signing Hardware. Provide galvanized steel or aluminum alloy lag screws, washers, clip angles, wood screws, shear plates, U-bolts, clamps, bolts, nuts, and other fasteners.

For high-strength steel bolts, nuts, and washers, Provide bolts conforming to ASTM F3125 or ASTM F3148 as specified. If not provided as an assembly (ASTM F3125 Grades F1852 and F2280, or ASTM F3148), provide nuts conforming to ASTM A563, Grade DH or DH3, with the S1 *Supplementary Lubricant Requirement*, and provide washers conforming to ASTM F436. Use Type 3 bolts, nuts, and washers to connect uncoated weathering steel components. Use Type 1 or 3 in other scenarios.

Provide fastener assembly coatings conforming to ASTM F3125 Annex A1 or ASTM F3148 Table 1. If hot-dip or mechanically galvanized coatings are used, use a lubricated nut dyed blue.

Provide fastener assemblies (bolt, nut, and washers) that have been rotation-capacity tested by the manufacturer and fastener components that have been assigned a rotation-capacity lot number.

Galvanize steel hardware according to AASHTO M 232.

For aluminum alloy bolts, nuts, and washers, extruded bars, rods, shapes, and tubes, conform to ASTM B221, alloy 6061-T6. For rolled or extruded structural shapes, conform to ASTM B308, alloy 6061-T6.

Aluminum Bolt Heads and Nuts**.** Conform to American standard heavy hexagon ANSI B18.2. For threads, conform to American standard coarse series, Class 2 fit, ANSI specification B1.1, Unified Inch Screw Threads (UN, UNR, and UNJ Thread Forms).

For neoprene or nylon washers, provide ⅛-inch thick by 1-inch minimum outside diameter with maximum allowable applied torque of 480 inch-pounds.

Legends and Borders. Form letters, numerals, and other units to provide a continuous stroke width with smooth edges. Make the surface flat and free of warp, blisters, wrinkles, burrs, and splinters. Do not fabricate letters, numerals, arrows, symbols, or borders using a red screen ink process.

Conform to one of the following techniques:

(a) Type L-1 (screen process). Apply letters, numerals, arrows, symbols, borders, and other features on the sign background by direct or reverse screen process. Apply messages and borders of a color darker than the sign background by the direct process. Apply messages and borders of a color lighter than the sign background by the reverse screen process.

Apply screen inks for use on the various types of retroreflective sheeting. Apply ink that has the same durability and color as specified for that type of retroreflective sheeting. Apply black screen ink until opaque on retroreflective sheeting.

Provide a uniform color and tone, with sharply defined edges of legends and borders. Do not allow running, streaking, or sagging.

Air dry or bake the signs after screening to provide a smooth hard finish.

(b) Type L-2 (transparent films). Apply letters, numerals, arrows, symbols, borders, and other features on the sign background with colored transparent films. Select durable, electronically cuttable films coated with a transparent pressure-sensitive adhesive protected by a removable liner. Use transparent films recommended by the manufacturer within the color requirements specified for the retroreflective sheeting.

(c) Type L-3 (direct applied characters). Cut letters, numerals, arrows, symbols, borders, and other features from black opaque or retroreflective sheeting of the color specified. Apply characters to the sign background. Use the same sheeting manufacturer for both the sign legend, border, and background.

Use colors specified in the plans or the MUTCD, *Standard Highway Signs, Including Pavement Markings and Standard Alphabets* and material conforming to Reflective Sheeting below.

Reflective Sheeting. Conform to ASTM D4956, including supplementary requirements. Clean and degrease the face of the metal panels using methods recommended by the manufacturer before applying retroreflective sheeting. Wipe plastic panels clean with a slightly dampened cloth before applying retroreflective sheeting. Provide retroreflective sheeting conforming to Table I18-3.

Table I18-3
Retroreflective Sheeting Types

Application	Description	Sheeting Types
Permanent	Roadside signs	Type III, IV, VIII, IX, or XI prismatic retroreflective sheeting. Use fluorescent yellow-green sheeting for signs associated with school buses, schools, and related supplementary plaques.

Weathering Agent. Provide a weathering agent that colors rock, cementitious, and galvanized surfaces to a brownish earth tone.

Submit products meeting the following characteristics for approval:

(d) Non-toxic product that accelerates oxidation to create a permanent natural color and look that can be customized to match the existing natural tones and colors into the surrounding environment;

(e) Contains chemical components that have no adverse reactions or effects on soils, plants, and animals;

(f) Does not contain corrosive by-products once the product has been applied;

(g) Does not alter or damage galvanization layer on galvanized steel; and

(h) Does not contain pigments.

Natina® products are acceptable for coloring rock surfaces; cementitious surfaces; and galvanized surfaces. Identification by brand name is intended to be descriptive, not restrictive, and is intended to indicate the quality and characteristics of products that will be satisfactory.

Construction Requirements

General. Provide and install permanent traffic control devices according to the MUTCD and as shown in the plans. Provide traffic control devices that are crashworthy. Current state-approved permanent traffic control devices may be used if approved. Install permanent traffic control devices according to the manufacturer's recommendations.

Sign locations may be changed to fit field conditions as approved. Determine sign support lengths at time of staking.

Apply a weathering agent to all exposed galvanized steel surfaces.

Sign Posts. Install sign posts plumb and according to the manufacturer's recommendations.

Drive sign posts with a suitable driving head or set posts in drilled or punched holes. Backfill and compact sign post holes with suitable material in 6-inch lifts until no visible evidence of further consolidation. Excavate, construct, and backfill concrete footings according to Item 15.

Sign Panels. Mount sign panels with the legend horizontal.

Use oversized bolt heads and neoprene or nylon washers for fastening plastic sign panels.

Use antitheft fasteners. Cover exposed fasteners on the sign panel face with material matching the background of the panel.

Turn sign panels 3 degrees away from the road in the direction of travel to reduce specular glare (mirror reflection).

Cover the sign face with an opaque material if a sign message is not applicable. Maintain the covering in good condition until the message becomes applicable. Do not use adhesive tape on the sign face.

Object Markers. Attach object markers to posts according to the manufacturer's recommendations or as specified.

Delineator, Type Snow Pole. Install Delineator, Type Snow Poles at the intervals shown in the plans. Install per the manufacturer's recommendations.

Acceptance. Material for permanent traffic control devices will be evaluated under Section 6, Subsections Visual Inspection and Certification.

Installation of permanent traffic control devices will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance.

Excavation and backfill will be evaluated under Visual Inspection and Measured or Tested for Conformance.

Minor concrete will be evaluated under Item 15.

Weathering agent will be evaluated under Subsection Visual Inspection and Certification.

Measurement

Measure the pay items listed in the schedule of items according to Section 9, Measurement and Payment and the following as applicable:

When measuring sign systems, delineators or object markers by the each, measure each system as one regardless of the number of sign panels, crystals or other fixtures.

Payment

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the schedule of items. Payment will be full compensation for the work prescribed in this Section. See Section 9, Measurement and Payment.

ITEM 19 – PERMANENT PAVEMENT MARKINGS

Description

This work consists of applying markings on finished pavement.

Pavement markings are designated as follows:

Type B – Waterborne pavement markings

Material

Provide an acrylic water-based, ready-mixed paint conforming to AASHTO M 348 and the MUTCD.

The Contractor may use, upon approval, permanent pavement marking materials and layouts meeting current state approved standards that are practiced in the region of the project in lieu of contract requirements, if the state standards meet the requirements of the MUTCD. The material substituted must be equivalent to that required in the specifications. Obtain the CO's approval before incorporating into the work. When requesting approval, furnish to the CO the applicable state standards (specifications and drawings), manufacturer's name and address, supplier's certification indicating material is produced to state approved specifications, pricing data showing cost difference for labor and materials, and any other available information describing application and performance. When directed, submit samples for approval at the Contractor's expense. Within 10 days, the CO will inform the Contractor as to the acceptance of the request.

Construction Requirements

General. Where existing and final marking locations are identical, stake the limits of existing markings before starting pavement work.

Submit manufacturer's SDS and product data sheets at least 7 days before applying markings. A field demonstration may be required to verify the adequacy of the material.

Ship marking material containers plainly marked with the following information as appropriate for the material being provided:

(a) Manufacturer's name and address;

(b) Name of product;

(c) Lot and batch numbers;

(d) Color;

(e) Net mass and volume of contents;

(f) Date of manufacture;

(g) Date of expiration;

(h) Statement of contents;

(i) Mixing proportions (if mixing of components is required); and

(j) Safety information.

Establish marking patterns and locations according to the MUTCD and as shown in the plans.

In curve widening areas, establish the edge line markings at the limits of the traveled way and the centerline markings equal distance between the edge lines.

Remove loose particles, dirt, tar, grease, and other deleterious material from the surface to be marked. Where markings are placed on rigid pavement less than 1-year old, clean the pavement of laitance and curing compounds.

Remove temporary markings the same day permanent markings are applied. Remove temporary and conflicting makings according to Item 20 before applying permanent markings.

Wait at least 7 days before applying markings on new asphalt pavements or new asphalt surface treatments. Apply markings to a clean, dry surface and according to the manufacturer's recommendations. Produce markings that are clean-cut and uniform in appearance by day and night.

Apply glass beads at the rate, type, and timing according to the manufacturer's recommendations and immediately following marking application to ensure adhesion.

Protect markings from traffic until dried to a no-tracking condition. Remove tracking marks, spilled marking material, markings in unauthorized areas, and defective markings.

Waterborne Pavement Markings (Type B).

Apply markings when pavement and air temperature are 50 °F and rising.

Do not heat the paint above 120 °F. Apply paint at a rate of 100 square feet per gallon.

Apply Type 1 glass beads on the paint at a rate of 6 pounds per gallon of paint.

Apply two coats of paint and glass beads. Apply the second coat in the opposite direction of the first application. Apply the second coat after the first coat is tack free.

Acceptance. Material for permanent pavement markings and markers will be evaluated under Section 6, Subsections Visual Inspection and Certification.

Applying permanent pavement markings and markers will be evaluated under Section 6, Subsections Visual Inspection and Measured or Tested for Conformance.

Measurement

Measure the pay items listed in the schedule of items according to Measurement and Payment and the following as applicable:

When two coats of markings are required, measure each coat.

When pavement markings are measured by the linear foot or mile, measure the length of line applied along the centerline of each line applied regardless of color or line width. Measure broken and dotted pavement lines from end to end of the line including gaps. Measure solid pavement lines from end to end of each continuous line.

Payment

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the schedule of items. Payment will be full compensation for the work prescribed in this Section.

ITEM 20 — TEMPORARY TRAFFIC CONTROL

Description

This work consists of providing, installing, maintaining, relocating, and removing temporary traffic control devices and services as ordered for the control and protection of public traffic through the project.

Advance warning arrow board, barricade, and warning light types are designated in the MUTCD.

Material

Conform to the MUTCD and requirements of this section

Construction Requirements

General. Provide, install, and maintain temporary traffic control devices adjacent to and within the project according to the MUTCD, temporary traffic control plan, and SECTION 12. Install and maintain traffic control devices as follows:

(a) Provide and install temporary traffic control devices before the start of construction operations.

(b) Install only those temporary traffic control devices needed for each stage or phase.

(c) Relocate temporary traffic control devices as necessary.

(d) Immediately replace devices that are lost, stolen, destroyed, or inoperative.

(e) Provide and maintain temporary traffic control devices that meet the *acceptable* standard described in ATSSA, *Quality Guidelines for Work Zone Traffic Control Devices*. Modify the ATSSA standards as follows:

(1) Repair or remove and replace *marginal* devices within 48 hours.

(2) Repair or remove and replace *unacceptable* devices immediately.

(f) Remove temporary traffic control devices upon contract completion or when approved.

(g) Provide crashworthy temporary traffic control devices.

Barricades. Use barricades of the type and size specified.

Cones and Tubular Markers. Use cones or tubular markers of the height specified.

Construction Signs. Install posts according to the Plan drawings. Portable sign supports may be used instead of sign posts if approved. Submit ballasting for approval. Do not install sign supports on sidewalks, bicycle facilities, or areas designated for pedestrian or bicycle traffic.

Remove or completely cover unnecessary signs.

Use crashworthy posts within the traversable area adjacent to traffic.

Provide the same type of sheeting on all post-mounted construction signs.

Reflective sheeting. Conform to ASTM D4956, including supplementary requirements. Clean and degrease the face of the metal panels using methods recommended by the manufacturer before applying retroreflective sheeting. Wipe plastic panels clean with a slightly dampened cloth before applying retroreflective sheeting. Provide retroreflective sheeting conforming to Table I20-1.

Table I20-1
Retroreflective Sheeting Types

Application	Description	Sheeting Types
Temporary	Signs	Type III, IV, VIII, IX, or XI prismatic retroreflective sheeting. Use fluorescent sheeting for orange signs. For roll-up signs, use fluorescent Type VI retroreflective sheeting.
Temporary	Barricades	Type III, IV, IX, or XI retroreflective sheeting.
Temporary	Cones and tubular markers	Type III or Type VI retroreflective sheeting.
Temporary	Drums	Type III or Type VI retroreflective sheeting.
Temporary	Flagger paddles	Type III, IV, VIII, IX, or XI retroreflective sheeting.
Temporary	Vertical panels	Type III, IV, VIII, IX, or XI retroreflective sheeting.

Drums. Use plastic drums that are at least 36 inches high and at least 18 inches in diameter.

Traffic Control Supervisor. Perform services described in Section 12.

Flaggers. Use certified flaggers with appropriate certifications from ATSSA, the National Safety Council, a state department of transportation, or other approved organization. Do not use flags alone.

Pilot Cars. Use certified pilot car operators with appropriate certifications. Mount a high-intensity, rotating, flashing, or oscillating light on the roof of the pilot car.

Temporary Pavement Markings and Delineation. Before opening a pavement surface to traffic, remove conflicting pavement markings. Make the removal pattern uneven to not perpetuate the outline of the removed pavement markings. Lightly coat removal areas on asphalt surfaces with emulsified asphalt.

Place and maintain temporary pavement markings that are neat, crack free, true, straight, and unbroken.

If temporary signs and pavement markers are substituted for temporary pavement markings, install temporary signs and pavement markers as shown in the plans.

For temporary pavement markings, use the following:

(a) Pavement markers. Do not use pavement markers during seasonal suspensions. If chip seals, slurry seals, or tack coats are used after marker placement, protect the markers with an approved protective cover, and remove it after the asphalt material is sprayed. Install according to the manufacturer's recommendations.

(b) Traffic paint. Do not apply traffic paint to the final surface. Apply traffic paint as the temporary pavement marking if no work will be performed on the project for at least 30 days. Apply waterborne traffic paint according to ITEM 19.

Remove temporary pavement markings before placing additional pavement lifts or permanent pavement markings unless approved. Remove temporary markers after 14 days and apply permanent pavement markings unless approved.

If permanent pavement markings are not placed within 14 days, provide, at no additional cost to the Government, additional temporary delineation equivalent to the permanent pavement marking pattern.

Warning Lights. Use warning lights of the types shown in the plans or according to the MUTCD. Install warning lights with a minimum mounting height of 30 inches to the bottom of the lens. Secure lights to the top of the traffic control device they are supplementing. Use batteries recommended by the light manufacturer. Mount large batteries below windshield height and preferably on the ground. Replace batteries when they no longer provide satisfactory performance.

Use Type C steady-burn warning lights for delineation on barricades or drums. Use Type A low-intensity flashing warning lights on the first 2 barricades or drums in the merging or shifting taper series. Use Type B high-intensity flashing warning lights on the first two advance warning signs.

Steel Plates. Use 1-inch or thicker steel plates that can safely carry traffic. Secure the plates to the pavement to prevent movement.

Portable Changeable Message Sign. Ensure that the portable changeable message sign (PCMS) display panel is raised to a fully upright position and is fully visible to motorists. Reduce the intensity of the lights when using PCMS at night. Use approved messages. Limit messages to two phases unless approved. Use a display time for each phase between 2 and 3 seconds.

Acceptance. Material for temporary traffic control devices will be evaluated under Section 6, Subsections Visual Inspection and Certification.

Vehicles for pilot cars and shadow vehicles will be evaluated under Section 6, Visual Inspection and Measured or Tested for Conformance.

Placement of temporary traffic control devices will be evaluated under Section 6, Visual Inspection and Measured or Tested for Conformance.

Temporary traffic control services will be evaluated under Visual Inspection.

Temporary plastic fence will be evaluated under Visual Inspection and Certification.

Waterborne traffic paint will be evaluated under ITEM 19.

Measurement

Measure the pay items listed in the schedule of items according to Section 9 Measurement and Payment

Payment

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the schedule of items. Payment will be full compensation for the work prescribed in this Section. See Section 9 Measurement and Payment.

(a) Progress payments for temporary traffic control by the lump sum will be paid as follows:

(1) 25 percent of the pay item amount will be paid after initial construction signs are in place and needed devices onsite for use.

(2) An additional 65 percent of the pay item amount will be prorated based on total work completed in the contract.

(3) The remaining portion of the pay item amount will be paid after the construction signs and devices are no longer needed and have been removed from the project.

Appendix A
Fire Plan

Appendix A: Fire Prevention Plan

1. Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
2. Responsible Person: Capable and qualified person shall be placed in charge of fire protection. Responsibilities shall include locating and maintaining fire protective equipment and establishing and maintaining safe torch cutting and welding procedures.
3. Tobacco Use, Smoking, and Vaping: Smoking within 25 feet of buildings or temporary storage sheds is prohibited.
    a. Smoking is not permitted in buildings.
    b. Due to concern of wildland fires, smoking is allowed only in a single designated outside area of no larger than 500 sf within designated construction staging areas. This area shall be clear of exposed vegetation and have adequate means for disposal of trash and flammable materials.
4. Protection During Heat Generating Equipment:
    a. Comply with following procedures while performing work with heat-generating equipment, including welding, cutting, soldering, brazing, paint removal with heat, and other operations where open flames or implements utilizing heat are used:
        i. Obtain Contracting Officer's approval for operations involving use of open-flame or welding equipment.
        ii. Notification shall be given for each occurrence and location of work with heat generating equipment.
        iii. Obtain appropriate permit from the park as required.
        iv. As far as practical, use heat-generating equipment in shop areas or outside building.
        v. Before work with heat-generating equipment commences, furnish fire watch (or watches) for location(s) where work is to be performed.
    b. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use combustible gas indicator test to ensure area is safe.
    c. Remove and keep area free of combustibles, including, rubbish, paper, waste, etc., within area of operations.
    d. If combustible material cannot be removed, provide fireproof blankets to cover such materials.
    e. Where possible, furnish and use baffles of metal or gypsum board to prevent spraying of sparks or hot slag into surrounding combustible material.
    f. Prevent extension of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
    g. Inspect each location of day's work not sooner than 30 minutes after completion of operations to detect hidden or smoldering fires; ensure proper housekeeping is maintained.
    h. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of NPS. Check with Park; many require "burn permits" for welding.
5. Develop and supervise overall fire-prevention and -protection program for personnel at

Project Site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

6. Provide temporary standpipes and hoses for fire protection. Hang hoses with warning sign stating hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.
7. Hazard Control: Take necessary precautions to prevent fire during construction. Do not store flammable or combustible liquids in existing buildings. Provide adequate ventilation during use of volatile or noxious substances. Ensure cleanup procedures and storage requirements are followed at close of every work session.
8. Spark Arresters: Equip gasoline or diesel-powered equipment used during periods of potential fire hazards or in potential forest and grass fire locations with spark arresters approved by United States Department of Agriculture (USDA) Forest Service. Written determinations of periods and areas of potential fire hazard will be issued by Contracting Officer.
9. Buildings: Furnish a minimum of one extinguisher for each 1,500 square feet of area or major fraction thereof. Travel distance from any workstation to nearest extinguisher shall not exceed 75 feet.
10. Vehicles and Equipment: Provide one extinguisher for each vehicle or piece of equipment.
11. Service and Refueling Areas: Locate areas a minimum of 50 feet from buildings. Shut down equipment before refueling.
12. Maintain access for fire-fighting equipment and access to fire hydrants during construction.

Appendix B

National Park Service (NPS)
Spill Prevention, Control, and Countermeasure Plan
For Non-Qualified Facility
Grand Canyon National Park

National Park Service (NPS)
Spill Prevention, Control, and Countermeasure Plan
For Non-Qualified Facility
Grand Canyon National Park

July 19, 2022

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MANAGEMENT APPROVAL

Park Name: **Grand Canyon National Park**
Park Address: **PO Box 129**
Park Location: **Grand Canyon, AZ 86023**

The management and staff at Grand Canyon National Park (park) are committed to preventing discharges of oil to navigable waters and the environment through the implementation of this Spill Prevention, Control, and Countermeasure (SPCC) Plan. This SPCC Plan has the full approval of Edward T. Keable, Park Superintendent. By signing this page, Grand Canyon National Park management commits to provide the personnel, equipment, and materials required to expeditiously control and remove any harmful quantity of oil discharged.

I certify that this SPCC Plan has my full approval and that I have the authority to commit the necessary resources to implement the plan. I further attest that to the best of my knowledge, the information contained in this plan is true, complete, and accurate.

Authorized Park Representative:

_____
Signature

Edward T. Keable, Park Superintendent

_____

Date

PROFESSIONAL ENGINEER CERTIFICATION

Park Name: **Grand Canyon National Park**
Park Address: **PO Box 129**
Park Location: **Grand Canyon, AZ 86023**

A licensed Professional Engineer (PE) must review and certify this Plan for it to be effective. Certification by the PE in no way relieves the owner or operator of the duty to prepare and fully implement this Plan in accordance with the requirements of Section 311 of the Clean Water Act and 40 CFR Part 112.

By means of this certification, the undersigned Registered PE attests:

- The PE is familiar with the requirements of 40 CFR Part 112.
- The PE or PE's agent has visited and examined the facility.
- The Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of 40 CFR Part 112.
- The Plan establishes procedures for required inspections and testing.
- This SPCC Plan is adequate for the facility.

Name	Registration Number
Mark D. Tatarian	36547
Signature Mark D. Tatarian	Issuing State Arizona
Date 6-7-22	

Registered Professional Engineer (Electrical)
CERTIFICATE NO.
36547
MARK D.
TATARIAN
Date Signed 6-7-22
ARIZONA U.S.A.
Mark D. Tatarian
Expires 12/31/2023

SPCC PLAN REVIEW AND RECERTIFICATION LOG

In accordance with 40 Code of Federal Regulation (CFR) 112.5(b), a review and evaluation of the SPCC Plan is conducted at least once every five years. Completion of the review and evaluation will be recorded in the table below. The park will amend the SPCC Plan within six months of the review or evaluation to include more effective prevention and control technology if: 1) such technology will significantly reduce the likelihood of a spill event from the facility, and 2) if such technology has been field-proven at the time of review. Any technical revisions of the SPCC Plan resulting from this review will be certified by a Professional Engineer and implementation of the amendments will occur within six months. The SPCC Plan will also be amended and certified by a Professional Engineer within six months after a change in the facility design, construction, operation, or maintenance occurs which materially affects the facility's potential to discharge oil into or upon the navigable waters of the United States or adjoining shorelines.

Park staff will also amend this SPCC Plan if 1) state regulations change; 2) the SPCC Plan fails in an emergency; 3) the list of emergency contacts changes; 4) there is removal or addition of storage tanks; or 5) it is otherwise required by the Environmental Protection Agency (EPA).

In making an entry in the table below, the signatory is certifying that he or she, or a designated agent, has completed a review and evaluation of the SPCC Plan for the park on the date shown and has indicated in the column marked "Sections Containing Revisions" whether the SPCC Plan will be amended as a result. In this column, the sections of the Plan that will be revised are identified by section number. If revisions are not necessary as a result of the review, the notation "SPCC Plan will not be amended" will be provided.

"I hereby certify that I have examined the aspects provided as part of this SPCC Amendment by the park staff and, being familiar with the facility and its existing SPCC Plan requirements, attest that this SPCC Plan Amendment conforms to the elements of 40 CFR 112 and that no deviations were employed in the preparation of this document."

Review Date	Sections Containing Revisions	Revisions Completion Date	Name and Signature of Person Authorized to Review the Plan

CERTIFICATION OF APPLICABILITY OF SUBSTANTIAL HARM CRITERIA

Facility:	Grand Canyon National Park PO Box 129 Grand Canyon, AZ 86023

1. Does the facility transfer oil overwater to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

   Yes ☐ No ☒

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?

   Yes ☐ No ☒

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to Appendix C of 40 CFR 112 or a comparable formula[1]) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?

   Yes ☐ No ☒

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to Appendix C of 40 CFR 112 or a comparable formula[2]) such that a discharge from the facility would shut down a public drinking water intake[3]?

   Yes ☐ No ☒

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil discharge in an amount greater than or equal to 10,000 gallons within the last 5 years?

   Yes ☐ No ☒

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Edward T. Keable

Park Superintendent
Grand Canyon National Park

Title

Date

[1] If a comparable formula is used, documentation of the reliability and analytical soundness of the comparable formula must be attached to this form.

[2] See footnote 2.

[3] For the purpose of 40 CFR part 112, public drinking water intakes are analogous to public water systems as described at 40 CFR § 143.2(c).

1. INTRODUCTION

This document is the Spill Prevention, Control and Countermeasure (SPCC) Plan for the Grand Canyon National Park. The park resides within Coconino and Mohave Counties, Arizona and fuel storage at the park is divided into two primary Districts; North Rim and South Rim. In addition, Tuweep, near the west side of the park, functions as a separate District. The South Rim District is 80 miles from the city of Flagstaff, Arizona, and the North Rim District is 130 miles from Page, Arizona. The Tuweep District is 90 miles from Colorado City, Arizona.

1.1. Applicability

The purpose of this SPCC Plan is to establish procedures and commit resources to prevent the discharge of oil and hazardous substances in quantities that violate applicable water quality standards, cause a sheen upon or discoloration of the surface of navigable waters or adjoining shorelines, or cause sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. The SPCC Plan also establishes countermeasures required to mitigate such discharges should they occur.

The Clean Water Act Oil Pollution Prevention (SPCC) regulation (Code of Federal Regulations, Title 40, Part 112 [40 CFR 112]), as issued by the U.S. Environmental Protection Agency (USEPA), aims to prevent the discharge of oil into or upon the navigable waters or adjoining shorelines of the United States.

A cross-reference checklist identifying how this plan complies with the SPCC regulation is provided in **Appendix A**.

The SPCC regulation applies to all oil products, including, but not limited to:

- Fats, oils, or greases of animal, fish, or marine mammal origin
- Vegetable oils, including oils from seeds, nuts, fruits, or kernels
- Other oils and greases including petroleum, fuel oil, sludge, synthetic oils, mineral oils, oil refuse, or oil mixed with wastes other than dredged spoil.

For SPCC planning regulations to apply, a facility involved in the handling and/or consumption of oil must meet the following three criteria:

1. The facility must be non-transportation related.
2. The facility must have an aggregate aboveground storage capacity greater than 1,320 gallons in 55-gallon containers or larger or a total underground storage capacity greater than 42,000 gallons.
3. There must be a reasonable expectation of a discharge to navigable waters or adjoining shorelines of the United States (U.S.).

The park fits this description because:

1. It meets the definition of a non-transportation facility, which includes public facilities that use, store, or consume oil or oil products.
2. The aggregate aboveground storage capacity is greater than 1,320 gallons in containers with volumes of 55 gallons or greater.
3. A spill at the park facilities could theoretically be expected to discharge oil into a navigable water including the Colorado River, and several washes and ravines leading to ground water and tributaries to the Colorado River.

It is also important to note that the park ***does not*** meet the definition of a Qualified Facility (refer to the Definitions section of this Plan) in accordance with 40 CFR 112.3(g). As such, this SPCC Plan must be reviewed and signed by a Professional Engineer (PE) authorized to sign such a plan in the state.

This SPCC Plan is used as a:

- Reference for proper oil storage
- Tool for spill prevention
- Guide for facility inspections and tank testing
- Resource during emergency response to control, contain, and clean up an oil release

In addition to the specific elements required under 40 CFR 112.7, this SPCC Plan and attachments address the following requirements of 40 CFR 112:

- Operating procedures park staff implement to prevent oil spills.
- Control measures installed or available to prevent a spill from entering navigable waters or adjoining shorelines.
- Countermeasures to contain, cleanup, and mitigate the effects of oil spills that impact navigable waters or adjoining shorelines of the U.S.

This SPCC Plan is not required to be filed with the EPA; however, if EPA inspectors request to see the SPCC Plan, a copy will be available for on-site review. A copy of the SPCC Plan will be kept at the Grand Canyon National Park Headquarters building.

Park operations do not trigger "substantial harm" storage and handling criteria specified within 40 CFR 112.20. Therefore, park personnel are not required to prepare and submit a Facility Response Plan. To substantiate this assertion, a "Certification of Substantial Harm Determination Form" signed by a representative of the park is included as one of the plan's up front certification forms.

1.2. Facility Information

Following is a summary of park information:

Facility Information	
Name	Grand Canyon National Park
Address	PO Box 129
City	Grand Canyon
State	Arizona
Zip Code	86023
County	Coconino and Mohave
Telephone Number	(928) 638-7734
Latitude	36°02'57.88" N
Longitude	112°07'58.62" W

1.3. SPCC Contact List

This section of the Plan provides contact information for the designated personnel with a role in this Plan's implementation and key spill response personnel.

The park will maintain an Oil Spill Response Team (OSRT). OSRT members will include the SPCC Co-coordinators, the SPCC Implementation Manager, the Emergency Response Coordinator (ERC) and

alternate ERCs. Specific individuals will be assigned on a case-by-case basis as determined by one of the SPCC Co-coordinators and the Structural Fire Chief, or those acting on their behalf.

A list of current members of the OSRT will be maintained by the current SPCC Coordinator and made available to park dispatch. Park dispatch will act as the notification channel for activating the OSRT.

Role	Name	Title	Phone Number
SPCC Co-Coordinators Designated park person accountable for discharge prevention and spill response coordination.	Kim Park	Environmental Protection Specialist / EMS Coordinator	Desk: (928) 638-7329 Mobile: (928) 606-5837
	Deirdre Hanners	Environmental Protection Specialist	Desk: (928) 638-7907
SPCC Implementation Manager	Treacy Stone	Chief of Facility Maintenance	Desk: (928) 638-7730
Primary Emergency Response Coordinator (ERC) Designated person responsible for initial implementation of emergency response procedures.	Kevin Ross	Structural Fire Chief	Desk: (928) 638-7791 Mobile: (928) 856-0114 Home: (928) 638-9261
Alternate ERCs			
South Rim ERC	John Venn	Roads Supervisor	Mobile: (928) 864-9898
North Rim ERC	John Root	North Rim Maintenance Supervisor	Desk: (928) 638-7866
WWTP ERC	Paul Koenig	Utilities Supervisor	Desk: (928)-638-7686
GRCA Fuel Contract COR	Marina Andersen	Property Manager	Desk: (928) 638-7718
Oil Vendor(s)	Defense Logistics Agency		(877) 352-2255
Cleanup Contractors	Clean Harbors Environmental		(480) 545-2777
NPS personnel and offices to notify in case of a spill	Edward Keable	Park Superintendent	Desk: (928) 644-3510
	NPS National Emergency Incident Coordination Center		(888) 246-4335
	Paul Torcoletti	Intermountain Region Environmental Program Manager	Mobile: (720) 355-1456
	David Anderson *(Note: The REC will notify the WASO Spill Coordinator)*	Washington Area Support Office (WASO) Spill Response Coordinator	Desk: (970) 225-3539 Mobile: (240) 205-3203

Role	Name	Title	Phone Number
Agencies to notify in case of a spill	National Response Center		(800) 424-8802 (202) 267-2675
	Environmental Protection Agency (EPA) Region EPA region 9		Toll Free: (866) EPA-WEST Local: (415) 947-8000
	Arizona Division of Emergency Management		(602) 244-0504
	Local fire department – South Rim		Emergency: 911 Non-emergency: (928) 638-7791
	Local fire department – North Rim		Emergency: 911
	Local police department – South Rim		Emergency: 911 Non-emergency: (928) 638-7805
	Local police department – North Rim		Emergency: 911 Non-emergency: (928) 774-4523
	Flagstaff Medical Center		Emergency: 911 Non-emergency: (928) 779-3366
	Other		

1.4. Roles, Responsibilities and Recordkeeping

According to Federal regulations, a person must be designated to be accountable for discharge prevention and responsible for reporting to facility management. The park Structural Fire Chief has been designated as the person with overall responsibility for the control of oil spills or releases and will act as the ERC. Two Environmental Protection Specialists are designated as the SPCC Co-coordinators. The Chief of Maintenance is designated as the SPCC Implementation Manager. A list of the other responsible facility personnel is located on the Contact List.

In the event of an oil spill, individuals on the SPCC Emergency Response Contacts list must be informed immediately, beginning with the ERC. (Specific spill response procedures are outlined in Section 3.3.3.)

Emergency Response Coordinator Responsibilities
During a spill incident, the ERC or designated alternate is responsible for:

- Performing as the on-scene ERC.
- Coordinating emergency response efforts with off-site contractors or services.

- Communicating notice of a spill to one of the SPCC Co-coordinators
- Implementing the appropriate spill response operations and ensuring the use of appropriate personal protective equipment (PPE).
- Contacting the appropriate agencies and making initial and follow-up notifications in coordination with DOI Solicitor's Office and/or NPS Attorney-Advisor with assistance from the NPS Intermountain Region Environmental Program Manager, Paul Torcoletti.
- Ensuring the proper permitting and disposal of contaminated material.
- Acting as site liaison with government agencies in coordination with NPS attorney's office.

SPCC Co-Coordinator Implementation Responsibilities

The SPCC Co-coordinators are responsible for maintaining records concerning oil releases and prevention efforts. These records must be kept on file and include the following:

- Obtain all applicable signatures for the SPCC Plan
- Distribute, post, and collect (upon completion) inspection certifications and checklists.
- Ensure loading/unloading oil transfer oversight for transfers completed by third party tank vendors [40 CFR 112.8(d)] *The Contracting Officer Representative (COR) at GRCA is Marina Anderson, Administration Division for COR oversight of fuel delivery contract.*
- Conduct Annual SPCC Plan Review
- Coordinate and conduct **annual** SPCC training / review [40 CFR 112.7(f)].
- Documentation of spill reports (40 CFR 112.4).
- Conduct correspondence to and from regulatory agencies (40 CFR 112.4).
- Maintain records for a minimum of 3 years and amendments made to the SPCC Plan [40 CFR 112.5(b)].
- Documentation of spill response and remediation efforts [40 CFR 112.4 and 112.7(a)].

SPCC Implementation Manager Responsibilities

The SPCC Implementation Manager is responsible for oversight of records assuring compliance with oil prevention efforts. These records must be kept on file and include the following:

- Assure staff completes the required routine **monthly** and **annual** inspections on the respective oil storage containers [40 CFR 112.7(e)].
- Participate in annual SPCC training / review[40 CFR 112.7(f)].
- Support spill response efforts as assigned (40 CFR 112.4).

Oil-handling Employees Responsibilities

Oil-handling employees at the park are responsible for operating and maintaining the oil storage containers at the park. In relation to the SPCC regulation, these responsibilities are as follows:

- Attend annual SPCC training / review (all oil-handling employees)
- Execute routine monthly and annual inspections on the respective oil storage containers (as assigned)
- Notify the ERC of observed oil spills in order to start the emergency spill response procedure
- Place initial spill countermeasure materials (from park spill kit(s))

1.5. SPCC Compliance Package

To assist park employees with their compliance obligations, a SPCC Compliance Packet is attached to this SPCC Plan as Appendix B. The purpose of the Compliance Packet is to provide forms and tools to simplify the implementation of the SPCC Plan for park employees. The Compliance Packet contains items geared to support the park with the following:

- Spill prevention (fuel transfer procedures, oil source inspection forms, training documentation and storm water release documentation)
- Spill response (spill response flow chart, spill procedures and spill notification memo)
- Spill reporting documentation (release reporting documentation log, initial spill information report form and information for Federal spill reporting)

2. OIL STORAGE INFORMATION

2.1. Oil Storage Operations

Gasoline, diesel, used oil, and various motor oils and fluids are all used and stored at the park.

2.2. Oil Storage Capacity and Plan Details

The total oil storage capacity at park facilities is 89,219 gallons. Concessions operations located at the park on nor covered under this plan. Concessioner SPCC plans are maintained by each concession operation and maintained on file at the park.

- An inventory of ASTs on the South Rim is listed in Table 1.
- An inventory of ASTs on the North Rim is listed in Table 2.
- An inventory of mobile refuelers and portable tanks is listed in Table 3.
- An inventory of 55-gallon drums in the Park is listed in Table 4.
- An inventory of USTs and Permanently Closed tanks is listed in Table 5.
- Detailed site maps showing the location of these tanks are included in Appendix D.

Appropriate secondary containment and/or diversionary structures or equipment is provided for all oil handling containers, equipment, and transfer areas to prevent a discharge to navigable waters or adjoining shorelines. The entire secondary containment system, including walls and floor, is capable of containing oil and is constructed so that any discharge from a primary containment system, such as a tank or pipe, will not escape the containment system before cleanup occurs. Total aboveground storage capacity **89,219 gallons**.

Table 1: Aboveground Storage Tanks (ASTs) (South Rim)

Storage Symbol	Oil Source Volume (gal)	Location	Container Construction	Contents	Transfer Activities	Distance and Direction to Nearest Receptor	Spill Prevention and Leak Detection	Secondary Containment	Overfill Protection	Spill Countermeasure and Response Materials	Security	Inspection and Integrity Testing Schedule
Aboveground Storage Tanks												
South Rim												
SR CNG/ LNG 01	12,000	Outdoors, southernmost tank at CNG/LNG facility	Double-walled steel AST	Diesel fuel (Clear Diesel)	Filled by a tanker truck and transfers to park vehicles	100 feet south-southwest to pool in low area located just to the south	**Spill Prevention:** Level gauge (Veeder-Root ATG monitoring system), high fuel overfill alarm, fuel shutoff valve, and prudent practices of oil transfer **Leak Detection:** Interstitial monitoring, routine inspections, and located above a concrete pad	Double-walled	High Fuel Overfill Alarm - 90%; Automatic shutoff at 95%	Spill kit adjacent to these tanks (SR CNG/LNG 01 to 03)	Tank area is fully-fenced with locked gates, security lighting, key reader to access fuel	**Inspections:** Monthly and annual (see **Appendix B**) **Integrity Testing:** Required every 20 from the installation date by a certified inspector
SR CNG/ LNG 02	12,000	Outdoors, central tank at CNG/LNG facility	Double-walled steel AST	Diesel fuel (Red Diesel)	Filled by a tanker truck and transfers to park vehicles	120 feet south-southwest to pool in low area located just to the south	**Spill Prevention:** Level gauge (Veeder-Root ATG monitoring system), high fuel overfill alarm, fuel shutoff valve, and prudent practices of oil transfer **Leak Detection:** Interstitial monitoring, routine inspections, and located above a concrete pad	Double-walled	High Fuel Overfill Alarm - 90%; Automatic shutoff at 95%	Spill kit adjacent to these tanks (SR CNG/LNG 01 to 03)	Tank area is fully-fenced with locked gates, security lighting, key reader to access fuel	**Inspections:** Monthly and annual (see **Appendix B**) **Integrity Testing:** Required every 20 from the installation date by a certified inspector
SR CNG/ LNG 03	12,000	Outdoors, northernmost tank at CNG/LNG facility	Double-walled steel AST	Diesel fuel	Filled by a tanker truck and transfers to park vehicles	140 feet south-southwest to pool in low area located just to the south	**Spill Prevention:** Level gauge (Veeder-Root ATG monitoring system), high fuel overfill alarm, fuel shutoff valve, and prudent practices of oil transfer **Leak Detection:** Interstitial monitoring, routine inspections, and located above a concrete pad	Double-walled	High Fuel Overfill Alarm - 90%; Automatic shutoff at 95%	Spill kit adjacent to these tanks (SR CNG/LNG 01 to 03)	Tank area is fully-fenced with locked gates, security lighting, key reader to access fuel	**Inspections:** Monthly and annual (see **Appendix B**) **Integrity Testing:** Required every 20 from the installation date by a certified inspector
SR OM 01	6,000	Outdoors, westernmost tank for tank farm in the central portion of Old Maintenance	Double-walled steel AST	Biodiesel fuel	Filled by a tanker truck and transfers to park vehicles	170 feet west-northwest to culvert pipe	**Spill Prevention:** Level gauge (Veeder-Root ATG monitoring system), high fuel overfill alarm, fuel shutoff valve, and prudent practices of oil transfer **Leak Detection:** Interstitial monitoring, routine inspections, and located above a concrete pad	Double-walled	High Fuel Overfill Alarm - 90%; Automatic shutoff at 95%	Spill kit adjacent to these tanks (SR OM 01 to 04)	Security lighting, key reader to access fuel dispensers, environmental equivalence	**Inspections:** Monthly and annual (see **Appendix B**) **Integrity Testing:** Required every 20 from the installation date by a certified inspector
SR OM 02	6,000	Outdoors, 2nd westernmost tank for tank farm in the central portion of Old Maintenance	Double-walled steel AST	Unleaded gasoline	Filled by a tanker truck and transfers to park vehicles	185 feet west-northwest to culvert pipe	**Spill Prevention:** Level gauge (Veeder-Root ATG monitoring system), high fuel overfill alarm, fuel shutoff valve, and prudent practices of oil transfer**Leak Detection:** Interstitial monitoring, routine inspections, and located above a concrete pad	Double-walled	High Fuel Overfill Alarm - 90%; Automatic shutoff at 95%	Spill kit adjacent to these tanks (SR OM 01 to 04)	Security lighting, key reader to access fuel dispensers, environmental equivalence	**Inspections:** Monthly and annual (see **Appendix B**) **Integrity Testing:** Required every 20 from the installation date by a certified inspector

SR OM 03	6,000	Outdoors, 2nd easternmost tank for tank farm in the central portion of Old Maintenance	Double-walled steel AST	Unleaded gasoline	Filled by a tanker truck and transfers to park vehicles	200 feet west-northwest to culvert pipe	**Spill Prevention:** Level gauge (Veeder-Root ATG monitoring system), high fuel overfill alarm, fuel shutoff valve, and prudent practices of oil transfer **Leak Detection:** Interstitial monitoring, routine inspections, and located above a concrete pad	Double-walled	High Fuel Overfill Alarm - 90%; Automatic shutoff at 95%	Spill kit adjacent to these tanks (SR OM 01 to 04)	Security lighting, key reader to access fuel dispensers, environmental equivalence	**Inspections:** Monthly and annual (see **Appendix B**) **Integrity Testing:** Required every 20 from the installation date by a certified inspector
SR OM 04	6,000	Outdoors, easternmost tank for tank farm in the central portion of Old Maintenance	Double-walled steel AST	Unleaded gasoline	Filled by a tanker truck and transfers to park vehicles	215 feet west-northwest to culvert pipe	**Spill Prevention:** Level gauge (Veeder-Root ATG monitoring system), high fuel overfill alarm, fuel shutoff valve, and prudent practices of oil transfer **Leak Detection:** Interstitial monitoring, routine inspections, and located above a concrete pad	Double-walled	High Fuel Overfill Alarm - 90%; Automatic shutoff at 95%	Spill kit adjacent to these tanks (SR OM 01 to 04)	Security lighting, key reader to access fuel dispensers, environmental equivalence	**Inspections:** Monthly and annual (see **Appendix B**) **Integrity Testing:** Required every 20 from the installation date by a certified inspector
SR WWTP Generator	200	Outdoors, west of the main WWTP administrative/office/ lab building (just west of the southernmost retention pond)	Double-walled steel AST	Diesel fuel	Filled by a tanker truck	Flows west to low area just beyond the paved areas of the paved treatment plant	**Spill Prevention:** Level gauge and prudent practices of oil transfer **Leak Detection:** Routine inspections, and located above a concrete pad	Double-walled	Level gauge	Spill kit located inside the administrative/ office/lab building.	WWTP area is fully-fenced with locked gates, security lighting	**Inspections:** Monthly and annual (see **Appendix B**) **Integrity Testing:** No required integrity testing
SR WWTP HO 01	264	Indoors on main level of administrative/ office/lab building (southwest corner of the building)	Double-walled steel AST	Heating oil	Filled by a tanker truck	Approximately 15 feet east to floor drain to WWTP system	**Spill Prevention:** Level gauge, automatic level gauging, and prudent practices of oil transfer **Leak Detection:** Routine inspections, and located above a concrete pad	Double-walled	Level gauge	Spill kit located inside the administrative/ office/lab building.	WWTP area is fully-fenced with locked gates, security lighting, inside locked building	**Inspections:** Monthly and annual (see **Appendix B**) **Integrity Testing:** No required integrity testing
SR WWTP HO 02	264	Indoors in the basement of administrative/ office/lab building (east central portion of the building)	Double-walled steel AST	Heating oil	Filled by a tanker truck	Approximately 15 feet west to floor drain to WWTP system	**Spill Prevention:** Level gauge, automatic level gauging, and prudent practices of oil transfer **Leak Detection:** Routine inspections, and located above a concrete pad	Double-walled	Level gauge	Spill kit located inside the administrative/ office/lab building.	WWTP area is fully-fenced with locked gates, security lighting, inside locked building	**Inspections:** Monthly and annual (see **Appendix B**) **Integrity Testing:** No required integrity testing
SR Transfer Station	1,056	Outdoors just to the east of the south side of the Transfer Station	Double-walled steel AST	Diesel fuel	Filled by a tanker truck	South-southwest to low areas	**Spill Prevention:** Level gauge and prudent practices of oil transfer**Leak Detection:** Routine inspections, and located above a concrete pad	Double-walled	Level gauge	Spill kit located inside the administrative/ office/lab building.	Transfer station area is fully-fenced with locked gates, security lighting	**Inspections:** Monthly and annual (see **Appendix B**)**Integrity Testing:** No required integrity testing

Table 2: Aboveground Storage Tanks (ASTs) (North Rim)

Storage Symbol	Oil Source Volume (gal)	Location	Container Construction	Contents	Transfer Activities	Distance and Direction to Nearest Receptor	Spill Prevention and Leak Detection	Secondary Containment	Overfill Protection	Spill Countermeasure and Response Materials	Security	Inspection and Integrity Testing Schedule
Aboveground Storage Tanks												
North Rim												
NR WWTP	2,000	Outdoors, north end of property	Double-walled steel AST	Diesel fuel	Filled by tanker truck and transfered to generators indoors.	Potential spill flows north.	**Spill Prevention**: Level gauge, high fuel overfill alarm, fuel shutoff valve, and prudent practices of oil transfer **Leak Detection**: Interstitial monitoring, routine inspections, and located above a concrete pad	Double-walled	High Fuel Overfill Alarm - 90%; Automatic shutoff at 95%	Spill kit located just northwest of the tank	Fenced, lockable, with limited authorized personnel access.	**Inspections:** Monthly and annual. **Integrity Testing:** None required.
NR Maintenance 01	6,000	Outdoors, southeast corner of main building.	Double-walled steel AST	Unleaded gasoline	Filling and dispensing to Park vehicles and equipment.	Southwest to pooling area between main building and stables.	**Spill Prevention**: Level gauge, high fuel overfill alarm, fuel shutoff valve, and prudent practices of oil transfer **Leak Detection**: Interstitial monitoring, routine inspections, and located above a concrete pad	Double-walled	High Fuel Overfill Alarm - 90%; Automatic shutoff at 95%	Spill kit located in nearby Generator Building	Lights, locked fill port, dispenser, fencing	**Inspections:** Monthly and annual. **Integrity Testing:** Required every 20 from the installation date by a certified inspector
NR Maintenance 02	2,000	Outdoors, southeast corner of main building.	Double-walled steel AST	Diesel fuel	Filling and dispensing to Park vehicles and equipment.	Southwest to pooling area between main building and stables.	**Spill Prevention**: Level gauge, high fuel overfill alarm, fuel shutoff valve, and prudent practices of oil transfer **Leak Detection**: Interstitial monitoring, routine inspections, and located above a concrete pad	Double-walled	High Fuel Overfill Alarm - 90%; Automatic shutoff at 95%	Spill kit located in nearby Generator Building	Lights, locked fill port, dispenser, fencing	**Inspections:** Monthly and annual. **Integrity Testing:** None required.
NR Maintenance 03	10,000	Outdoors, southeast corner of main building.	Double-walled steel AST	Diesel fuel	Filling and dispensing to Park vehicles and equipment.	Southwest to pooling area between main building and stables.	**Spill Prevention**: Level gauge, high fuel overfill alarm, fuel shutoff valve, and prudent practices of oil transfer **Leak Detection**: Interstitial monitoring, routine inspections, and located above a concrete pad	Double-walled	High Fuel Overfill Alarm - 90%; Automatic shutoff at 95%	Spill kit located in nearby Generator Building	Lights, locked fill port, dispenser, fencing	**Inspections:** Monthly and annual. **Integrity Testing:** Required every 20 from the installation date by a certified inspector
NR Maintenance 05	2,000	Indoors, north corner of main building.	Double-walled steel AST	Diesel fuel	Transfer to generator.		Visual Inspection. Overfill alarm in office (VeederRoot)	Building is secondary containment; concrete floors and walls.	Veeder-Root auto shut-off.	Spill kit located in nearby Generator Building	Lights, locked fill port, dispenser, fencing	**Inspections:** Monthly and annual. **Integrity Testing:** None required.
Phantom Ranch Diesel Tank	120	Outdoors, south of the wastewater treatment operations building	Double-walled steel AST	Diesel fuel	Dispensing to Park vehicles and equipment.	South - southeast to the Colorado River	Visual Inspection.	Double-walled	Auto shut-off.	Spill kit located nearby (within 20 feet).	Very remote access.	**Inspections:** Monthly and annual. **Integrity Testing:** None required.

Table 3: Mobile Refuelers and Portable Tanks

Storage Symbol	Oil Source Volume (gal)	Location	Container Construction	Contents	Transfer Activities	Distance and Direction to Nearest Receptor	Spill Prevention and Leak Detection	Secondary Containment	Overfill Protection	Spill Countermeasure and Response Materials	Security	Inspection and Integrity Testing Schedule
Mobile Refuelers												
South Rim												
SR Bear Cat Hydraulic Oil Mobile Unit	1,000	Outdoors, in southeastern portion of parking lot at the Operational Complex	Single-walled steel	Hydraulic oil	Dispensing to vehicles and equipment.	Flows southwest to low areas beyond the pavement	**Spill Prevention:** Level gauge and prudent practices of oil transfer **Leak Detection:** Routine inspections, and located above an impervious surface	Active Containment Measures	Level gauge	Spill kit on mobile refueler	Locked fill port	**Inspections:** Monthly (see **Appendix B**) **Integrity Testing:** No required integrity testing
SR Helibase Mobile 01	750	Outdoors, just west of the main Helibase building	Single-walled steel	Jet A Fuel	Refuel at nearby Grand Canyon airport, fuels park	Flows southwest to low areas beyond the pavement	**Spill Prevention:** Level gauge and prudent practices of oil transfer **Leak Detection:** Routine inspections, and located above an impervious surface	Active Containment Measures	Level gauge	Spill kit on mobile refueler	Locked fill port	**Inspections:** Monthly (see **Appendix B**) **Integrity Testing:** No required integrity testing
SR Helibase Mobile 02	1,200	Outdoors, just west of the main Helibase building	Single-walled steel	Jet A Fuel	Refuel at nearby Grand Canyon airport, fuels park	Flows southwest to low areas beyond the pavement	**Spill Prevention:** Level gauge and prudent practices of oil transfer **Leak Detection:** Routine inspections, and located above an impervious surface	Active Containment Measures	Level gauge	Spill kit on mobile refueler	Locked fill port	**Inspections:** Monthly (see **Appendix B**) **Integrity Testing:** No required integrity testing
SR Historic Maintenance 01	100	Outdoors, parking area east of shop.	Single-walled steel	Diesel fuel	Filling and dispensing to vehicles and equipment.	Flows west-northwest to low areas beyond the pavement	**Spill Prevention:** Level gauge and prudent practices of oil transfer **Leak Detection:** Routine inspections, and located above an impervious surface	Active Containment Measures	Level gauge	Spill kit on mobile refueler	Locked fill port	**Inspections:** Monthly (see **Appendix B**) **Integrity Testing:** No required integrity testing
SR Historic Maintenance 02	100	Outdoors, parking area east of shop.	Single-walled steel	Diesel fuel	Filling and dispensing to other vehicles and equipment.	Flows west-northwest to low areas beyond the pavement	**Spill Prevention:** Level gauge and prudent practices of oil transfer **Leak Detection:** Routine inspections, and located above an impervious surface	Active Containment Measures	Level gauge	Spill kit on mobile refueler	Locked fill port	**Inspections:** Monthly (see **Appendix B**) **Integrity Testing:** No required integrity testing
North Rim												
McGoo	150	Outdoors. Southeast corner of main building.	Portable, Trailer-mounted Steel Tank.	Diesel Fuel	Filling and transfer to Park equipment.		Visual inspection and regular maintenance.	Trailer serves as secondary containment.	Level gauge	Spill kit on mobile refueler	Locked fill port	**Inspections:** Monthly (see **Appendix B**) **Integrity Testing:** No required integrity testing
Portable Tanks												
SR WWTP Portable Generator	80	Outdoors, parking area southeast of administrative/ office/lab building	Single-walled steel	Diesel fuel	Filling when portable generator needed within the park.	Flows west-northwest to low areas beyond the pavement	**Spill Prevention:** Level gauge and prudent practices of oil transfer **Leak Detection:** Routine inspections, and located above an impervious surface	Active Containment Measures	Level gauge	Spill kit located inside the administrative/ office/lab building.	WWTP area is fully-fenced with locked gates, security lighting,	**Inspections:** Monthly (see **Appendix B**) **Integrity Testing:** No required integrity testing

Table 4: Drums

Storage Symbol	Oil Source Volume (gal)	Location	Container Construction	Contents	Transfer Activities	Distance and Direction to Nearest Receptor	Spill Prevention and Leak Detection	Secondary Containment	Overfill Protection	Spill Countermeasure and Response Materials	Security	Inspection and Integrity Testing Schedule
Drum Storage Areas												
South Rim												
SR Auto Shop Motor Oil Drums	550	Indoors, Auto Shop	Ten 55-gallon steel drums	Motor oil	Delivered full to the Auto Shop, transferred manually to Park equipment.	Flows south-southwest to low areas beyond the pavement	**Spill Prevention:** Prudent practices of oil transfer **Leak Detection:** Concrete floor and routine inspections	Self-contained room	Procedure to follow: 1.) Verify container has sufficient free capacity for the transfer; 2.) Visually monitor the product level throughout the transfer operation	Spill kit stored in nearby hazardous materials storage building	Locked room insided locked building	**Inspections:** Monthly (see **Appendix B**) **Integrity Testing:** No required integrity testing
SR WWTP Used Oil Drums	110	Outdoors, southwest of the main administrative/ office/lab building	Two 55-gallon poly drums	Used oil	Used oil transferred manually to the drum; emptied by third party vendor	Flows west-northwest to low areas beyond the pavement	**Spill Prevention:** Prudent practices of oil transfer **Leak Detection:** Concrete floor and routine inspections	Secondary containment unit	Procedure to follow: 1.) Verify container has sufficient free capacity for the transfer; 2.) Visually monitor the product level throughout the transfer operation	Spill kit located inside the administrative/ office/lab building.	WWTP area is fully-fenced with locked gates, security lighting	**Inspections:** Monthly (see **Appendix B**) **Integrity Testing:** No required integrity testing
North Rim												
NR Auto Shop Motor Oil Drums	220	Inside Auto Shop	Four 55-gallon steel drums	Motor oil	Delivered full to the Auto Shop, transferred manually to Park equipment.	West within shop walls.	**Spill Prevention:** Prudent practices of oil transfer **Leak Detection:** Concrete floor and routine inspections	Self-contained room	Procedure to follow: 1.) Verify container has sufficient free capacity for the transfer; 2.) Visually monitor the product level throughout the transfer operation	Spill kit located within HAZMAT trailer roughly 25 feet from shop main entrance.	Shop is locked with limited personnel access.	**Inspections:** Monthly (see **Appendix B**) **Integrity Testing:** No required integrity testing
Phantom Ranch Diesel Drums	55	Outdoors, to the south of the wastewater treatment operations building	One 55-gallon steel drums	Diesel fuel	Delivered full to Phantom Ranch, transferred manually to emergency generator as needed	Roughly one quarter of a mile south - southeast to the Colorado River	**Spill Prevention:** Prudent practices of oil transfer **Leak Detection:** Concrete floor and routine inspections	Recommend spill containment pallet or enclosed secondary containment unit	Procedure to follow: 1.) Verify container has sufficient free capacity for the transfer; 2.) Visually monitor the product level throughout the transfer operation	Spill kit located in nearby Wastewater Treatment Operations Building	Environmental equivalent measures for fencing	**Inspections:** Monthly (see **Appendix B**) **Integrity Testing:** No required integrity testing

Table 5: USTs and Permanently Closed Tanks

Storage Symbol	Oil Source Volume (gal)	Location	Container Construction	Contents	Transfer Activities	Distance and Direction to Nearest Receptor	Spill Prevention and Leak Detection	Secondary Containment	Overfill Protection	Spill Countermeasure and Response Materials	Security	Inspection and Integrity Testing Schedule
Underground Storage Tanks												
SR AS UST	1,000	Outdoors, beneath a concrete sidewalk on the northeast corner of the Auto Shop Building	Double-walled fiberglass reinforced plastic underground tank	Used oil	Used oil transferred manually to the drum; emptied by third party vendor	Flows south-southwest to low areas beyond the pavement	**Spill Prevention:** Prudent practices of oil transfer **Leak Detection:** Interstitial monitoring and routine inspections	Double-walled	Overfill alarm	Spill kit stored in nearby hazardous materials storage building	Underground, tank fill port is locked when not in use	**Inspections:** Monthly (see **Appendix B**) **Integrity Testing:** No required integrity testing
Aboveground Storage Tanks - Permanently Closed												
SR Landfill	1,000	Outdoors, southwest of the landfill	Steel/reinforced concrete	Stored EMPTY - Designated for Removal from the park	N/A	N/A	N/A	Double-walled	N/A	N/A	N/A	**Inspections:** No Inspections needed if permanently closed **Integrity Testing:** No required integrity testing
Tuweep AST	500	Outdoors, located at the Tuweep Ranger Station	Steel/reinforced concrete	Stored EMPTY - Designated for Removal from the park	N/A	N/A	N/A	Double-walled	N/A	N/A	N/A	**Inspections:** No Inspections needed if permanently closed **Integrity Testing:** No required integrity testing
Desert View AST	500	Outdoors, located on the northwester portion of the Desert View Ranger Station	Steel/reinforced concrete	Stored EMPTY - Designated for Removal from the park	N/A	N/A	N/A	Double-walled	N/A	N/A	N/A	**Inspections:** No Inspections needed if permanently closed **Integrity Testing:** No required integrity testing
Mobile Refueler - Permanently Closed												
Mobile HO	2,000	Operational Complex/Auto Shop Storage Yard	Steel tank	Stored EMPTY - Designated for Removal from the park	N/A	N/A	N/A	Single-walled	N/A	N/A	N/A	**Inspections:** No Inspections needed if permanently closed **Integrity Testing:** No required integrity testing

2.1. Oil Filled Operational Equipment

It was determined during the course of the site visit that the facility does not own or operate oil-filled operational equipment, defined as that which would include an oil storage container (or multiple containers) in which the oil present is used solely to support the function of the apparatus or the device. Examples include transformers and hydraulic tanks on maintenance equipment (e.g., loader). Oil-filled electrical equipment is excluded from the definition of a "bulk storage container" and, therefore, from the bulk storage container requirements. As such, secondary containment is not required for oil-filled electrical equipment. However, general SPCC requirements (as defined in 40 CFR 112.7) must be met, including a regular inspection and monitoring program to prevent discharges, and an oil-spill contingency plan specified in 40 CFR 112.7(k)(2).

2.4. Oil Storage Not Covered Under This SPCC Plan

Oil storage not covered under this SPCC Plan includes concessioner owned/operated tanks. Concessions operations at GRCA have their own SPCC Plans which are shared with the Park.

2.5. Oil Water Separators

Oil-water separators are excluded from SPCC regulation if they are used only for wastewater treatment (vs other uses such as used for secondary containment of nearby oil storage tanks). However, the 1,000 gallon oil-water separator at the northeast corner of the auto body shop on the south rim is included in the table above.

3. SPILL PREVENTION AND CONTROL

This section of the SPCC Plan covers this facility's prevention and control measures in place to help this facility limit its potential for spills.

3.1. Potential Oil Release Sources

For the oil sources at this facility, specific discharge volumes, direction of flow, and potential spill receptors for individual tanks and containers are listed in **Table 1**. An oil release could occur due to any of the following situations:

During loading/unloading activities, such as:

- Overflow or spillage during tank or container filling
  - Potential rate of flow is dependent on fill rate of mobile tanker truck (typically ranges between 60 gallons per minute [gpm] and 300 gpm).
  - Total volume released is dependent on how quickly the filling technician or facility representative (if observing transfer process) is able to press the emergency shutoff button on the tanker truck and size/remaining product in the mobile tanker truck (typically ranges from nil to hundreds of gallons).
- Spillage during tank or container emptying
  - Potential rate of flow is dependent on the empty rate of the mobile tanker truck or pump (typically ranges from 5 to 10 gpm for pumps and 60 to 300 gpm for mobile tanker trucks).
  - Total volume released is dependent on how quickly the filling technician or facility representative (if observing transfer process) is able to turn off/unplug the pump or press the emergency shutoff button on the truck and size/remaining product in the mobile tanker truck (typically ranges from nil to hundreds of gallons).

Due to equipment failure, such as:

- Failure of oil-filled equipment
- Tank rupture as a result of nature, human error, or vandalism
  - Potential release rate is instantaneous (entire container contents released immediately) and total volume released is equal to the volume of the container (see **Table 2**).
- Leaks due to corrosion or partial failure of tank or container seams, pipes, valves, or connections
  - Potential release rate is approximately nil to 10 gallons per minute and total volume released is equal to the volume of the container (see **Table 2**).

3.2. Facility Drainage

3.2.1. Drainage from Oil Storage Tanks

This SPCC Plan must consider all potential sources of a release. There are multiple locations at the park where the potential for a release of oil exists. A release of oil could take place at the following locations:

- Tank or associated piping if in poor condition or a rupture occurs.
- Fill pipe during delivery due to rupture or overfill.
- Fuel delivery hose due to rupture or leaks at joints to truck or fill pipe.
- Fuel delivery truck due to leaking or rupture.

A release of oil in any of these situations may be significant. The site location maps in Appendix D depict individual oil storage areas and the predicted flow direction of a spill. In some cases, the land is flat and/or low and oil would pool or sink into the ground where it is located instead of flowing in a specific direction.

The greatest probability of a spill from tanks is during the fuel delivery process. Therefore, this SPCC Plan provides an evaluation of the facility drainage and a prediction of the direction, rate of flow, and total quantity of oil that could be discharged, especially during the delivery process. This includes instances of potential equipment failure of commercial tank trucks delivering oil to park-owned tanks and of park-operated truck-mounted ASTs delivering fuel to various locations. See Table 1 for a summary of potential spill events. Site maps diagramming spill scenarios for each fuel tank and delivery trucks are found in Appendix D. The site maps also include information regarding flow direction and areas likely to be impacted by a spill.

3.2.2. Drainage from Miscellaneous Oil Storage

In the South Rim District, miscellaneous oil is stored within 55-gallon drums at the New Maintenance Auto Shop. The drums are either placed on secondary containment pallets, or in the oil room, which provides a secondary containment area (sunken room). Absorbent materials are stored in the garage within the Auto Shop and at the nearby hazardous materials storage building and will be used to contain any spills that could not be contained by the containment pallets or oil room. If the secondary containment pallets for the drums failed, oil would flow toward the floor drains within the shop and discharge to the oil/water separator on the west side of the Auto Shop building. If the secondary containment oil room for the drums failed, oil would flow from the doorway on the north side of room, then westward onto the paved road and potentially flow to the Bright Angel Wash which heads south to desert terrain where the oil would infiltrate into the ground.

In the North Rim District, miscellaneous oil is stored within 55-gallon drums in the steel storage unit near the Auto Shop and at the garage within the wastewater treatment plant. Each of the drums are placed on secondary containment pallets. Absorbent materials are stored in the steel storage unit adjacent to the Auto Shop, and in the garage within the wastewater treatment plant, and will be used to contain any spills that could not be contained by the containment pallets. If the secondary containment pallets for the drums near the Auto Shop failed, oil would flow eastward onto the paved road, past the Auto Shop building and could potentially flow to the Transept Canyon which flows to Bright Angel Creek, and eventually discharges into the

Colorado River. If the secondary containment pallet at the wastewater treatment plant failed, oil would flow northwest from the garage, across the paved road, and could potentially flow to the Transept canyon which flows to Bright Angel Creek, and discharges into the Colorado River.

Storage drum locations are included in the site maps in Appendix D.

3.3. General Spill Prevention Measures

Implement the following measures to prevent an oil spill during the handling, use, or transfer of oil products at the facility:

- Verify that tanks and containers are constructed of material compatible with the oil being stored.
- Provide a functioning liquid level sensing device for bulk storage containers, such as a visual gauge, an electronic high-level alarm, or automatic pump cutoff.
- Practice good housekeeping to ensure that oil storage areas are kept clear of debris.
- Promptly correct all visible spills.
- Provide appropriate secondary containment.
- Practice proper unloading/loading procedures during oil transfer activities.
- Conduct as-used, monthly, and annual inspections on all SPCC-applicable tanks and containers.
- Conduct integrity testing, or a practice that is environmentally equivalent, on tanks and containers as required.
- Store sufficient spill response materials near oil sources.
- Train personnel at least annually in proper oil-handling procedures.
- Provide adequate security measures on and around all oil sources.
- Maintain inspection and maintenance records for 3 years.

3.4. Secondary Containment

All oil source areas listed in **Tables 1** and **2** at this facility are required to be designed with appropriate containment and/or diversionary structures. Common examples of secondary containment include double-wall tank construction, concrete containment berms, spill pallets for portable drums, nearby sorbent materials, oil/water separators, and self-contained concrete-floored rooms. Specific information regarding secondary containment measures provided for each tank and container is included in **Tables 1** and **2.**

3.5. Fuel Delivery Loading/Unloading

Most releases occur from spills during the fuel delivery process. Spills may occur at the fill pipe when the delivery truck's hose is disconnected. Although these spills are usually small, repeated small releases can cause significant environmental problems. Human error causes most spills but following standard tank filling practices personnel can minimize these mistakes. For example, the fuel delivery driver must make sure there is room in the tank to be filled for the delivery, and the delivery driver and park staff must also always observe the delivery. According to USEPA, if fuel truck delivery drivers follow established standard practices, nearly all spills could be prevented. For this reason, Federal UST regulations require that operators follow standard filling practices. Standard filling practices are not required by regulation for AST filling. However, it is recommended that park personnel follow the same practices and ensure that fuel delivery operators follow standard filling practices (as described in the Fuel Transfer Procedures in Appendix B) for the park's ASTs.

Where feasible, park personnel are required to observe all fuel transfer operations. To ensure that all fuel transfer procedures are properly adhered to, park personnel or the fuel delivery driver must complete the checklist included Appendix B. Fuel company personnel will also be required to immediately report any incident that occurs during fueling to the Park Dispatch at 911.

3.5.1. Fuel Company Information

The following fueling companies provide fuel to various locations throughout the park. Below is a description of the company(ies) and their fueling and emergency procedures. In the event that park staff obtain a new vendor(s) (not listed below), staff will ensure that the contract with the vendor(s) will include components for fuel transfer operations to avoid spills, and for emergency response steps for spills that may occur. In addition, staff will append the new contract information as described above to this plan so that appropriate staff have access to information about the fuel company and requirements.

Defense Logistics Agency (DLA) (877-352-2255)

DLA sets up deliveries of fuel through a variety of local vendors. Each vendor delivers as needed to the tank(s) located at the park. When delivering fuel, the fuel delivery driver parks close enough to the tank so that he can see the tank and the meter on the truck while fueling. Before fueling, the driver places the emergency brake on to ensure that the truck will not move during the fueling process, and then puts the static line out. Next the driver uses the visual gauge on the tank to determine how much is inside the tank. This amount is written on the fueling ticket. The driver then sticks the tank and records the number of inches in the tank before fueling and after fueling.

In the event of an emergency, the fuel delivery driver carries absorbent socks on the truck. Additional emergency contact information is posted on the truck, so if the spill is too large to be contained with socks, then that number is contacted.

3.5.2. Park Staff

Park staff members occasionally deliver heating oil fuel from the portable heating oil fuel truck at the South Rim Old Maintenance Yard to heating oil USTs located throughout the South Rim district. Procedures are as follows:

1. Park staff manually check the fuel level of each tank using a stick measurement tool before adding fuel to ensure there are no overfills.
2. Park staff fill the tanks to only 75% capacity.
3. Fuel truck holds granular absorbent, absorbent pads, socks, and booms to be used if there are any small spills.
4. Staff members unload the fuel from the truck to the stationary tank needing heating oil by connecting the hose and dispenser from the truck to the fill port of the stationary heating oil tank. Staff members ensure that all connections are secure prior to unloading fuel.
5. Staff monitor all fuel deliveries from the beginning of the fueling process until the end.
6. Before fueling is complete, staff members ensure all liquid is out of the hose. Upon completion, the hose is disconnected, and the tank is then transported back to the maintenance yard empty.

In addition, park staff deliver diesel around the park to equipment using a portable pick-up truck- or trailer-mounted AST. The dispensers on each of these portable tanks have an automatic shut-off nozzle to prevent overflow. No secondary containment is provided for these portable ASTs; but, absorbent materials are carried on the trucks in the event of a spill. Procedures are as follows:

1. Park staff manually check the fuel level of the portable tank using a stick measurement tool to see how much room is left for new fuel. If there is room, park staff add fuel from the diesel tanks at the North Rim Maintenance Yard, or South Rim Old Maintenance Yard into the diesel portable tanks.
2. Park staff drive the portable tank to the equipment to be provided with fuel. Absorbent pads and materials are placed in the truck in the event of a spill.
3. Park staff manually check the fuel level of the empty stationary tank using a stick measurement tool before adding fuel from the portable fuel tank to ensure no overfills.
4. Staff members unload the fuel to the equipment or tank by connecting the hose and dispenser from the portable tank to the fill port of the equipment or tank. Staff members ensure that all connections are secure prior to unloading fuel.
5. Before fueling is complete, staff members ensure all liquid is out of the hose. Upon completion, the hose is disconnected, and the portable tank is then transported back to its resting place.

3.5.3 General Secondary Containment in Transfer Areas

Secondary containment for tank loading and unloading areas is provided through active containment measures, consisting of having spill kits accessible near the facility's key transfer areas.

Since other oil/fuel transfers at the facility are conducted on impervious surfaces and have nearby spill kits readily available for use if needed, they meet general secondary containment requirements in 40 CFR 112.7(c).

3.5.4 Overfill Protection

The facility aboveground storage tanks have sufficient overfill protection in the form of either high liquid level alarms (40 CFR 112.8(c)(8)(i)) or direct vision level gauges (40 CFR 112.8(c)(8)(iv)). To use the alternative of "direct vision gauges," a person must be present to monitor gauges and the overall filling of bulk storage containers (ASTs). For overfill protection associated with individual oil sources, see **Tables 1 and 2**.

For the facility's drum storage, the following procedure is employed:

1. Verify container has sufficient free capacity for the transfer
2. Visually monitor the product level during transfer

3.6. Inspections and Integrity Testing

The purpose of visual inspections is to determine if an oil release has occurred, evaluate the general condition of tanks, containers, and piping, and determine the suitability for continued oil storage until the next inspection. The inspection program for the park includes informal observations for leakage from equipment as it is used as well as monthly and annual scheduled inspections. Checklists used to document the inspections are included as **Appendix B**. Completed inspection forms must be kept for a minimum of 3 years. The visual inspections do not require a Certified Inspector.

Tables 1 and **2** lists the required inspection frequency for each oil source. Inspection criteria and schedules outlined in this plan are based on the Steel Tank Institute (STI) SP 001-18 (2018, 6th edition). This standard is applicable to shop-fabricated tanks (less than 30,000 gallons in capacity) and portable containers.

Conduct monthly inspections by checking:

- Tanks, containers, and associated piping for evidence of leakage or spillage
- Tanks and containers for water or oil in the tank, interstice, or secondary containment
- Tank level gauges are functional and spill buckets are empty and functional
- Tank and container structures are secure and do not show signs of corrosion or damage
- Areas around tanks are clear of debris that may block access
- Portable oil containers are stored in their designated area
- Spill response materials for replacement or replenishment of spill response materials

Conduct annual inspections by checking:

- Tank foundation and support structures for signs of settlement, corrosion, or damage
- Tank exterior coatings or canopies for needed cleaning or maintenance
- Pipe connections and flanges for tightness and signs of wear or corrosion
- Tank normal and emergency vents for needed cleaning or maintenance
- Tank or container liquid level and overfill prevention sensing devices
- Tanks valves for needed maintenance or repair
- Tank strainers for needed cleaning or replacement

Tank release detection is being performed and documented additional inspections and/or additional inspection items may be warranted if the facility incurs damaging severe weather events (e.g., lightning strikes, wind damage, flooding). The inspection frequency for the oil/fuel storage containers at this facility is summarized in the table below.

Inspection Guidance by Container Type

Tank or Container Type	Guidance	Visual Inspection Frequency
Aboveground storage tanks	STI SP-001-18	Monthly and Annually
Portable drums	STI SP-001-18	Monthly

The park personnel performing these inspections are knowledgeable of the facility operations, characteristics of the oil stored, the type of container, and its associated components. The scope of inspections and procedures are covered in the training provided to employees involved in handling oil at the park. The routine inspections focus specifically on detecting changes in conditions or evidence of oil leakage from the container, piping system, or appurtenances.

If non-conforming items important to the tank or containment integrity are identified, an evaluation by an engineer experienced in AST design, a certified inspector, or a tank manufacturer is required to

determine the appropriate corrective action. As an alternative, the NPS may replace the tank/container with a new tank/container.

Maintain copies of tank permits, licenses, records of inspections, and integrity tests.

Integrity Testing

The purpose of integrity testing is to measure the tank or container's structural imperviousness and its soundness in containing oil, ensuring its suitability for continued use under current and anticipated operating conditions. Integrity testing may also help a facility determine whether corrosion has reached a point where repairs or replacement of the container is needed, and thus avoid unplanned interruptions in facility operations.

Compliance recommendations for the SPCC rule's integrity testing requirements are based on the STI *Standard for the Inspection of Aboveground Storage Tanks* (SP-001-18). The following table summarizes general integrity testing requirements.

Integrity Testing Guidance by Container Type/Size

Tank Type	Tank Volume (gallons)	Secondary Containment	Guidance	Integrity Testing
Shop-built aboveground storage tanks	0 – 1,100	Spill control[1] with **or** without a continuous release detection method[2]	STI SP-001-18	Not required
	0 – 1,100	No Spill control[1]	STI SP-001-18	E&L(10)[3]
	1,101 – 5,000	Spill control[1] with a continuous release detection method[2]	STI SP-001-18	Not required
	5,001 – 30,000	Spill control[1] with continuous release detection method[2]	STI SP-001-18	E(20)[3]
Portable Containers	Drums/Totes	Spill control[1] with **or** without continuous release detection method[2]	STI SP-001-18	Not required

[1] Spill control is a means of preventing a release of liquid to the environment (e.g., secondary containment berm, dual-walled AST, or other secondary containment system).

[2] Continuous release detection method (CRDM) refers to a means of detecting a release of liquid where releases are visually detectable by facility operators (e.g., dual-walled AST with interstitial monitoring port, elevated AST, AST on a concrete floor).

[3] E&L(10) = Formal external inspections every 10 years by a certified inspector, and leak testing every 10 years by owner or owner's designee

E(20) = Formal external inspections every 20 years by a certified inspector

GRCA's ASTs that are greater than 5,000 gallons in capacity and less than 30,000 gallons in capacity, having spill control in place with being double-walled and having a continuous release detection method with interstitial monitoring. Therefore, the Steel Tank Institute requires formal external inspections every 20 years by a third-party certified inspector. GRCA will need to coordinate integrity testing for the following ASTs:

- SR CNG/LNG 01 to 03 (Installed 1998)
- SR OM 01 to 04 (Installed 1998)
- NR Maintenance 01 and 03 (Installed 1998)

GRCA's ASTs that are greater than 1,100 gallons in capacity and less than or equal to 5,000 gallons in capacity, having spill control in place with being double-walled and having a continuous release detection method with interstitial monitoring or a rupture basin. Therefore, the following ASTs do not require formal integrity testing by a third party certified inspector:

- NR WWTP
- NR Maintenance 02 and 05

At the Grand Canyon National Park, there are several shop-fabricated ASTs that are less than 1,100 gallons in capacity. These tanks have intact spill control in place as follows:

- SR WWTP Generator – Double-walled
- SR WWTP HO 01 and 02 – Double-walled
- SR Transfer Station – Double-walled

Therefore, these tanks do not require formal integrity testing by a certified third-party inspector.

Formal integrity testing is not required for the steel and poly drums located in the park's drum storage areas provided the containers have spill control in place, by means of either the concrete containment structure or containment pallets and a continuous release detection method, by means of being stored on a concrete floor.

3.7. Site Security

Site security will be most relevant at fueling stations and fueling transfer stations. Security features at the park include:

- Locked and fenced compound(s) at the CNG/LNG facility, South Rim Wastewater Treatment Plant, South Rim Transfer Station and North Rim Wastewater Treatment Plant
- Compounds at South Rim Operational Complex/Auto Shop, South Rim Old Maintenance, South Rim Historic Maintenance, and North Rim Maintenance that are not locked and fenced have a routine schedule to monitor the tanks to ensure that trespassing or vandalism does not occur, and tanks are kept locked.
- Dispensing pumps and fill ports are maintained locked when not in use. It is recommended that this be the practice for all pumps and fill ports except for when the tank is behind a locked fence or locked door.
- At each location, NPS Law Enforcement Rangers live on-site or patrol near each of the areas where tanks are located.

Lighting is required to be provided so that it is commensurate with the type and location of the facility[4]. Table 5 denotes lighting provided for each tank in each park location:

3.8. Personnel Training

Park employees that have oil-handling responsibilities, those that may be called upon to respond to a spill, or those that could reasonably be expected to witness and report a spill must receive an SPCC briefing regarding the contents of the SPCC Plan each year. The annual briefing is conducted to ensure that appropriate park employees have an adequate understanding of their responsibilities with respect to Plan implementation. In addition, this briefing also includes a discussion of known

[4] EPA explains that for unattended facilities that are located away from inhabited areas (for example, farm fields or certain isolated facilities) appropriate lighting may consist of lights that are turned on intermittently. For example, lighting that uses motion-activated detectors may be an appropriate means of meeting the lighting requirements, while avoiding undue attention to the presence of oil containers. Alternatively, an environmentally equivalent approach may combine an alarm system that detects the presence of trespassers, with portable lights used to perform regular rounds of the facility.

discharges that have occurred in the past year, equipment malfunctions, and any recently developed precautionary measures.

In addition to annual discharge briefing, the same employees must be provided with an initial training to orient them to the SPCC plan, its contents and how to implement the plan. Training needs to cover the following information:

- The contents of the facility SPCC Plan, including the specific locations of oil tanks and containers;
- The frequency and procedures of inspections and record keeping;
- The operation and maintenance of equipment to prevent spills;
- Spill response procedures;
- Applicable oil pollution prevention laws, rules, and regulations;
- General facility operations; and
- Discharge prevention briefings highlighting and describing discharges or failures, malfunctioning components, and any recently developed precautionary measures.

Records of training are maintained with the SPCC Plan or with electric files associated with this SPCC Plan. Training logs are kept to record who has received SPCC Plan training. Training materials are also maintained. A sample training log is provided in Appendix B.

3.9. Tank Construction Material

All tanks are constructed with material that is compatible with the contents stored in them.

3.10. Documenting Storm Water Releases

Routinely document storm water releases from the outdoor concrete containment areas associated with ASTs located in the Old Maintenance Yard on the form provided in **Appendix B**. This includes releasing snow/ice melt water during the winter months.

3.11. Past Spill History

The park has not had fuel/oil spills.

A spill report form is included in the Compliance Packet (Appendix B). This form will be used to document any spills that may occur in the future.

4.0. SPILL RESPONSE PROCEDURES (COUNTERMEASURES)

If diversionary structures or secondary containment are not in place (even temporarily), a Contingency Plan will ensure that manpower, equipment, and materials are in place to expeditiously control and remove any harmful quantity of oil which could be discharged from the facility. Since park staff members are committed to protecting and preserving the environment, a Contingency Plan may also be used in areas where diversionary structures and secondary containment are in place to reinforce that park staff will be equipped to react properly and quickly to an oil spill.

At this point in time, all tanks and most drums are equipped with secondary containment. For portable tanks, operational equipment, and drums without passive secondary containment, active secondary containment measures (sorbent materials) and routine inspections are to be utilized. Spill response materials sufficient to address a 55-gallon spill are to be in drum storage areas and adjacent to portable tanks that do not have passive secondary containment in place.

With sufficient secondary containment in place, the most likely occurrence of an oil spill will be during the fuel delivery process. It is not always practical to construct secondary containment for every location where a fuel delivery truck parks during routine filling procedures. Therefore, the risk of spills during delivery may best be minimized using set procedures during fueling, including established methods to monitor the level of oil in the tank being filled. Fuel transfer guidance and procedures can be found in the Fuel Transfer Procedures and Checklist sections of the Compliance Packet (Appendix B). Procedures are also identified in this SPCC Plan to ensure a procedure is in place in the event of a spill.

This Contingency Plan, as part of the park SPCC Plan, meets requirements specified in 40 CFR 112.7(d)(2). In adopting this Contingency Plan, park management is making a written commitment of manpower, equipment, and materials required to expeditiously control and remove any harmful quantity of oil which has the potential to be discharged from the facility.

Information relevant to the Contingency Plan is contained in this section of the SPCC Plan and includes the following:

- Section 4.1.1. - Applicable Spill Response Regulations and Park Policy.
- Section 4.1.2. - Spill Response Command Structure.
- Section 4.1.3. - Spill Response and Cleanup Procedures.
- Section 4.1.4. - Internal and External Reporting Procedures.
- Section 4.1.5. - Arrangements with Local Authorities.
- Section 4.1.6. - Emergency Response Equipment.

4.1.1. Applicable Spill Response Regulations and Park Response Policy

USEPA regulations (40 CFR 110) define a spill as the discharge of oil into, or upon, the navigable waters of the U.S. or adjoining shorelines in "harmful quantities." The Clean Water Act prohibits the discharge of oil into, or upon, navigable water in harmful quantities. Harmful quantities are defined as a discharge that violates applicable water quality standards or causes a sheen upon, or discoloration of, the surface of the water or the adjoining shorelines. Contaminated groundwater may also have the potential to seep, leach, or flow into navigable waters which would be included in this definition. Storm sewers are also considered a "navigable waterway" since most storm sewers eventually discharge into a navigable waterway.

The Clean Water Act and the National Oil and Hazardous Substance Pollution Contingency Plan regulations describe the appropriate response to discharges of petroleum products from ASTs and other sources into navigable waters and the environment. Park management and staff commit to meeting those regulatory requirements through the implementation of established spill response and cleanup procedures, as an applicable situation requires.

Arizona does not have a program regulating ASTs, or a counterpart to the Federal Spill Prevention, Control, and Countermeasure (SPCC) plan regulations. USTs are regulated under the AZ DEQ at Title 49, Sections 1001- 1022, which apply only to the extent described in 40 CFR, Section 280.10 and the energy policy act. Rules adopted pursuant to this chapter only apply to underground storage tanks not excluded or deferred by the Federal regulations. .

EPA's Region 9 is responsible for the administration and enforcement of the Federal SPCC plan requirements in Arizona.

Any spill from an AST that meets the following criteria must be reported to AZ DEQ as soon as it is safe to do so:

1. Causes an immediate threat to public safety;
2. Affects groundwater and crosses the property boundary;
3. Affects soil which is subsequently excavated; and/or
4. Affects surface water.

The AZ DEQ, Division of Water Quality is the regulatory body responsible for implementing and enforcing UST release reporting regulations in the state. Under AAC 49-1004, owners and operators at UST facilities that have a suspected or confirmed release, a spill, or any other emergency situation are required to report the incident to AZ DEQ by telephone within 24 hours. Spills must be reported regardless of size. AZ DEQ will instruct the caller on further action if needed. For example, in some cases written notification must be sent in within 14 days of the incident. Park management and staff commit to make every effort to prevent spills. Further, park staff members emphasize hazardous substance containment at the source to prevent any harmful amounts of oil from being discharged to a navigable waterway in any amount that may cause sheen on the surface.

4.1.2. Spill Response Command Structure

To assure the effectiveness of the Contingency Plan, park management has created the following personnel structure:

- The park's Oil Spill Response Team (OSRT) is responsible for responding to incidental oil spills at the park and its facilities. An incidental oil spill is determined by each individual facility, but the NPS Environmental Management Program recommends a spill amount of five gallons or less to be considered an incidental spill. Park personnel have indicated that five gallons or less is an accurate assessment of an amount that staff could comfortably respond to without any additional help. Park personnel have indicated that a threshold of five gallons or less for an incidental spill will be included as part of this SPCC Plan. Anything greater than this amount will be considered to be a non-incidental spill, and park employees are not to respond to non-incidental spills, but instead are to contact Park Dispatch (911), so the ERC and the park's Fire Department can take the lead on non-incidental spills.
- The OSRT will be managed by an Emergency Response Coordinator (ERC) and alternates. These individuals are knowledgeable about all elements of the SPCC Plan (including predicted spill scenarios and potential response requirements needed to address those potential spills) and their responsibilities relative to the SPCC Plan because they have been issued a copy of the park SPCC Plan. These individuals are also prepared to react to a spill immediately. Names and contact information for external spill response personnel are listed in Section 1.4 of this SPCC Plan.
- All park staff and volunteers are made aware that they are responsible for reporting oil spills immediately upon discovery; as such they are critical staff in the facility spill response structure. All spills discovered on park property must be immediately reported to AZ DEQ.
- Park personnel rely on the park's fire department personnel for non-incidental spills that are beyond the capabilities of the park staff who are members of the OSRT. As such they are a key part in the facility spill response structure.
- Fuel delivery contractors can respond to incidental spills and have established emergency notification procedures to initiate response to non-incidental spills that could occur during fuel transfer operations. These contractors are a part of the facility spill response structure.

Incidental discharges (incidental spills) are generally those in which:	Non-incidental discharges (non-incidental spills) are generally those in which:
• The discharge is small (i.e., less than five gallons). • The discharge can be easily contained. • The discharge is unlikely to reach a navigable waterway, storm sewer, or sanitary drain. • Cleanup procedures do not pose a health or safety hazard. • Proper response equipment is available for a safe cleanup. **RESPONSE BY THE OSRT MAY BE POSSIBLE**	• The discharge is large enough to spread beyond the immediate area. • The discharge cannot be contained. • The discharge may reach a navigable waterway, storm sewer, or sanitary drain. • The discharge requires special equipment or training to clean up. • The discharge poses a hazard to human health or the environment. • There is a danger of fire or explosion. **RESPONSE BY FIRE DEPARTMENT VIA PARK DISPATCH – CALL 911**

4.1.3. Spill Response and Cleanup Procedures

Specific details of spill response and cleanup procedures are described in the Spill Response Procedures in Appendix B. For releases of oil, OSRT members will undertake necessary and appropriate initial abatement measures to control further releases and secure the site to protect human health and the environment. This response will consist of one of the following:

- Active response for incidental spills of oil products. Active response will consist of control and cleanup of small spills or spills that the ERC or Alternate ERC, in their professional judgment, determine can be safely handled given the training and resources available. To respond to these incidental spills, emergency equipment as described in Section 3.3.6 will be used.
- Defensive response and professional spill response assistance for non-incidental spills of oil products. Non-incidental spills will be handled by contacting the County (or local fire departments). Defensive response will occur by calling the local county having jurisdiction and will consist of stopping the source of the spill using existing mechanical means (e.g., closing valves, shutting off fuel pumps), and securing the site to protect human health and safety.

Oil Response Steps	Contact
DO NOT cleanup non-incidental spills unless you are trained in HAZWOPER, have received annual refresher training, and are approved by the ERC! 1. Secure the site with a priority to protect the health and safety of personnel responding to the release, bystanders, and the community. 2. Contact the Facility Emergency Coordinator and decide if facility personnel can control and contain the spill effectively.	Kim Park or Deirdre Hanners Desk: (928) 638-7329 or (928) 638-7907 Cell: (928) 606-5837 See also SPCC Emergency Contacts See also Initial Spill Information Report Form

3. Contact Public Safety for major or non-incidental spills to help assist with the control and containment of the release. 4. Complete the Spill Incident Report Form to effectively provide accurate information to spill response authorities. 5. Control and contain the spill using nearby absorbent booms, socks, and/or soil. For major spills, contact the fire department for assistance. 6. Clean up the spill; however, if the spill is major and assistance is required for cleanup, contact an outside contractor.	

The park ERC will notify all regulatory agencies of reportable oil spills as required by applicable state or Federal regulatory requirements discussed in the Spill Reporting Information and Forms section of Appendix B.

After a spill incident has occurred, OSRT members will complete the following activities:

- Restock emergency supplies.
- Test emergency equipment.
- Properly decontaminate equipment and impacted area.
- In the event of a reportable spill event, notify the USEPA.

After a spill, the ERC must review the incident and determine the cause. Depending upon the nature and severity of the release (e.g., reportable release versus a very minor spill caused by overfilling), the ERC must identify procedures and practices that should be changed to prevent similar incidents from reoccurring (see also, Section 3.9 regarding Amendments to Plan, and 3.3.6 regarding Emergency Response Equipment).

Facility personnel will take all reasonable actions to abate, remove, manage, and dispose of spilled oil, contaminated soil or water, and waste generated because of spills in accordance with Federal and state requirements and in a manner that will not result in adverse impacts to human health and safety and the environment.

Facility personnel dispose of recovered materials in accordance with applicable legal requirements. The SPCC Coordinator facilitates disposal of spill response materials and spilled product via contractors, including the cleanup contractors listed in the Contact List.

4.1.4. Internal and External Reporting Procedures

The ERC will notify the Superintendent immediately of any spills. The ERC will also notify the NPS Intermountain Region Environmental Management Program Coordinator in the event of a spill. The Intermountain Region Environmental Management Program Manager should be notified before any local, state, or Federal agencies are contacted. If the spill is above incidental quantities (i.e., greater than five gallons), the NPS National Emergency Incident Coordination Center Dispatch Center should also be notified at 1-888-246-4335. Park staff should not delay

notifying outside agencies if required. If they cannot reach the Regional Environmental Program Manager directly, park staff should leave a voicemail for him.

Arizona does not have a counterpart to the Federal Spill Prevention, Control, and Countermeasure (SPCC) plan regulations. EPA's Region 9 is responsible for the administration and enforcement of the Federal SPCC plan requirements in Arizona. However, the AZ DEQ, Division of Water Quality is the regulatory body responsible for implementing and enforcing hazardous substance release reporting regulations in the state. Under AAC 49-1004 and 49-288, owners, operators, and certified installers at facilities that have a suspected or confirmed release, a spill, or any other emergency situation are required to report the incident to AZ DEQ by telephone within 24 hours. Spills must be reported regardless of size. AZ DEQ will instruct the caller on further action if needed. For example, in some cases written notification must be sent in within 14 days of the incident.

The USEPA has established requirements to report spills to navigable waters or adjoining shorelines that may be harmful to public health, welfare, or the environment. The USEPA has determined that discharges of oil that meet these criteria include those that:

- Violate applicable water quality standards;
- Cause a film, or "sheen" upon, or discoloration of the surface of the water or adjoining shorelines; or
- Cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

The following are relevant phone numbers for reporting:

- Arizona Department of Environmental Quality: (602) 771-2300
- Arizona Spill Emergency Response: (602) 771-2330
- Federal National Response Center (NRC): (800) 424-8802
- NPS Emergency Incident Coordination Center: (888) 246-4335

The Initial Spill Information Report Form contains information which will be useful when reporting the spill to the Arizona Department of Environmental Quality and USEPA. It can also be used as the park's internal record of the spill. This form, and other information to assist the ERC in determining to whom and under what conditions a spill must be reported to an outside agency, is included in the Spill Reporting Information and Forms section of Appendix B.

When reporting a spill Arizona Spill Emergency Response, contact the agency by telephone at the number above.

Park employees will have additional reporting requirements if they discharge more than 1,000 gallons of oil into or upon the navigable waters of the U.S. or adjoining shorelines in a single spill event or have at least two discharges of more than 42 gallons that require reporting to the NRC within any twelve-month period. If this occurs, park staff must submit information to USEPA Region 9 [# of corresponding EPA region] Administrator within 60 days from the time the facility becomes subject to this requirement. Information required to be reported to the Regional Administrator is listed in Appendix B. These reporting requirements include submission of a complete copy of the SPCC plan with all amendments.

4.1.5. Arrangements with Local Authorities

Park personnel will share the locations of ASTs with the state and Coconino County. In addition, park personnel will convene sessions to familiarize personnel from these organizations with details of this SPCC Plan or location and layout of the park oil storage facilities upon their request. Topics that may be covered include type of oil products used, the possibilities for release, the location of the fire equipment such as hydrants, and the location of spill control equipment at the park.

A copy of this Plan will also be shared with the following entities once finalized:

- Concession's operations operating nearby.

4.1.6. Emergency Response Equipment

Employees will respond to incidental spills only. In the event of a non-incidental spill, Park Dispatch will be alerted immediately.

Each year, staff inventory spill equipment to ensure that the spill equipment is maintained in each location in the minimum amounts. Staff are required to ensure spill equipment is intact so that it may be used during an emergency. The locations of Spill Kits are listed in Tables 1-5 in this document.

5.0. Amendments to Plan

Park staff will amend this SPCC Plan within six months of any change in facility design, construction, operation, or maintenance that materially affects the park's potential to discharge oil to U.S. navigable waters or adjoining shorelines. Park staff will review the SPCC Plan at least once every five years and amend it to include more effective prevention and control technology, if appropriate. A Professional Engineer will certify all technical amendments.

Park staff will also amend the SPCC Plan if: 1) Arizona regulations change; 2) the Plan fails in an emergency; 3) list of emergency contacts changes; 4) there is removal or addition of storage tanks; or 5) it is otherwise required by Arizona Department of Environmental Quality or USEPA.

Appendices

APPENDIX A: SPCC RULE CROSS-REFERENCE

The SPCC regulations require that an SPCC Plan include information pertaining to each regulatory section, and that a cross reference mechanism describe where each section of the regulation is addressed within the SPCC Plan if the plan is not organized in the same order as the regulations. To facilitate cross referencing by park employees, the table below includes the section number, section description, and regulatory citation.

40 CFR Part 112	Description	SPCC Plan Location
Subpart A: Applicability, Definitions, and General Requirements for All Facilities and All Types of Oils		
§ 112.1	General applicability	*Section 1.1*
§ 112.2	Definitions	*See 40 CFR § 112.2* *Section 1.2 Definitions*
§ 112.3	Requirement to prepare and implement an SPCC Plan	*Section 1.0*
§ 112.3(a)	Existing facility required to prepare a SPCC Plan	*Section 1.0*
§ 112.3(b)	New onshore facility required to prepare a SPCC Plan	*Not applicable to this facility*
§ 112.3(c)	New or existing onshore or offshore mobile facility required to prepare a SPCC Plan	*Not applicable to this facility*
§ 112.3(d)	Review by a licensed professional engineer	*Professional Engineer Certification*
§ 112.3(e)	Maintain a copy of the SPCC Plan at the facility	*Section 1.1*
§ 112.3(g)	Identification of a qualified facility	*Not applicable to this facility*
§ 112.4	Amendment of SPCC Plan by Regional Administrator	*Appendix B, Federal Oil Spill Reporting Requirements*
§ 112.5	Amendment of SPCC Plan by owners or operators	*Section 5.0*
§ 112.5(a)	Amend SPCC plan due to changes	*SPCC Plan Review Page*
§ 112.5(b)	Regular review of SPCC Plan	*SPCC Plan Review Page*
§ 112.5(c)	Professional engineer certification of technical amendments	*SPCC Plan Review Page*
§ 112.6	Qualified Facilities Plan requirements	*Not applicable to this facility*
§ 112.7	General requirements for SPCC Plans	
§ 112.7(a)(1)	Conformance	*Section 1.0*
§ 112.7(a)(2)	Compliance	*Section 1.0*
§ 112.7(a)(3)	Physical layout	*Appendix C and D*
(a)(3)(i)	Oil storage type and capacity	*Section 2.0*
(a)(3)(ii)	Discharge prevention measures	*Section 3.0*
(a)(3)(iii)	Discharge or drainage controls	*Section 3.0*
(a)(3)(iv)	Countermeasures	*Section 4.0*
(a)(3)(v)	Recovered material disposal	*Section 4.1.3*
(a)(3)(vi)	Contact list	*Section 1.4*

40 CFR Part 112	Description	SPCC Plan Location
§ 112.7(a)(4)	Response plan or spill reporting	*Appendix B Spill Reporting Information and Forms*
§ 112.7(a)(5)	Usable in emergency	*SPCC Plan and Appendix B – Compliance Packet*
§ 112.7(b)	Discharge flow	*Section 3.3*
§ 112.7(c)	Containment	*Section 3.5.3*
§ 112.7(d)	Describe and justify not meeting the containment requirements	*Sections 2.0 and 3.0*
§ 112.7(d)(1)	Oil spill contingency plan	*Section 4.0*
§ 112.7(d)(2)	Written commitment of manpower, equipment, and materials to control a discharge	*Certification Page*
§ 112.7(e)	Inspections	*Section 3.6*
§ 112.7(f)(1)	Training	*Section 3.8*
§ 112.7(f)(2)	Designated accountable person	*Section 1.4*
§ 112.7(f)(3)	Briefings	*Section 3.8*
§ 112.7(g)	Security	*Section 3.7*
§ 112.7(h)	Tank car and truck	*Not applicable at this facility*
§ 112.7(i)	Evaluate and repair of field-constructed tanks	*Not applicable at this facility*
§ 112.7(j)	State-level requirements	*This Cross-Reference Table and Appendix E*
§ 112.7(k)	Oil-filled operational equipment	*Section 2.3 and 3.3*
Subpart B: Requirements for Petroleum Oils and Non-petroleum Oils, Except Animal Fats and Oils and Greases, and Fish and Marine Mammal Oils; and Vegetable Oils (Including Oils from Seeds, Nuts, Fruits, and Kernels)		
§ 112.8	SPCC Plan Requirements for onshore facilities (excluding production facilities).	
§ 112.8(a)	Compliance with § 112.7	*SPCC Plan*
§ 112.8(b)(1)	Drainage from diked areas	*Section 2.0*
§ 112.8(b)(2)	Manual drain valve requirement	*Section 2.0*
§ 112.8(b)(3)	Facility drainage systems from undiked areas	*Not applicable to this facility*
§ 112.8(c)(1)	Compatibility	*Section 2.0*
§ 112.8(c)(2)	Capacity plus precipitation containment	*Section 2.0*
§ 112.8(c)(3)	Drainage systems, diked storage, treatment systems	*Section 2.0 and Dike Drainage Log (Appendix)*
§ 112.8(c)(4)	Buried metal tank corrosion prevention	*Section 2.1.6*
§ 112.8(c)(5)	Partially buried or bunkered metal tanks	*Section 2.1.6*
§ 112.8(c)(6)	Testing and inspection	*Section 3.6, Appendix B*
§ 112.8(c)(7)	Internal heating coils	*Not applicable to this facility*
§ 112.8(c)(8)	Good engineering practice	*Section 2.0*
(c)(8)(i)-(v)	Liquid-level sensing devices	*Section 2.0*
§ 112.8(c)(9)	Treatment facilities	*Not applicable to this facility*
§ 112.8(c)(10)	Visible discharges	*Appendix B, Facility Inspection Logs*

40 CFR Part 112	Description	SPCC Plan Location
§ 112.8(c)(11)	Mobile or portable containers	*Section 2.0*
§ 112.8(d)(1)	Buried piping corrosion protection	*Section 2.0*
§ 112.8(d)(2)	Tank terminals	*Not applicable to this facility*
§ 112.8(d)(3)	Pipe supports	*Section 2.0*
§ 112.8(d)(4)	Pipe inspection	*Appendix B, Facility Inspection Logs*
§ 112.8(d)(5)	Vehicular traffic	*Appendix B Fuel Unloading Procedures for Park Staff*
§ 112.9	SPCC Plan requirements for onshore oil production facilities (excluding drilling and workover facilities)	*Not applicable to this facility*
§ 112.10	SPCC Plan requirements for onshore oil drilling and workover facilities	*Not applicable to this facility*
§ 112.11	SPCC Plan requirements for offshore oil drilling, production, or workover facilities	*Not applicable to this facility*
Subpart C: Requirements for Animal Fats and Oils and Greases, and Fish and Marine Mammal Oils; and Vegetable Oils, Including Oils from Seeds, Nuts, Fruits, and Kernels)		
§ 112.12	SPCC Plan requirements	*Not applicable to this facility*
Subpart D: Response Requirements		
§ 112.20	Facility response plan	*Not applicable to this facility*
§ 112.20(e)	Certification of Substantial Harm Determination	*Appendix A*
§ 112.21	Facility response training and drills/exercises	*Not applicable to this facility*

APPENDIX B: SPCC PLAN COMPLIANCE PACKET

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SPILL REPORTING INFORMATION AND RELATED FORMS

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Federal Oil Spill Reporting Information

How to Use This Compliance Packet

Purpose: The purpose of this Compliance Packet is to assist park personnel in effectively implementing this SPCC Plan. It consists of the following three categories:

- **Spill Prevention Procedures:** Includes procedures, forms, and checklists that park personnel can use to help ensure compliance with SPCC Plan requirements. When carried out according to the SPCC Plan, measures regarding fuel transfer procedures, tank inspection, and training requirements will help park personnel prevent releases of oil.
- **Spill Response Procedures**: Will assist park personnel in their initial response to a release of oil. Response procedures include steps that park personnel must take to control and/or clean up a spill.
- **Spill Reporting Information and Forms**: Will assist park personnel in determining what spill information must reported to the Arizona Spill Emergency Response and whether reporting to any other outside agency is required.

Spill Prevention Procedures

Fuel Transfer Procedures for Park Personnel for Aboveground Storage Tanks (ASTs)

Park Observer Responsibilities

Objective: To prevent spills and overfilling of bulk fuel storage tanks (gasoline, diesel fuel, and used oil).

Scope: These procedures apply to all park personnel observing the unloading of bulk materials to the ASTs.

Receiving Responsibilities: Before the unloading of any bulk material, the storage tank must be gauged for capacity. Park personnel receiving bulk materials will be responsible as follows:

1. Complete the Fuel Transfer Checklist for all bulk deliveries. Gauge tank level and note on the Checklist.
2. Be sure absorbent materials are available.
3. Give permission to tank truck driver to unload.
4. Warn all other vehicles coming in or out of the area of the fuel transfer process and to stay clear of the piping, tanks, truck, fuel delivery personnel, etc.
5. Ensure that the transfer operation is monitored constantly to prevent overfilling and spilling.
6. Remain present at the transfer site throughout the entire unloading operation. Alert others in the area as to the fuel unloading operation.
7. Report any occurrences of leaks or spills during transfer to the SPCC Coordinator.
8. Inspect the storage tank piping.
9. Inform the SPCC Coordinator of any required maintenance that, if left undone, could result in a leak or spill.
10. Ensure that the following responsibilities of the driver are carried out:
    a. Chock wheels on truck.
    b. Check all truck outlets and valves for signs of leakage before and after unloading.
    c. Obtain permission to connect truck unloading line.
    d. Remain with the vehicle as long as truck unloading is occurring.
    e. Disconnect hoses, drain back to truck, and secure to vehicle before departing.

11. GRCA Fuel Contract COR - Marina Anderson, Property Administrator, (928) 638-7718

To: NOTICE to Oil Product Vendors

From: Grand Canyon National Park ● Phone: (928) 638-7888

Oil vendors who deliver or pick up oil-based products to or from our park are required to comply with the following:

	Exercise caution when maneuvering vehicles to avoid damage to secondary containment structures.
	Drivers are to be present and alert while monitoring the transfer of oil product full-time while product is being transferred to or from on-site storage containers.
	Chock the tank truck wheels while loading or unloading tanks and do not remove the wheel chocks until after the transfer is complete and the transfer hose is disconnected to prevent an accidental drive-off without removing the transfer hose.
	Prior to filling and departure, closely inspect for discharges at the lowermost drain and all outlets of the tank truck, and if necessary, ensure that they are tightened, adjusted, or replaced to prevent liquid discharge while in transit.
	Continuously monitor for potential tank overfills while loading or unloading storage containers. Check the freeboard capacity of containers prior to filling to estimate the volume to fill the tank and visually monitor the filling process to ensure the tank does not overfill. For tanks with audible air vent alarms, continuously listen for the audible air vent overfill warning whistle.
	Promptly stop and clean up any oil leaks or spills that occur while loading or unloading containers.
	Immediately report leakage or spillage requiring assistance of site personnel to clean up to Grand Canyon National Park site management.
	Prior to loading/unloading, place an empty container under the hose end to be disconnected first with enough capacity to catch the remaining liquid in the transfer hose. Verify that appropriate valves are closed before disconnecting loading/unloading lines. Prior to disconnecting the transfer hose, gravity drain remaining product in the hose to the lowest container.

This notice is provided for your information to make you aware of these requirements to help us limit the potential for spills at this facility during transfer operations.

Fuel Transfer Checklist

Steps included in this checklist should be taken during delivery at all tanks at the park. This information will be shared with all fuel delivery companies making deliveries to the park. Fuel Contract COR at GRCA is Marina Anderson, Property Administrator, (928) 638-7718.

Date: _____ Location: _____

Tank operator present during fueling	Yes ☐	No ☐
Tank filling is monitored constantly	Yes ☐	No ☐
Tank level before loading	_____ inches	_____ gallons
Tank level after loading	_____ inches	_____ gallons
Total loaded (subtract after from before)	_____ inches	_____ gallons
Storage tank and related piping inspected	Yes ☐	No ☐
5-gallon drip bucket under discharge hose (where needed to prevent spills)	Yes ☐	No ☐
Storm drains covered	Yes ☐	No ☐
Absorbent materials available	Yes ☐	No ☐
Any leaks or spills	Yes ☐	No ☐
Wheels chocked	Yes ☐	No ☐

Acknowledgment of Receipt of Materials:	
Park Personnel Signature	Printed Name & Date

Acknowledgment of Transfer of Materials:	
Fuel Delivery Driver Signature	Printed Name & Date

SPCC Facility Inspection Log

AST Inspection

Instructions: The visual inspection of the aboveground storage tanks and the portable containers will be completed on a monthly and annual basis. Inspections of the aboveground storage tank include examining the tanks for signs of corrosion or damage to piping and valves, inspecting tank supports and secondary containment for damage or irregularity, and observing the tank and surrounding area for any evidence of leakage.

In addition to visual inspections, the SPCC Coordinator will be responsible for ensuring that all aboveground storage tanks and portable containers are tested for integrity in accordance with Section 3.7 of this plan.

The SPCC Coordinator will maintain copies of the inspection logs at the park for a period of at least three years.

Place an X in the appropriate box for each item. If any response requires elaboration, make comments.

Monthly Aboveground Storage Tank Visual Inspection Log

Facility Name:	Grand Canyon National Park
Facility Address:	PO Box 129 Grand Canyon, AZ 86023
Location of AST Inspected (Tank ID #):	

Any item marked "No" requires additional information to describe the condition and date the condition is corrected.

	ITEM	STATUS	COMMENTS / DATE CORRECTED
	Primary Tank and Piping		
1	Is tank exterior (e.g., roof, shell, ends, connections, fittings, valves) free of visible leaks?	☐ Yes ☐ No	
2	Is aboveground piping (e.g., valves, fittings, connections, pumps) free of visible leaks and in good condition?	☐ Yes ☐ No	
3	Are all tank openings properly sealed (e.g., capped, plugged, covered, blind flanged)?	☐ Yes ☐ No	
4	Is the tank liquid-level gauge readable and in good working condition?	☐ Yes ☐ No	
5	If overfill equipment has a "test" button, does it activate the audible horn or light to confirm operation? If battery operated, replace if needed.	☐ Yes ☐ No ☐ NA	
6	Is overfill prevention equipment in good working order? If it is equipped with a mechanical test mechanism, actuate the mechanism to confirm operation.	☐ Yes ☐ No ☐ NA	
7	Do ladders/platforms/walkways appear to be secure with no sign of severe corrosion or damage?	☐ Yes ☐ No ☐ NA	
8	Is the spill container (i.e., spill bucket) empty, free of visible leaks, and in good working condition?	☐ Yes ☐ No ☐ NA	
9	Is the primary tank free of water?	☐ Yes ☐ No	
10	Is the containment (e.g., diking or impoundment) free of excess liquid, debris, cracks, corrosion, erosion, fire hazards and other integrity issues?	☐ Yes ☐ No ☐ NA	

	ITEM	STATUS	COMMENTS / DATE CORRECTED
11	Are dike drain valves closed and in good working order?	☐ Yes ☐ No ☐ NA	
12	Are containment egress pathways clear and any gates/doors operable?	☐ Yes ☐ No ☐ NA	
13	Is the cathodic protection system in operating condition and functional? Note: Inspection required every 60 days only.	☐ Yes ☐ No ☐ NA	
14	Was a rectifier reading taken? *Note: Inspection required every 60 days only.*	☐ Yes ☐ No ☐ NA	Volts: _____ Amps: _____
	Double-walled Tank		
15	For double-walled tanks, is interstitial space free of liquid?	☐ Yes ☐ No ☐ NA	
16	For double-walled tanks, is interstitial monitoring equipment in good working condition?	☐ Yes ☐ No ☐ NA	
	Concrete Exterior AST		
17	Inspect all sides for cracks in concrete. Are all cracks smaller than 1/16”?	☐ Yes ☐ No ☐ NA	
18	Inspect all tank openings, sealant, exterior body for rusting, gaps, etc. Is the tank in good condition?	☐ Yes ☐ No ☐ NA	
	Spill Kits		
19	Do the associated spill kits contain adequate response materials in good condition?	☐ Yes ☐ No	
	Other Conditions		
20	There are no other conditions needing to be addressed for continued safe operation or those that may affect the site SPCC Plan	☐ Yes ☐ No	

Inspector Information

Signature _____ Name _____

Title _____ Date _____

Annual Aboveground Storage Tank Visual Inspection Log

This inspection log must be completed each year for all aboveground storage tanks. If necessary, provide further description and comments on a separate sheet of paper and attach to this sheet. Any item receiving a "No" must be described and addressed immediately. This log may be used to inspect multiple tanks, or on a tank-by-tank basis. Keep this log for three (3) years after completion. For any "No" answer, provide explanation in the Comments and specify which tank was associated with the issue. Track resolution of the issue and note the date of correction.

Facility Name:	Grand Canyon National Park		
Facility Address:	PO Box 129 Grand Canyon, AZ 86023		
# of Tanks Inspected: (If inspecting 1+ tank with		Tank IDs:	

Any item marked "No" requires additional information to describe the condition and date the condition is corrected.

	ITEM	STATUS	COMMENTS / DATE CORRECTED
	Primary Tank		
1	Tank surfaces show no signs of leakage. Roof/top free of standing water.	☐ Yes ☐ No	
2	Tanks show no signs of damage, rust, or deterioration.	☐ Yes ☐ No	
3	Bolts, rivets, and seams show no signs of damage or corrosion.	☐ Yes ☐ No	
4	Level gauges or overfill alarms operable.	☐ Yes ☐ No	
5	No water/oil present in interstitial spaces of the double-walled tank.	☐ Yes ☐ No	
6	Interstitial leak detection equipment shows no signs of damage, wear, etc.	☐ Yes ☐ No	
7	Pumps and valves locked.	☐ Yes ☐ No	
8	Normal and emergency tank vents unobstructed and/or do not require cleaning or maintenance.	☐ Yes ☐ No	
9	Pressure/vacuum vent unobstructed on a gasoline-containing tank.	☐ Yes ☐ No	
10	Coatings of exterior tanks in good condition and do not require maintenance, cleaning, or painting.	☐ Yes ☐ No	
11	Filters and strainers clean, unclogged and in good working order.	☐ Yes ☐ No	
12	For insulated tanks, insulation does not show moisture contamination, or mold.	☐ Yes ☐ No	
13	Inventory control being performed consistently (if required)?	☐ Yes ☐ No	

	ITEM	STATUS	COMMENTS / DATE CORRECTED
14	Release detection being performed consistently (if required)?	☐ Yes ☐ No	
	Tank Area and Piping		
15	Concrete pad or ground below tank shows no signs of leakage.	☐ Yes ☐ No	
16	No cracks in the concrete pad.	☐ Yes ☐ No	
17	Water (rainwater, stormwater) drains away from the tank.	☐ Yes ☐ No	
18	Pipelines and connections show no signs of leakage or deterioration.	☐ Yes ☐ No	
19	Sections of exposed buried pipelines show no signs of leakage or deterioration (if applicable).	☐ Yes ☐ No	
20	Tank supports (e.g., straps) are in good condition and do not show deterioration or buckling.	☐ Yes ☐ No	
21	Tank foundations do not show erosion, settling, or foundation washout.	☐ Yes ☐ No	
22	Tank area is free of obstructions from equipment, vegetation, or trash.	☐ Yes ☐ No	
23	Containment structure show no signs of damage or straining such as distortions, buckling, or bulging.	☐ Yes ☐ No	
24	Labels, signs, and tags are not worn, intact and are legible.	☐ Yes ☐ No	
25	Electrical wiring and boxes show no damage.	☐ Yes ☐ No	
26	If cathodic protection is provided, it has undergone inspection and testing.	☐ Yes ☐ No	

Inspector Information

Signature _____ Name _____

Title _____ Date _____

Monthly Portable Containers Visual Inspection Log

Facility Name:	Grand Canyon National Park
Facility Address:	PO Box 129 Grand Canyon, AZ 86023
Year:	

Please use one form per storage area, per year. The owner or operator shall maintain a copy of the monthly attachments for the previous three years.

Answer the question or choose only one of the following for each box:

- No = Problem observed
- Yes = No problem observed
- N/A = not applicable

Section I: Portable Containers

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
List the total number of portable containers in storage area.												
No signs of leakage, deterioration, or distortion (e.g., distortion, buckling, bulging).												
No signs of spillage on the portable containers or surrounding ground.												
No excessive materials or waste debris stacked on portable containers.												
No container lids left open.												
No containers unlabeled or outdated.												
Portable container area unobstructed from equipment, vegetation, or waste debris.												
All portable containers stored within the designated storage area.												
Drain valves closed.												
Note other issues observed:												

Section II: Specific Issues Log

If problems are encountered with the facility's portable containers, they should be logged below, indicating the month, component, problem, action to be taken, and completion date.

Month	Component	Problem	Action to be Taken	Corrective Action / Completion Date

Inspector Information

Signature

Name

Title

Date

Storm Water Release Drainage Log

Facility Name:	Grand Canyon National Park
Facility Address:	PO Box 129 Grand Canyon, AZ 86023
Year:	

Park staff will use this form for any tank or oil storage container secondary or tertiary diked containment area (if applicable) to ensure diked area valves always remained in the closed position except when draining accumulated rainwater after inspection. Please use one form per storage area, per year. The owner or operator shall maintain a copy of this document for the previous three years.

Answer the question and use checkmarks or Yes/No's along with any other notes.

Date	Bypass Valve Closed?	Rainwater inspected to ensure no oil sheen?	Open bypass valve and reseal (close) following drainage	Observations or Notes	Name of Park Employee

Training Log

Each undersigned employee acknowledges that he/she has been briefed by the SPCC Coordinator or their designee(s) on the following topics:

- Contents of this SPCC Plan, including identifying the SPCC Coordinator and ERC
- Applicable pollution control laws, rules, and regulations
- Operations and maintenance of spill prevention equipment
- Precautionary measures
- Discharge procedures
- General facility operations
- Spills, discharges, failures, or malfunctioning components identified since the last training

Instructor:		
Training Course Title:		
Employee Printed Name	**Employee Signature**	**Date**

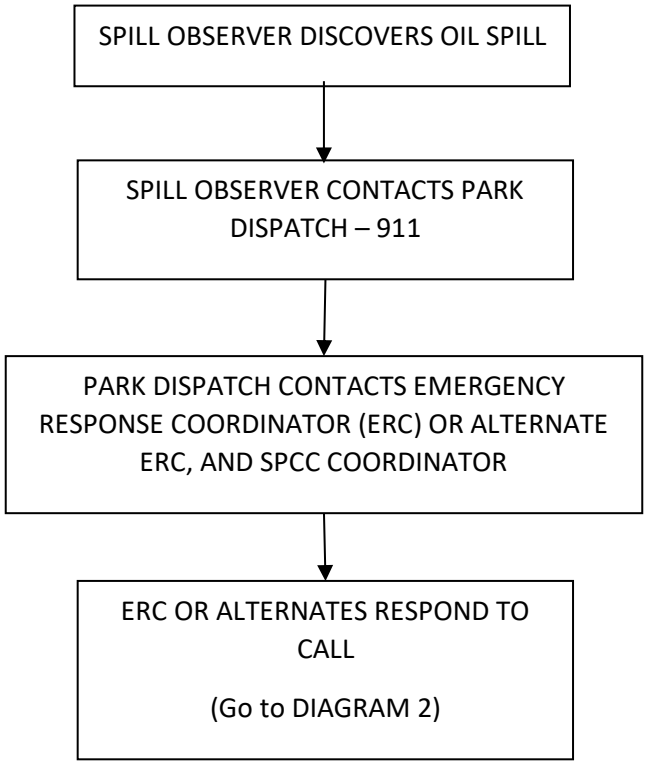
Instructor Signature **Date**

After each training session, please give a copy of this sheet to the SPCC Coordinator.

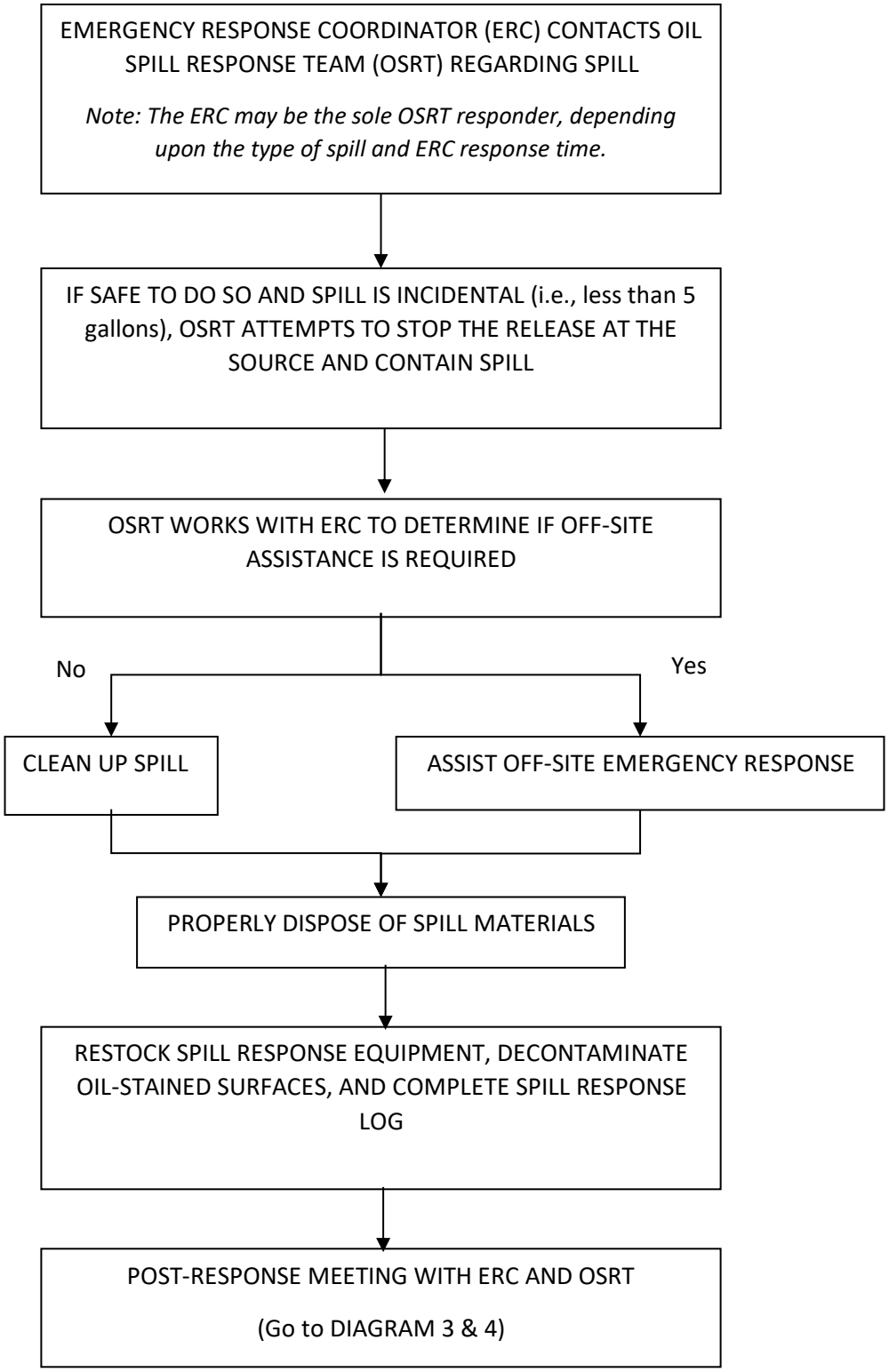
Spill Response Procedures

Decision Flow Diagrams

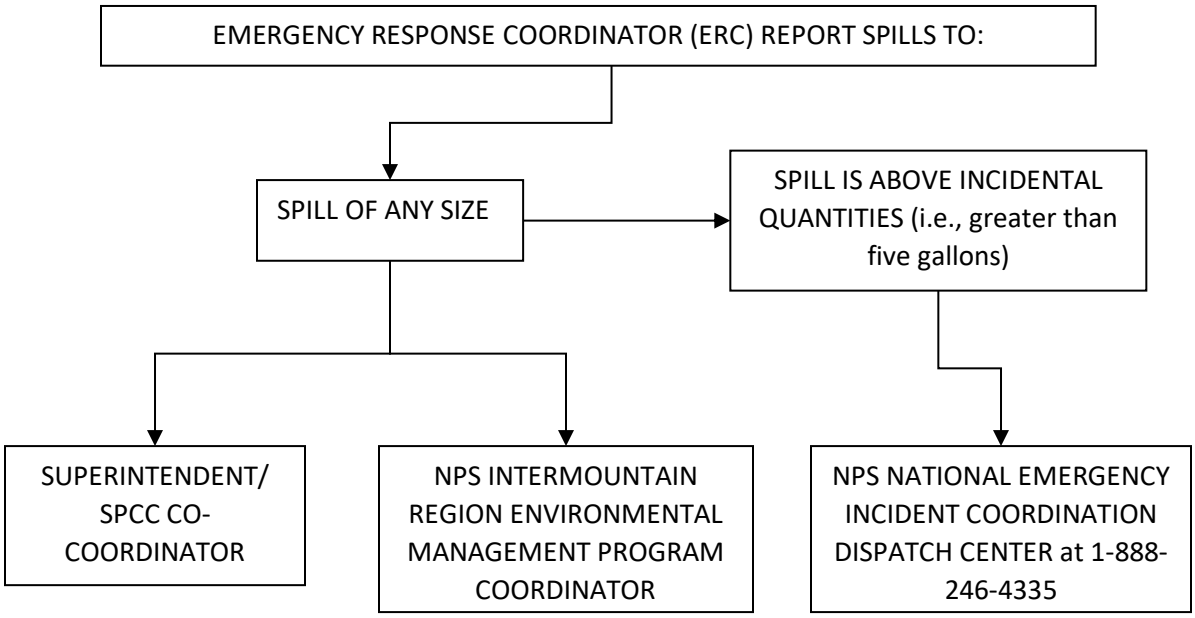
Initial Oil Spill Response Diagram #1



Oil Spill Response Diagram #2



ERC Internal Oil Spill Notification Diagram #3



ERC Oil Spill Notification – State & Federal - Diagram #4

Spill Response and Cleanup Procedures

If a park volunteer or staff discovers or becomes aware of a release of oil, they must follow the response procedures outlined in the Decision Flow Diagrams. Since it is possible that park visitors may also witness oil spills, warning signs will also be posted at fuel storage sites notifying members of the public of the appropriate response procedures. These procedures include immediate notification of the ERC or OSRT members through the SPCC Coordinator. These persons have access to appropriate contacts and corresponding phone numbers.

All spills will be classified as an emergency until properly contained and cleaned up. Following is a description of the steps that will be taken immediately upon the discovery of an oil spill of any kind:

(1) An individual observing a spill of any quantity will be directed to immediately call park dispatch. The Dispatch Center should ask the caller for the following information:
   - Time spill occurred or was first observed
   - Where spill occurred and extent of present location if flowing away from original spill site
   - Type of oil product spilled
   - Estimate of amount spilled and, if continuing, rate of release
   - Description of area likely to be affected
   - Cause of spill, if determined
   - Any damages/injuries that may have resulted from the spill
   - Actions to stop, remove, or mitigate the spill

(2) Park Dispatch will then notify the ERC of the spill by park radio, or by telephone. All public local response agencies will be contacted based on request by the ERC. If they cannot reach the park's ERC, park dispatch will contact the Alternate ERC. Based on the information provided by the spill observer, the ERC may contact the local emergency response agency immediately to ask for spill response assistance before responding to the spill scene.

(3) The ERC is usually the first responder to a spill. However, depending upon the spill location, and location of available OSRT members, the ERC may contact and direct another OSRT member to provide first response if the ERC determines it is appropriate. If this occurs, the ERC will maintain contact with the OSRT member throughout the response via cell phone or park radio.

(4) The first responder at the scene (ERC or other OSRT member) will be responsible for implementing the following response procedures:

   - **Evaluate the situation and identify hazards.** The initial evaluation will include a quick determination of what steps should be taken immediately, and if additional help is needed. Later, further evaluation of a spill may involve a long-term environmental monitoring program to determine the extent of the problem and the progress of remedial action.

   - **Initiate evacuation and request outside assistance if necessary.** If there is an immediate threat to human life (e.g., a fire in progress or vapors or fumes overcoming workers), an alarm should be sounded to evacuate the building or immediate area, fire department response will also be initiated. The assistance of the state hazardous materials response team will be requested if an uncontrollable spill has occurred and/or if the spill has migrated beyond the site boundaries.

   - **Extinguish any sources of ignition.** All potential sources of ignition in the area should be removed. Electrical power for the area should be shut down. Vehicles should be turned off. If the ignition source is stationary, attempt to move spilled material away from ignition source. Avoid sparks and movement creating static electricity.

- **Attempt to stop the release at its source.** If it is safe to do so, only trained park personnel or fuel delivery people will attempt to slow or stop the discharge as soon as possible. Such actions may include closing valves, plugging, or patching holes, or transferring the contents of a leaking container to a sound one. No attempt will be made to stop a leak if undue risk is involved. If the equipment or knowledge is not at hand to address the incident, park personnel will wait until the necessary help arrives. ORST members are trained to differentiate between incidental spills in which it is safe to intervene and those that could result in personnel casualties, fire, or explosions. The local fire departments or local response teams will be contacted if the initial evaluation determines such assistance is warranted.
- **Contain the spilled product.** This step will immediately follow or be concurrent with stopping the leak. Responders may employ several methods to contain the product spilled on the ground, such as building a dike around it, plugging, or otherwise protecting all storm drains or sewers in the area, and diverting product into a ditch that can be dammed. Both the OSRT and the company delivering oil to the park have immediate access to absorbents that can be used to contain a spill.
- **Report spill as necessary.** If the ERC did not participate in the spill response, he/she must be apprised of the spill and resulting response to generate the required internal spill report and determine if notification must be made to any regulatory agency (see Spill Reporting Information and Forms for more information).
- **Clean up resulting spill response materials.** Park personnel should only engage in this step if they are properly trained in active spill response. If the park has determined that defensive spill response is not appropriate for park personnel, an outside cleanup contractor will be called. Clean up involves removing the spilled product, disposing of the cleanup materials, and restoring the environment as much as practicable. State Emergency Response personnel may oversee this step. Depending upon the size and location of the spill, contained liquids can be pumped, skimmed, or picked up in absorbent pads or boom. Liquids which have soaked into the soil and solids may have to be excavated. Equipment used in cleanup depends upon what is needed for safe handling, what is available, and how the park, local authorities, and State Emergency Response personnel determine the cleanup is to be done. For instance, supervised burning of the contaminated area with appropriate safeguards can be one of the better and least costly cleanup methods in certain circumstances; in other circumstances it can lead to disaster.

Sample Spill Notification Memo and Warning Sign

MEMO

TO: All Grand Canyon National Park Staff and Volunteers

FROM: SPCC Coordinator

DATE: [Insert Date]

SUBJECT: Responding to Oil Spills or Leaks

A quick reminder to all employees:

In the unlikely event that you observe an

OIL SPILL or LEAK

from any of the fuel tanks or containers located at the park,

contact park dispatch by park radio system.

Do not attempt to clean up a spill or leak yourself.

To help ensure that our facilities are operated safely and in a way that protects the environment, [Grand Canyon National Park has in place a Spill Prevention, Control and Countermeasure (SPCC) Plan as part of our facility environmental management program. If you are interested in further information regarding our SPCC Plan or other facility environmental programs, contact the SPCC Coordinator at (928) 638-7329.

IF OIL TANK SPILL or LEAK IS OBSERVED

Call Park Dispatch Center

911

Do not attempt to clean up a spill or leak yourself

Spill Reporting Information and Forms

Release Reporting Compliance Documentation Log

Immediate (Oral) Notification					
Agency	**Phone Number**	**Time & Date Contacted**	**Incident Number**	**Person Contacted/Title**	**ERC Initials**
Arizona Spill Emergency Response	(602) 771-2330				
Arizona Department of Environmental Quality	(602) 771-2300				
USEPA Region 9	(415) 947-3553				
National Response Center	(800) 424-8802				

NPS Contact	**Title**	**Phone Number**
Paul Torcoletti	Intermountain Region Environmental Management Program Manager	(720) 355-1456
NPS EICC	NPS National Emergency Incident Coordination Dispatch Center	1-888-246-4335

Follow-up (Written) Notification				
Agency	**Date Report Mailed**	**Incident Number**	**Notes**	**ERC Initials**
Arizona Spill Emergency Response				
Arizona Department of Environmental Quality				
USEPA Region 9				
National Response Center				

Initial Spill Information Report Form

Please fill in as much of the following as possible, using information provided by the caller/reporting official. **Bold fields are of primary importance.**

Date of Report _____ and Time ____:____ AM ____ PM____

Date of Spill/Event _____ and Time ____:____ AM____ PM ____

Name of caller _____

Telephone number(s) of caller (include area code) _____

Company Name (if applicable) _____

Address _____

Town _____ State _____ Zip Code _____

Name of other informed party _____ Phone Number _____

Type of product alleged spilled _____

Estimated amount of spill _____

Is more spillage possible? _____ (Yes or No) Amount? _____

Is the current situation URGENT? _____ (Yes or No) Is HELP needed? _____ (Yes or No)

Nature of call or complaint _____

Actions taken so far _____

What resources are at risk? (Check all that apply)

☐ Public Safety

☐ Public Water or Well

☐ Private Water or Well

☐ Atmosphere

☐ Land or Ground

☐ Open Water

☐ Surface Drainage

☐ Storm Sewer

☐ Sanitary Sewer

☐ Vapors in Building

☐ None (complaint only)

Location of incident _____

Specific directions to site _____

_____

_____

Federal Oil Spill Reporting Requirements

Reporting to the National Response Center (NRC)

The NRC must be notified immediately in the event of a spill of a reportable quantity of oil. The park is required to report a discharge of oil in quantities that may be harmful to public health or welfare, or to the environment, to report the spill to the Federal government. USEPA has determined that discharges of oil in quantities that may be harmful include those that:

- Violate applicable water quality standards;
- Cause a film or "sheen" upon, or discoloration of the surface of the water or adjoining shorelines; or
- Cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines

When reporting a spill or release to the NRC, the staff person will ask the following questions (See Initial Spill Information Report Form for more information on collecting this information):

- Name, location, organization, and telephone number
- Name and address of the party responsible for the incident
- Date and time of the incident
- Location of the incident
- Source and cause of the release or spill
- Types of material(s) released or spilled
- Quantity of material(s) released or spilled
- Danger or threat posed by the release or spill
- Number and type of injuries (if any)
- Weather conditions at the incident location
- Any other information that may help emergency personnel respond to the incident

Reporting to the USEPA Region 9 Administrator

Facilities that spill more than 1,000 gallons of oil into navigable waters or onto adjoining shorelines in a single incident, or have two reportable oil spills of 42-gallons or more within any 12-month period, must submit the following information to the appropriate USEPA Region 9 Administrator within 60 days from the time the spill occurs:

- Facility name, location, and date when facility began operations
- Facility owner or operator names
- Facility maximum storage or handling capacity and normal daily oil throughput
- Facility description, including maps, flow diagrams, and topographical maps
- A complete copy of the SPCC Plan with any amendments
- The cause(s) of the spill, including a failure analysis of system or subsystem where the failure occurred
- The corrective actions and/or countermeasures taken (e.g., equipment repairs or replacement);
- Any other preventive measures taken
- Other information the Regional Administrator may require

USEPA Regional Administrators will review this information and may require the facility owner or operator to amend the SPCC Plan if it does not meet the regulations or if an amendment is necessary to prevent and contain oil spills from the facility. Facility owners or operators are provided an opportunity to submit written information, views, and arguments on the proposed amendment, and may appeal a Regional Administrator's final decision.

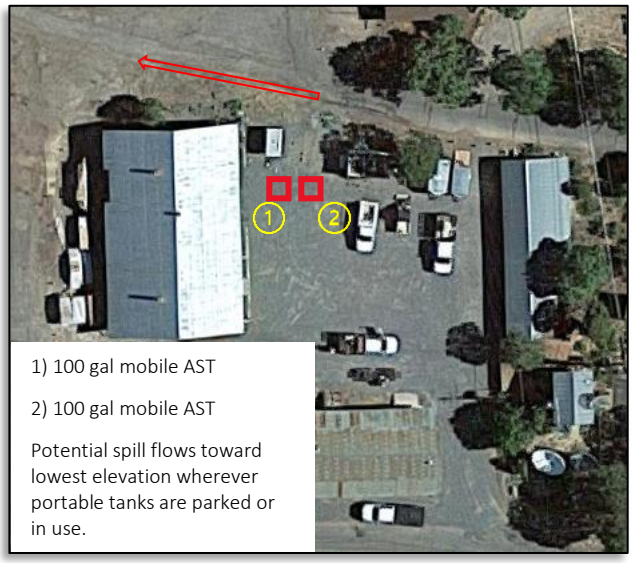
APPENDIX C: SITE MAP

APPENDIX D: AREA MAPS WITH DRAINAGE PATTERNS

All of the following maps (figures) are oriented North.

Figure 1: SR WWTP

Figure 2: SR Historic Maintenance



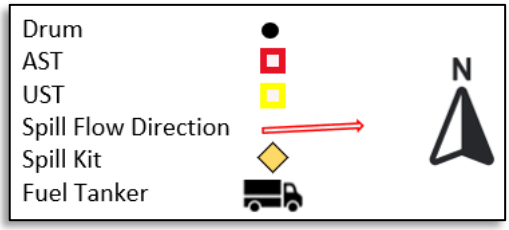


Figure 3: SR Transfer Station

Figure 4: SR LNG/CNG Farm

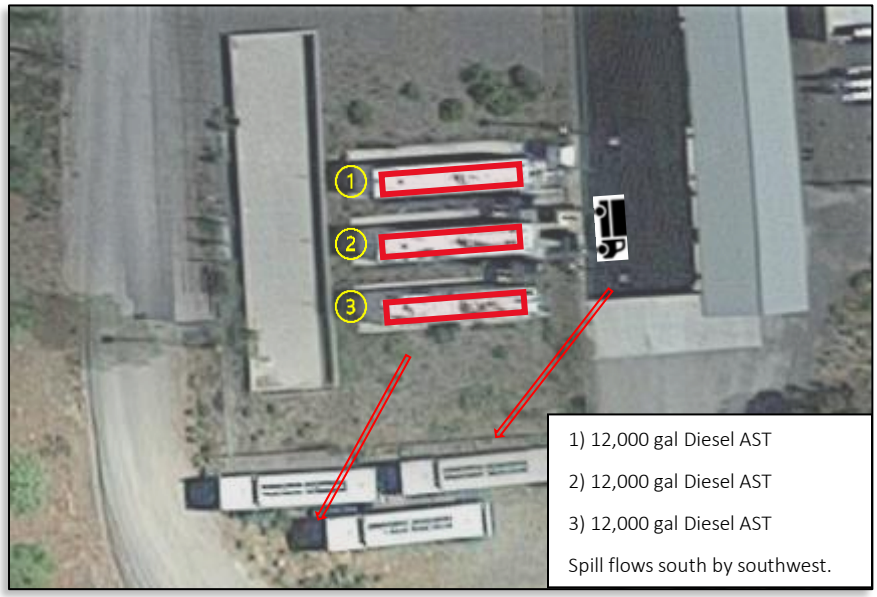


Figure 5: SR Old Maintenance

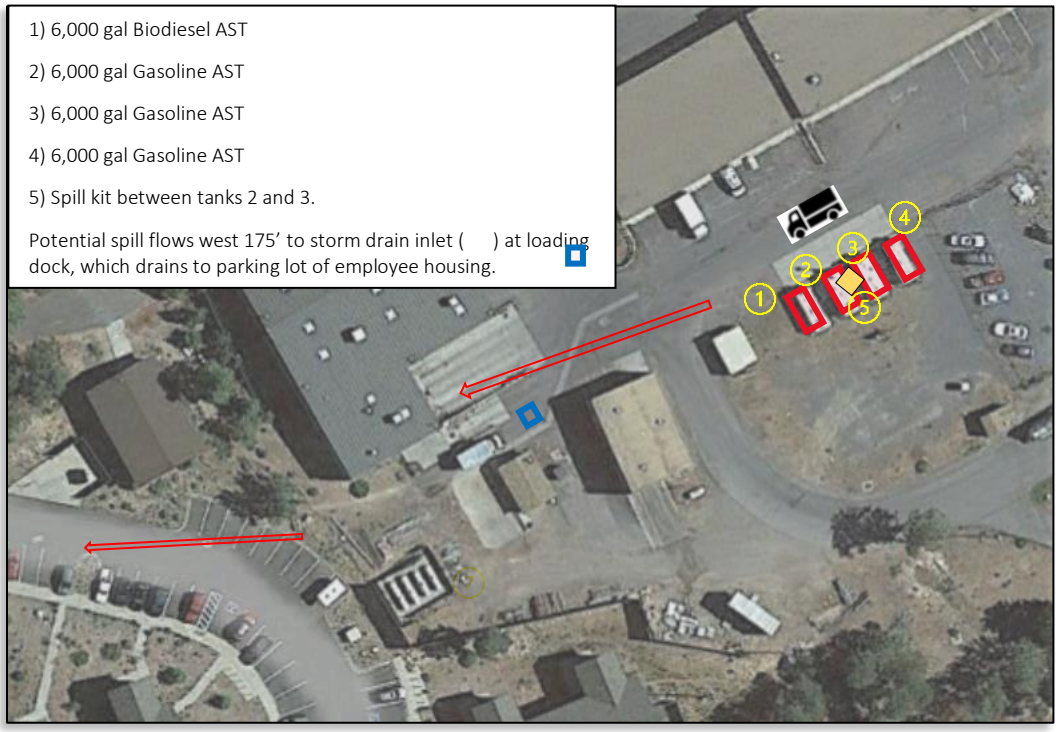


Figure 6:
SR Auto Shop

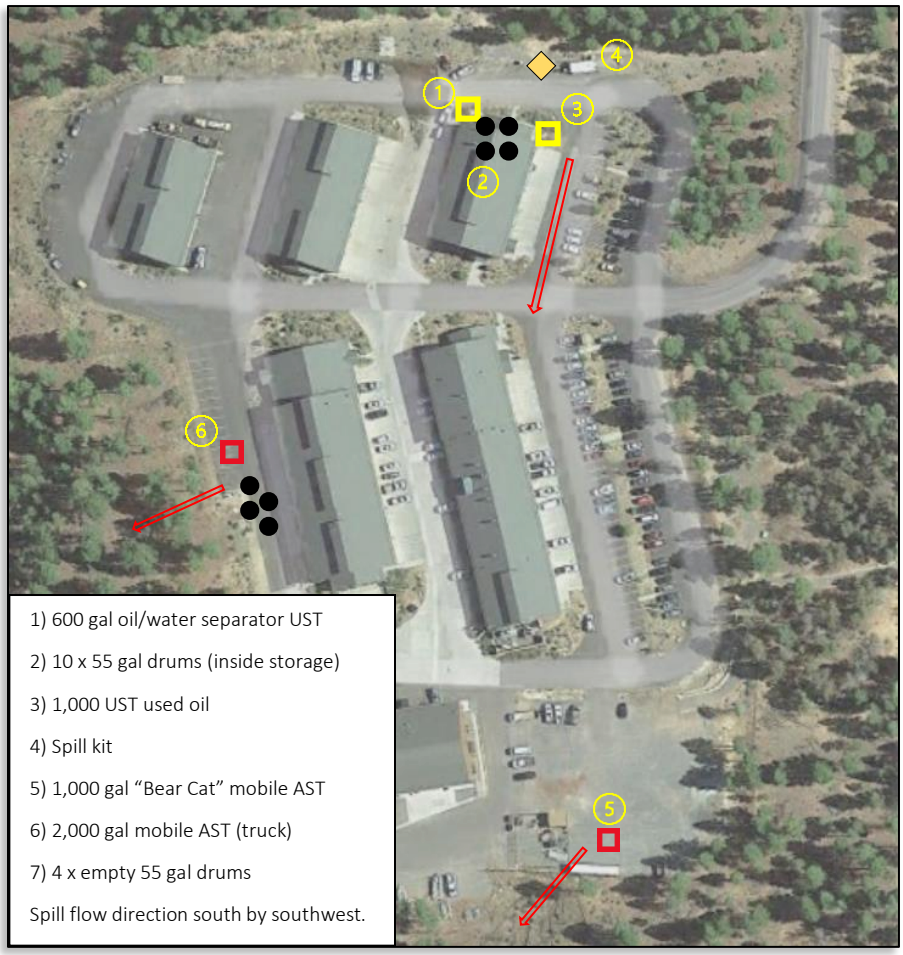


Figure 7: SR Helipad

Figure 8: SR Landfill

Figure 9: NR WWTP

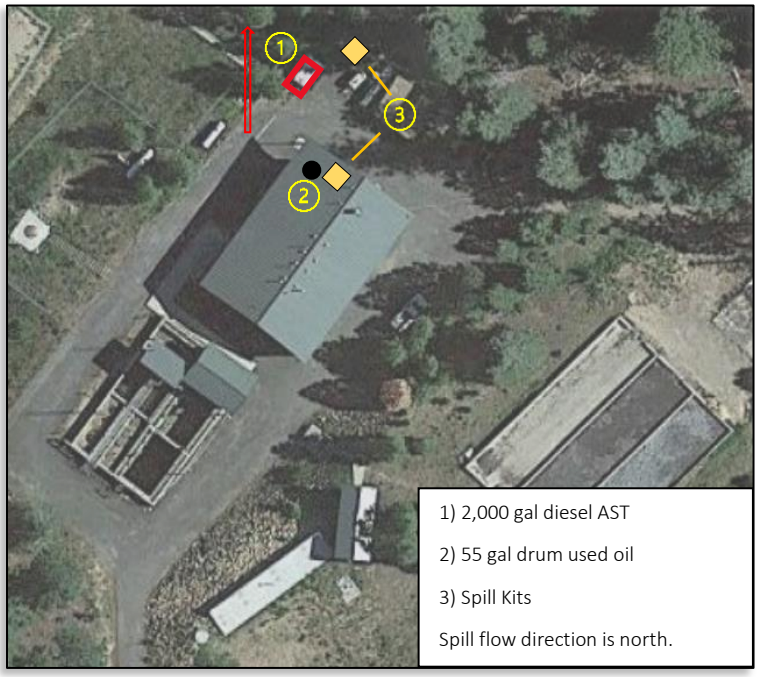


Figure 10: NR Auto Shop

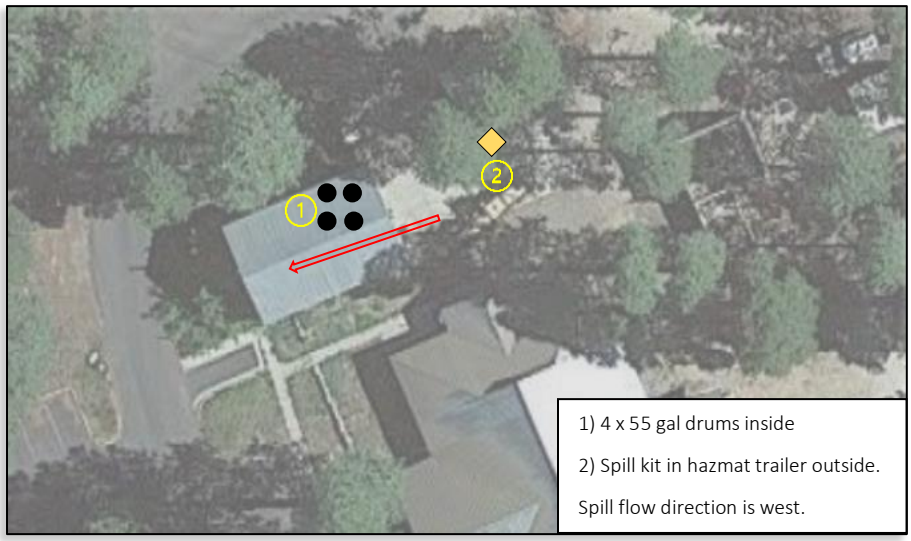


Figure 11: NR Maintenance Yard

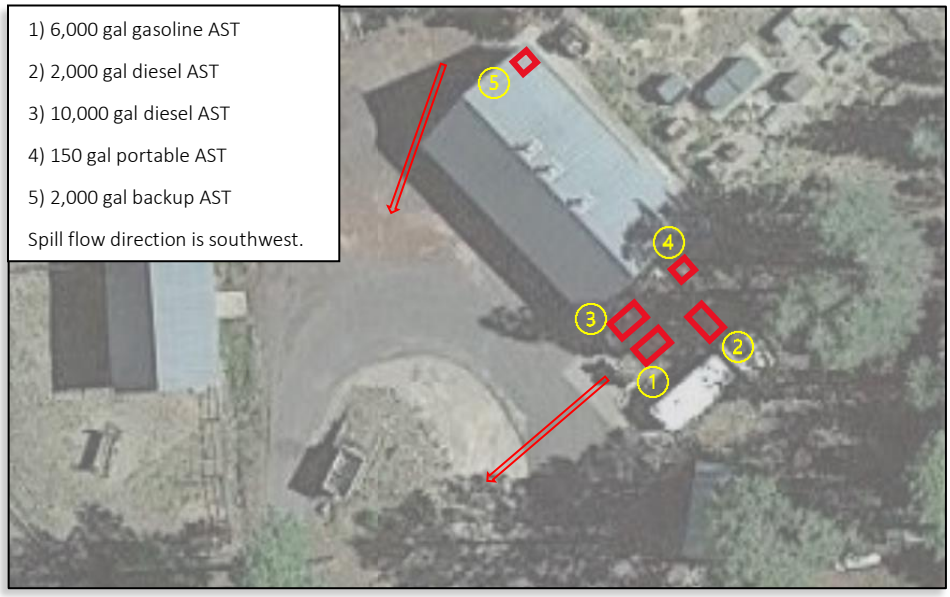


Figure 12: NR Tuweep Ranger Station

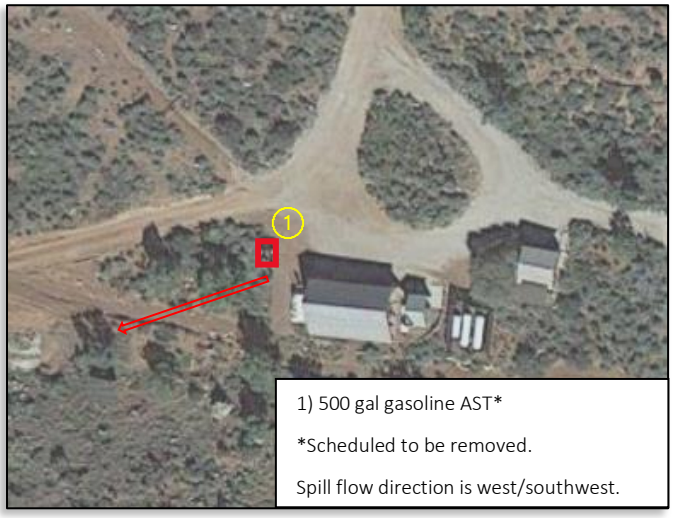
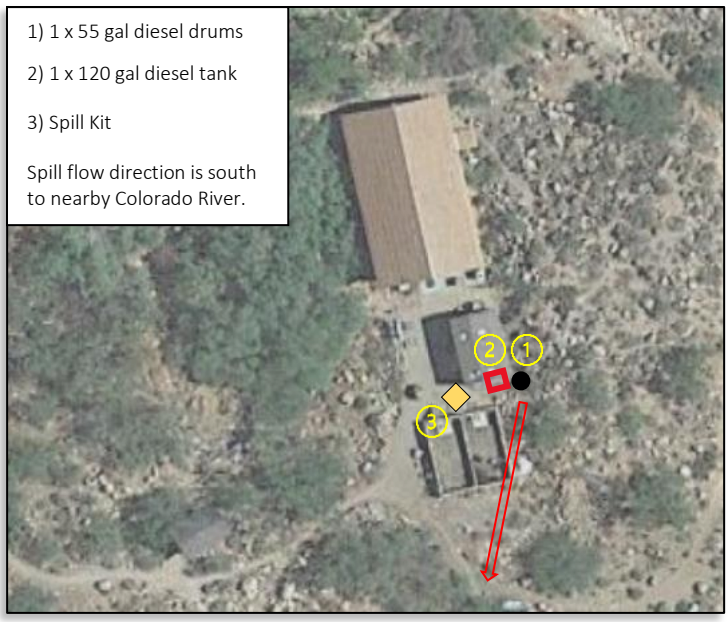


Figure 13: Desert View

Figure 14: Phantom Ranch



APPENDIX E: STATE REGULATIONS, NATIONAL FIRE CODES AND SUPPLEMENTAL INFORMATION

Arizona has not established any state-specific spill prevention plan requirements in addition to the Federal Spill Prevention, Control, and Countermeasure (SPCC) plan regulations.

EPA's Region 9 is responsible for the administration and enforcement of the Federal SPCC plan requirements in Arizona. The ADEQ is responsible for issuing and enforcing requirements for general permits for aquifer protection in the state.

Spill Release Thresholds

ALL spills of petroleum, oil, lubricants, fuel, or other automotive fluids MUST be cleaned up (no matter how small). A spill of ANY quantity that impacts a waterway (such as ephemeral washes, surface water, wetlands, storm sewers, drainage ditches) within Arizona must be reported. Complete the form included in Appendix B and contact the facility Environmental Office at (928) 638-7329 . The Environmental Office will report the spill to ADEQ as necessary. ADEQ's Emergency Response Unit is on call 24-hours a day, 7 days a week, to ensure that all environmental emergencies are promptly addressed. The Unit works to minimize injuries, deaths, property damage, and threats to the environment from chemical spills, fires, explosions, and other pollutant releases. The Environmental Office will contact the Emergency Response Unit for information regarding state reporting requirements, when to call, and who to call during normal business hours (8:00 AM – 5:00 PM) at 602-771-2330 or 800-234-5677 (non-emergency spills) or 602-390-7894 (environmental emergencies).

Federal requirements for reporting discharges of oil are those that 1) violate applicable water quality standards; 2) cause a film or "sheen" upon, or discoloration of the surface of the water or adjoining shorelines; or 3) cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. These requirements do not rely on quantities of the material. The CFMO Environmental Office will report discharges to the National Response Center (NRC) at 800-424-8802, as needed. The NRC is the Federal government's centralized reporting center, which is staffed 24 hours per day by U.S. Coast Guard personnel. If reporting directly to NRC is not practicable, reports also can be made to the USEPA regional office.

Other Related Guidance

Refer also to this SPCC Plan for information regarding spill prevention and response to spills.

Reportable quantities for chemicals that could potentially be contained in oil, lubricants, fuel, or other fluids containing petroleum hydrocarbons that are applicable under this SPCC plan is listed in 40 CFR §302.4; Arizona also uses these Federal reportable quantities, which can be found on the U.S. Government Publishing website at: http://www.ecfr.gov/cgi-bin/text-idx?SID=5eb9206a60662143cb26a1b0a7263e74&mc=true&node=se40.28.302_14&rgn=div.

To obtain spill contact information for Emergency Response Organizations at military training sites located outside of Arizona, contact the CFMO Environmental Office at least 30 days prior to departure for out-of-state-training activities.

National Fire Codes

The National Park Service (NPS) (under Director's Order 50 and 58) has adopted National Fire Protection Association (NFPA) codes. Specific codes applicable to the park are found mostly in NFPA 30, Flammable and Combustible Liquids Code, and NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages. Key NFPA requirements pertaining to the park include:

- Reconciling inventory and fuel use for aboveground storage tanks (ASTs)
- Providing corrosion protection for piping touching the ground
- Protecting ASTs from tampering or trespassing
- Ensuring that a method is used to determine the liquid level in ASTs prior to filling the AST with fuel
- Providing an overfill alarm and automatic shut-off device on the AST to prevent spills during the fueling process
- Installing emergency breakaway devices for hoses dispensing Class I liquids (i.e., gasoline) except for marinas
- Placing an emergency shut-off switch so that it is clearly identifiable and accessible